8 SSHCP MONITORING AND MANAGEMENT PROGRAMS

8.1 Introduction

This chapter describes the framework of the South Sacramento Habitat Conservation Plan (SSHCP) Compliance and Avoidance and Minimization Measure (AMM) Monitoring Program (Section 8.2) and the framework of the SSHCP Preserve System Monitoring and Management Program (Section 8.3). The purposes of these programs are to ensure compliance with all requirements of the SSHCP, the Implementing Agreement (IA), and the Permits; to assess the status of the Covered Species, natural communities, and ecosystem processes within the SSHCP Preserve System; and to evaluate the effects of preserve management actions such that the SSHCP Conservation Strategy, including each of the SSHCP Biological Goals and Measurable Objectives (Table 7-1), is achieved. The SSHCP Preserve System Monitoring and Management Program will integrate monitoring and adaptive management into one cohesive program where monitoring will inform and change management actions to continually improve outcomes for Covered Species and natural land cover types.

As the framework for the SSHCP Compliance and AMM Monitoring Program and the SSHCP Preserve System Monitoring and Management Program, this chapter outlines the monitoring and management protocols and standards that the Implementing Entity will use to prepare Individual Preserve Management Plans (PMPs) and SSHCP Annual Reports. The technical details of the SSHCP Compliance and AMM Monitoring Program and the SSHCP Preserve System Monitoring and Management Program will be finalized by the Implementing Entity in the first 18 months after permit issuance, and two separate documents will be prepared for each of these programs based on the frameworks presented in Sections 8.2 and 8.3. Development of the SSHCP Compliance and AMM Monitoring Program and the SSHCP Preserve System Monitoring and Management Program during that 18-month period will involve coordination by the SSHCP Implementing Entity, Plan Permittees, the Permitting Agencies, and the future SSHCP Technical Advisory Committee (TAC) (see Section 9.3.4). This will be done in an open, public process with full engagement of the TAC, made up of Plan Permittees, agency representatives, and stakeholders, including the environmental, landowner, and development community. Further, the programs and procedures will undergo public disclosure and adoption by the Implementation Committee. All meetings of the Implementation Committee will be called, noticed, held, and conducted in compliance with the provisions of the Ralph M. Brown Act (California Government Code, Section 54950 et seq.).

8.1.1 Regulatory Context

By regulation, all incidental take permits (ITPs) require monitoring of mitigation measures and the response of Covered Species to these measures (50 CFR 17.22(b)(1)(iii)). The “Five-Point

Policy" established additional policy guidance for HCP monitoring (USFWS and NOAA 2000). The Five-Point Policy distinguishes between compliance and effectiveness monitoring.

Compliance monitoring (also known as implementation monitoring) tracks and verifies whether the Permittees are carrying out the terms of the SSHCP document, the ITPs, and the IA—including financial responsibilities and obligations, management responsibilities, and other aspects of the ITP, the HCP, and the IA; tracks the level of incidental take of Covered Species and confirms that the species effects of the permitted Covered Activities are consistent with the assumptions and predictions used when the HCP was developed and approved (see Section 8.2.1).

Effectiveness monitoring evaluates whether the effectiveness of the operating conservation program of the HCP is consistent with the assumptions and predictions made when the HCP was developed and approved; in other words, is the HCP achieving the Biological Goals and Measureable Objectives? Effectiveness monitoring measures the biological conditions resulting from the operating conservation program (e.g., change in species status, or change in habitat condition) (see Section 8.2.2).

The Five-Point Policy goes on to say:

- The scope of an HCP monitoring program should be commensurate with the scope and duration of the operating Conservation Strategy and the scope and duration of the Covered Activity effects.
- The HCP's Biological Goals and Measurable Objectives provide a framework for developing a monitoring program, and the monitoring program should measure progress toward meeting those goals and objectives. The monitoring program should reflect the Biological Goals and Measureable Objectives.
- The appropriate unit of measure in a monitoring program depends on the specific effects, the operating conservation program, and the units used in the biological objectives' measurable units (e.g., if the biological objective is for numbers of individuals, the monitoring program should measure the number of individuals).
- Any methodology and techniques involved in biological aspects of monitoring should be based on sound science. Standard survey or other previously-established monitoring protocols should be used.
- The monitoring program should provide the information needed to implement an adaptive management program.
- The monitoring program should be flexible so that it can be modified, if necessary, based on the need for additional information.

Adaptive Management

The Five-Point Policy defines adaptive management as "an integrated method for addressing uncertainty in natural resource management." While adaptive management is not always required in an HCP, the Five-Point Policy indicates that adaptive management is necessary for HCPs that would otherwise pose a significant risk to species at the time the ITP is issued, due to data or information gaps regarding factors such as the ecology of the species or its habitat, the effectiveness of the management methods, or the effects of the Covered Activities on the Covered Species. These criteria generally apply to the SSHCP. Identifying the uncertainty to be addressed is the foundation of an HCP adaptive management strategy. Whenever an adaptive management strategy is used, the approved HCP must outline the agreed-upon future changes to the operating conservation program.

The Five-Point Policy identified four main elements of an HCP adaptive management strategy as follows:

1. Identify the uncertainty and the questions that need to be addressed to resolve the uncertainty;
2. Develop alternative strategies and determine which experimental strategies to implement;
3. Integrate a monitoring program that is able to detect the necessary information for strategy evaluation; and
4. Incorporate feedback loops that link implementation and monitoring to a decision-making process (which may be similar to a dispute-resolution process) that result in appropriate changes in management.

Annual Reporting

Regulations at 50 CFR 13.45 provide the authority for the USFWS to require periodic reports of the activities conducted under the permit. The Five-Point Policy specified specific information needed in HCP annual monitoring reports.

The SSHCP Annual Reports will help the USFWS determine whether the Permittees are properly implementing the terms and conditions of the SSHCP, its ITP, and the IA, and will provide a long-term administrative record documenting progress made toward achieving each SSHCP Biological Goals and Measurable Objectives.

The SSHCP Compliance and AMM Monitoring Program, SSHCP Preserve System Monitoring and Management Program, and SSHCP Annual Reports will comply with the requirements of the Five-Point Policy.

8.2 SSHCP Compliance and AMM Monitoring Program

The SSHCP Compliance and AMM Monitoring Program tracks three requirements of the Five-Point Policy: (1) Are Measurable Objectives (Table 7-1) being implemented as required in the HCP, Permits, and IA; (2) are AMMs described in Section 5.4 being implemented as required in the HCP, Permits, and IA; and (3) are AMMs fully effective in reducing the effects of environmental stressors as was assumed in Chapter 6 of the HCP. The other Five-Point Policy requirement to track the effectiveness of the operating Conservation Strategy is monitored through the SSHCP Preserve System Monitoring and Management Program (Section 8.3). This section presents a framework for the SSHCP Compliance and AMM Monitoring Program.

8.2.1 SSHCP Compliance Monitoring

As discussed in Section 8.1, compliance monitoring tracks the status of the SSHCP implementation and documents that all requirements are being met. Compliance monitoring verifies that the Plan Permittees are carrying out the terms of the SSHCP, the ITPs, and the SSHCP IA.

Table 8-1 lists each SSHCP Measurable Objective or Conservation Strategy commitment, identifies what we need to know to determine compliance, specifies a monitoring approach to address each monitoring question, identifies the timing and frequency of the specified monitoring, and identifies what additional information will need to be provided in the full SSHCP Compliance and AMM Monitoring Program.

SSHCP compliance monitoring will include the components listed below:

- Track the type, number, and location of each Covered Activity implemented (see Chapter 5) that year, along with the acres of ground disturbance for each Covered Activity implemented that year.
- Track acres of permanent and temporary impacts to each SSHCP land cover type that year, track the total SSHCP permanent and temporary impacts to each land cover type (total since permit issuance), and compare to SSHCP impact analysis (Chapter 6).
- Track the number and locations of each SSHCP AMM (see Section 5.4) applied at each Covered Activity implemented that year, track total number of each AMM implemented (total since permit issuance), and report on the effectiveness of each AMM in avoiding effects to Covered Species (as compared to assumptions made during SSHCP development) (see Section 8.2.3).
- Track locations and quantify acres of direct impacts to each Covered Species modeled habitat and Critical Habitat (Table 3-2) that year, and track the total SSHCP direct

impacts to each Covered Species modeled habitat and Critical Habitat (total since permit issuance).

- Track the locations and quantify acres of indirect impacts to Vernal Pool, Swale, and Stream/Creek (VPIH) land cover types, and track the total SSHCP indirect impacts to Vernal Pool, Swale, and Stream/Creek (VPIH) land cover types (total since permit issuance).
- Track the number and acres of direct and indirect impacts to occurrences of plant Covered Species that year, and track the total SSHCP impacts to occurrences of plant Covered Species (total since permit issuance).
- Track the location and the acres of each SSHCP land cover type permanently preserved that year (by fee-title and by conservation easement), and track the total SSHCP preservation of that land cover type (total since permit issuance).
- Track location and acres of each Covered Species modeled habitat (Table 3-2) on the lands preserved that year (including breakdowns for Critical Habitat preserved and modeled habitat preserved in a Recovery Area or within 1 mile of Recovery Areas), and track the total SSHCP preservation of each Covered Species modeled habitat (total since permit issuance).
- Track location and acres of each SSHCP land cover type or Covered Species habitat that is re-established or established[1] that year, including breakdowns for within 1 mile of Recovery Areas, and track the total SSHCP acres of each re-established or established (total since permit issuance).
- Track the location and acres of direct and indirect impacts within each Critical Habitat Unit located in the Plan Area, and track the total since permit issuance of direct and indirect impacts to each Critical Habitat Unit located in the Plan Area.
- Track, describe, and provide copies of recorded conservation easements, titles of lands acquired in fee title, interagency memorandums of agreement, or any other agreements entered into by the Implementing Entity or other Plan Permittee for the purposes of protecting, establishing or re-establishing Covered Species habitat.
- Track acres of each habitat land cover type that is potentially available for preservation.[2]

The Implementing Entity will be responsible for collecting and compiling required compliance monitoring information for inclusion in the SSHCP Annual Report (see Section 8.4.1).

[1] Note that in the context of this Plan, the word "establish" is synonymous with "create."

[2] Land cover types that are potentially available for preservation are those lands that are not encumbered by some form of protection like a conservation easement, have not been used for mitigation, and are not planned for development.

The compliance monitoring approaches proposed in Table 8-1 are subject to change based on outcomes of adaptive management, as directed in the Five-Point Policy: "An effective monitoring program is flexible enough to allow modifications, if necessary, to obtain the appropriate information."

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
SSHCP Commitments in the Conservation Strategy (other than Measurable Objectives)				
The maximum acres of take of each SSHCP land cover type (Table 6-4).	How many acres of land cover types have been impacted by Covered Activities?	Map impacted areas and quantify acres of disturbance. Ensure that impacts do not exceed authorized take. Input impacts into tools such as the Project Tracking System in EcoAtlas.	Project-by-project tracking Annual reporting	Implementing Entity to specify in first 18 months external tracking system to input data into (e.g., EcoAtlas).
The maximum acres of take of modeled Covered Species habitat (Table 6-4).	How many acres of modeled Covered Species habitat have been impacted by Covered Activities?	Review project-level impact reports. Map impacted areas, intersect with maps of species habitat models, and quantify acres of disturbance. Track land cover conversion outside the Urban Development Area (UDA) separately. Ensure that impacts do not exceed authorized take.	Project-by-project tracking Annual reporting	Implementing Entity to develop an Annual Report format in first 12 months.
The maximum take of Covered Species (Table 6-4).	How many individuals, occurrences, colonies, or nests of Covered Species have been taken by Covered Activities?	Prepare annual reports that compile project-level impact reports and field-verify reports are consistent with conditions. Ensure that impacts do not exceed authorized take.	Annual reports	Implementing Entity to develop an Annual Report format in first 12 months.
Assembly of Preserve System in the UDA as described in Section 7.5.	How many acres of Core, Minor, Satellite, and Wildlife Corridor Preserves have been established by the SSHCP? Are the preserved acreages consistent with the locations	Track acquired Preserve lands and verify that the Preserve System is being designed according to Section 7.5.	As individual Preserves are acquired for the Preserve System Annual reporting	Implementing Entity to Identify in first 18 months triggers for when SSHCP preserve assembly is not following Section 7.5 (e.g., how to distinguish between normal variability in

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	described in Section 7.5 of the SSHCP?			acquisition and a potential shortfall).
Goal 1. Preserve and link intact landscapes that include the highest-quality habitat for Covered Species within the Plan Area.				
Objective L1. Establish a minimum Preserve System of 33,796 acres of natural land covers that preserves habitat for Covered Species and other native biota as a component of the Preserve System. Of the 33,796 acres, 7,560 acres will be within the UDA and 26,236 acres will be outside the UDA. Preserves will be assembled in accordance with Conservation Actions in Table 7-1.	Are the habitat acquisition requirements being met?	Map the preserves, mitigation areas, and natural land cover types. Map conversion of land cover inventory within the Plan Area.	Land cover mapping at time of preserve acquisition Maps and tables included with Annual Reports	Implementing Entity to develop format for maps and tables to be included in Annual Report in first 12 months.
Objective L2. Establish a minimum of 11 Linkage Preserves that provide interconnections between the Landscape, Core, Minor, and Satellite Preserves and existing Preserves. Linkage Preserves will have a minimum width of 600 feet and will be located as described in Section 7.5. (Minor variations on minimum width may be allowed by the Plan where there are physical constraints in the environment, in accordance with the process outlined in Chapter 10)	Are all the preserve linkages being established between larger preserves?	Map the preserves. Compare geographic information system (GIS) mapping against the Conceptual Preserve System design.	Maps and tables included with Annual Reports	Implementing Entity to develop format for maps and tables to be included in Annual Report in first 12 months.
	Do linkages include appropriate widths of natural or naturalized habitat between parcels?	Review current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Compare GIS mapping against minimum width of 600 feet.	Maps and tables included with Annual Reports	Implementing Entity to develop format for maps and tables to be included in Annual Report in first 12 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Goal 2. Maintain or improve physical, chemical, and biological functions of aquatic resources within the Plan Area.				
Objective W1. Ensure that during implementation of Objective L2 (establishing minimum of 11 Linkage Preserves), the Linkage Preserves that include creeks or streams will include the creek plus a minimum 300-foot setback on each side of the creek.	Are linkage creeks and streams being adequately set back?	Map the preserves, (with particular attention to set back widths from streams and creeks). Compare GIS mapping against minimum setback width.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective W2. Covered Activities shall implement the following, as outlined in Section 5.4.2: • Incorporate the SSHCP design avoidance and minimization measures (low-impact development (LID) and ROAD AMMs)	Are avoidance and minimization measures for design being incorporated in design?	Project design review and comparison with checklist of avoidance and minimization measures.	Checklist review whenever project design is submitted to a Land Use Authority Permittee (see Section 9.2.1).	Implementing Entity to develop in first 6 months a checklist for AMM compliance.
Ground disturbance avoidance and minimization measures (Best Management Practices (BMPs) and ROAD AMMs)	Are ground disturbance avoidance and minimization measures being implemented during construction?	Field verification by permit compliance staff of relevant jurisdiction.	Construction monitoring frequency consistent with Land Use Authority Permittee conditions of project approval	Implementing Entity to specify in first 6 months procedures for permit compliance staff to verify correct implementation of BMPs and ROAD AMMs.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective W3. Covered Activities shall implement Stream Setback requirements in the UDA for creeks and streams as described in AMM STREAM-1, STREAM-2, and STREAM-3. Covered Activities shall implement preserve setback requirements in the UDA as described in AMM EDGE-3.	Does design include appropriate setbacks?	Review project design and compare with Project Review checklist (see Section 10.5) to confirm that project meets setback requirements.	Review project design against checklist when a project is submitted to a Land Use Authority Permittee (see Section 9.2.1).	Implementing Entity to develop in first 6 months a checklist to be provided to Land Use Authority Permittees when evaluating project designs.
	Are required setbacks being established?	Compare aerial photography after project completion against minimum setback widths (Section 8.4.1).	Annual aerial photography review of land cover type conversion	Implementing Entity to develop in first 18 months GIS methodology for comparing aerials taken after project completion against Stream Setback requirements.
Objective W4. Ensure that aquatic resources are preserved during assembly of the SSHCP Preserve System and are managed in perpetuity (see Objectives VPG1, VPG2, VP1, VP3, SW1, FWM1, ES1, SC1, OW1, RIP1, and RIP3).	Are preserved acreage goals/requirements being met? Are aquatic resources abundance, diversity, and condition being maintained or improved within the Preserve System as the SSHCP is implemented?	Map preserves, mitigation areas, and natural land cover types. Mapping of conversion of land cover inventory within the Plan Area. Monitor and track overall aquatic resource abundance and diversity in perpetuity. Implement random or probabilistic sampling design at recommended intervals to track trends in condition; likely incorporating California Rapid Assessment Method (CRAM).	Mapping at time of acquisition Maps and tables of compensatory mitigation included with Annual Report. Sampling at intervals to be determined by Preserve System Monitoring and Management Program.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports. Implementing Entity to prepare a Preserve System Monitoring and Management Program in first 18 months that identifies intervals for random sampling of aquatic resources to determine condition, and specify methodology for sampling.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective W5. Ensure that aquatic resources are re-established or established within the Preserve System, in accordance with Conservation Actions in Table 7-1 (see Objectives VP2, SW2, FWM2, OW2, RIP2, and RIP4).	Are re-established and/or established aquatic resources acreage requirements being met? Are aquatic resources abundance and diversity (defined for the SSHCP as amount and type of aquatic land cover types) being maintained or improved within the Plan Area as the SSHCP is implemented?	Map the extent and distribution of re-established and/ or established aquatic resources. SSHCP Annual Reports prepared by Implementing Entity, specifying locations and amounts of compensatory mitigation implemented. Monitor and track the overall aquatic resource abundance and diversity (defined for the SSHCP as amount and type of aquatic land cover types). Implement random or probabilistic sampling design at recommended intervals to track trends in condition of re-established and established pools; likely incorporating CRAM.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Goal 3. Preserve, re-establish, or establish, natural land covers (including Cropland and Irrigated Pasture-Grassland) that provide habitat for Covered Species.				
Objective VG1. Preserve a minimum of 22,014 acres of Valley Grassland land cover within the Vernal Pool Ecosystem. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of Valley Grassland within the Vernal Pool Ecosystem have we preserved?	Map Vernal Pool Ecosystem in preserves, mitigation areas, and natural land cover types. Map conversion of land cover inventory within the Plan Area. Break down acreage within and outside the UDA and evaluate consistency with Conservation Actions and	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
		descriptions of preserves by Preserve Planning Unit (PPU).		
Objective VP1. Preserve a minimum of 967 acres of vernal pool in the Plan Area. Impacts to vernal pool within or adjacent to (within 1 mile of) the Mather Core Recovery Area and Cosumnes/Rancho Seco Recovery Area will be mitigated within or adjacent to (within 1 mile of) the Mather Core Recovery Area and Cosumnes/Rancho Seco Recovery Area.	How many acres of vernal pool have we preserved? Are the habitat acquisition and mitigation goals being met specific to protecting and restoring vernal pool resources in the Mather Core Recovery Area and the Cosumnes Rancho Seco Core Recovery Area?	Map Vernal Pool Ecosystem in preserves, mitigation areas, and natural land cover types. Map conversion of land cover inventory within the Plan Area. Break out mapping of Vernal Pool Ecosystem into Vernal Pool wetted surface acres, Valley Grassland, Swale, and Stream/Creek (VPIH).	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective VP2. Re-establish and/or establish a minimum of 389 acres of functional vernal pool, including at least 50 acres within or adjacent to (within 1 mile of) the Mather Core Recovery Area. Impacts to vernal pool within or adjacent to (within 1 mile of) the Mather Core Recovery Area and the Cosumnes/Rancho Seco Recovery Area will be mitigated within or adjacent to (within 1 mile of) the Mather Core Recovery Area and the Cosumnes/Rancho Seco Recovery Area.	How many acres of vernal pools have we re-established and/ or established in the Mather Core Recovery Area and the Cosumnes Rancho Seco Core Recovery Area?	Map re-established and established vernal pools in and within 1 mile of the Core Recovery Areas. Check re-established and/or established for consistency with success criteria, Conservation Actions in Table 7-1, and the conceptual preserve system design in Section 7.5.	Maps and tables included with Annual Reports	Implementing Entity to develop success criteria for re-established/established vernal pools in cooperation with the TAC in the first 18 months. Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective VP3. Preserve a minimum of 278 acres of Swale. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of Swale have we preserved?	Quantify acres and map the extent and distribution of preserved Swale; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve system design in Section 7.5.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective VP4. Preserve a minimum of 25 acres of Swale or Stream/Creek (Vernal Pool Invertebrate Habitat (VPIH)) land cover type for impacts to the Stream/Creek (VPIH) land cover The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of Swale or Stream/Creek (VPIH) have we preserved?	Quantify acres and map the extent and distribution of preserved Swale or Stream/Creek (VPIH); cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve system design in Section 7.5.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective VP5. Re-establish and/or establish a minimum of 256 acres of Swale for impacts to the Swale or the Stream/Creek (VPIH) land covers. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	How many acres of Swale have we re-established and/or established?	Quantify acres and map the extent of re-established and established swale in the Preserve System. Review of aerial photography and GIS mapping after construction. Check re-established and/or established for consistency with success criteria, Conservation Actions in Table 7-1, and the conceptual preserve system design in Section 7.5.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective SW1. Preserve a minimum of 105 acres of seasonal wetlands. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of seasonal wetland have we preserved?	Quantify acres and map the extent of preserved seasonal wetland. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of preserved seasonal wetland and does it correspond with the Conservation Actions in Table 7-1	Map distribution of preserved seasonal wetland; cross check for consistency with Conservation Actions in Table 7-1 and the	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	and the conceptual preserve design in Section 7.5?	conceptual preserve system design in Section 7.5.		Reports.
Objective SW2. Re-establish and/or establish a minimum of 105 acres of seasonal wetlands. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	How many acres of seasonal wetland have we re-established and/or established?	Quantify acres and map the extent of re-established and established freshwater marsh in the Preserve System. Review of aerial photography and GIS mapping after construction.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective FWM1. Preserve a minimum of 127 acres of freshwater marsh. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of freshwater marsh have we preserved?	Quantify acres and map the extent of preserved freshwater marsh. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of preserved freshwater marsh and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Map the distribution of preserved freshwater marsh; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective FWM2. Re-establish and/or establish a minimum of 127 acres of functional freshwater marsh. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	How many acres of freshwater marsh have we re-established and/ or established?	Quantify acres and map the extent of re-established and established freshwater marsh in the Preserve System. Review of aerial photography and GIS mapping after construction.	Mapping at time of establishment/re-establishment, Annual review of aerial photography. Include maps and tables with Annual Reports.	None.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	What is the distribution of re-established and/ or established freshwater marsh and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Map the distribution of re-established and established freshwater marsh; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports. Report	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective SC1. Preserve a minimum of 117 acres of the Stream/Creek (VPIH) land cover. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of streams/creeks have we preserved?	Quantify acres and map the extent of preserved streams/creeks. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Maps and tables included with Annual Reports.	None.
	What is the distribution of preserved Stream/Creek (VPIH) and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Map the distribution of preserved Stream/Creek (VPIH); cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective SC2. Re-establish and/or establish a minimum of 117 acres of the Stream/Creek (VPIH) land cover. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	How many acres of Stream/Creek (VPIH) have we re-established and/ or established?	Quantify acres and map the extent of re-established and established Stream/Creek (VPIH). Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Mapping at time of establishment/re-establishment, include maps and tables with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of re-established and/ or established	Map the distribution of created and restored freshwater marsh; cross	Maps and tables included with	Implementing Entity to develop in first 12 months

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	freshwater marsh and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Annual Reports.	format for maps and tables to be included in Annual Reports.
Objective OW1. Preserve a minimum of 311 acres of open water (or a land cover that provides equivalent or better habitat for Covered Species affected by the loss of open water, as determined by the TAC). The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of open water or other habitat of equivalent or better ecological function have we preserved? What is the distribution of preserved open water and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Quantify acres and map the extent of preserved open water in the Preserve System. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types. Cross check preserved Open Water for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective OW2. Re-establish and/or establish a minimum of 155 acres of open water (or a land cover that provides equivalent or better habitat value for Covered Species affected by the loss of open water, as determined by the TAC). Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	How many acres of open water or other habitat of equivalent or better ecological function have we re-established and/or established?	Quantify acres and map the extent of established and re-established open water in the Preserve System. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Mapping at time of establishment/re-establishment, include maps and tables with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of re-established and/or established open water and does it correspond with the Conservation	Map the distribution of established and re-established open water; cross check for consistency with Conservation Actions in Table 7-1	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	and the conceptual preserve design in Section 7.5.		Reports.
Objective RIP1. Preserve a minimum of 373 acres of mixed riparian woodland and/or mixed riparian scrub. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of mixed riparian woodland/mixed riparian scrub have we preserved?	Quantify acres and map the extent of preserved mixed riparian woodland/mixed riparian scrub. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of preserved riparian woodland/mixed riparian scrub and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Map the distribution of preserved mixed riparian woodland/mixed riparian scrub; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective RIP2. Re-establish and/or establish a minimum of 373 acres of mixed riparian woodland and/or mixed riparian scrub. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	How many acres of mixed riparian woodland/mixed riparian scrub have we re-established and/ or established?	Quantify acres and map the extent of re-established and/ or established mixed riparian woodland/mixed riparian scrub in the Preserve System. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Mapping at time of establishment/re-establishment, include maps and tables with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of re-established and/ or established	Map the distribution of re-established and/ or established	Maps and tables included with	Implementing Entity to develop in first 12 months

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	mixed riparian woodland/mixed riparian scrub and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	mixed riparian woodland/mixed riparian scrub; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Annual Reports.	format for maps and tables to be included in Annual Reports.
Objective RIP3. Preserve a minimum of 218 acres of mixed riparian woodland and/or mixed riparian scrub for impacts to mine tailings riparian woodland. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of mixed riparian woodland/mixed riparian scrub have we preserved as mitigation for impacts to mine tailings riparian woodland?	Quantify acres and, map the extent and distribution of preserved mixed riparian woodland/mixed riparian scrub. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of preserved riparian woodland/mixed riparian scrub and does it correspond with the Conservation Actions in Table 7-1?	Map the distribution of created and restored mixed riparian woodland/mixed riparian scrub; cross check for consistency with Conservation Actions in Table 7-1.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective RIP4. Re-establish and/or establish a minimum of 218 acres of mixed riparian woodland and/or mixed riparian scrub for impacts to mine tailings riparian woodland. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	How many acres of mixed riparian woodland/mixed riparian scrub have we re-established and/ or established as mitigation for impacts to mine tailing riparian woodland?	Quantify acres and map the extent of established and re-established mixed riparian woodland/mixed riparian scrub in the Preserve System. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Mapping at time of establishment/re-establishment, include maps and tables with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	What is the distribution of re-established and/ or established mixed riparian woodland/mixed riparian scrub and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Map the distribution of established and re-established mixed riparian woodland/mixed riparian scrub; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective BOW1. Preserve a minimum of 48 acres of blue oak woodland/savanna for direct impacts to blue oak woodland/savanna. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of blue oak woodland/savanna have we preserved?	Quantify acres and map the extent of preserved blue oak woodland/savanna. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of preserved blue oak woodland/savanna and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Map the distribution of preserved blue oak woodland/savanna; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Map included with Annual Report	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective BOW2. Re-establish and/or establish a minimum of 48 acres of blue oak woodland/savanna for direct impacts to blue oak woodland/savanna. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1	How many acres of blue oak woodland/savanna have we re-established and/ or established?	Quantify acres and map the extent of established and re-established blue oak woodland/savanna in the preserve system Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Mapping at time of establishment/re-establishment, include maps and tables with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	What is the distribution of re-established and/ or established blue oak woodland/savanna and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5?	Map the distribution of established and re-established blue oak woodland/savanna; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective AG1. Preserve a minimum of 9,696 acres of Cropland and Irrigated Pasture-Grassland, including 1,000 acres outside the 100-year floodplain in accordance with Objective GS6. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	How many acres of Cropland and Irrigated Pasture-Grassland have we preserved?	Quantify acres and map the extent of preserved Cropland and Irrigated Pasture-Grassland. Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	What is the distribution of preserved Cropland and Irrigated Pasture-Grassland and does it correspond with the Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Map the distribution of preserved Cropland and Irrigated Pasture-Grassland; cross check for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Goal 4. Maintain or improve habitat value of natural land covers (including Cropland, and Irrigated Pasture-Grassland) that are preserved within the Plan Area.				
Objective HAB1. Develop Preserve Management Plans (PMPs) for the benefit of Covered Species.	Are PMPs being prepared for each acquisition, according to timing and standards described in the HCP?	Agency and TAC review of PMPs prior to approval.	As plans are prepared	Implementing Entity to develop checklist for PMP requirements in first 18 months.
Objective HAB2. Assess whether SSHCP Preserves are being managed and	Are the physical conditions on the preserves meeting the needs of	Rapid monitoring (CRAM or similar) for subset of preserves, visited on	Quarterly	Implementing Entity to specify in first 18 months the

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
maintained for the benefit of Covered Species.	Covered Species?	regular basis, compared against reference sites		methodology by which management will be assessed for each Covered Species.
Objective HAB3. Record management history for Preserve parcels as they are obtained. Consider management history when developing initial preserve management approach.	Is existing management/ management history being recorded for each parcel or parcel group as they are obtained?	Implementing Entity confirmation that history is being recorded.	As parcels are acquired.	None.
	Are the management histories incorporated into the Initial and Individual PMPs? Does the management directed in the PMP account for past management actions?	Permitting Agency review of PMPs prior to approval.	As plans are prepared.	None.
Objective HAB4. Develop and implement an early detection and eradication program for invasive species within the Plan Area. The program will include regular weed assessment and mapping within the UDA, and a comprehensive weed detection and abatement plan for the Plan Area, including training of road crews to identify and report weeds.	Where are non-native weeds occurring, and what species? Has an early detection and eradication program been prepared and implemented?	Regular weed assessment and mapping within the UDA. Wildlife Agency review of Invasive Species Monitoring and Eradication Program.	Quarterly weed assessment on preserves, with other opportunistic assessment.	Implementing Entity to develop Invasive Species Monitoring and Eradication Program in first 18 months.
	Are we eradicating them in a timely fashion?	Annual review of weed assessments and eradication efforts by Implementing Entity. Summary of weed eradication efforts included in Annual Reports.	Annual	Implementing Entity to include in Invasive Species Monitoring and Eradication Program eradication or reduction targets; and a hierarchy of response methods to eradicate or reduce non-native plant populations.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	Are we updating the Program to account for changed conditions?	TAC Review of the Program every 5 years.	Program review every 5 years.	None.
Objective HAB5. Monitor preserves for edge effects (e.g., weeds, noise, hydrology, litter, etc.)	Are preserves being monitored for edge effects?	Prepare summary of monitoring, include in Annual Reports.	Include in Annual Reports.	None.
Objective HAB6. Collect weather data throughout the County to assist in developing status and trends, track climate change, etc.	What are the regional and local trends for temperature, rainfall and other weather parameters? How do they vary within the Plan Area?	Install weather stations within selected preserves, collect and periodically analyze data and use in multivariate analyses of species occurrence and abundance.	Ongoing, annual data analysis or as needed for other studies.	Implementing Entity to specify in the first 18 months methodology for weather data analysis and how to use it for monitoring and adaptive management.
Objective HAB7. Monitor vegetation biomass within grassland land covers.	What is the height of vegetation within Vernal Pool Grasslands, Valley Grasslands, Blue Oak Savanna, and other relevant land cover types?	Conduct monitoring using RDM or another rapid assessment technique.	After the growing season, annual.	Implementing Entity to identity in first 12 months acceptable rapid assessment techniques for vegetation biomass.
Objective VP4. Investigate indirect effects of development on vernal pool crustaceans over the short term and the long term.	Have vernal pool crustaceans been studied for indirect effects from development?	Review annual reports and study reports.	As determined by study designs.	None.
Objective AG2. Of the 9,696 acres preserved under Objective AG1, maintain at least 2,000 of those acres of high-quality foraging crops (such as, but not limited to, corn, alfalfa, or wheat) preferred by tricolored blackbird (*Agelaius tricolor*), greater sandhill crane (*Grus canadensis*), and the covered raptor species. The 2,000 acres will be distributed in strategic locations throughout PPUs 4, 5, or 6	What is the current inventory of Cropland that can be acquired?	Analyze extant inventory to ensure availability of suitable acreage for future mitigation and to determine actions for current Cropland preserve management.	Map extant inventory immediately, update annually.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	How many acres of Cropland have we preserved?	Quantify acres and map the extent and distribution of preserved Cropland. Annual (or some agreed upon time interval) review of current	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
in plots of 20 acres or more. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.		aerial imagery and SSHCP GIS database of land cover types. Cross check preserved cropland for consistency with Conservation Actions in Table 7-1 and the conceptual preserve design in Section 7.5.		Reports.
Objective AG3. Maintain or increase prey availability and improve foraging habitat by strategically planting 10,000 linear feet of shrub or other substrate that provides cover and refugia for fossorial mammals and other prey species.	How much hedgerow is being planted?	Quantify linear feet and map the extent of planted hedgerows in SSHCP preserves.	Maps and tables included with Annual Reports.	Implementing Entity to develop a list in first 12 months of acceptable plant species for planted hedgerows.
	Are plants still alive?	Field verification of plant condition.	Annual	Implementing Entity to develop in first 18 months methodology for evaluating plant condition and fossorial mammal habitat suitability.
Objective RIP5. Monitor groundwater table as it relates to status and trends for riparian habitat.	What is the groundwater table depth and how is it changing?	Annually measure depth to water table on Preserve parcels with existing wells.	Annual at a consistent time of year	Implementing Entity to develop in first 18 months methodology for groundwater study, how to establish trend for groundwater level, and thresholds for concern.
Goal 5. Maintain or expand the existing distribution of each Covered Species within the Plan Area.				
Objective VPP1. Prior to take of any occurrence of Ahart's dwarf rush (*Juncus*	Are we ensuring that any take of Ahart's dwarf rush is offset by	Conduct a population study of take and newly preserved Ahart's dwarf	Annual within study plots for 10 years,	Implementing Entity to describe in first 12 months a

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
leiospermus), protect one currently unpreserved[3] and "biologically equivalent or superior" (as defined by the TAC) occurrence of Ahart's dwarf rush within the Plan Area.	protection of another unprotected Ahart's dwarf rush?	rush.	every 5 years after trend established	protocol for the Ahart's dwarf rush population study, and provide definition of take for this species.
Objective VPP2. Prior to take of any occurrence of Boggs Lake hedge-hyssop (*Gratiola heterosepala)*, protect one currently unpreserved[1] and "biologically equivalent or superior" (as defined by the TAC) occurrence of Boggs Lake hedge-hyssop within the Plan Area.	Are we ensuring that any take of Boggs Lake hedge-hyssop is offset by protection of another unprotected Boggs Lake hedge-hyssop?	Conduct a population study of take and newly preserved Boggs Lake hedge-hyssop.	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the Bogg's lake hedge-hyssop population study, and provide definition of take for this species.
Objective VPP3. Prior to take of any occurrence of dwarf downingia (*Downingia pusilla*), protect one currently unpreserved[1] and "biologically equivalent or superior" (as defined by the TAC) occurrence of dwarf downingia within the Plan Area.	Are we ensuring that any take of currently unknown dwarf downingia is offset by protection of another currently unknown dwarf downingia?	Conduct a population study of take and newly preserved dwarf downingia.	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the dwarf downingia population study, and provide definition of take for this species.
Objective VPP4. Protect and maintain in perpetuity a minimum of 15 occurrences of legenere (*Legenere limosa*) within the SSHCP Preserve System. Legenere occurrences will be preserved in accordance with the Conservation Actions described in this table. Prior to take of any occurrence of legenere, one currently unpreserved and	Are we protecting the known occurrences of legenere? Are we ensuring that any take of currently unknown legenere is offset by protection of another currently unknown legenere?	Conduct a population study of take and newly preserved legenere.	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the legenere population study, and provide definition of take for this species.

[3] Includes occurrences in the SSHCP GIS database (January 2014) and any future occurrences found in the SSHCP Plan Area.

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
"biologically equivalent or superior" (as defined by the TAC) occurrence of legenere will be preserved and maintained within the Plan Area.				
Objective VPP5. Prior to take of any occurrence of pincushion navarretia (*Navarretia myersii* ssp. *myersii*), protect one currently unpreserved[4] and "biologically equivalent or superior" (as defined by the TAC) occurrence of pincushion navarretia within the Plan Area.	Are we ensuring that any take of pincushion navarretia is offset by protection of another currently unknown pincushion navarretia?	Conduct a population study of take and newly preserved pincushion navarretia.	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the pincushion navarretia population study, and provide definition of take for this species.
Objective VPP6. Protect and maintain in perpetuity all known currently unprotected occurrences of Sacramento Orcutt grass (*Orcuttia viscida*) in the Plan Area to preserve existing distribution, and any currently unknown sites discovered in locations subject to an SSHCP Covered Activity.	Are we protecting the known occurrences of Sacramento Orcutt grass? Are we ensuring that any take of currently unknown Sacramento Orcutt grass is offset by protection of another currently unknown Sacramento Orcutt grass?	Conduct a population study of take and newly preserved Sacramento Orcutt grass.	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the Sacramento Orcutt grass population study, and provide definition of take for this species.
Objective VPP7. Protect and maintain in perpetuity all known currently unprotected occurrences of slender Orcutt grass in the Plan Area to preserve existing distribution, and any currently unknown sites discovered	Are we protecting the known occurrences of slender Orcutt grass? Are we ensuring that any take of currently unknown slender Orcutt grass is offset by protection	Conduct a population study of take and newly preserved slender Orcutt grass.	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the slender Orcutt grass population study, and provide definition

[4] Includes occurrences in the SSHCP GIS database (January 2014) and any future occurrences found in the SSHCP Plan Area.

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
in locations subject to an SSHCP Covered Activity.	of another currently unknown slender Orcutt grass?			of take for this species.
Objective SA1. During re-establishment and/or establishment of seasonal wetlands, freshwater marsh, open water, and stream/ creek, translocate impacted Sanford's arrowhead (*Sagittaria sanfordii*) from other sites. Prior to take of an occurrence of Sanford's arrowhead, protect one additional occurrence of Sanford's arrowhead within the Plan Area.	Are we protecting the known occurrences of Sanford's arrowhead? Are we ensuring that any take of currently unknown Sanford's arrowhead is offset by protection of another currently unknown Sanford's arrowhead?	Conduct a population study of take, newly preserved Sanford's arrowhead, and re-established/ established Sanford's arrowhead .	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the Sanford's arrowhead population study, and provide definition of take for this species.
Objective VPI1. Protect and maintain in perpetuity 1,270 acres of vernal pool tadpole shrimp modeled aquatic habitat within the Plan Area to preserve existing distribution.	Is existing vernal pool tadpole shrimp modeled habitat being preserved?	Review map of Vernal Pool, Swale, and Stream/Creek (VPIH) in the Plan Area. Use GIS to compare preserved Vernal Pool, Swale, and Stream/Creek (VPIH) against inventory.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective VPI2. Protect and maintain in perpetuity 1,270 acres of vernal pool fairy shrimp (*Branchinecta lynchi*) modeled aquatic habitat within the Plan Area to preserve existing distribution.	Is existing vernal pool fairy shrimp modeled habitat being preserved?	Review map of Vernal Pool, Swale, and Stream/Creek (VPIH) in the Plan Area. Use GIS to compare preserved Vernal Pool, Swale, and Stream/Creek (VPIH) against inventory.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective VPI3. Protect and maintain in perpetuity 1,059 acres of mid-valley fairy shrimp (*Branchinecta mesovallensis*) modeled aquatic habitat within the Plan Area to preserve existing distribution.	Is existing mid-valley fairy shrimp modeled habitat being preserved?	Review map of Vernal Pool, Swale, and Stream/Creek (VPIH) in the Plan Area. Use GIS to compare preserved Vernal Pool, Swale, and Stream/Creek (VPIH) against inventory.	Map and tables included with Annual Report	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective VPI4. Protect and maintain in perpetuity 1,245 acres of Ricksecker's water scavenger beetle (*Hydrochara ricksecker*i) modeled aquatic habitat within the Plan Area to preserve existing distribution.	Is existing Ricksecker's water scavenger beetle modeled habitat being preserved?	Review map of Vernal Pool, Swale, and Stream/Creek (VPIH) in the Plan Area. Use GIS to compare preserved Vernal Pool, Swale, and Stream/Creek (VPIH) against inventory.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective VPI5. Ensure that during implementation of Objective VP2, re-established or established vernal pools are inoculated with soils from impacted vernal pools within 1 mile of re-establishment/ establishment, in accordance with Conservation Actions in Table 7-1.	Are re-established and/ or established vernal pools being inoculated with the appropriate soils?	Reporting by biologist conducting establishment/re-establishment to confirm origin of soils.	Biologist to confirm suitability of inocula before use in re-establishment/establishment. Reporting submitted within 1 month of inoculation	Implementing Entity to develop criteria for inoculation of vernal pool re-establishment/ creation within the first 12 months.
Objective CTS1. Preserve at least 5 occupied California tiger salamander breeding ponds.	Where are existing occupied breeding ponds within California tiger salamander critical habitat?	Conduct survey for occupied California tiger salamander breeding ponds in the Plan Area.	Survey for occupied ponds in first HCP year	Implementing Entity to develop in first 12 months the survey methodology to locate occupied California tiger salamander breeding ponds.
	Are the required number of existing occupied California tiger salamander breeding ponds being preserved?	Map extent and distribution of California tiger salamander breeding ponds and field verification of pond preservation.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective CTS2. During preserve assembly, ensure that modeled aquatic and upland habitat for California tiger salamander is preserved. Minimum preservation will total: • 141 acres of aquatic habitat • 1,677 acres of upland habitat. Ensure that mitigation for modeled high-value habitat impacted within California tiger salamander Critical Habitat occurs within California tiger salamander Critical Habitat (see Objectives BOW1, VPG1, VP1, SW1, and VG1).	What is the current inventory of habitat for California tiger salamander?	Quantify acres and map the extent and distribution of California tiger salamander aquatic and upland habitat in the Plan Area.	Maps and tables included with Annual Reports.	None.
	Are necessary acres of aquatic and upland habitat preserved? Is mitigation for modeled high value habitat impacted within California tiger salamander Critical Habitat occurring within California tiger salamander Critical Habitat?	Review map of Vernal Pool, Swale, Blue Oak Woodland, and Valley Grassland in the Plan Area. Use GIS to compare preserved Vernal Pool, Swale, and Stream/Creek (VPIH) against inventory. Outputs are maps and tabular presentation of data showing acres of habitat preserved compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed for California tiger salamander?	Compliance monitoring summary included in Annual Reports submitted by implementing entity. Field verification of compliance by Implementing Entity or designee	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for California tiger salamander, and provide compliance checklist in first 18 months.
Objective CTS3. Rural transportation project Covered Activities within CTS modeled habitat will be designed to allow California tiger salamander movement across the roadway area.	Are required wildlife crossings included in designs for rural transportation Covered Activities implemented in CTS modeled habitat?	Design review by Wildlife Agencies and Implementing Entity, considering site-specific conditions and local CTS movement.	On project application	Implementing Entity to develop in first 12 months formal criteria to evaluate wildlife crossings for CTS use.
	Are required CTS crossings being constructed?	Compliance monitoring reports submitted by implementing entity. Field verification by implementing entity or designee	During project construction and at project completion	None.

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective WS1. During preserve assembly, ensure that modeled aquatic and upland habitat for western spadefoot (*Spea hammondii*) is preserved. Minimum preservation will total: • 1,531 acres of aquatic habitat • 22,044 acres of upland habitat. Ensure that mitigation for modeled habitat impacted within the Mather Core or Cosumnes/Rancho Seco Core Recovery Areas occurs within the Core Recovery Areas (see Objectives BOW1, VP1, VP3, SW1, SC1, OW1, and VG1).	What is the current inventory of aquatic and upland habitat for western spadefoot in the Plan Area?	Quantify acres and map the extent and distribution of western spadefoot aquatic and upland habitat in the Plan Area.	Maps and tables included with Annual Report.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are required acres of aquatic and upland habitat preserved? Is mitigation for modeled habitat impacted within the Mather Core Recovery Area and/or Cosumnes/Rancho Seco Core Recovery Area occurring within the Mather Core Recovery Area and/or Cosumnes/Rancho Seco Core Recovery Area?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by implementing entity. Field verification of compliance by Implementing Entity or designee	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for western spadefoot, and provide compliance checklist in first 18 months.
Objective WS2. During preserve assembly, ensure that modeled aquatic habitat for western spadefoot is re-established and/or established. Minimum re-establishment and/or establishment will total: • 906 acres of aquatic habitat.	Are necessary acres of aquatic habitat being re-established and/ or established? Is compensatory mitigation for modeled habitat impacted within the Mather Core Recovery Area and/or Cosumnes/Rancho Seco Core	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Ensure that mitigation for modeled habitat impacted within the Mather Core or Cosumnes/Rancho Seco Core Recovery Areas occurs within the Core Recovery Areas (see Objectives VP2, SW2, and OW2).	Recovery Area being constructed within the Mather Core Recovery Area and/or Cosumnes/Rancho Seco Core Recovery Area?	to targets.		
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by implementing entity. Field verification of compliance by Implementing Entity or designee	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for western spadefoot, and provide compliance checklist in first 18 months.
Objective WPT1. During preserve assembly, ensure that modeled aquatic and upland habitat for western pond turtle (*Actinemys marmorata*) is preserved. Minimum preservation will total: • 315.35 acres of aquatic habitat • 10,971 acres of upland habitat. (See Objectives FWM1, OW1, VPG1, RIP1, RIP3, VG1, BOW1, and SC1).	What is the current inventory of habitat for western pond turtle in the Plan Area?	Map the extent and distribution of western pond turtle aquatic and upland habitat.	Map and tables included with Annual Report	None.
	Are necessary acres of aquatic and upland habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by implementing entity. Field verification of compliance by Implementing Entity or designee	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for western pond turtle, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective WPT2. During preserve assembly, ensure that modeled aquatic habitat for western pond turtle is re-established and/or established. Minimum re-establishment and/or establishment will total: • 315 acres of aquatic habitat. (See Objectives RIP2, FWM2, and OW2.)	Are necessary acres of aquatic habitat being re-established and/or established?	Annual review of habitat re-establishment and establishment projects, including GIS mapping. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by implementing entity. Field verification of compliance by Implementing Entity or designee	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for western pond turtle, and provide compliance checklist in first 18 months.
Objective GGS1. During preserve assembly, ensure that modeled habitats for giant gartersnake are preserved along the following creeks (or other creeks that are determined by the TAC to provide similar GGS habitat value): • The lower Laguna Creek, mainly between Twin Cities Road (State Route (SR) 104) and Miess Road; • Skunk Creek, which flows into the Cosumnes River northwest of the City of Galt; • the short Willow Creek and tributaries of Badger Creek, which are to the north of the lower Laguna Creek and west of the	What is the current inventory of habitat for giant gartersnake in the Plan Area?	Map the extent and distribution of giant gartersnake high-value habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of high-value aquatic and upland habitat being preserved? Is the preserved habitat located within the areas designated in the objective?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports	Summary included with Annual	Implementing Entity to define what appropriate

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Folsom South Canal; and • Badger Marsh. Mitigation for impacts to modeled habitats for giant gartersnake that occur along Badger Creek and Stone Lakes will occur along these drainages. Minimum preservation will total: • 170 acres of Giant Garter Snake high-value aquatic habitat • 2,323 acres of Giant Garter Snake high-value upland habitat. (See Objectives AG1, FWM1, SW1, SC1, OW1, VPG1, RIP1, RIP3, and VG1).		submitted by implementing entity. Field verification of compliance by Implementing Entity or designee.	Reports.	maintenance/ management is for giant gartersnake, and provide compliance checklist in first 18 months.
Objective GGS2. During preserve assembly, ensure that modeled habitats for giant gartersnake are re-established and/or established along the following creeks (or other creeks that are determined by the TAC to provide similar habitat value): • The lower Laguna Creek, mainly between Twin Cities Road (SR 104) and Miess Road; • Skunk Creek: this creek flows into the Cosumnes River northwest of the City of Galt; • To the north of the lower Laguna Creek and west of the Folsom South Canal are several small creeks—the short Willow Creek and	Are necessary acres of high value aquatic and upland habitat being re-established and/ or established? Is the re-established and/ or established habitat located within the areas designated in the objective?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for giant gartersnake, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
tributaries of Badger Creek; and • Badger Marsh. Mitigation for impacts to modeled habitats for giant gartersnake that occur along Badger Creek and Stone Lakes will occur along these drainages. Minimum re-establishment and/or establishment will total: • 170 acres of high-value aquatic habitat • 134 acres of high-value upland habitat. (See Objectives SW2, OW2, RIP2, and RIP4.)				
Objective GGS3. Plan Permittees will conduct a study to establish hydrologic baseline conditions along Badger Creek to identify what level of hydrology is necessary to support giant gartersnake and acquire a water source to maintain the minimum level of hydrology during the summer months when agricultural runoff may wane.	What is the hydrologic condition along Badger Creek? How much supplemental water would be required to maintain baseline conditions during summer?	Conduct hydrologic study for Badger Creek.	Within two years of HCP implementation	Implementing Entity to fully define in first 18 months what the hydrologic study will entail for inclusion in bid package.
Objective VELB1. Relocate or replace each impacted elderberry shrub (*Sambucus* spp.) according to USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999). Mitigation will occur in locations that are not inundated for 2 continuous weeks, as determined by the TAC.	How many shrubs are being impacted? Are impacted shrubs being relocated or replaced in appropriate locations?	Review mitigation proposed for each project, including location for replacement.	Project-by-project basis	Implementing Entity to develop methodology in first 18 months for determining inundation period of potential elderberry shrub mitigation sites.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective VELB2. During implementation of riparian habitat re-establishment and/or establishment, strategically include elderberry shrub in the planting palette (see Objectives RIP2 and RIP4).	Is elderberry shrub being used appropriately during riparian habitat re-establishment and/ or establishment?	Review of planting plans for proposed re-establishment/ establishment projects, comparison against Conservation Actions in Table 7-1, field inspection of in-progress and completed re-establishment/ establishment projects.	Project-by-project basis	Implementing Entity to develop in first 12 months a checklist for review of riparian re-establishment/ establishment planting plans.
Objective CH1. During preserve assembly, ensure that a minimum of 974 acres of modeled nesting/foraging habitat for Cooper's hawk (*Accipiter cooperii*) is preserved, in accordance with Conservation Actions described in Table 7-1 (see Objectives RIP1, RIP3, and BOW1).	What is the current inventory of nesting/foraging habitat for Cooper's hawks in the Plan Area?	Map the extent and distribution of Cooper's hawk nesting/foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of nesting/foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Cooper's hawk, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective CH2. During preserve assembly, ensure that a minimum of 601 acres of modeled nesting/foraging habitat for Cooper's hawk is re-established and/or established (see Objectives RIP2 and RIP4).	Are necessary acres of nesting/foraging habitat being re-established and/ or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Cooper's hawk, and provide compliance checklist in first 18 months.
Objective CH3. During preserve assembly, ensure that a minimum of 38 acres of modeled foraging habitat for Cooper's hawk is preserved, in accordance with Conservation Actions described in Table 7-1 (see Objectives RIP1, RIP3, and BOW1).	What is the current inventory of foraging habitat for Cooper's hawks in the Plan Area?	Map the extent and distribution of Cooper's hawk foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Cooper's hawk, and provide compliance checklist in first 18 months.
Objective TB1. During preserve assembly, ensure that a minimum of 4,149 acres of modeled foraging habitat for tricolored blackbird is preserved (see Objectives AG1, AG2, FWM1, VG1, VPG1, VP1, VP3, FWM1, OW1, and SW1).	What is the current inventory of habitat for tricolored blackbirds?	Map the extent and distribution of tricolored blackbirds foraging habitat.	Map and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for tricolored blackbird, and provide compliance checklist in first 18 months.

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective TB2. During preserve assembly, ensure that a minimum of 27,532 acres of modeled nesting/foraging habitat for tricolored blackbird is preserved, including a minimum of 402 acres of freshwater marsh and seasonal wetland (see Objectives AG1, AG2, VG1, VPG1, FWM1, and SW1).	What is the current inventory of habitat for tricolored blackbirds?	Map the extent and distribution of tricolored blackbirds nesting habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of nesting habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for tricolored blackbird, and provide compliance checklist in first 18 months.
Objective TB3. During preserve assembly, ensure that a minimum of 917 acres of modeled foraging habitat for tricolored blackbird is re-established and/or established (see Objectives FWM2, SW2, OW2, and VP2).	Are necessary acres of foraging habitat being re-established and/or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	Is re-established and/or established habitat being maintained/managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/management is for tricolored blackbird, and provide compliance checklist in first 18 months.
Objective TB4. During preserve assembly, ensure that a minimum of 232 acres of modeled nesting/foraging habitat for tricolored blackbird is re-established and/or established (see Objectives FWM2 and SW2).	Are necessary acres of nesting habitat being re-established and/or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/or established habitat being maintained/managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/management is for tricolored blackbird, and provide compliance checklist in first 18 months.
Objective TB5. Provide mitigation for loss of any tricolored blackbird nesting colony site that is occupied at the time of Covered Activity implementation or was recorded as an occupied nesting colony at any time since 2008. Sources for occupied nesting colonies are the CNDDB, Tricolored Blackbird Portal, eBird, or other data sources approved by the Wildlife Agencies. Minimum mitigation is to	Where are colonies of tricolored blackbirds located, historically and at present?	Map historic and existing tricolored blackbird nesting colony sites.	Maps and tables included with Annual Report	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are sufficient colonies being preserved?	Annual (or some agreed upon time interval) review of current SSHCP GIS database of colony sites and modeled foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
protect one extant unprotected occurrence of a nesting colony prior to take of one nesting colony of tricolored blackbirds. Ensure that at least five extant tricolored blackbird colonies that were occupied in recent years are maintained and managed within the SSHCP Preserve System.	Are preserved colonies being maintained/managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for tricolored blackbird, and provide compliance checklist in first 18 months.
Objective TB6. Conduct an experimental study to identify management actions to protect tricolored blackbird colonies (e.g., coarse netting to reduce nest predation or impact of pesticides).	How many birds successfully fledge?	Nest census to quantify successful fledging.	Once each season that study is ongoing, coordinated with study timing.	Implementing Entity to develop in the first 18 months a methodology for tricolored blackbird nest census.
	What techniques best exclude predators?	Conduct pilot study for exclusion techniques.	Study initiated within 2 years of HCP implementation; completed within 5 years of HCP implementation.	Implementing Entity to develop in first 18 months a pilot study design for management techniques to benefit tricolored blackbird, including exclusion techniques to be tested, how to determine success or failure of techniques.
Objective TB7. Ensure that at least one large tricolored blackbird colony (i.e., one that has historically [from 1950 onward] supported a minimum of 1,500 individuals) is protected.	Where are large colonies of tricolored blackbirds located, historically and at present?	Map historic and existing tricolored blackbird nesting colony sites.	Maps and tables included with Annual Report	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is the appropriately sized colony being preserved?	Annual (or some agreed upon time interval) review of current SSHCP GIS database of colony sites.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
				be included in Annual Reports.
	Is preserved colony being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for tricolored blackbird, and provide compliance checklist in first 18 months.
Objective TB8. For any tricolored blackbird nesting colony that is removed by a Covered Activity, re-establish and/or establish three new colonies within SSHCP Preserves. Re-established and/or established colonies can be in aquatic (freshwater marsh, seasonal wetland) or upland (annual grassland) habitat types, and must be within 0.5 mile of appropriate agricultural forage crops (especially alfalfa) or annual grasslands that provide adequate foraging opportunities.	For each impacted colony site, are three potential colony sites being re-established or established?	Annual (or some agreed upon time interval) review of current SSHCP GIS database of colony sites, and re-established/established colony sites.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are re-established/established colony sites being maintained and managed to encourage colonization?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for tricolored blackbird, and provide compliance checklist in first 18 months.
Objective BO1. Preserve 7 occupied western burrowing owl (*Athene cunicularia*) sites (commensurate with 20% of the estimated number of sites within the UDA as of 2014), preserve at least 200 acres of land surrounding each occupied burrow site, and maintain modeled habitat for western burrowing owl within 0.4 mile of breeding sites.	Where are occupied burrowing owl sites?	Map burrowing owl sites and modeled burrowing owl foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are the occupied burrowing owl sites and associated modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current SSHCP GIS database of colony sites.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are preserved sites being	Compliance monitoring summary	Summary included	Implementing Entity to define

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	maintained/ managed?	included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	with Annual Reports.	what appropriate maintenance/ management is for burrowing owl, and provide compliance checklist in first 18 months.
Objective BO2. For each burrowing owl or burrowing owl pair passively excluded, protect 200 acres of modeled habitat for western burrowing owl, and establish a ground squirrel (*Spermophilus (Otospermophilus) beecheyi*) colony and augment with artificial burrows as appropriate (determined by TAC). Artificial burrows will be established at appropriate locations throughout the Preserve System pursuant to CDFW (CDFG 2012 guidelines) or as otherwise determined by the TAC.	How many burrowing owls are being passively excluded?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are requisite number of acres of modeled habitat for burrowing owl being preserved and augmented with ground squirrels and artificial burrows?	Map burrowing owl sites and modeled burrowing owl foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop format for annual summary maps in first 12 months.
	Are preserved sites being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for burrowing owl, and provide compliance checklist in first 18 months.
Objective FH1. During preserve assembly, ensure that a minimum of 25,881 acres of modeled foraging habitat for ferruginous hawk is preserved, including 19,625 acres in PPUs 5 and 7 (see Objectives AG1, VG1, VP1, VP3, VPG1, and SW1).	What is the current inventory of habitat for ferruginous hawks?	Map the extent and distribution of ferruginous hawk foraging habitat.	Maps and tables included with Annual Report	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial	Maps and tables included with	Implementing Entity to develop in first 12 months

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		imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Annual Reports.	format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for ferruginous hawk, and provide compliance checklist in first 18 months.
Objective FH2. During preserve assembly, ensure that a minimum of 729 acres of modeled foraging habitat for ferruginous hawk is re-established and/or established (see Objectives VP2 and SW2).	Are necessary acres of modeled foraging habitat being re-established and/or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/or established habitat being maintained/managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for ferruginous hawk, and provide compliance checklist in first 18 months.
Objective SH1. During preserve assembly, ensure that a minimum of 31,033 acres of	What is the current inventory of habitat for Swainson's hawk?	Map the extent and distribution of Swainson's hawk foraging habitat.	Maps and tables included with	Implementing Entity to develop in first 12 months

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
modeled foraging habitat for Swainson's hawk is preserved (see Objectives AG1, AG2, SW1, VP1, VP3, VG1). Ensure that mitigation for high-value modeled habitat impacted within PPUs 4, 6, or 8 occurs within PPUs 4, 6, or 8.			Annual Reports.	format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled foraging habitat being preserved? Is modeled high value habitat that is impacted within PPUs 4, 6, or 8 being mitigated within those same PPUs?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Swainson's hawk, and provide compliance checklist in first 18 months.
Objective SH2. At least 2,000 acres of Cropland habitat within high-value habitat within PPUs 4, 6, and 8 will be preserved in fee title to ensure that intensive management actions can be taken. Land held in fee title will be restricted to growing field or row crops. Fee title lands must maintain, at a minimum, an average of 50% of their crop cover-type in alfalfa. Other crop types or land covers may be substituted for alfalfa if the TAC determines that such other crop types or land	What is the current inventory of habitat for Swainson's hawk?	Map the extent and distribution of Swainson's hawk foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
cover types are of the same or better quality foraging habitat as alfalfa.		showing acres of habitat compared to targets.		
	Is preserved habitat being maintained/ managed? Are the crop restrictions on the Cropland habitat within high value habitat being followed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Swainson's hawk, and provide compliance checklist in first 18 months, including list of crop restrictions.
Objective SH3. During preserve assembly, ensure a minimum of 746 acres of modeled nesting habitat for Swainson's hawk is preserved (see Objectives RIP1 and RIP3).	What is the current inventory of habitat for Swainson's hawk?	Map the extent and distribution of Swainson's hawk nesting habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled nesting habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Swainson's hawk, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective SH4. During preserve assembly, ensure that a minimum of 373 acres of modeled riparian nesting habitat for Swainson's hawk is re-established and/or established. Ensure that mitigation for modeled nesting habitat impacted within PPUs 4, 6, or 8 occurs within PPUs 4, 6, or 8 (see Objectives RIP2 and RIP4).	Are necessary acres of modeled riparian nesting habitat being re-established and/or established? Is mitigation occurring in the correct PPUs according to the Objective?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Swainson's hawk, and provide compliance checklist in first 18 months.
Objective SH5. For each of the 36 known nesting trees within the UDA, plant 10 trees that are modeled for Swainson's hawk nesting within SSHCP preserves. Plant nesting trees on properties protected by the SSHCP within PPUs 4, 6, and 8, and near protected foraging habitat. Tree species will be selected based on known suitability as nesting habitat for Swainson's hawk, and the planted trees must be maintained and/or replaced in perpetuity.	Which trees are to be impacted?	Map the locations of impacted trees.	Upon project application	None.
	Are we planting the appropriate number of trees, in the appropriate locations, with the appropriate timing?	Map the locations of planted trees and compare against Conservation Actions in Table 7-1. Field inspection by implementing entity or designee.	Annual mapping and field verification, compliance monitoring. Maps and tables included in Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
Objective SH6. During preserve assembly, ensure that a minimum of 729 acres of modeled foraging habitat for Swainson's hawk is re-established and/or established (see	Are necessary acres of modeled foraging habitat being re-established and/or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objectives RIP2 and RIP4).		Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.		Reports.
	Is re-established and/or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for Swainson's hawk, and provide compliance checklist in first 18 months.
Objective NH1. During preserve assembly, ensure that a minimum of 1,245 acres of modeled foraging habitat for northern harrier is preserved (see Objectives VG1, AG1, VPG1, VP1, VP3, FWM1, and SW1).	What is the current inventory of habitat for northern harrier?	Map the extent and distribution of northern harrier foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for northern harrier, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective NH2. During preserve assembly, ensure that a minimum of 30,048 acres of modeled nesting/foraging habitat for northern harrier is preserved (see Objectives VG1 and AG1).	What is the current inventory of nesting habitat for northern harrier?	Map the extent and distribution of northern harrier nesting habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled nesting habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for northern harrier, and provide compliance checklist in first 18 months.
Objective NH3. During preserve assembly, ensure that a minimum of 856 acres of modeled foraging habitat for northern harrier is re-established and/or established (see Objectives VP2, FWM2, and SW2).	Are necessary acres of modeled foraging habitat being re-established and/ or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for northern harrier, and provide compliance checklist in first 18 months.
Objective WK1. During preserve assembly, ensure that a minimum of 31,205 acres of modeled foraging habitat for white-tailed kite is preserved (see Objectives VG1, AG1, RIP1, RIP3, VPG1, SW1, VP1, VP3, and BOW1).	What is the current inventory of habitat for white-tailed kite?	Map the extent and distribution of white-tailed kite foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what maintenance/ management is appropriate for white-tailed kite, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective WK2. During preserve assembly, ensure that a minimum of 974 acres of modeled nesting or nesting/foraging habitat for white-tailed kite is preserved (see Objectives RIP1, RIP3, and BOW1).	What is the current inventory of habitat for white-tailed kite?	Map the extent and distribution of white-tailed kite nesting habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled nesting habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/management is for white-tailed kite, and provide compliance checklist in first 18 months.
Objective WK3. During preserve assembly, ensure a minimum of 767 acres of modeled foraging habitat for white-tailed kite is re-established and/or established (see Objectives VP2, RIP2, RIP4, and SW2).	Are necessary acres of modeled foraging habitat being re-established and/or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	Is re-established and/or established habitat being maintained/managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for white-tailed kite, and provide compliance checklist in first 18 months.
Objective WK4. During preserve assembly, ensure that a minimum of 601 acres of modeled nesting or nesting/foraging habitat for white-tailed kite is re-established and/or established (see Objectives RIP2 and RIP4).	Are necessary acres of modeled nesting habitat being re-established and/ or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for white-tailed kite, and provide compliance checklist in first 18 months.
Objective GS1. During preserve assembly, ensure that a minimum of 257 acres of modeled roosting or roosting/foraging habitat for greater sandhill crane is preserved. Roosting habitat will be preserved and maintained within PPUs 4, 6, and 8, with a minimum of 75% within PPU 6 (see Objectives VP1, SW1, and FWM1).	What is the current inventory of habitat for greater sandhill cranes?	Map the extent and distribution of greater sandhill crane modeled foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled roosting habitat being preserved? Does the preservation occur in	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of	Map and tables included with Annual Report.	Implementing Entity to develop in first 12 months format for maps and tables to

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	PPU 4, 6, and 8, with at least 193 acres in PPU 6?	land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.		be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for greater sandhill crane, and provide compliance checklist in first 18 months.
Objective GS2. During preserve assembly, ensure that a minimum of 7,751 acres of modeled foraging habitat for greater sandhill crane is preserved (see Objectives AG1, AG2, and VG1).	What is the current inventory of habitat for greater sandhill cranes?	Map the extent and distribution of greater sandhill crane modeled foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Map and tables included with Annual Report.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for greater sandhill crane, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective GS3. During preserve assembly, ensure that a minimum of 184 acres of modeled roosting habitat or roosting/foraging habitat for greater sandhill crane is re-established and/or established. Re-establish two new roost sites (minimum of 90 acres of freshwater marsh/seasonal wetland complex each) every 2 miles in the gap between the Cosumnes population and the Stone Lakes' population or other strategic locations if that gap is closed by another HCP or conservation project (see Objectives VP2, SW2 and FWM2).	Are necessary acres of modeled roosting and roosting/foraging habitat being re-established and/ or established? Are new roost sites located as directed in the objective?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types, modeled habitat, and roost sites. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/ or established habitat or roost sites being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for greater sandhill crane, and provide compliance checklist in first 18 months.
Objective GS4. Create a visual screen of woody vegetation near human disturbances such as buildings, bridges, and paved roads from permanent roosting habitat within PPU 6. Screens should be located as appropriate to not interfere with habitat usage by greater sandhill cranes.	Where is permanent roosting habitat that would benefit from a visual screen?	Map the extent and distribution of roosting habitat that is near locations frequented by humans (e.g., roads, rivers, etc.).	Map habitat suitable for screening immediately	Implementing Entity to develop a method in the first 18 months to prioritize sites for visual screening to benefit greater sandhill crane.
	Are visual screens being planted appropriately?	Map planted screens and inspect height and condition in field to ensure no interference with habitat use by greater sandhill cranes.	Annual mapping and field verification of screen conditions	Implementing Entity, in consultation with the TAC, to identify in the first 18 months the ideal height and other parameters for screen function to benefit greater sandhill crane.

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective GS5. As part of the 2,000 acres preserved under Objective AG2, establish and maintain 10 food plots in strategic locations totaling a minimum of 200 acres within an agricultural setting for greater sandhill crane foraging habitat within PPU 6. Maintain the 200 acres among the 10 food plots as irrigated pasture or planted with crops preferred by greater sandhill crane as foraging habitat. Crops may include, but are not limited to, alfalfa, corn, wheat, or rice. Strategic placement of food plots will include locations for food plots in upland areas above the floodplain.	How many acres of greater sandhill crane food plots have we established?	Map the extent and distribution of greater sandhill crane food plots.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are the food plots being acquired, planted, and managed according to the conservation strategy for greater sandhill crane?	Cross check for consistency with greater sandhill crane modeled species habitat.	Summary of consistency included with Annual Reports.	Implementing Entity to develop in first 12 months format for summary to be included in Annual Reports.
Objective GS6. During preserve assembly, ensure that a minimum of 1,000 acres of high-value modeled foraging habitat for greater sandhill crane outside the 100-year floodplain is preserved (see Objectives VP1, SW1, and FWM1).	Are the necessary acres of high-value modeled foraging habitat being preserved outside the 100-year floodplain?	Map the extent and distribution of greater sandhill crane foraging habitat. Ensure that an appropriate proportion of foraging habitat preservation is located outside the 100-year floodplain. Cross-check for consistency with greater sandhill crane modeled species habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is the high-value modeled foraging habitat outside the 100-year floodplain being managed for the benefit of greater sandhill crane according to the SSHCP Conservation Strategy?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for greater sandhill crane, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective LS1. During preserve assembly, ensure that a minimum of 9,152 acres of modeled foraging habitat for loggerhead shrike (*Lanius ludovicianus*) is preserved (see Objectives VG1, AG1, VPG1, SW1, VP1, and VP3).	What is the current inventory of habitat for loggerhead shrike?	Map the extent and distribution of loggerhead shrike modeled foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports.	Implementing Entity to define what appropriate maintenance/ management is for loggerhead shrike, and provide compliance checklist in first 18 months.
Objective LS2. During preserve assembly, ensure that a minimum of 22,014 acres of modeled nesting/foraging habitat for loggerhead shrike is preserved (see Objectives VG1, RIP1, and RIP3).	What is the current inventory of habitat for loggerhead shrike?	Map the extent and distribution of loggerhead shrike modeled nesting habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled nesting/foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
		habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.		Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for loggerhead shrike, and provide compliance checklist in first 18 months.
Objective LS3. During preserve assembly, ensure that a minimum of 592 acres of modeled nesting habitat for loggerhead shrike is re-established and/or established (see Objectives RIP2 and RIP4).	Are necessary acres of modeled nesting habitat being re-established and/ or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for loggerhead shrike, and provide compliance checklist in first 18 months.
Objective LS4. During preserve assembly, ensure that a minimum of 965 acres of modeled nesting habitat for loggerhead shrike is preserved (see Objectives RIP2 and RIP4).	What is the current inventory of habitat for loggerhead shrike?	Map the extent and distribution of loggerhead shrike modeled nesting habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.

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Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
	Are necessary acres of modeled nesting habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for loggerhead shrike, and provide compliance checklist in first 18 months.
Objective LS5. During preserve assembly, ensure that a minimum of 729 acres of modeled foraging habitat for loggerhead shrike is re-established and/or established (see Objective SW2).	Are necessary acres of modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for loggerhead shrike, and provide compliance checklist in first 18 months.

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Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective WR1. During preserve assembly, ensure that a minimum of 23,910 acres of modeled foraging habitat for western red bat (*Lasiurus blossevillii*) is preserved (see Objectives BOW1, RIP1, RIP3, AG1, VPG1, VG1, VP1, VP3, SW1, OW1, FWM1, and SC1).	What is the current inventory of foraging habitat for western red bat?	Map the extent and distribution of western red bat modeled foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for western red bat, and provide compliance checklist in first 18 months.
Objective WR2. During preserve assembly, ensure that a minimum of 841 acres of modeled roosting/foraging habitat for western red bat is preserved (see Objectives BOW1, RIP1, and RIP3).	What is the current inventory of habitat for western red bat?	Map the extent and distribution of western red bat modeled roosting/foraging habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of modeled roosting/foraging habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
		habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.		Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for western red bat, and provide compliance checklist in first 18 months.
Objective WR3. During preserve assembly, ensure that a minimum of 1,317 acres of modeled foraging habitat for western red bat is re-established and/or established (see Objectives VP2, SW2, OW2, FWM2, RIP2, and RIP4).	Are necessary acres of modeled foraging habitat being re-established and/ or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for western red bat, and provide compliance checklist in first 18 months.

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
Objective WR4. During preserve assembly, ensure that a minimum of 450 acres of modeled roosting/foraging habitat for western red bat is re-established and/or established (see Objectives RIP2 and RIP4).	Are necessary acres of modeled roosting habitat being re-established and/ or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for western red bat, and provide compliance checklist in first 18 months.
Objective AB1. During preserve assembly, ensure that a minimum of 23,171 acres of modeled habitat for American badger (*Taxidea taxus*) is preserved (see Objectives BOW1, VG1, VP1, VP3, VPG1, and SW1).	What is the current inventory of habitat for American badger?	Map the extent and distribution of American badger habitat.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Are necessary acres of habitat being preserved?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is preserved habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports	Summary included with Annual Reports	Implementing Entity to define what appropriate

Table 8-1
Framework for SSHCP Conservation Strategy Compliance Monitoring

Measurable Objective or SSHCP Commitment	What do we need to know to assess compliance?	How do we monitor what we need to know?	How often?	What needs to be developed in the first 18 months for the SSHCP Compliance and AMM Monitoring Program?
		submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.		maintenance/ management is for American badger, and provide compliance checklist in first 18 months.
Objective AB2. During preserve assembly, ensure that a minimum of 767 acres of modeled habitat for American badger is re-established and/or established (see Objectives VP2 and SW2).	Are necessary acres of habitat being re-established and/ or established?	Annual (or some agreed upon time interval) review of current aerial imagery and SSHCP GIS database of land cover types and modeled habitat. Outputs are maps and tabular presentation of data in acres showing acres of habitat compared to targets.	Maps and tables included with Annual Reports.	Implementing Entity to develop in first 12 months format for maps and tables to be included in Annual Reports.
	Is re-established and/ or established habitat being maintained/ managed?	Compliance monitoring summary included in Annual Reports submitted by Implementing Entity. Field verification of compliance by Implementing Entity or designee.	Summary included with Annual Reports	Implementing Entity to define what appropriate maintenance/ management is for American badger, and provide compliance checklist in first 18 months.

8.2.2 AMM Compliance Monitoring

The SSHCP Compliance and AMM Monitoring Program will ensure required AMMs are implemented at Covered Activity project sites, and are implemented correctly (Table 8-2).

The ways in which SSHCP AMM compliance will be assured by the Plan Permittees is provided in Table 8-2. For many Covered Activity projects, the Land Use Authority Permittees will include appropriate SSHCP AMMs in Mitigation Monitoring and Reporting Plans that they prepare under the California Environmental Quality Act for Covered Activities implemented by third-parties, prior to Land Use Authority Permittee approval. The AMM compliance monitoring approaches and timing included in Table 8-2 will be incorporated into these Mitigation Monitoring and Reporting Plans, implementation of which will be conditions of project approval.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
LID-1 (Stormwater Quality)	Are projects incorporating appropriate stormwater management into designs to satisfy the requirements outlined in the Stormwater Quality Design Manual for the Sacramento and South Placer Regions?	Design review by Land Use Authority Permittee.	During design review	None.
LID-2 (Groundwater Recharge)	Has the proponent identified areas in the project site that could be appropriate for groundwater recharge? Has the drainage design incorporated groundwater recharge to the maximum extent feasible?	Design review by Land Use Authority Permittee.	During design review	None.
LID-3 (Natural Site Features):	Has the proponent identified important natural site features within the project site? Has the project design avoided or preserved these natural site features to the maximum extent feasible?	Design review by Land Use Authority Permittee.	During design review and after project completion	Implementing Entity to define "natural site features" in first 12 months for use by Land Use Authority Permittee.
EDGE-1 (Compatible Land Uses)	Has the proponent located compatible land uses adjacent to preserves or preserve setbacks to the maximum extent feasible?	Design review by Land Use Authority Permittee. Field verification of land uses by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	Implementing Entity to develop final list of compatible land uses in first 12 months for use by Land Use Authority Permittee.
EDGE-2 (Single-Loaded Streets)	Has the proponent located single loaded streets adjacent to preserves or preserve setbacks to the maximum extent feasible?	Design review by Land Use Authority Permittee. Field verification of land uses by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	None.
EDGE-3 (Preserve Setbacks)	Has the required minimum width of each preserve setback been established?	Design review by Land Use Authority Permittee. Field verification of setback	During design review and after project completion.	Implementing Entity to develop checklist for design

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
		conditions by Land Use Authority Permittee or Implementing Entity.		and monitoring of each Covered Activity allowed in the Preserve Setbacks in first 12 months.
EDGE-3a (Setback Recreational Trails)	If trails or other allowed facilities are proposed in Preserve Setbacks, do they meet size and l placement requirements of EDGE-3a?	Design review by Land Use Authority Permittee. Field verification of setback conditions by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	Implementing Entity to develop checklist for design and monitoring of each Covered Activity allowed in the Preserve Setbacks in first 12 months.
EDGE-3b (Setback Firebreaks)	If firebreaks are proposed in Preserve Setbacks, do they meet size and l placement requirements of EDGE-3b?	Design review by Land Use Authority Permittee. Field verification of setback conditions by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	Implementing Entity to develop checklist for design and monitoring of each Covered Activity allowed in the Preserve Setbacks in first 12 months.
EDGE-3c (Setback Shade Trees and Landscaping)	If the landscaping planting Covered Activity is proposed in a Preserve Setback, are the plantings consistent with restrictions of EDGE-3c?	Design review by Land Use Authority Permittee. Monitoring of drip irrigation for maximum of 5 years after planting. Field verification of setback conditions by Land Use Authority Permittee or Implementing Entity. Periodic inspection of landscaping and other preserve setback conditions by Implementing Entity to ensure ongoing compliance in perpetuity. Annual monitoring of potential indirect effects from Setback landscaping (i.e., leaf	During design review and after project completion. Annual inspection in perpetuity.	Implementing Entity to develop checklist for acceptable planting methods, appropriate shade trees and landscaping species, and acceptable placement within the Preserve Setback in first 12 months, including landscaping.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
		litter accumulation, irrigation runoff, plant encroachment)		
EDGE-4 (Locate Stormwater Control Outside Preserves)	Are stormwater flows directed away from preserves and captured within the development?	Design review by Land Use Authority Permittee. Field verification of stormwater system functional compliance by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	Implementing Entity to develop checklist in first 12 months for use by Land Use Authority Permittees.
EDGE-5 (Stormwater Control in Preserve Setbacks)	If trails are established in a preserve setback, was the trail designed to slope away from the preserve, and will rain water leaving the trail collected in an adjacent a low-velocity bioswale?	Design review by Land Use Authority Permittee. Field verification of trail and bioswale design and placement in the Preserve Setback, by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	Implementing Entity to develop checklist for acceptable trail and bioswale designs and placement.
EDGE-6 (Detention Basins in Linkage Preserves)	Are detention basins proposed only in Linkage Preserves L1, L2, L4, L7, L8, L9, and L10? Are the detention basins designed to avoid soil excavation and associated effects to the soil's hardpan/duripan and perched aquifer?	Design review by Land Use Authority Permittee. Field inspection of completed detention basin by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	Implementing Entity to develop in first 18 months criteria and checklist for acceptable detention basin designs within Linkage Preserves.
EDGE-7 (Hardpan/Duripan Protection)	Are proponent s avoiding ground disturbing activities inside preserves and inside preserve setbacks that could cut into, disrupt, or remove the soil's restrictive layer (hardpan or duripan)? If a minor puncture of the soil restrictive layer (e.g., from installing a post) is approved by the Implementing Entity and	Design review by Land Use Authority Permittee to determine whether an activity could damage the duripan. Review of repair designs by the Implementing Entity and the TAC. Field inspection of repairs by Land Use Authority Permittee or Implementing Entity.	During design review and after project completion.	Implementing Entity to identify forbidden activities that could cut into, disrupt, or remove the soil's restrictive layer. Implementing Entity to develop list of potentially acceptable activities that might cause minor

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
	the TAC, was the puncture sealed using bentonite clay or other material?			punctures the duripan, and specify appropriate materials and methods for sealing punctures or minor disruptions to the soil restrictive layer, both in first 12 months.
EDGE-8 (Outdoor Lighting)	Is the project proponent using best information available at the time of project design to minimize effects of light pollution from new urban development on target species (e.g., western spadefoot, Ricksecker's water scavenger beetle)?	Land Use Authority Permittee review of proponent plans for AMM implementation; review field implementation and compare to current best practices.	During design review. Update best practices for lighting as new information is available.	Implementing Entity, in consultation with the TAC, to identify in first 18 months lighting best practices. Provide updates to Land Use Authority Permittees as new information is available.
EDGE-9 (Livestock Access to Preserves)	Has the project proponent provided adequate number of l access areas for livestock delivery to and pickup from on-site or adjacent preserves in their project design, if applicable?	Land Use Authority Permittee review of proponent plans for adequate livestock access areas, if applicable.	During design review.	Implementing Entity, in consultation with the TAC, to develop in first 18 months a checklist for livestock access to be used by Land Use Authority Permittees when reviewing projects.
EDGE-10 (Prevent Invasive Species Spread)	Is equipment cleaned of mud and plant material before entering a preserve setback or a preserve? Are mowing activities beginning in non-infested areas before moving on to infested areas? Do maintenance plans for preserve setbacks or preserves include	Implementing Entity review of maintenance plans for preserve setbacks and preserves. Periodic review of maintenance activities for compliance with maintenance plans	During design review. Annual inspection in perpetuity.	Implementing Entity to develop measures to be included in maintenance plans in first 6 months.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
	techniques to avoid spread of invasive plants? Are setback and preserve maintenance activities consistent with these plans?			
BMP-1 (Construction Fencing)	Is the project proponent installing and maintaining construction fencing at the outer boundary of any Preserve Setback or Stream Setback to reduce disturbance to the maximum extent feasible?	Review of construction fencing by Permit Compliance staff or by Biological Monitor, if present.	During construction, monthly inspection.	None.
BMP-2 (Erosion Control)	Are control measures for erosion installed according to project plans? Are the appropriate materials used in Covered Species habitat for giant gartersnake, western pond turtle, California tiger salamander, or western spadefoot to avoid entrapment?	Review of erosion control materials by Land Use Authority Permittee Permit Compliance staff and/or by Biological Monitor, if present.	During construction, monthly inspection.	Implementing Entity to develop list in first 6 months of appropriate erosion control materials for use in modeled habitat for giant gartersnake, western pond turtle, California tiger salamander, or western spadefoot to avoid entrapment.
BMP-3 (Equipment Storage and Fueling)	Has the proponent identified designated equipment storage and fueling locations on project plans? During project construction, is storage and fueling occurring in the designated location?	Review of project plans by Land Use Authority Permittee. Inspection of project site by Land Use Authority Permittee Permit Compliance staff to verify use of appropriate storage and fueling locations.	During design review. During construction, monthly inspection.	None.
BMP-4 (Erodible Materials)	Has the proponent clearly indicated requirements for placement of erodible materials on project plans? Are erodible	Review of project plans by Land Use Authority. Inspection of project site by Permit Compliance staff to confirm that	During design review. During construction, monthly inspection.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
	materials being placed in the appropriate locations?	erodible materials are being placed properly.		
BMP-5 (Dust Control)	Are proponents watering active construction sites, if necessary, to reduce dust effects on adjacent vegetation and wildlife habitat? Is the water being sourced from municipal sources or existing groundwater wells?	Review of project plans by Land Use Authority Permittee to confirm that dust control notes are present. Land Use Authority Permittee Permit Compliance staff to confirm that dust is being controlled appropriately and that water is sourced from municipal supplies or existing groundwater wells.	During design review. During construction, monthly inspection.	None.
BMP-6 (Construction Lighting)	Is the proponent using best information available at the time to minimize effects of light pollution on target species (e.g., western spadefoot, Ricksecker's water scavenger beetle)?	Land Use Authority Permittee review of proponent plans for AMM implementation. Land Use Authority Permittee or Implementing Entity review of field implementation and compare to current best practices.	During design review. During construction, monthly inspection.	Implementing Entity, in consultation with the TAC, to compile in first 12 months guidance related to light pollution and minimization measures for use by Land Use Authority Permittee. Implementing Entity to update every 5 years as necessary.
BMP-7 (Biological Monitor)	Is an approved biological monitor present on the project site during the required times? Have work stoppages been reported to the Wildlife Agencies? Have observations of listed species been reported to CDFW?	Periodic inspection of the project site by Land Use Authority Permittee Permit Compliance staff or the Implementing Entity to confirm presence of biological monitor. Review of monitoring reports submitted by biological monitor.	Monthly during construction.	Implementing Entity to develop checklist of qualifications for Approved Biologist in first 6 months, in coordination with the Wildlife Agencies.
BMP-8 (Training of Construction Staff)	Are construction staff being trained by an Approved Biologist regarding all	Implementing Entity review of documentation submitted that confirms	Monthly during construction.	Implementing Entity to describe contents of required

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
	requirements listed in the AMM? Has required documentation been submitted to the Implementing Entity?	every member of the construction staff has received the required training.		training of construction staff by Approved Biologist in first 6 months, in coordination with the Wildlife Agencies.
BMP-9 (Soil Compaction)	Did the proponent treat compacted soils after construction to restore water infiltration and soil hydrology to pre-project conditions?	Post-construction inspection of the project site by Land Use Authority Permittee Permit Compliance staff or the Implementing Entity to confirm that soil compaction treatments were applied.	Within one month after finishing restoration work.	Implementing Entity to develop in first 6 months requirements for compaction treatments of temporarily disturbed sites.
BMP-10 (Revegetation)	Did the proponent revegetate cut and fill slopes as required?	Post-construction inspection of the project site by Land Use Authority Permittee Permit Compliance staff or the Implementing Entity to confirm revegetation was done, and that it persists.	Within one month after finishing restoration work.	Implementing Entity to develop in first 6 months requirements for revegetation or restoration of temporarily disturbed sites.
BMP-11 (Speed Limit)	Are project-related vehicles observing the appropriate speed limits in the Plan Area?	Land Use Authority Permittee coordination with any biological monitors to ensure speed limit is being followed.	Monthly during construction.	None.
ROAD-1 (Road Project Location)	Did the project proponent avoid environmentally sensitive area to the maximum extent possible when selecting the location for a road project?	Land Use Authority Permittee will review project plans to determine that road projects have avoided sensitive environmental resources to the maximum extent feasible.	During design review.	None.
ROAD-2 (Wildlife Crossing Structures)	Does the design of the road project include wildlife crossing structures at required locations, and does the design	Land Use Authority Permittee will review project plans to determine that road projects have included wildlife	During design review, and post-construction.	Implementing Entity to develop in first 12 months detailed requirements for dry

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
	of the wildlife crossing meet all requirements for the targeted species?	crossing structures at all required locations. Land Use Authority Permittee, Implementing Entity and the TAC will approve final wildlife crossing designs		wildlife crossings and wildlife crossing that also provide hydrologic connectivity.
ROAD-3 (Roadside Pesticide Use)	For entities conducting roadside pesticide use, are label requirements being followed and are signs identifying restricted areas (e.g., California tiger salamander breeding ponds) placed?	Land Use Authority Permittee will coordinate with Approved Biologist to confirm label requirements are being followed and will post signs on road shoulders. Implementing Entity will confirm placement of road signs in sensitive areas.	Monthly during construction.	Implementing Entity to determine sign wording and designs in first 18 months so that they are consistent within the Plan Area.
NATURE TRAIL-1 (Nature Trail Plan)	Has a nature trail plan been prepared for each preserve that allows public access on a nature trail in the PMP? Does the trail plan meet requirements listed in the AMM?	Implementing Entity and Wildlife Agency review of trail plans. Public access not allowed without an approved trail plan.	During preparation of PMPs.	Implementing Entity to develop in first 18 months an outline for trail plans and required contents.
NATURE TRAIL-2 (Nature Trail Protection of Duripan)	Are trails in preserves avoiding impacts to the soil hardpan/duripan? Are trails remaining unpaved?	Implementing Entity field verification of trail locations and unpaved status.	During construction of nature trails.	None.
NATURE TRAIL-3 (Nature Trail Location)	Are trails in preserve avoiding impacts to sensitive resources?	Implementing Entity field verification of trail locations as they relate to sensitive resources.	During construction of nature trails.	Implementing Entity to develop in first 18 months a list of sensitive resources to be avoided by nature trails on Preserves.
NATURE TRAIL-4 (Biological Studies Prior to	Have biological studies been conducted during preparation of the trail plan? Do	Implementing Entity review of the trail plan and supporting documentation.	During preparation of PMPs.	Implementing Entity to develop in first 18 months a

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
Nature Trail Design)	they identify appropriate avoidance and minimization measures for trail construction and operation?			listing of required biological studies for trail plans.
NATURE TRAIL-5 (Monitoring of Nature Trail Impacts)	Are nature trail impacts being monitored according to the PMP for that preserve? If monitoring indicates impacts, has use of the trail been discontinued?	Implementing Entity review of trail effects monitoring and coordination with Preserve Manager.	Monthly.	Implementing Entity to develop in first 18 months examples of thresholds for closure of nature trail, to be included in trail plans.
RE-ESTABLISHMENT/ ESTABLISHMENT-1 (Vernal Pool)	Are entities conducting SSHCP vernal pool re-establishment/establishment following the requirements identified in the AMM?	Implementing Entity review of vernal pool re-establishment/establishment plans. Field verification by Implementing Entity of vernal pool conditions and consistency with stated guidelines and plans.	During planning and design of re-establishment/ establishment activities, and during construction.	Implementing Entity to develop in first 6 months the outline and required contents of vernal pool re-establishment/establishment plans.
RE-ESTABLISHMENT/ ESTABLISHMENT-2 (Vernal Pool Inocula Bank)	Are soils from converted vernal pools being excavated and stored using the appropriate protocols? Are inocula soils placed in re-established and/ or established pools being sourced from the appropriate geologic formation and soil type?	Land Use Authority Permittee review of plans for projects converting vernal pools to ensure that they clearly state the disposition of vernal pool soils. Implementing Entity coordination with staff or contractors re-establishing or establishing vernal pools on preserves to ensure that inocula are correct.	During design review, and during implementation of re-establishment/ establishment plans.	Implementing Entity to develop in first 6 months plans for inocula banking (e.g., how long will inocula be considered viable, how will viability be confirmed, how will inocula from different sources be organized).
STREAM-1 (Laguna Creek Wildlife Corridor)	Are proponents establishing the appropriate size setback on Laguna Creek? Are trails being placed in the correct location within the setbacks?	Review of project plans by Land Use Authority to confirm that Laguna Creek setbacks are designed according to requirements, including locations of trails. Field verification by Land Use	During design review, and after implementation.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
		Authority Permittee or Implementing Entity to confirm that Stream Setbacks are correctly established.		
STREAM-2 (UDA Stream Setbacks)	Are proponents establishing appropriate setbacks on Elder Creek, Frye Creek, Gerber Creek, Morrison Creek, Paseo Central, and Sun Creek? Are trails being placed in the correct location within the setbacks?	Review of project plans by Land Use Authority Permittee to confirm that Stream Setbacks are designed according to requirements, including locations of trails. Field verification by Land Use Authority Permittee or Implementing Entity to confirm that Stream Setbacks are correctly established.	During design review, and after implementation.	None.
STREAM-3 (Minor Tributaries to UDA Streams)	Are proponents establishing appropriate setbacks on first and second order tributaries that are credited as avoided? Are trails being placed in the setbacks?	Review of project plans by Land Use Authority Permittee to confirm that Stream Setbacks are designed according to requirements, including locations of trails. Field verification by Land Use Authority Permittee or Implementing Entity to confirm that Stream Setbacks are correctly established.	During design review, and after implementation.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
STREAM-4 (Minimize Effects from Temporary Channel Re-routing)	If stream channels are being re-routed during construction, are the measures identified in the AMM being implemented to avoid hydrological impacts?	Local Land Use Authority Permittee or Implementing Entity review of plans for temporary stream channel re-routing. Periodic inspection of the project site by Land Use Authority Permittee Permit Compliance staff or the Implementing Entity to confirm required measures are being implemented and maintained.	During design review, and monthly inspection.	None.
STREAM-5 (Design for Stream Channel Re-Routing)	Do designs for stream channel re-routing include the considerations outlined in the AMM?	Local Land Use Authority Permittee or Implementing Entity review of plans for stream channel re-routing. Local Land Use Authority Permittee or Implementing Entity field verification of project implementation.	During design review, and after implementation.	None.
UTILITY-1 (Avian Collision Avoidance)	Are new or relocated utility poles, lines and cell towers being designed in conformance with APLIC standards, as required under the AMM?	Local Land Use Authority Permittee or Implementing Entity review of plans for new or relocated utility poles, lines and cell towers.	During design review.	None.
UTILITY-2 (Utility Maintenance on Preserves)	When utility maintenance must occur on preserves with vernal pools, are the utilities adhering to AMM requirements on timing?	Preserve Manager will report to Implementing Entity on utility maintenance access and timing.	Monthly.	None.
UTILITY-3 (Trenchless Construction Methods)	Are trenchless construction methods being used in the locations required in the AMM?	Local Land Use Authority Permittee or Implementing Entity review of pipeline or conduit projects to confirm that trenchless construction methods have been specified in the required locations.	During design review.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
UTILITY-4 (Siting of Entry and Exit Location)	When trenchless construction methods are used, are the entry and exit locations being sited to avoid vernal pools and riparian woodland.	Local Land Use Authority Permittee or Implementing Entity review of pipeline or conduit projects to confirm that trenchless construction entry and exit locations avoid vernal pools and riparian woodland.	During design review.	None.
LEVEE-1 (Preparation of Hydrologic Analysis)	If a PMP includes modification or breaching of an existing levee, or impeding flows on the water side of an existing levee, has a hydrologic analysis been conducted? If so and the analysis indicates that the activity would substantially increase flood stage elevations or flood risk outside the Preserve, has the levee activity been not implemented?	Implementing Entity review and approval of Draft Individual PMPs. Implementing Entity annual reporting of Preserve System activities.	Reporting included in Annual Reports.	None.
SPECIES-1 (Litter Removal Program)	Has a Litter Removal Program been prepared for each Covered Activity that implements Covered Species AMMs?	Review of Litter Removal Program by the Land Use Authority Permittee or Implementing Entity. Periodic inspection of the project site by Land Use Authority Permittee Permit Compliance staff or the Implementing Entity to confirm required measures are being implemented and maintained.	During design review, and monthly inspection.	Implementing Entity to provide in first 6 months a checklist for required contents of a litter removal program for use by Land Use Authority Permittee.
SPECIES-2 (No Pets in Construction Areas)	Have construction workers been informed that pets are not allowed on construction sites if a Covered Activity must implement Covered Species	Land Use Authority Permittee or Implementing Entity review of documentation that workers have received notification. Periodic	Monthly inspection.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
	AMMs? Are pets present on construction sites where they are not allowed?	inspection of the project site by Land Use Authority Permittee Permit Compliance staff or the Implementing Entity to confirm pets are not present.		
SPECIES-3 (Take Report)	Is required reporting of take of Covered Species occurring?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure take is not unreported.	Monthly	Implementing Entity to develop in first 6 months the required contents of take report.
SPECIES-4 (Post Construction Compliance Report)	Did a completed Covered Activity submit its post-construction compliance report as required?	Land Use Authority Permittee or Implementing Entity review of post-construction compliance report.	Post-construction	Implementing Entity to develop in first 12 months the required contents of post-construction compliance report.
PLANT-1 (Rare Plant Surveys)	Are required surveys being conducted?	Land Use Authority or Implementing Entity review of application packages.	During project design.	Implementing Entity to develop in first 12 months protocols for Orcutt grass surveys in consultation with the TAC.
PLANT-2 (Rare Plant Protection	Are occurrences being protected as required?	If surveys indicate occurrences are present, Implementing Entity to work with project proponent to establish preserve.	Prior to project construction.	None.
ORCUTT-1 (Orcutt Grass Surveys)	Are required surveys being conducted?	Land Use Authority or Implementing Entity review of application packages.	During project design.	Implementing Entity to develop in first 12 months protocols for Orcutt grass surveys, in consultation with the TAC.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
ORCUTT-2 (Orcutt Grass Protection)	Are occurrences of Sacramento or slender Orcutt grass being protected as required?	If surveys indicate occurrences are present, Implementing Entity to work with project proponent to establish preserve.	Prior to project construction.	None.
CTS-1 (California Tiger Salamander Daily Construction Schedule)	Are construction activities in California tiger salamander modeled habitat restricted as required in the AMM?	Implementing Entity coordination with any biological monitors to ensure daily construction schedule is being followed.	Monthly during construction.	None.
CTS-2 (California Tiger Salamander Exclusion Fencing)	If construction activities are occurring in modeled habitat between October 15 and July 15, is required exclusion fencing being installed, inspected, and maintained?	Implementing Entity coordination with Approved Biologist is on-site to confirm exclusion fencing is installed, maintained, and is being inspected by the Approved Biologist.	Monthly during construction.	None.
CTS-3 (California Tiger Salamander Monitoring)	If construction activities are occurring in modeled habitat between October 15 and July 15, is an Approved Biologist on-site?	Implementing Entity coordination with any biological monitors to ensure an Approved Biologist is on-site.	Monthly during construction.	Implementing Entity to develop checklist of qualifications for Approved Biologist in first 6 months, in coordination with the Wildlife Agencies.
CTS-4 (Avoid California Tiger Salamander Entrapment)	If construction activities are occurring in modeled habitat between October 15 and July 15, are required steps being taken to avoid California tiger salamander entrapment?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.
CTS-5 (California Tiger Salamander Encounter Protocol)	If construction activities are occurring in modeled habitat between October 15 and July 15, are required encounter protocols being followed?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
CTS-6 (Erosion Control Materials in California Tiger Salamander Habitat)	If erosion control is implemented in California tiger salamander modeled habitat, does it adhere to the requirements of the AMM?	Review of erosion control materials by Land Use Authority Permittee, Permit Compliance staff and/or by Biological Monitor, if present.	Monthly during construction.	None.
	Have the requirements been included in the bid solicitation package for the contractor?	Land Use Authority Permittee review of bid solicitation package.	Before project proponent issues bid solicitation package.	None.
CTS-7 (Rodent Control)	If rodent control is used on a Covered Activity project site, is it restricted to the developed portion of the project site	Implementing Entity coordination with any biological monitors to ensure rodent control use is appropriately restricted.	Monthly during construction.	Implementing Entity to define "developed portion of site" for use by biological monitors, and describe any additional restrictions on types of allowable rodent control, both in first 6 months.
WS-1 (Western Spadefoot Work Window)	Are Covered Activities within western spadefoot modeled habitat occurring between May 15 and October 15 only?	Land Use Authority Permittee review of construction plans, confirmation of construction timing by Permit Compliance staff.	During plan check and monthly during construction.	None.
WS-2 (Western Spadefoot Exclusion Fencing)	If construction activities are occurring in modeled habitat between October 15 and May 15, is required exclusion fencing being installed, inspected, and maintained?	Implementing Entity coordination with Approved Biologist is on-site to confirm exclusion fencing is installed, maintained, and is being inspected by the Approved Biologist.	Monthly during construction.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
WS-3 (Western Spadefoot Monitoring)	If construction activities are occurring in modeled habitat between October 15 and May 15, is an Approved Biologist on-site?	Implementing Entity coordination with any biological monitors to ensure an Approved Biologist is on-site.	Monthly during construction.	Implementing Entity to develop checklist of qualifications for Approved Biologist in first 6 months, in coordination with the Wildlife Agencies.
WS-4 (Avoid Western Spadefoot Entrapment)	If construction activities are occurring in modeled habitat between October 15 and May 15, are required steps being taken to avoid western spadefoot entrapment?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.
WS-5 (Erosion Control Materials in Western Spadefoot Habitat)	If erosion control is implemented in western spadefoot modeled habitat, does it adhere to the requirements of the AMM?	Review of erosion control materials by Land Use Authority Permittee, Permit Compliance staff and/or by Biological Monitor, if present.	Monthly during construction.	None.
	Have the requirements been included in the bid solicitation package for the contractor?	Land Use Authority Permittee review of bid solicitation package.	Before project proponent issues bid solicitation package.	None.
WS-6 (Western Spadefoot Encounter Protocol)	If construction activities are occurring in modeled habitat between October 15 and May 15, are required encounter protocols being followed?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.
GGS-1 (Giant Garter Snake Surveys)	Are planning surveys being conducted for Covered Activities occurring in giant gartersnake modeled habitat? Are areas of giant gartersnake habitat on the project site delineated and avoided?	Land Use Authority Permittee review of planning surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months protocol for giant gartersnake planning surveys.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
GGS-2 (Giant Garter Snake Work Window)	Are Covered Activities within giant gartersnake modeled habitat occurring between May 1 and September 15 only?	Land Use Authority Permittee review of construction plans, confirmation of construction timing by Permit Compliance staff.	During plan check and monthly during construction.	None.
GGS-3 (Giant Gartersnake Monitoring)	If construction activities are occurring in modeled habitat between September 15 and May 1, is an Approved Biologist on-site?	Implementing Entity coordination with any biological monitors to ensure an Approved Biologist is on-site.	Monthly during construction.	Implementing Entity to develop checklist of qualifications for Approved Biologist in first 6 months, in coordination with the Wildlife Agencies.
GGS-4 (Giant Garter Snake Habitat Dewatering and Exclusion)	If construction activities are occurring in modeled habitat between September 15 and May 1, was the habitat dewatered and has required exclusion fencing being installed, inspected, and maintained?	Implementing Entity coordination with Approved Biologist is on-site to confirm dewatering has occurred and that exclusion fencing is installed, maintained, and is being inspected by the Approved Biologist.	Monthly during construction.	Implementing Entity to develop in first 12 months requirements for dewatering plans.
GGS-5 (Avoid Giant Gartersnake Entrapment)	If construction activities are occurring in modeled habitat between September 15 and May 1, are required steps being taken to avoid giant gartersnake entrapment?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.
GGS-6 (Erosion Control Materials in Giant Gartersnake Habitat)	If erosion control is implemented in giant gartersnake modeled habitat, does it adhere to the requirements of the AMM?	Review of erosion control materials by Land Use Authority Permittee, Permit Compliance staff and/or by Biological Monitor, if present.	Monthly during construction.	None.
	Have the requirements been included in the bid solicitation package for the contractor?	Land Use Authority Permittee review of bid solicitation package.	Before project proponent issues bid solicitation package.	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
GGS-7 (Giant Gartersnake Encounter Protocol)	If construction activities are occurring in modeled habitat between September 15 and May 1, are required encounter protocols being followed?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.
GGS-8 (Giant Gartersnake Post Construction Restoration)	Have temporarily disturbed areas been revegetated or otherwise restored to pre-project conditions?	Implementing Entity review of photodocumentation submitted by project proponent.	Photodocumentation submitted one month after finishing restoration work.	Implementing Entity to develop list of requirements for revegetation or restoration of temporarily disturbed sites.
WPT-1 (Western Pond Turtle Surveys)	Are planning surveys being conducted for Covered Activities occurring in western pond turtle modeled habitat? Are areas of western pond turtle habitat on the project site delineated and avoided?	Land Use Authority Permittee review of planning surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months a protocol for planning surveys for western pond turtle.
WPT-2 (Western Pond Turtle Work Window)	Are Covered Activities within giant gartersnake modeled habitat occurring between May 1 and September 15 only?	Land Use Authority Permittee review of construction plans, confirmation of construction timing by Permit Compliance staff.	During plan check and monthly during construction.	None.
WPT-3 (Western Pond Turtle Monitoring)	If construction activities are occurring in modeled habitat between September 15 and May 1, is an Approved Biologist on-site?	Implementing Entity coordination with any biological monitors to ensure an Approved Biologist is on-site.	Monthly during construction.	Implementing Entity to develop checklist of qualifications for Approved Biologist in first 6 months, in coordination with the Wildlife Agencies.
WPT-4 (Western Pond Turtle Habitat Dewatering and Exclusion)	If construction activities are occurring in modeled habitat between September 15 and May 1, was the habitat dewatered	Implementing Entity coordination with Approved Biologist is on-site to confirm dewatering has occurred and that	Monthly during construction.	Implementing Entity to develop in first 12 months requirements for dewatering

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
	and has required exclusion fencing being installed, inspected, and maintained?	exclusion fencing is installed, maintained, and is being inspected by the Approved Biologist.		plans.
WPT-5 (Avoid Western Pond Turtle Entrapment)	If construction activities are occurring in modeled habitat between September 15 and May 1, are required steps being taken to avoid giant gartersnake entrapment?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.
WPT-6 (Erosion Control Materials in Western Pond Turtle Habitat)	If erosion control is implemented in western pond turtle modeled habitat, does it adhere to the requirements of the AMM?	Review of erosion control materials by Land Use Authority Permittee, Permit Compliance staff and/or by Biological Monitor, if present.	Monthly during construction.	None.
	Have the requirements been included in the bid solicitation package for the contractor?	Land Use Authority Permittee review of bid solicitation package.	Before project proponent issues bid solicitation package.	None.
WPT-7 (Western Pond Turtle Modeled Habitat Speed Limit)	Is the project proponent complying with the required speed limit, if a Covered Activity is located in western pond turtle modeled habitat?	Land Use Authority Permittee coordination with any biological monitors to ensure speed limit is being followed.	Monthly during construction.	None.
WPT-8 (Western Pond Turtle Encounter Protocol)	If construction activities are occurring in modeled habitat between September 15 and May 1, are required encounter protocols being followed?	Implementing Entity review of Take Reports, and coordination with any biological monitors to ensure proper protocols are being used.	Monthly during construction.	None.
WPT-9 (Western Pond Turtle Post Construction Restoration)	Have temporarily disturbed areas been revegetated or otherwise restored to pre-project conditions?	Implementing Entity review of photodocumentation submitted by project proponent.	Photodocumentation submitted one month after finishing restoration work.	Implementing Entity to develop list of requirements for revegetation or restoration of temporarily disturbed sites.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
TCB-1 (Tricolored Blackbird Surveys)	Are planning surveys being conducted for Covered Activities occurring in tricolored blackbird modeled habitat? Are known tricolored blackbird nesting colonies on the project site delineated and avoided during nesting?	Land Use Authority Permittee review of design surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months a protocol for design surveys for tricolored blackbird.
TCB-2 (Tricolored Blackbird Pre-Construction Surveys)	Are pre-construction surveys being conducted?	Land Use Authority Permittee review of pre-construction surveys.	Prior to construction.	Implementing Entity to develop in first 6 months protocol for tricolored blackbird pre-construction surveys.
TCB-3 (Tricolored Blackbird Nest Setback)	If a nest is present on the Covered Activity Project site, has a 500-foot nest setback been established?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding setback. Confirmation of avoidance by Permit Compliance staff.	During construction, weekly contact with Approved Biologist.	None.
TCB-4 (Tricolored Blackbird Nest Setback Monitoring)	If a nest setback has been established, is the Approved Biologist monitoring behavior of the tricolored blackbirds to ensure they are not disturbed by the Covered Activities occurring within the setback?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding setback. Review of monitoring reports submitted by Approved Biologist.	Monthly.	Implementing Entity to develop in first 6 months a monitoring protocol for tricolored blackbird nest setbacks.
TCB-5 (Timing of Pesticide Use and Harvest Timing on Agricultural Preserves)	Are the restrictions on harvest timing and pesticide use being complied with?	Implementing Entity periodic inspection of Cropland preserve to confirm compliance.	Monthly between January 1 and June 30.	Implementing Entity to develop in first 12 months, in coordination with the TAC details on pesticide use timing and harvest timing to avoid take of nesting tricolored blackbirds.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
SWHA-1 (Swainson's Hawk Surveys)	Are planning surveys being conducted for Covered Activities occurring in Swainson's hawk modeled habitat? Are areas of Swainson's hawk habitat on the project site delineated and avoided?	Land Use Authority Permittee review of planning surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months a protocol for planning surveys for Swainson's hawk.
SWHA-2 (Swainson's Hawk Pre-Construction Surveys)	Are pre-construction surveys being conducted?	Land Use Authority Permittee review of pre-construction surveys.	Prior to construction.	Implementing Entity to develop in first 6 months a protocol for Swainson's hawk pre-construction surveys.
SWHA-3 (Swainson's Hawk Nest Buffer)	If a nest is present on the Covered Activity Project site, has a 0.25-mile nest buffer been established?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding nest buffer. Confirmation of avoidance by Permit Compliance staff.	During construction, weekly contact with Approved Biologist.	None.
SWHA-4 (Swainson's Hawk Nest Buffer Monitoring)	If a nest buffer has been established, is the Approved Biologist monitoring behavior of the Swainson's hawks within the nest buffer to ensure they are not disturbed by the Covered Activity?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding nest buffer. Review of monitoring reports submitted by Approved Biologist.	Monthly.	Implementing Entity to develop in first 6 months a monitoring protocol for Swainson's hawk nest buffer.
GSC-1 (Greater Sandhill Crane Surveys)	Are planning surveys being conducted for Covered Activities occurring in greater sandhill crane modeled habitat? Are areas of greater sandhill crane habitat on the project site delineated and avoided?	Land Use Authority Permittee review of planning surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months a protocol for planning surveys for greater sandhill crane.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
GSC-2 (Greater Sandhill Crane Pre-Construction Surveys)	Are pre-construction surveys being conducted?	Land Use Authority Permittee review of pre-construction surveys.	Prior to construction.	Implementing Entity to develop in first 6 months a protocol for greater sandhill crane pre-construction surveys.
GSC-3 (Greater Sandhill Crane Roost Buffer)	If a roost is present on the Covered Activity Project site, has a 0.5-mile roosting setback been established?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding roost buffer. Confirmation of avoidance by Permit Compliance staff.	During construction, weekly contact with Approved Biologist.	None.
GSC-4 (Greater Sandhill Crane Visual Barrier)	If project-related activities occur within the 0.5-mile roosting buffer, has a visual barrier been constructed according to requirements?	Land Use Authority Permittee review of construction plans to ensure visual barrier is included, confirmation of appropriate visual barrier by Permit Compliance staff.	Project-specific	Implementing Entity to develop in first 18 months specifications for visual barrier to protect greater sandhill crane.
GSC-5 (Greater Sandhill Crane Roost Buffer Monitoring)	If a roost buffer has been established and project activities are occurring within the roost buffer, is the Approved Biologist monitoring behavior of the greater sandhill crane to ensure they are not disturbed by the Covered Activity?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding roost buffer. Review of monitoring reports submitted by Approved Biologist.	Monthly.	Implementing Entity to develop in first 6 months a monitoring protocol for greater sandhill crane roost buffers.
WBO-1 (Western Burrowing Owl Surveys)	Are planning surveys being conducted for Covered Activities occurring in western burrowing owl modeled habitat? Are areas of western burrowing owl habitat on the project site delineated and avoided?	Land Use Authority Permittee review of planning surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months a protocol for planning surveys for western burrowing owl.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
WBO-2 (Western Burrowing Owl Preconstruction Surveys)	Are pre-construction surveys being conducted?	Land Use Authority Permittee review of pre-construction surveys.	Prior to construction.	Implementing Entity to develop in first 6 months a protocol for western burrowing owl pre-construction surveys.
WBO-3 (Burrowing Owl Avoidance)	If burrowing owls are present within the project site during the breeding season, are they being avoided? If construction must occur inside the 250-foot setback, has an avoidance and minimization plan been prepared and implemented? If during the non-breeding season, are owls being avoided, or have unoccupied burrows been excavated?	Land Use Authority Permittee and/or Implementing Entity and Wildlife Agency review of avoidance and minimization plan. Periodic inspection of project site to verify compliance with approved plan. Is behavior of burrowing owls being monitored by an Approved Biologist?	Prior to construction, monitoring during construction.	Implementing Entity to develop in first 6 months requirements for burrowing owl avoidance and minimization plans.
WBO-4 (Burrowing Owl Construction Monitoring)	If a setback has been established, is the Approved Biologist monitoring compliance with the setback and behavior of the western burrowing owls to ensure they are not disturbed by the Covered Activity?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding setback. Review of monitoring reports submitted by Approved Biologist.	Monthly.	Implementing Entity to develop in first 6 months a monitoring protocol for western burrowing owl nest setbacks.
WBO-5 (Burrowing Owl Passive Relocation)	Is passive relocation restricted to only instances where it is expressly approved by the Wildlife Agencies, and conducted according to the requirements of the measure?	Wildlife Agency review of passive relocation requests. Review of monitoring reports submitted by Approved Biologist.	Project-by-project	None.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
WBO-6 (Burrowing Owl Timing of Maintenance Activities)	Are activities near preserves, preserve setbacks, or Stream Setbacks timed to avoid effects on occupied burrows of western burrowing owls?	Case-by-case review by the Implementing Entity of activities occurring in preserves and setbacks.	Ongoing, as new activities are proposed	None
WBO-7 (Rodent Control)	If rodent control is used on a Covered Activity project site, is it restricted to the developed portion of the project site	Implementing Entity coordination with any biological monitors to ensure rodent control use is appropriately restricted.	Monthly during construction.	Implementing Entity to define "developed portion of site" for use by biological monitors, and describe any additional restrictions on types of allowable rodent control, both in first 6 months.
RAPTOR-1 (Raptor Surveys)	Are planning surveys being conducted for Covered Activities occurring in raptor Covered Species modeled habitat? Are areas of raptor habitat on the project site delineated and avoided?	Land Use Authority Permittee review of planning surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months a protocol for planning surveys for northern harrier, ferruginous hawk, white-tailed kite and Cooper's hawk.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
RAPTOR-2 (Raptor Pre-Construction Surveys)	Are pre-construction surveys being conducted?	Land Use Authority Permittee review of pre-construction surveys.	Prior to construction.	Implementing Entity to develop in first 6 months a protocol for pre-construction surveys for northern harrier, ferruginous hawk, white-tailed kite and Cooper's hawk.
RAPTOR-3 (Raptor Nest/Roost Buffer)	If a nest or roost is present on the Covered Activity project site, has a 0.25-mile nest/roost buffer been established?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding nest/roost buffer. Confirmation of avoidance by Permit Compliance staff.	During construction, weekly contact with Approved Biologist.	None.
RAPTOR-4 (Raptor Nest/Roost Buffer Monitoring)	If a nest/roost buffer has been established, is the Approved Biologist monitoring behavior of raptor Covered Species within the setback to ensure they are not disturbed by the Covered Activity?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding nest/roost buffers. Review of monitoring reports submitted by Approved Biologist.	Monthly.	Implementing Entity to develop in first 6 months a monitoring protocol for nest/roost buffers for northern harrier, ferruginous hawk, white-tailed kite and Cooper's hawk.
BAT-1 (Winter Hibernaculum Surveys)	Are planning surveys being conducted for Covered Activities occurring in western red bat modeled habitat? Are winter hibernacula on the project site delineated and avoided?	Land Use Authority Permittee review of planning surveys and construction plans, confirmation of avoidance by Permit Compliance staff.	During plan check and monthly during construction.	Implementing Entity to develop in first 6 months a protocol for western red bat winter hibernaculum planning surveys.
BAT-2 (Winter Hibernaculum Pre-Construction Surveys)	Are pre-construction surveys being conducted?	Land Use Authority Permittee review of pre-construction surveys.	Prior to construction.	Implementing Entity to develop in first 6 months a protocol for western red bat pre-construction surveys.

Table 8-2
Framework for SSHCP AMM Compliance Monitoring

AMM	What do we need to know to assess compliance?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program
BAT-3 (Winter Hibernaculum Buffer)	If a winter hibernaculum is present on the Covered Activity Project site, has a 300-foot winter hibernaculum buffer been established?	Implementing Entity and/or Land Use Authority Permittee coordination with Approved Biologist regarding winter hibernaculum buffer. Confirmation of avoidance by Permit Compliance staff.	During construction, weekly contact with Approved Biologist.	None.
BAT-4 (Bat Eviction Methods)	If direct effects to a non-maternity roost cannot be avoided on a Covered Activity project site, is an Approved Biologist using safe eviction methods to remove bats?	Implementing Entity and Wildlife Agency coordination with Approved Biologist regarding non-maternity roosts and eviction techniques. Review of monitoring reports submitted by Approved Biologist.	During construction, as-needed contact with Approved Biologist	Implementing Entity to develop in first 12 months a protocol for safe eviction of western burrowing owl.

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8.2.3 AMM Effectiveness Monitoring

In addition to monitoring compliance with SSHCP AMM requirements, the SSHCP Compliance and AMM Monitoring Program will monitor the effectiveness of each SSHCP AMM to assure that each AMM is avoiding or minimizing effects of Covered Activities on Covered Species and SSHCP natural land cover types to the extent assumed during the preparation of the SSHCP Conservation Strategy, and as assumed by the SSHCP impact analysis (Chapter 6). The results of AMM effectiveness monitoring will be used to adaptively modify an AMM, if that is necessary to reduce adverse effects to Covered Species and SSHCP natural land cover types. The effectiveness of the operational Conservation Strategy will be monitored through the SSHCP Preserve System Monitoring and Management Program, as described in Section 8.3.

The effectiveness of each SSHCP AMM will be monitored by the methods and processes summarized in Table 8-3.

Table 8-3
Framework for SSHCP AMM Effectiveness Monitoring

AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
LID-1 (Stormwater Quality)	Are stormwater quality measures preventing effects to Preserves?	Special study for pre- and post-project edge conditions on Preserves (Section 8.3.3.5).	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.
LID-2 (Groundwater Recharge)	Only compliance monitoring required (Table 8-2).			
LID-3 (Natural Site Features)	No effectiveness monitoring required.			
EDGE-1 (Compatible Land Uses):	Are compatible land uses minimizing indirect effects to Preserves and Covered Species on Preserves?	Special study for pre- and post-project edge conditions (e.g., noise, ground vibration, light, hydrology, non-native species) on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.
EDGE-2 (Single-Loaded Streets)	Are single-loaded streets minimizing indirect effects to Preserves and Covered Species on Preserves?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.

Table 8-3
Framework for SSHCP AMM Effectiveness Monitoring

AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
EDGE-3 (Preserve Setbacks)	Are Preserve Setbacks minimizing indirect effects to Preserves and Covered Species on Preserves?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.
EDGE-3a (Setback Recreational Trails)	Are trails or other allowed facilities in Preserve Setbacks designed according to the requirements of EDGE-3a preventing direct and indirect effects to Covered Species and Covered Species modeled habitat on Preserves?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.
EDGE-3b (Setback Firebreaks)	Are firebreaks in Preserve Setbacks designed according to the requirements of EDGE-3b preventing direct and indirect effects to Covered Species and Covered Species modeled habitat on Preserves?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
EDGE-3c (Setback Shade Trees and Landscaping)	Are shade trees and landscaping in Preserve Setbacks designed according to the requirements of EDGE-3c preventing direct and indirect effects to Covered Species and Covered Species modeled habitat on Preserves?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.
EDGE-4 (Locate Stormwater Control Outside Preserves)	Only compliance monitoring required (Table 8-2).			
EDGE-5 (Stormwater Control in Preserve Setbacks)	Is trail runoff within Preserve Setbacks being collected and prevented from entering Preserves?	Implementing Entity inspection of Preserve Setbacks during rain events.	Annually during rain events	Implementing Entity to develop methodology to be used to evaluate effectiveness of stormwater control in first 18 months after permit issuance.
EDGE-6 (Detention Basins in Linkage Preserves)	Is the detention basin causing adverse effects to the surrounding Preserve?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5.	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.
EDGE-7 (Hardpan/Duripan Protection)	If the hardpan/duripan has been repaired, did the repair restore the perched aquifer?	Periodic inspection of vernal pools around the repair area to	Annually after spring filling of pools.	Implementing Entity to develop within first 18

Table 8-3
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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
		determine whether subsurface hydrology is intact.		months the methods for assessing success of hardpan/duripan repairs.
EDGE-8 (Outdoor Lighting)	Is lighting being controlled so that it does not spill onto Preserves and affect Covered Species in the Preserves?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, periodic post-project studies beginning no less than 5 years after project completion, as described in Section 8.3.3.5	Implementing Entity to develop prior to SSHCP permit issuance a methodology for special study for pre-project edge conditions on Preserves. Same methodology will be used for post-project conditions.
EDGE-9 (Livestock Access to Preserves)	Is the designated livestock access point functioning to minimize effects to the preserve?	Implementing Entity inspection of the livestock access point for vegetation damage and area of effects.	Annually in spring.	None.
EDGE-10 (Prevent Invasive Species Spread)	Are invasive species being controlled before entering Preserves?	Implementing Entity implements Invasive Species Monitoring and Eradication Program.	Quarterly weed assessment on preserves, with other opportunistic assessment.	Implementing Entity to develop Invasive Species Monitoring and Eradication Program in first 18 months.
BMP-1 (Construction Fencing)	Are construction activities occurring only within the construction fencing?	Inspection of the project site by Implementing Entity or Land Use Authority Permittee.	Monthly during construction.	None.
BMP-2 (Erosion Control)	Are temporary erosion control measures working to prevent sediment, stormwater, and pollutant runoff?	Inspection of the project site by Implementing Entity or Land Use Authority Permittee.	Monthly during construction.	None.
BMP-3 (Equipment Storage and Fueling)	Is the designated storage and fueling area preventing ground disturbance and	Inspection of the project site by Implementing Entity or Land	Monthly during construction.	None.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
	discharge of hazardous materials outside the development footprint?	Use Authority Permittee.		
BMP-4 (Erodible Materials)	Are erodible materials from the project site entering waterways?	Inspection of the project site by Implementing Entity or Land Use Authority Permittee.	Monthly during construction.	None.
BMP-5 (Dust Control)	Is dust control effective in minimizing effects on Preserves?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
BMP-6 (Construction Lighting)	Are lighting restrictions minimizing effects on light-sensitive Covered Species?	Inspection of any night operations at the project site by Implementing Entity or Land Use Authority Permittee.	Project-by-project, depends on if night construction is occurring.	None.
BMP-7 (Biological Monitor)	Is the biological monitor responding appropriately when Covered Species are detected on the Project Site, or when they determine that Covered Species are being harmed/harassed by construction activities?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
BMP-8 (Training of Construction Staff)	Are construction staff demonstrating that they understand the required AMMs and are implementing them appropriately?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
BMP-9 (Soil Compaction)	Is the soil after compaction treatment allowing infiltration?	Inspection of the project site by Implementing Entity or Land Use Authority Permittee.	One post-construction inspection during a rain event.	None.
BMP-10 (Revegetation)	Is the revegetated slope preventing erosion and runoff into SSHCP Preserves, Preserve Setbacks, or Stream Setbacks?	Inspection of the project site by Implementing Entity or Land Use Authority Permittee.	Post-construction, annual inspection during a rain event.	None.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
BMP-11 (Speed Limit)	Is the speed limit in modeled habitat eliminating collisions with Covered Species?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
ROAD-1 (Road Project Location)	Are the selected road project locations minimizing edge effects on adjacent Preserves?	Special study for pre- and post-project edge conditions on Preserves, as described in Section 8.3.3.5.	Pre-project study before development occurs, post-project study no less than 5 years after project completion.	Implementing Entity to develop before SSHCP permit issuance a preliminary methodology for a special study on baseline edge effects from road projects.
ROAD-2 (Wildlife Crossing Structures)	Are wildlife using the wildlife crossing structures?	Special study for wildlife use of crossings, as described in Section 8.3.3.5.	Study conducted after at least half of crossings are constructed.	Implementing Entity to develop in first 18 months the preliminary methodology for special study to determine wildlife use of wildlife crossing structures, including deployment of cameras or survey for sign (e.g., tracks, scat).
ROAD-3 (Roadside Pesticide Use)	Is the weed removal protocol and signage along roadways effective in removing weed infestations and protecting Covered Species habitat?	Inspections for non-native plant infestations as directed under Objective HAB-4.	As directed by Objective HAB-4 and related Conservation Actions.	Implementing Entity to develop in first 18 months a protocol for determining whether control measures are working on non-native plant infestations.
NATURE TRAIL-1 (Nature Trail Plan)	Are the management techniques outlined in the Trail Plan preventing impacts from trail use?	Monitoring of persistent disturbance on and near nature trails, including vegetation loss, trash, soil disturbance.	Periodic observations by Preserve staff, summary of observations in Annual Reports.	None.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
NATURE TRAIL-2 (Nature Trail Protection of Duripan)	Only compliance monitoring required (Table 8-2).			
NATURE TRAIL-3 (Nature Trail Location)	Only compliance monitoring required (Table 8-2).			
NATURE TRAIL-4 (Biological Studies Prior to Nature Trail Design)	Only compliance monitoring required (Table 8-2).			
NATURE TRAIL-5 (Monitoring of Nature Trail Impacts)	Only compliance monitoring required (Table 8-2).			
RE-ESTABLISHMENT/ ESTABLISHMENT-1 (Vernal Pool)	Does the re-established and/ or established vernal pool meet success criteria, as approved by the Permitting Agencies in the SSHCP Preserve System Monitoring and Management Program?	Monitor attainment of success criteria as described in the SSHCP Preserve System Monitoring and Management Program.	Starting one year after re-establishment/establishment, repeated annually.	In first 18 months, Implementing Entity to develop success criteria for re-established/established vernal pool in consultation with the TAC and Permitting Agencies.
RE-ESTABLISHMENT/ ESTABLISHMENT-2 (Vernal Pool Inocula Bank)	Is the vernal pool inocula bank preserving viable inocula, and is it proving functional for vernal pool re-establishment/ establishment efforts?	Implementing Entity sampling of vernal pool inocula banks and sampling for cysts/seeds. Review of success criteria. Conduct a special study on long-term effectiveness of the inocula bank.	Annual inspection of inocula banks. Annual review of success criteria	Implementing Entity to develop in first 6 months plans for inocula banking (e.g., how long will inocula be considered viable, how will viability be confirmed, how will inocula from different sources be organized). Implementing Entity to develop in first 18 months a special study methodology to study the effectiveness of inoculation.

Table 8-3
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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
STREAM-1 (Laguna Creek Wildlife Corridor)	Are the setbacks adequate to minimize direct and indirect effects to Laguna Creek, and to allow wildlife movement through the Wildlife Corridor?	Periodic inspection of setbacks by Implementing Entity or Land Use Authority Permittee, using checklist. Special study to evaluate wildlife use of corridor.	Quarterly inspections, and special study as described in Section 8.3.3.5.	Implementing Entity to develop in first 18 months a checklist for evaluating condition of setback (e.g., trash, light pollution, non-native species, removal of land cover types). Implementing Entity to develop in first 18 months a preliminary design for a special study examining wildlife usage of the Laguna Creek Wildlife Corridor.
STREAM-2 (UDA Stream Setbacks)	Are the setbacks adequate to minimize direct and indirect effects to Elder Creek, Frye Creek, Gerber Creek, Morrison Creek, Central Paseo, and Sun Creek?	Periodic inspection of setbacks by Implementing Entity or Land Use Authority Permittee, using checklist.	Quarterly	Implementing Entity to develop in first 18 months a checklist for evaluating condition of setback (e.g., trash, light pollution, non-native species, removal of land cover types).
STREAM-3 (Minor Tributaries to UDA Streams)	Are the 25-foot setbacks adequate to minimize direct and indirect effects to minor tributaries?	Periodic inspection of setback by Implementing Entity or Land Use Authority Permittee, using checklist.	Quarterly	Implementing Entity to develop in first 18 months a checklist for evaluating condition of setback (e.g., trash, light pollution, non-native species, removal of land cover types).

Table 8-3
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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
STREAM-4 (Minimize Effects from Temporary Channel Re-routing)	Is implementation of the required measures avoiding adverse effects to water quality?	Implementing Entity visual inspection of the Project Site, Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	Monthly visual inspection, post-construction review of report.	None.
STREAM-5 (Design for Stream Channel Re-Routing)	Is the re-routed stream channel providing modeled habitat for aquatic Covered Species?	Implementing Entity inspection of the project site.	Every 5 years, starting 5 years after completion of re-establishment/establishment.	None.
UTILITY-1 (Avian Collision Avoidance)	How many Covered Species bird collisions or electrocutions are occurring on Plan Area utility lines?	Implementing Entity review of take reports submitted by Plan Area utility companies.	As reports are available.	None.
UTILITY-2 (Utility Maintenance on Preserves)	Is the restriction on timing for maintenance near vernal pools in SSHCP Preserves or Preserve Setbacks preventing effects to vernal pools?	Implementing Entity inspection of maintenance sites after utility work has been completed.	As needed	None.
UTILITY-3 (Trenchless Construction Methods)	Only compliance monitoring required (Table 8-2).			
UTILITY-4 (Siting of Entry and Exit Location)	Only compliance monitoring required (Table 8-2).			
LEVEE-1 (Preparation of Hydrologic Analysis)	Are activities allowed under an approved PMP resulting in increased flood stage elevations or flood risk outside the Preserves?			

Table 8-3
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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
SPECIES-1 (Litter Removal Program)	Is implementation of the Litter Removal Program preventing effects on Covered Species habitat?	Periodic inspection of the project site by Land Use Authority Permittee Permit Compliance staff or the Implementing Entity to determine effectiveness of the Program.	Monthly	None.
SPECIES-2 (No Pets in Construction Areas)	Only compliance monitoring required (Table 8-2).			
SPECIES-3 (Take Report)	Only compliance monitoring required (Table 8-2).			
SPECIES-4 (Post Construction Compliance Report)	Only compliance monitoring required (Table 8-2).			
PLANT-1 (Rare Plant Surveys)	Only compliance monitoring required (Table 8-2).			
PLANT-2 (Rare Plant Protection	Is the preserve established for the occurrence providing sufficient protection from direct and indirect effects?	Conduct a population study of preserved species. For study plots, also monitor hydrology and non-native species to correlate changes in environmental conditions with population data.	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the plant population study.
ORCUTT-1 (Orcutt Grass Surveys)	Only compliance monitoring required (Table 8-2).			
ORCUTT-2 (Orcutt Grass Protection)	Is the Preserve established for the Orcutt grass occurrence providing sufficient protection from direct and indirect effects?	Conduct a population study of preserved Orcutt grasses. For study plots, also monitor hydrology and non-native species to correlate changes in	Annual within study plots for 10 years, every 5 years after trend established	Implementing Entity to describe in first 12 months a protocol for the Sacramento Orcutt grass population study.

Table 8-3
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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
		environmental conditions with population data.		
CTS-1 (California Tiger Salamander Daily Construction Schedule)	Is the daily construction schedule avoiding the California tiger salamander's active period of day?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	None.
CTS-2 (California Tiger Salamander Exclusion Fencing)	Is exclusion fencing preventing California tiger salamander from entering the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
CTS-3 (California Tiger Salamander Monitoring)	Is the biological monitor responding appropriately when California tiger salamander are found in or near the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
CTS-4 (Avoid California Tiger Salamander Entrapment)	Are any California tiger salamanders being entrapped in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
CTS-5 (California Tiger Salamander Encounter Protocol)	Is the encounter protocol minimizing effects to California tiger salamanders found in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
CTS-6 (Erosion Control Materials in California Tiger Salamander Habitat)	Are any California tiger salamanders being entrapped in erosion control materials?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
CTS-7 (Rodent Control)	Only compliance monitoring required (Table 8-2).			
WS-1 (Western Spadefoot Work Window)	Is the work window fully avoiding the active season of western spadefoot?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.

Table 8-3
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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
WS-2 (Western Spadefoot Exclusion Fencing)	Is exclusion fencing preventing western spadefoot from entering the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WS-3 (Western Spadefoot Monitoring)	Is the biological monitor responding appropriately when western spadefoot are found in or near the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WS-4 (Avoid Western Spadefoot Entrapment)	Are any western spadefoot being entrapped in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WS-5 (Erosion Control Materials in Western Spadefoot Habitat)	Are any western spadefoot being entrapped in erosion control materials?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WS-6 (Western Spadefoot Encounter Protocol)	Is the encounter protocol minimizing effects to western spadefoot found in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
GGS-1 (Giant Gartersnake Surveys)	No effectiveness monitoring required.			
GGS-2 (Giant Gartersnake Work Window)	Is the work window fully avoiding the active season of giant gartersnake?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
GGS-3 (Giant Gartersnake Monitoring)	Is the biological monitor responding appropriately when giant gartersnake are found in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
GGS-4 (Giant Gartersnake Habitat Dewatering and Exclusion)	Is dewatering and exclusion preventing giant gartersnakes from entering the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
GGS-5 (Avoid Giant Gartersnake Entrapment)	Are any giant gartersnakes being entrapped in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
GGS-6 (Erosion Control Materials in Giant Gartersnake Habitat)	Are any giant gartersnakes being entrapped in erosion control materials?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
GGS-7 (Giant Gartersnake Encounter Protocol)	Is the encounter protocol minimizing effects to giant gartersnakes found in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
GGS-8 (Giant Gartersnake Post Construction Restoration)	Is the specified restoration resulting in suitable habitat for giant gartersnake?	Implementing Entity or Land Use Authority Permittee inspection of restoration area.	Immediately post-restoration; repeat inspection after 1 year and 5 years.	Implementing Entity to develop in first 12 months a checklist to be used in the field when evaluating the restoration effort.
WPT-1 (Western Pond Turtle Surveys)	Only compliance monitoring required (Table 8-2).			
WPT-2 (Western Pond Turtle Work Window)	Is the work window fully avoiding the active season of western pond turtle?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WPT-3 (Western Pond Turtle Monitoring)	Is the biological monitor responding appropriately when western pond turtle are found in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WPT-4 (Western Pond Turtle Habitat Dewatering and Exclusion)	Is dewatering and exclusion fencing preventing western pond turtle from entering the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
WPT-5 (Western Pond Turtle Entrapment)	Are any western pond turtle entrapped in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WPT-6 (Erosion Control Materials in Western Pond Turtle Habitat)	Are any giant gartersnakes entrapped in erosion control materials?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WPT-7 (Western Pond Turtle Modeled Habitat Speed Limit)	Is the speed limit in western pond turtle modeled habitat eliminating collisions with western pond turtle?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WPT-8 (Western Pond Turtle Encounter Protocol)	Is the encounter protocol minimizing effects to western pond turtle found in the construction footprint?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WPT-9 (Western Pond Turtle Post Construction Restoration)	Is the specified restoration resulting in suitable habitat for giant gartersnake?	Implementing Entity or Land Use Authority Permittee inspection of restoration area.	Immediately post-restoration; repeat inspection after 1 year and 5 years.	Implementing Entity to develop in first 12 months a checklist to be used in the field when evaluating the restoration effort.
TCB-1 (Tricolored Blackbird Surveys)	Only compliance monitoring required (Table 8-2).			
TCB-2 (Tricolored Blackbird Pre-Construction Surveys)	Are pre-construction surveys detecting tricolored blackbird nests that are present on project sites?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	None.

Table 8-3
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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
TCB-3 (Tricolored Blackbird Nest Buffer)	Are the nest buffers adequate to avoid disturbance of nesting tricolored blackbird? Are construction activities avoiding the nest buffers?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
TCB-4 (Tricolored Blackbird Nest Buffer Monitoring)	Is the biological monitor responding appropriately when construction activities result in disturbance of nesting tricolored blackbird?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
TCB-5 (Timing of Pesticide Use and Harvest Timing on Agricultural Preserves)	Is the timing of pesticide use and harvest timing resulting in reduced effects to tricolored blackbird from these activities?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	Implementing Entity to develop in first 12 months, in coordination with the TAC details on pesticide use timing and harvest timing to avoid take of nesting tricolored blackbirds.
SWHA-1 (Swainson's Hawk Surveys)	Only compliance monitoring required (Table 8-2).			
SWHA-2 (Swainson's Hawk Pre-Construction Surveys)	Are pre-construction surveys detecting Swainson's hawk nests that are present on project sites?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	None.
SWHA-3 (Swainson's Hawk Nest Buffers)	Are the nest buffers adequate to avoid disturbance of nesting Swainson's hawk? Are construction activities avoiding the nest buffers?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
SWHA-4 (Swainson's Hawk Nest Buffer Monitoring)	Is the biological monitor responding appropriately when construction activities result in disturbance of nesting Swainson's hawk?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
GSC-1 (Greater Sandhill Crane Surveys)	Only compliance monitoring required (Table 8-2).			
GSC-2 (Greater Sandhill Crane Pre-Construction Surveys)	Are pre-construction surveys detecting greater sandhill crane roosts that are present on project sites?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	None.
GSC-3 (Greater Sandhill Crane Roost Buffer)	Are the roost buffers adequate to avoid disturbance of roosting greater sandhill cranes? Are construction activities avoiding the setback?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
GSC-4 (Greater Sandhill Crane Visual Barrier)	Are the visual barriers adequate to avoid disturbance of roosting greater sandhill crane?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction when construction occurs inside 0.5 mile of a roosting site.	Implementing Entity to develop in the first 12 months specifications for visual barrier.
GSC-5 (Greater Sandhill Crane Roost Buffer Monitoring)	Is the biological monitor responding appropriately when construction activities result in disturbance of roosting greater sandhill crane?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WBO-1 (Western Burrowing Owl Surveys)	Only compliance monitoring required (Table 8-2).			
WBO-2 (Western Burrowing Owl Preconstruction Surveys)	Are pre-construction surveys detecting western burrowing owl nests that are present on project sites?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	None.

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AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
WBO-3 (Burrowing Owl Avoidance)	Is the required avoidance eliminating construction effects on western burrowing owl?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WBO-4 (Burrowing Owl Construction Monitoring)	Is the biological monitor responding appropriately when construction activities result in disturbance of nesting western burrowing owls?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WBO-5 (Burrowing Owl Passive Relocation)	How often is passive relocation of western burrowing owl occurring despite the prohibition? Are the case-by-case allowances for passive relocation only being granted when no other practicable alternative is available?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
WBO-6 (Burrowing Owl Timing of Maintenance Activities)	Only compliance monitoring required (Table 8-2).			
WBO-7 (Rodent Control)	Only compliance monitoring required (Table 8-2).			
RAPTOR-1 (Raptor Surveys)	No effectiveness monitoring required.			
RAPTOR-2 (Raptor Pre-Construction Surveys)	Are pre-construction surveys detecting Covered Species raptor nests that are present on project sites?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	None.
RAPTOR-3 (Raptor Nest/Roost Buffer)	Are the nest/roost buffers adequate to avoid disturbance of nesting/roosting raptors? Are construction activities avoiding the nest/roost buffers?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.

Table 8-3
Framework for SSHCP AMM Effectiveness Monitoring

AMM	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the SSHCP Compliance and AMM Monitoring Program?
RAPTOR-4 (Raptor Nest/Roost Buffer Monitoring)	Is the biological monitor responding appropriately when construction activities result in disturbance of nesting Covered Species raptors?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
BAT-1 (Winter Hibernaculum Surveys)	No effectiveness monitoring required.			
BAT-2 (Winter Hibernaculum Pre-Construction Surveys)	Are pre-construction surveys detecting western red bat winter hibernacula that are present on project sites?	Implementing Entity review of Post-Construction Compliance Report from Approved Biologist as directed by AMM SPECIES-4.	After construction.	None.
BAT-3 (Winter Hibernaculum Buffer)	Are the winter hibernaculum buffers adequate to avoid disturbance of overwintering western red bats? Are construction activities avoiding the buffer?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.
BAT-4 (Bat Eviction Methods)	Are eviction methods being applied only to non-maternity roosts, and in a way that does not result in injury to the animals?	Implementing Entity review of compliance reports submitted by Approved Biologist.	Monthly during construction.	None.

8.3 SSHCP Preserve System Monitoring and Management Program

The effectiveness of the Measureable Objectives and the rest of the Conservation Strategy in achieving each of the broad Biological Goals for this Plan Area is intrinsically difficult to quantify. The effectiveness will be qualitatively assessed over the Permit Term, and the effectiveness of the operational SSHCP Conservation Strategy will be considered and discussed periodically in the Annual Reports (Section 8.4.1).

8.3.1 Principles of SSHCP Preserve Monitoring and Management

The monitoring and management framework presented in this section is based on the professional knowledge and experience of the species experts, experienced habitat-management experts, the Permitting Agencies, and others who were involved in preparation of the SSHCP. The biological principles that guide the SSHCP Preserve System Monitoring and Management Program included the following:

1. Preserve Management Changes (Adaptive Management) Must Have a Valid and Site-Specific Scientific Basis

Before making any changes to management of a Preserve, preserve managers must have a comprehensive understanding of the resources available, the effects of past management practices, and any other site-specific constraints. The SSHCP is consistent with this principle in the following ways:

- An Initial PMP (Section 8.3.4.2) will be prepared by the Implementing Entity upon acquisition of each Preserve parcel or group of parcels. The Initial PMP will document the management history for each parcel (via records, interviews of ranch managers or landowners, etc.) as directed under Objective HAB1.
- Under the Initial PMP, a Preserve Manager (refer to Section 9.3.1) will continue the existing land management approach (on each parcel acquired, until an Individual PMP (Section 8.3.4.2) is prepared for the Preserve or Preserve parcel.
- Preserve Managers and Permitting Agencies will be very cautious about changing management on a Preserve or a Preserve parcel based on a study conducted in another location, because the other location may have different soils, geologic formations, vegetation, or different species.

2. Preserve Monitoring and Management is Most Effective and Efficient When it is More Intensive on Smaller Preserves, and Less Intensive on Larger Preserves

As explained in Chapter 6, permanent indirect effects of Covered Activities are especially relevant on smaller preserves because smaller preserves have more "edge" relative to acres of interior habitat. Conversely, larger preserves are more insulated from the effects of most environmental stressors (Section 6.3). Therefore, these different size classes call for different approaches for both monitoring and Preserve management. The SSHCP is consistent with this principle in the following ways:

- Monitoring of environmental stressors along edges (Section 6.3) as required under Objective HAB3 will be more intensive on smaller SSHCP preserves that border urban development (i.e., the UDA Satellite Preserves, Linkage Preserves, Minor Preserves), and well as on Core Preserves that are divided by roadways or community trails.
- Preserve Managers will consider how preserve size determines what land-management methods/techniques from the SSHCP Preserve Management and Monitoring Details (see Appendix G) should or should not be done, and tailor the Individual PMP to best track the benefits of conservation actions within each preserve.

3. Preserve Monitoring for Abundance of Annually Variable Species (i.e., Vernal Pool Plants and Invertebrates) Must Use Fine-Scale Temporal Analyses to Monitor Species Status and Trends

Use of a single-year baseline "snapshot in time" is not appropriate for plants and animals with an "annual" life cycle,[5] as the number of individuals in a population may change dramatically from year to year, in response to fluctuations in weather or other environmental conditions. Effective monitoring of annually variable species requires ongoing sampling and identification of trends across several years to separate out the effects of climatic effects or stochastic variables. The SSHCP is consistent with this principle in the following ways:

- SSCHP monitoring will include ongoing status monitoring and conduct trends analysis for annual plant and invertebrate Covered Species to track abundance within years and between years.
- Reference monitoring sites will be used as the "basis of comparison" when reporting status and trends for the "annual" Covered Species and habitats on individual SSHCP Preserves, or in the SSHCP Preserve System. The reference sites will include permanent and rotating plots.

[5] Plant or animal species that grow to maturity and reproduce within one growing season. Example is vernal pool crustaceans.

4. Preserve Monitoring and Management on Cropland or Irrigated-Pasture Preserves Must Be Integrated with the Agricultural Operations

On Cropland and Irrigated-Pasture Preserves (see Chapter 7), management for species habitat must be balanced with the agricultural land uses to achieve the Conservation Strategy for several Covered Species, (i.e., Swainson's hawk, greater sandhill crane, and giant gartersnake). In addition, most Preserves with Vernal Pool Ecosystem will use grazing animals to manage biomass within the Valley Grassland. These agricultural operations must be economically sustainable, but must also be compatible with the Conservation Strategy.

- The potential conflicts and synergies between agricultural land uses and the habitat needs of SSHCP Covered Species (e.g., harvest timing, pesticide use, crop rotations) will be identified in each Individual PMP, which will also specify actions to reduce or eliminate conflicts.
- The animals used in grazing and the timing or patterns of grazing on Preserves will be managed based on monitoring results. The requirements of the Conservation Strategy will be included in conservation easements and/or contracts with agricultural operators.

5. Preserve Monitoring and Management Must Account For the Land Uses Surrounding a Preserve

Because Preserves will be managed in perpetuity for the benefit of Covered Species, management must take into account the activities and land uses that are occurring on lands surrounding the Preserve. For instance, development of a sports field near a Preserve may result in additional light pollution, or agricultural operations near a Preserve could draw from groundwater supplies that sustain habitat on the Preserve. The SSHCP is consistent with this principle in the following ways:

- Individual PMPs must take into account existing land-use and future land use surrounding the Preserve, including effects to surface water availability or changes to the perched aquifer within vernal pool soils that might indirectly affect species habitats within the preserve boundaries. Changes in off-site land use near a SSHCP preserve will be documented in annual reports and considered when updating Individual PMPs. Edge effects of surrounding land uses will also be monitored.

6. Consider Beneficial and Adverse Effects on Non-Covered Species

Although the focus of the SSHCP is on Covered Species, management of Preserves must also take into account any beneficial or adverse effects of Preserve management on non-covered native species. Conferring benefits to non-covered species is one of the listed purposes and

benefits of the HCP as presented in Section 1.1.2. The SSHCP is consistent with this principle in the following ways:

- Where it is feasible and will not reduce the value of the Preserve's habitat for Covered Species, Individual PMPs will include management actions that also provide benefits for other native species. Beneficial and adverse effects of Preserve System Covered Activities to Plan Area non-covered native species will be monitored and tracked as information allows in Annual Reports, but separate monitoring on non-Covered Species is not proposed under the SSHCP.

8.3.2 Overview of the SSHCP Preserve System Monitoring and Management Program

As required by the Five-Point Policy, the Biological Goals and Measurable Objectives of the SSHCP (Table 7-1 in Chapter 7) provide a foundation for the SSHCP Preserve System Monitoring and Management Program. They indicate what species, land cover or community indicators need to be monitored (e.g., natural communities, species, and specify the monitoring units (quantity or state), and the location(s) of the monitoring (e.g., monitoring animal movement along the Laguna Creek Wildlife Corridor).

The Preserve System will comprise many individual parcels and groups of parcels that will function interrelatedly, but must be managed separately because of differences in soils, species present, historic land uses, and other factors. The SSHCP Preserve System Monitoring and Management Program will provide commonality for the management of these different Preserves by providing a single "framework" document, from which the Implementing Entity will develop Initial PMPs and Individual PMPs. The SSHCP Preserve System Monitoring and Management Program document will be fully developed by the Implementing Entity within 18 months of permit issuance.

The SSHCP Preserve System Monitoring and Management Program document will:

- Provide a template to be used by the Implementing Entity to prepare Initial PMP (Section 8.3.4.3, Appendix G) that must be approved by the TAC upon acquisition of a Preserve parcel to address immediate short-term management needs such as trash removal, fence repair, and invasive species control.
- Provide Preserve Managers a template for preparing Individual PMPs (Section 8.3.4.3). Each PMP will include a "decision tree" for using preserve monitoring data to adjust management actions on that individual preserve.
- Provide the comprehensive habitat monitoring and management "toolbox" for managing he different land covers and habitats in the Plan Area (Appendix G), to be used by the

Preserve Manager in preparing Individual PMPs. The toolbox includes adaptive management methods that can be employed (Section 8.3.4.2), and routine facility management actions and activities that could be required for any SSHCP preserves, including regular patrols, trash removal, fence/gate installation and repairs, and other maintenance activities (Sections 8.3.4.1 and 5.2.7).

- Describe the entity that makes management decisions for each SSHCP Preserve .
- Describe the mechanisms by which the Changed Circumstances provided for in the SSHCP (Chapter 11) are addressed.

8.3.3 Monitoring Effectiveness of the SSHCP Preserve System

Table 8-4 lists each SSHCP Measurable Objective, identifies what we need to know to determine effectiveness, specifies an approach to address each monitoring question, identifies the timing and frequency of the specified monitoring, and identifies what additional information will need to be provided in the full SSHCP Preserve System Monitoring and Management Program.

The approach to monitoring proposed in Table 8-4 is subject to change as directed in the Five-Point Policy: "An effective monitoring program is flexible enough to allow modifications, if necessary, to obtain the appropriate information."

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Goal 1. Preserve and link intact landscapes that include the highest-quality habitat for Covered Species within the Plan Area.				
Objective L1. Establish a minimum Preserve System of 33,796 acres of natural land covers that preserves habitat for Covered Species and other native biota as a component of the Preserve System. Of the 33,796 acres, 7,560 acres will be within the UDA and 26,236 acres will be outside the UDA. Preserves will be assembled in accordance with Conservation Actions in Table 7-1.	Refer to effectiveness monitoring presented below for each land cover type under Goal 3, and for each Covered Species under Goal 5.			
Objective L2. Establish a minimum of 11 Linkage Preserves that provide interconnections between the Landscape, Core, Minor, and Satellite Preserves and existing Preserves. Linkage Preserves will have a minimum width of 600 feet and will be located as described in Section 7.5. (Minor variations on minimum width may be allowed by the Plan where there are physical constraints in the environment, in accordance with the process outlined in Chapter 10)	Are mobile Covered Species using the Linkage Preserves to travel between SSHCP preserves and/or existing preserves?	Special study that sets up motion activated cameras at particular locations within each Linkage Preserve, as described in Section 8.3.3.5. Use results for mobile species as a proxy for non-mobile species.	Special study to commence within 5 years of establishment of at least 5 Linkage Preserves and intact Laguna Creek Wildlife Corridor. Repeat study every 5 years.	Implementing Entity to develop in first 18 months a preliminary design for the special study. One year before study commences Implementing Entity to work with special study investigator to Identify locations for camera placement, duration of camera deployment, procedures for deploying, maintaining, and processing the data from the cameras.
Goal 2. Maintain or improve physical, chemical, and biological functions of aquatic resources within the Plan Area.				
Objective W1. Ensure that during implementation of Objective L2 (establishing 11 Linkage Preserves), the Linkage Preserves	Are the Linkage Preserves surrounding creeks wide enough to allow function as linkages?	Monitor Linkage Preserves for edge effects, including noise and light intensity, frequency of trash,	At establishment of first Linkage Preserve, repeat	In first 18 months, Implementing Entity to compile list of edge effects to

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
that include creeks or streams will include the creek plus a minimum 300-foot setback on each side of the creek, in accordance with the process outlined in Section 5.4.		qualitative hydrology changes, etc. along a transect from the boundary toward interior of the Preserve parcel. Compile observations from Implementing Entity staff during Preserve management efforts. Compare annual reports over time.	annually.	be monitored, and specify protocols for consistently measuring the edge effects.
Objective W2. Covered Activities shall implement the following, as outlined in Section 5.4.2: • Incorporate the SSHCP Design avoidance and minimization measures (LID and ROAD AMMs) Ground disturbance avoidance and minimization measures (BMPs and ROAD AMMs)	Effectiveness of AMMs will be monitored as described in Table 8-3.			
Objective W3. Covered Activities shall implement Stream Setback requirements in the UDA for creeks and streams as described in AMM STREAM-1, STREAM-2, and STREAM-3. Covered Activities shall implement preserve setback requirements in the UDA as described in AMM EDGE-3.	Effectiveness of AMMs will be monitored as described in Table 8-3.			
Objective W4. Ensure that aquatic resources are preserved during preserve assembly and managed in perpetuity (see Objectives VPG1, VPG2, VP1, VP3, SW1, FWM1, ES1, SC1, OW1, RIP1, and RIP3).	What is the overall abundance and diversity of preserved aquatic resources in the Preserve System? Refer also to list of effectiveness monitoring listed for each aquatic land cover type under Goal 5.	Implement random or probabilistic sampling design for preserved aquatic resources throughout Preserve System at recommended intervals over the life of the SSHCP to track trends in condition; using	Annual	Implementing Entity to determine in first 18 months the necessary intervals for sampling.

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
		Functional or Condition Assessment Methods (FCAM) and/or California Rapid Assessment Method (CRAM). Refer to the Aquatic Resources Program (ARP, Appendix I of the SSHCP Environmental Impact Statement/Environmental Impact Report) for more details on these methods. FCAM should be rerun until enough CRAM data is available to assess the condition at a watershed scale with CRAM data. When enough CRAM data is available, a comparison should be made between FCAM and CRAM and any discrepancies should be explained. If FCAM varies significantly from CRAM then the watershed studies using FCAM analysis should be reexamined.		
Objective W5. Ensure that aquatic resources are re-established or established within the Preserve System, in accordance with Conservation Actions in Table 7-1 (see Objectives VP2, SW2, FWM2, OW2, RIP2, and RIP4).	What is the overall abundance and diversity of res-established and/or established aquatic resources in the Preserve System? Refer also to list of effectiveness monitoring listed for each aquatic land cover type under Goal 3.	Implement random or probabilistic sampling design for re-established/established aquatic resources throughout Preserve System at recommended intervals over the life of the SSHCP to track trends in condition; using Functional or Condition Assessment Methods	Annual	Implementing Entity to determine in first 18 months the necessary intervals for sampling.

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
		(FCAM) and/or California Rapid Assessment Method (CRAM). Refer to the Aquatic Resources Program (ARP, Appendix I of the SSHCP Environmental Impact Statement/Environmental Impact Report) for more details on these methods. FCAM should be rerun until enough CRAM data is available to assess the condition at a watershed scale with CRAM data. When enough CRAM data is available, a comparison should be made between FCAM and CRAM and any discrepancies should be explained. If FCAM varies significantly from CRAM then the watershed studies using FCAM analysis should be reexamined.		
Goal 3. Preserve, re-establish, or establish, natural land covers (including Cropland and Irrigated Pasture-Grassland) that provide habitat for Covered Species.				
Objective VG1. Preserve a minimum of 22,014 acres of Valley Grassland land cover within the Vernal Pool Ecosystem. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			
Objective VP1. Preserve a minimum of 967 acres of vernal pool in the Plan Area. Impacts to vernal pool within or adjacent to (within 1	See effectiveness monitoring under Goal 5 for each species using this habitat.			

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
mile of) the Mather Core Recovery Area and Cosumnes/Rancho Seco Recovery Area will be mitigated within or adjacent to (within 1 mile of) the Mather Core Recovery Area and Cosumnes/Rancho Seco Recovery Area.				
Objective VP2. Re-establish and/or establish a minimum of 389 acres of vernal pool, including at least 50 acres within or adjacent to (within 1 mile of) the Mather Core Recovery Area. Impacts to vernal pool within or adjacent to (within 1 mile of) the Mather Core Recovery Area and the Cosumnes/Rancho Seco Recovery Area will be mitigated within or adjacent to (within 1 mile of) the Mather Core Recovery Area and the Cosumnes/Rancho Seco Recovery Area.	Does the re-established and/ or established vernal pool meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established vernal pool, as described in the final SSHCP Preserve System Monitoring and Management Program.	Starting one year after re-establishment/establishment, repeated annually.	In first 18 months, Implementing Entity to develop success criteria for re-established/established vernal pool in consultation with the TAC and Permitting Agencies.
Objective VP3. Preserve a minimum of 278 acres of Swale. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			
Objective VP4. Preserve a minimum of 25 acres of Swale or Stream/Creek (VPIH) for impacts to the Stream/Creek (VPIH) land cover The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective VP5. Re-establish and/or establish a minimum of 256 acres of Swale for impacts to the Swale or the Stream/Creek (VPIH) land covers. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	Does the re-established and/ or established Swale meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established swale, as described in the final SSHCP Preserve System Monitoring and Management Program.	Starting one year after re-establishment/establishment, repeated annually.	In first 18 months, Implementing Entity to develop success criteria for re-established/established Swale in consultation with the TAC and Permitting Agencies.
Objective SW1. Preserve a minimum of 105 acres of seasonal wetland. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			
Objective SW2. Re-establish and/or establish a minimum of 105 acres of seasonal wetland. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	Does the re-established and/ or established seasonal wetland meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established seasonal wetland, as described in the final SSHCP Preserve System Monitoring and Management Program.	Starting one year after re-establishment/establishment, repeated annually.	In first 18 months, Implementing Entity to develop success criteria for re-established/established seasonal wetland in consultation with the TAC and Permitting Agencies.
Objective FWM1. Preserve a minimum of 127 acres of freshwater marsh. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective FWM2. Re-establish and/or establish a minimum of 127 acres of functional freshwater marsh. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	Does the re-established and/ or established freshwater marsh meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established freshwater marsh, as described in the final SSHCP Preserve System Monitoring and Management Program.	Starting one year after re-establishment/establishment, repeated annually.	In first 18 months, Implementing Entity to develop success criteria for re-established/established freshwater marsh in consultation with the TAC and Permitting Agencies.
Objective SC1. Preserve a minimum of 117 acres of the Stream/Creek (VPIH) land cover. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			
Objective SC2. Re-establish and/or establish a minimum of 117 acres of the Stream/Creek (VPIH) land cover. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	Does the re-established and/ or established Stream/Creek (VPIH) meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established Stream/Creek (VPIH), as described in the final SSHCP Preserve System Monitoring and Management Program.	Starting one year after re-establishment/establishment, repeated annually.	In first 18 months, Implementing Entity to develop success criteria for re-established/established Stream/Creek (VPIH) in consultation with the TAC and Permitting Agencies.
Objective OW1. Preserve a minimum of 311 acres of open water (or a land cover that provides equivalent or better habitat for Covered Species affected by the loss of open water, as determined by the TAC). The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective OW2. Re-establish and/or establish a minimum of 155 acres of open water (or a land cover that provides equivalent or better habitat value for Covered Species affected by the loss of open water, as determined by the TAC). Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	Does the re-established and/ or established Open Water (or equivalent land cover type) meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established open water area, as described in the final SSHCP Preserve System Monitoring and Management Program.	Annual	In first 18 months, Implementing Entity to develop success criteria for re-established/established open water (or other land cover type deemed equivalent) in consultation with the TAC and Permitting Agencies.
Objective RIP1. Preserve a minimum of 373 acres of mixed riparian woodland and/or mixed riparian scrub. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			
Objective RIP2. Re-establish and/or establish a minimum of 373 acres of mixed riparian woodland and/or mixed riparian scrub. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	Does the re-established and/ or established mixed riparian woodland and/or mixed riparian scrub meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established mixed riparian woodland/mixed riparian scrub area, as described in the final SSHCP Preserve System Monitoring and Management Program.	Annual	In first 18 months, Implementing Entity to develop success criteria for re-established/established mixed riparian woodland and/or mixed riparian scrub in consultation with the TAC and Permitting Agencies.
Objective RIP3. Preserve a minimum of 218 acres of mixed riparian woodland and/or mixed riparian scrub for impacts to mine tailings riparian woodland. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective RIP4. Re-establish and/or establish a minimum of 218 acres of mixed riparian woodland and/or mixed riparian scrub for impacts to mine tailings riparian woodland. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1.	Does the re-established and/ or established mixed riparian woodland and/or mixed riparian scrub meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established mixed riparian woodland/mixed riparian scrub, as described in the final SSHCP Preserve System Monitoring and Management Program.	Annual	In first 18 months, Implementing Entity to develop success criteria for re-established/established mixed riparian woodland and/or mixed riparian scrub in consultation with the TAC and Permitting Agencies.
Objective BOW1. Preserve a minimum of 48 acres of blue oak woodland/savanna for direct impacts to blue oak woodland/savanna. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.	See effectiveness monitoring under Goal 5 for each species using this habitat.			
Objective BOW2. Re-establish and/or establish a minimum of 48 acres of blue oak woodland/savanna for direct impacts to blue oak woodland/savanna. Re-establishment and/or establishment will occur in accordance with Conservation Actions in Table 7-1	Does the re-established and/ or established blue oak woodland/savanna meet success criteria approved by the Permitting Agencies and described in the final SSHCP Preserve System Monitoring and Management Program (Section 8.3.2)?	Monitor attainment of success criteria for each re-established and/or established blue oak woodland/savanna area, as described in the final SSHCP Preserve System Monitoring and Management Program.	Annual	In first 18 months, Implementing Entity to develop success criteria for re-established/established blue oak woodland/savanna in consultation with the TAC and Permitting Agencies.
Objective AG1. Preserve a minimum of 9,696 acres of Cropland and Irrigated Pasture-Grassland, including 1,000 acres outside the 100-year floodplain in accordance with Objective GS6. The preserves will be	See effectiveness monitoring under Goal 5 for each species using this habitat.			

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
assembled in accordance with Conservation Actions in Table 7-1.				
Goal 4. Maintain or improve habitat value of natural land covers (including Cropland, and Irrigated Pasture-Grassland) that are preserved within the Plan Area.				
Objective HAB1. Develop PMPs for the benefit of Covered Species.	Only compliance monitoring required (Table 8-1).			
Objective HAB2. Assess whether SSHCP Preserves are being managed and maintained for the benefit of Covered Species.	Are the physical conditions on the preserves meeting the needs of Covered Species?	Rapid monitoring of a range of physical variables, including vegetation types, thatch density, ponded water present, and other factors for subset of preserves, visited on regular basis, compared against reference sites.	Quarterly	In first 18 months, Implementing Entity will develop guidelines for which rapid monitoring techniques to use for different land cover types, how to use the rapid monitoring results to determine if conditions are appropriate to Covered Species modeled habitat, and what reference sites will be used.
Objective HAB3. Record management history for Preserve parcels as they are obtained. Consider management history when developing Initial Preserve Management Plan (PMP).	Only compliance monitoring required (Table 8-1).			
Objective HAB4. Develop and implement an early detection and eradication program for invasive species within the Plan Area. The program will include regular weed assessment and mapping within the UDA, and a comprehensive weed detection and abatement plan for the Plan Area, including training of road crews to identify and report weeds.	Are we eradicating invasive species in a timely fashion? Are we updating the Early Detection and Eradication Program to account for changed conditions?	Weed assessment on SSHCP Preserves. Reporting of weed eradication efforts. Recurring TAC Review of the invasive species monitoring and eradication program.	Quarterly weed assessment on preserves, with other opportunistic assessment. Annual reporting. Program review every 5 years.	Develop monitoring methods and schedule for invasive species.

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective HAB5. Monitor preserves for edge effects (e.g., weeds, noise, hydrology, litter, etc.)	What are the levels of certain edge effects observed along a transect from the boundary of the parcel toward the middle? Are edge effects changing over time?	Measure noise and light intensity, frequency of trash, qualitative hydrology changes, etc. along a transect from the boundary toward interior of the Preserve parcel. Compare annual reports over time.	Annual	Compile list of edge effects to be monitored. Specify methodologies for consistently measuring the edge effects.
Objective HAB6. Collect weather data throughout the County to assist in developing status and trends, track climate change, etc.	Only compliance monitoring required (Table 8-1).			
Objective HAB7. Monitor vegetation biomass within grassland land covers.	Is vegetation biomass within Vernal Pool Grasslands, Valley Grasslands, Blue Oak Savanna, and other relevant land cover types being managed for the benefit of Covered Species?	Conduct monitoring using RDM or another rapid assessment technique.	After the growing season, Annual.	Identify the biomass levels or other indicators (e.g., thatch density, grass height, etc.) that predict habitat quality for Covered Species. Specify the monitoring techniques to be used for each indicator.
Objective VP4. Investigate indirect effects of development on vernal pool crustaceans over the short term and the long term.	Is there evidence for indirect effects of development on occupancy of vernal pools near development?	Special study on variation in occupancy of pools from zone of indirect effect along transect from edge toward interior, as described in Section 8.3.3.5.	Repeat study after development has been in place for long term (~15 years)	Develop study methodology, including number of vernal pools, reference sites, techniques to parse out different indirect effects.
Objective AG2. Of the 9,696 acres preserved under Objective AG1, maintain at least 2,000 of those acres of high-quality foraging crops (such as, but not limited to, corn, alfalfa, or wheat) preferred by tricolored blackbird (*Agelaius tricolor*), greater sandhill crane (*Grus canadensis*), and the covered raptor	Are the habitat goals for tricolored blackbirds, greater sandhill crane, and covered raptor species benefiting those species and meeting Goal 5?	Monitor performance criteria for habitat for tricolored blackbirds, greater sandhill crane, and covered raptor species as described in the final SSHCP Preserve System Monitoring and Management Program .	Annual	In first 18 months, Implementing Entity to develop success criteria for planted food plots as habitat for tricolored blackbirds, greater sandhill crane, and covered raptor species in

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species. The 2,000 acres will be distributed in strategic locations throughout PPUs 4, 5, or 6 in plots of 20 acres or more. The preserves will be assembled in accordance with Conservation Actions in Table 7-1.				consultation with the TAC.
Objective AG3. Maintain or increase raptor prey availability and improve raptor foraging habitat by strategically planting 10,000 linear feet of shrub or other substrate that provides cover and refugia for fossorial mammals and other prey species.	Are planted hedgerows providing fossorial mammal habitat?	Field evaluation of habitat value of hedgerows.	Annual	Develop methodology for determining habitat quality for fossorial mammals.
Objective RIP5. Monitor groundwater table as it relates to status and trends for riparian habitat.	Only compliance monitoring required (Table 8-1).			
Goal 5. Maintain or expand the existing distribution of each Covered Species within the Plan Area.				
Objective VPP1. Protect the one currently documented occurrence of Ahart's dwarf rush in the Plan Area. Prior to take of any occurrence of Ahart's dwarf rush (*Juncus leiospermus*), protect six currently unpreserved[6] and "biologically equivalent or superior" (as defined by the TAC) occurrences of Ahart's dwarf rush within the Plan Area. After six currently unpreserved occurrences are protected, prior to take of an occurrence of Ahart's dwarf rush, protect one	Are the preserved occurrences persisting at their existing distribution/abundance, or increasing in their distribution/abundance?	Conduct a population study of preserved Ahart's dwarf rush within the Preserve System.	Every 5 years during flowering.	Sampling methodology for vernal pool species, including identification of reference sites if appropriate.

[6] Includes occurrences in the SSHCP GIS database (January 2014) and any future occurrences found in the SSHCP Plan Area.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
currently unpreserved and "biologically equivalent or superior" (as defined by the TAC) occurrences of Ahart's dwarf rush within the Plan Area.				
Objective VPP2. Prior to take of any occurrence of Boggs Lake hedge-hyssop (*Gratiola heterosepala*), protect one currently unpreserved[1] and "biologically equivalent or superior" (as defined by the TAC) occurrence of Boggs Lake hedge-hyssop within the Plan Area.	Are the preserved occurrences persisting at their existing distribution/abundance, or increasing in their distribution/abundance?	Conduct a population study of preserved Bogg's Lake hedge-hyssop within the Preserve System.	Every 5 years during flowering.	Sampling methodology for vernal pool species, including identification of reference sites if appropriate.
Objective VPP3. Prior to take of any occurrence of dwarf downingia (*Downingia pusilla*), protect one currently unpreserved[1] and "biologically equivalent or superior" (as defined by the TAC) occurrence of dwarf downingia within the Plan Area.	Are the preserved occurrences persisting at their existing distribution/abundance, or increasing in their distribution/abundance?	Conduct a population study of preserved dwarf downingia within the Preserve System.	Every 5 years during flowering.	Sampling methodology for vernal pool species, including identification of reference sites if appropriate.
Objective VPP4. Protect and maintain in perpetuity a minimum of fourteen occurrences of legenere (*Legenere limosa)* within the hardline preserve areas in the SSHCP Preserve System. Legenere occurrences will be preserved in accordance with the Conservation Actions described in Table 7-1. Prior to take of any occurrence of legenere, one currently unpreserved and "biologically equivalent or superior" (as defined by the TAC) occurrence of legenere will be preserved and maintained within the Plan Area.	Are the preserved occurrences persisting at their existing distribution/abundance, or increasing in their distribution/abundance?	Conduct a population study of preserved legenere within the Preserve System.	Every 5 years during flowering.	Sampling methodology for vernal pool species, including identification of reference sites if appropriate.

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Objective VPP5. Prior to take of any occurrence of pincushion navarretia (*Navarretia myersii* ssp. *myersii*), protect one currently unpreserved[7] and "biologically equivalent or superior" (as defined by the TAC) occurrence of pincushion navarretia within the Plan Area.	Are the preserved occurrences persisting at their existing distribution/abundance, or increasing in their distribution/abundance?	Conduct a population study of preserved pincushion navarretia within the Preserve System.	Every 5 years during flowering.	Sampling methodology for vernal pool species, including identification of reference sites if appropriate.
Objective VPP6. Protect and maintain in perpetuity all known currently unprotected occurrences of Sacramento Orcutt grass (*Orcuttia viscida*) in the Plan Area to preserve existing distribution, and any currently unknown sites discovered in locations subject to an SSHCP Covered Activity.	Are the preserved occurrences persisting at their existing distribution/abundance, or increasing in their distribution/abundance?	Conduct a population study of preserved Sacramento Orcutt grass within the Preserve System.	Every 5 years during flowering.	Sampling methodology for vernal pool species, including identification of reference sites if appropriate.
Objective VPP7. Protect and maintain in perpetuity all known currently unprotected occurrences of slender Orcutt grass in the Plan Area to preserve existing distribution, and any currently unknown sites discovered in locations subject to an SSHCP Covered Activity.	Are the preserved occurrences persisting at their existing distribution/abundance, or increasing in their distribution/abundance?	Conduct a population study of preserved slender Orcutt grass within the Preserve System.	Every 5 years during flowering.	Sampling methodology for vernal pool species, including identification of reference sites if appropriate.
Objective SA1. During re-establishment and/or establishment of seasonal wetlands, freshwater marsh, open water, and stream/ creek, translocate impacted Sanford's arrowhead (*Sagittaria sanfordii*) from other	Are transplanted Sanford's arrowhead individuals persisting in the re-established/established habitat?	Field inspection of quantity and state of Sanford's arrowhead that have been transplanted.	Annual	Requirements for survey timing.

[7] Includes occurrences in the SSHCP GIS database (January 2014) and any future occurrences found in the SSHCP Plan Area.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
sites. Prior to take of an occurrence of Sanford's arrowhead, protect one additional occurrence of Sanford's arrowhead within the Plan Area.				
Objective VPI1. Protect and maintain in perpetuity 1,270 acres of vernal pool tadpole shrimp modeled aquatic habitat within the Plan Area to preserve existing distribution.	Are protected pools being occupied by vernal pool tadpole shrimp?	Statistically valid sampling of pools for occupancy.	Annual	Sampling methodology for vernal pool species, including identification of reference sites. Refer to Appendix G for draft survey methodology to be incorporated into Preserve System Monitoring and Management Program.
Objective VPI2. Protect and maintain in perpetuity 1,270 acres of vernal pool fairy shrimp (*Branchinecta lynchi*) modeled aquatic habitat within the Plan Area to preserve existing distribution.	Are protected pools being occupied by vernal pool fairy shrimp?	Statistically valid sampling of pools for occupancy.	Annual	Sampling methodology for vernal pool species, including identification of reference sites. Refer to Appendix G for draft survey methodology to be incorporated into Preserve System Monitoring and Management Program.
Objective VPI3. Protect and maintain in perpetuity 1,059 acres of mid-valley fairy shrimp (*Branchinecta mesovallensis*) modeled aquatic habitat within the Plan Area to preserve existing distribution.	Are protected pools being occupied by mid-valley fairy shrimp?	Statistically valid sampling of pools for occupancy.	Annual	Sampling methodology for vernal pool species, including identification of reference sites. Refer to Appendix G for draft survey methodology to be incorporated into Preserve System Monitoring and Management Program.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective VPI4. Protect and maintain in perpetuity 1,245 acres of Ricksecker's water scavenger beetle (*Hydrochara ricksecker*i) modeled aquatic habitat within the Plan Area to preserve existing distribution.	Are protected pools being occupied by Ricksecker's water scavenger beetle?	Statistically valid sampling of pools for occupancy.	Annual	Sampling methodology for vernal pool species, including identification of reference sites. Refer to Appendix G for draft survey methodology to be incorporated into Preserve System Monitoring and Management Program.
Objective VPI5. Ensure that during implementation of Objective VP2, re-established or established vernal pools are inoculated with soils from impacted vernal pools within 1 mile of re-establishment/ establishment, in accordance with Conservation Actions in Table 7-1.	Is inoculation successful in increasing the pace of occupancy of re-established and/or established vernal pools?	Statistically valid sampling of pools for occupancy where inoculation has occurred; comparison to reference pools.	Annual after inoculation	Sampling methodology for vernal pool species, including identification of reference sites. Refer to Appendix G for draft survey methodology to be incorporated into Preserve System Monitoring and Management Program.
Objective CTS1. Preserve at least 5 occupied California tiger salamander breeding ponds.	Are preserved breeding ponds continuing to be used by California tiger salamander?	Occupancy survey of breeding pools (e.g., dip netting).	Every 2 years	Survey methodology for California tiger salamander, including identification of reference sites.
Objective CTS2. During preserve assembly, ensure that modeled aquatic and upland habitat for California tiger salamander is preserved. Minimum preservation will total: • 141 acres of aquatic habitat • 1,677 acres of upland habitat. Ensure that mitigation for modeled high-value habitat impacted within California tiger	Are California tiger salamander using the preserved habitat?	Occupancy survey of subset of breeding pools (e.g., dip netting) and upland habitat (e.g., drift fences and pitfall traps).	Every 5 years.	Survey methodology for California tiger salamander aquatic and upland habitats, including identification of reference sites and necessary subset for statistically valid results.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
salamander Critical Habitat occurs within California tiger salamander Critical Habitat (see Objectives BOW1, VPG1, VP1, SW1, and VG1).				
Objective CTS3. Rural transportation project Covered Activities within California tiger salamander modeled habitat will be designed to allow California tiger salamander movement across the roadway area.	Are California tiger salamanders using the crossings?	Drift fencing and pitfall traps deployed at each crossing. Review of any collisions reported with California tiger salamanders on rural transportation project Covered Activities.	Once, 5 years after crossing construction. Annual review of collisions.	Survey methodology for California tiger salamander at crossings.
Objective WS1. During preserve assembly, ensure that modeled aquatic and upland habitat for western spadefoot (*Spea hammondii*) is preserved. Minimum preservation will total: • 1,531 acres of aquatic habitat • 22,044 acres of upland habitat. Ensure that mitigation for modeled habitat impacted within the Mather Core or Cosumnes/Rancho Seco Core Recovery Areas occurs within the Core Recovery Areas (see Objectives BOW1, VP1, VP3, SW1, SC1, OW1, and VG1).	Are western spadefoot using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for western spadefoot, including identification of reference sites.
Objective WS2. During preserve assembly, ensure that modeled aquatic habitat for western spadefoot is re-established and/or established. Minimum re-establishment and/or establishment will total:	Are western spadefoot using the re-established and/ or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for western spadefoot, including identification of reference sites.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
• 906 acres of aquatic habitat. Ensure that mitigation for modeled habitat impacted within the Mather Core or Cosumnes/Rancho Seco Core Recovery Areas occurs within the Core Recovery Areas (see Objectives VP2, SW2, and OW2).				
Objective WPT1. During preserve assembly, ensure that modeled aquatic and upland habitat for western pond turtle (*Actinemys marmorata*) is preserved. Minimum preservation will total: • 315.35 acres of aquatic habitat • 10,971 acres of upland habitat. (See Objectives FWM1, OW1, VPG1, RIP1, RIP3, VG1, BOW1, and SC1).	Are western pond turtles using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for western pond turtle, including identification of reference sites.
Objective WPT2. During preserve assembly, ensure that modeled aquatic habitat for western pond turtle is re-established and/or established. Minimum re-establishment and/or establishment will total: • 315 acres of aquatic habitat. (See Objectives RIP2, FWM2, and OW2.)	Are western pond turtles using the re-established and/or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for western pond turtle, including identification of reference sites.
Objective GGS1. During preserve assembly, ensure that modeled habitats for giant gartersnake are preserved along the following creeks (or other creeks that are determined by the TAC to provide similar GGS habitat value):	Are giant gartersnakes using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for giant gartersnake, including identification of reference sites if appropriate.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
• The lower Laguna Creek, mainly between Twin Cities Road (State Route (SR) 104) and Miess Road; • Skunk Creek, which flows into the Cosumnes River northwest of the City of Galt; • the short Willow Creek and tributaries of Badger Creek, which are to the north of the lower Laguna Creek and west of the Folsom South Canal; and • Badger Marsh. Mitigation for impacts to modeled habitats for giant gartersnake that occur along Badger Creek and Stone Lakes will occur along these drainages. Minimum preservation will total: • 170 acres of Giant Garter Snake high-value aquatic habitat • 2,323 acres of Giant Garter Snake high-value upland habitat. (See Objectives AG1, FWM1, SW1, SC1, OW1, VPG1, RIP1, RIP3, and VG1).				
Objective GGS2. During preserve assembly, ensure that modeled habitats for giant gartersnake are re-established and/or established along the following creeks (or other creeks that are determined by the TAC to provide similar habitat value):	Are giant gartersnakes using the re-established and/ or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for giant gartersnake, including identification of reference sites if appropriate.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
• The lower Laguna Creek, mainly between Twin Cities Road (SR 104) and Miess Road; • Skunk Creek: this creek flows into the Cosumnes River northwest of the City of Galt; • To the north of the lower Laguna Creek and west of the Folsom South Canal are several small creeks—the short Willow Creek and tributaries of Badger Creek; and • Badger Marsh. Mitigation for impacts to modeled habitats for giant gartersnake that occur along Badger Creek and Stone Lakes will occur along these drainages. Minimum re-establishment and/or establishment will total: • 170 acres of high-value aquatic habitat • 134 acres of high-value upland habitat. (See Objectives SW2, OW2, RIP2, and RIP4.)				
Objective GGS3. Plan Permittees will conduct a study to establish hydrologic baseline conditions along Badger Creek to identify what level of hydrology is necessary to support giant gartersnake and acquire a water source to maintain the minimum level of hydrology during the summer months when	What is the hydrologic condition along Badger Creek? How much supplemental water would be required to maintain baseline conditions during summer?	Conduct hydrologic study	Hydrologic study within two years of SSHCP implementation	Detail the methodology for the hydrologic study.
	Is the supplemental water maintaining appropriate hydrologic	Annually review aerial imagery of Badger Creek to observe the ratio of	Annual review of aerial imagery.	Establish appropriate monitoring protocol for

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
agricultural runoff may wane.	conditions in perpetuity?	open water and emergent vegetation. Investigate in the field hydrologic conditions every 5 years to ensure continued habitat suitability for giant gartersnake.	Field investigation of conditions every 5 years	hydrologic conditions along Badger Creek.
Objective VELB1. Relocate or replace each impacted elderberry shrub (*Sambucus* spp.) according to USFWS *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999). Mitigation will occur in locations that are not inundated for 2 continuous weeks, as determined by the TAC.	Are USFWS success criteria being met at mitigation sites?	Monitor attainment of success criteria as described in the SSHCP Preserve System Monitoring and Management Program.	Annual for first 5 years after planting. After 5 years post-planting, inspection every 5 years.	Define success criteria for relocation or replacement, based on USFWS Conservation Guidelines for the Valley Elderberry Longhorn Beetle.
Objective VELB2. During implementation of riparian habitat re-establishment and/or establishment, strategically include elderberry shrub in the planting palette (see Objectives RIP2 and RIP4).	Is elderberry shrub being used appropriately during riparian habitat re-establishment and/ or establishment?	Review of planting plans for proposed restoration projects, field inspection of in-progress and completed restoration projects	Project-by-project basis	Checklist for appropriate use of elderberry shrub to be used by Land Use Authority Permittee staff during project review.
Objective CH1. During preserve assembly, ensure that a minimum of 974 acres of modeled nesting/foraging habitat for Cooper's hawk (*Accipiter cooperii*) is preserved, in accordance with Conservation Actions described in Table 7-1 (see Objectives RIP1, RIP3, and BOW1).	Are Cooper's hawks using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for Cooper's hawk, including identification of reference sites if appropriate.
Objective CH2. During preserve assembly, ensure that a minimum of 601 acres of modeled nesting/foraging habitat for Cooper's	Are Cooper's hawks using the re-established and/ or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations	Survey methodology for Cooper's hawk, including identification of reference

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
hawk is re-established and/or established (see Objectives RIP2 and RIP4).			in Annual Report.	sites if appropriate.
Objective CH3. During preserve assembly, ensure that a minimum of 38 acres of modeled foraging habitat for Cooper's hawk is preserved, in accordance with Conservation Actions described in Table 7-1 (see Objectives RIP1, RIP3, and BOW1).	Are Cooper's hawks using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for Cooper's hawk, including identification of reference sites if appropriate.
Objective TB1. During preserve assembly, ensure that a minimum of 4,149 acres of modeled foraging habitat for tricolored blackbird is preserved (see Objectives AG1, AG2, FWM1, VG1, VPG1, VP1, VP3, FWM1, OW1, and SW1).	Are tricolored blackbirds using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for tricolored blackbird. Methodology should be coordinated with the Statewide survey.
Objective TB2. During preserve assembly, ensure that a minimum of 27,532 acres of modeled nesting/foraging habitat for tricolored blackbird is preserved, including a minimum of 402 acres of freshwater marsh and seasonal wetland (see Objectives AG1, AG2, VG1, VPG1, FWM1, and SW1).	Are tricolored blackbirds using the preserved habitat? Is there a positive correlation between use of conserved nesting and foraging sites?	Conduct occupancy surveys, review observations made by Implementing Entity staff. Compare survey results at preserved SSHCP nesting and foraging sites to sites that do not receive SSHCP management and monitoring efforts.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for tricolored blackbird. Methodology should be coordinated with the Statewide survey.
Objective TB3. During preserve assembly, ensure that a minimum of 917 acres of modeled foraging habitat for tricolored blackbird is re-established and/or established (see Objectives FWM2, SW2, OW2, and VP2).	Are tricolored blackbirds using the re-established and/or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for tricolored blackbird. Methodology should be coordinated with the Statewide survey.

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Objective TB4. During preserve assembly, ensure that a minimum of 232 acres of modeled nesting/foraging habitat for tricolored blackbird is re-established and/or established (see Objectives FWM2 and SW2).	Are tricolored blackbirds using the re-established and/or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff. If colonies present, count number of individuals at each colony.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for tricolored blackbird. Methodology should be coordinated with the Statewide survey.
Objective TB5. Provide mitigation for loss of any tricolored blackbird nesting colony site that is occupied at the time of Covered Activity implementation or was recorded as an occupied nesting colony at any time since 2008. Sources for occupied nesting colonies are the CNDDB, Tricolored Blackbird Portal, eBird, or other data sources approved by the Wildlife Agencies. Minimum mitigation is to protect one extant unprotected occurrence of a nesting colony prior to take of one nesting colony of tricolored blackbirds. Ensure that at least five extant tricolored blackbird colonies that were occupied in recent years are maintained and managed within the SSHCP Preserve System.	Are tricolored blackbirds continuing to use the preserved colonies?	Colony occupancy survey to count number of individuals at each preserved colony.	Every 3 years. If regional count becomes more frequent, coordinate timing with regional program.	Survey methodology for tricolored blackbird. Methodology should be coordinated with the Statewide survey.
Objective TB6. Conduct an experimental study to identify management actions to protect tricolored blackbird colonies (e.g., coarse netting to reduce nest predation or impact of pesticides).	How many birds successfully fledge?	Nest census to quantify successful fledging.	Once each season that study is ongoing, coordinated with study timing.	Nest census methodology for tricolored blackbird.
	What techniques best exclude predators?	Conduct pilot study for exclusion techniques.	Study initiated within 2 years of	Pilot study design, including exclusion techniques to be

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			HCP implementation; completed within 5 years of HCP implementation	tested, how to determine success or failure of techniques.
Objective TB7. Ensure that at least one large tricolored blackbird colony (i.e., one that has historically [from 1950 onward] supported a minimum of 1,500 individuals) is protected.	Are tricolored blackbirds continuing to use the colony?	Conduct occupancy surveys, review observations made by Implementing Entity staff. If colonies present, count number of individuals at each colony.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for tricolored blackbird. Methodology should be coordinated with the Statewide survey
Objective TB8. For any tricolored blackbird nesting colony that is removed by a Covered Activity, re-establish and/or establish three new colonies within SSHCP Preserves. Re-established and/or established colonies can be in aquatic (freshwater marsh, seasonal wetland) or upland (annual grassland) habitat types, and must be within 0.5 mile of appropriate agricultural forage crops (especially alfalfa) or annual grasslands that provide adequate foraging opportunities.	Are re-established and/or established colony sites being used by tricolored blackbird nesting colonies?	Conduct occupancy surveys, review observations made by Implementing Entity staff. If colonies present, count number of individuals at each colony.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for tricolored blackbird. Methodology should be coordinated with the Statewide survey
	Are nestlings within re-established and/or established colony sites fledging successfully? What is the fledgling success rate?	Nest census to quantify successful fledging.	Once each season that study is ongoing, coordinated with study timing.	Nest census methodology for tricolored blackbird.
Objective BO1. Preserve 7 occupied western burrowing owl (*Athene cunicularia*) sites (commensurate with 20% of the estimated number of sites within the UDA as of 2014), preserve at least 200 acres of land surrounding each occupied burrow site, and maintain modeled habitat for western	Are burrowing owls using the sites?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for burrowing owl, including identification of reference sites if appropriate.

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Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
burrowing owl within 0.4 mile of breeding sites.				
Objective BO2. For each burrowing owl or burrowing owl pair passively excluded, protect 200 acres of modeled habitat for western burrowing owl, and establish a ground squirrel (*Spermophilus (Otospermophilus) beecheyi*) colony and augment with artificial burrows as appropriate (determined by TAC). Artificial burrows will be established at appropriate locations throughout the Preserve System pursuant to CDFW (CDFG 2012 guidelines) or as otherwise determined by the TAC.	Are ground squirrels occupying the site? Are burrowing owls using the squirrel burrows or the artificial burrows?	Conduct surveys for ground squirrels or other fossorial mammals. Review observations made by Implementing Entity staff. When recording occupancy survey data for burrowing owl under Objective BO1, note whether burrows are natural or artificial.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for ground squirrel, including identification of reference sites if appropriate.
Objective FH1. During preserve assembly, ensure that a minimum of 25,881 acres of modeled foraging habitat for ferruginous hawk is preserved, including 19,625 acres in PPUs 5 and 7 (see Objectives AG1, VG1, VP1, VP3, VPG1, and SW1).	Are ferruginous hawks using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for ferruginous hawk, including identification of reference sites if appropriate.
Objective FH2. During preserve assembly, ensure that a minimum of 729 acres of modeled foraging habitat for ferruginous hawk is re-established and/or established (see Objectives VP2 and SW2).	Are ferruginous hawks using the re-established and/or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for ferruginous hawk, including identification of reference sites if appropriate.
Objective SH1. During preserve assembly, ensure that a minimum of 31,033 acres of modeled foraging habitat for Swainson's	Are Swainson's hawks using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations	Survey methodology for Swainson's hawk, including identification of reference

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Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
hawk is preserved (see Objectives AG1, AG2, SW1, VP1, VP3, VG1). Ensure that mitigation for high-value modeled habitat impacted within PPUs 4, 6, or 8 occurs within PPUs 4, 6, or 8.			in Annual Report.	sites if appropriate.
Objective SH2. At least 2,000 acres of Cropland habitat within high-value habitat within PPUs 4, 6, and 8 will be preserved in fee title to ensure that intensive management actions can be taken. Land held in fee title will be restricted to growing field or row crops. Fee title lands must maintain, at a minimum, an average of 50% of their crop cover-type in alfalfa. Other crop types or land covers may be substituted for alfalfa if the TAC determines that such other crop types or land cover types are of the same or better quality foraging habitat as alfalfa.	Are Swainson's hawks using the preserved habitat? Which crops are they most commonly observed foraging in?	Conduct occupancy surveys, review observations made by Implementing Entity staff. Record crop types when conducting surveys or making observations. Include crop types in all survey reports or compilations of observations, to the extent possible.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for Swainson's hawk, including identification of reference sites if appropriate.
Objective SH3. During preserve assembly, ensure a minimum of 746 acres of modeled nesting habitat for Swainson's hawk is preserved (see Objectives RIP1 and RIP3).	Are Swainson's hawks using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for Swainson's hawk, including identification of reference sites if appropriate.
Objective SH4. During preserve assembly, ensure that a minimum of 373 acres of modeled riparian nesting habitat for Swainson's hawk is re-established and/or established. Ensure that mitigation for modeled nesting habitat impacted within	Are Swainson's hawks using the re-established and/or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for Swainson's hawk, including identification of reference sites if appropriate.

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
PPUs 4, 6, or 8 occurs within PPUs 4, 6, or 8 (see Objectives RIP2 and RIP4).				
Objective SH5. For each of the 36 known nesting trees within the UDA, plant 10 trees that are modeled for Swainson's hawk nesting within SSHCP preserves. Plant nesting trees on properties protected by the SSHCP within PPUs 4, 6, and 8, and near protected foraging habitat. Tree species will be selected based on known suitability as nesting habitat for Swainson's hawk, and the planted trees must be maintained and/or replaced in perpetuity.	Are the planted trees healthy?	Inspection of planted trees for size and health	Annual: Inspection of planted trees for size and health.	Checklist of factors to check on planted nest trees for health and condition.
	Are Swainson's hawks nesting in the planted trees?	Swainson's hawk nesting surveys	Annual starting at 10 years post-planting: Swainson's hawk presence/ absence surveys	Survey methodology for nesting Swainson's hawk, including identification of reference sites if appropriate.
Objective SH6. During preserve assembly, ensure that a minimum of 729 acres of modeled foraging habitat for Swainson's hawk is re-established and/or established (see Objectives RIP2 and RIP4).	Are Swainson's hawks using the re-established and/or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for Swainson's hawk, including identification of reference sites if appropriate.
Objective NH1. During preserve assembly, ensure that a minimum of 1,245 acres of modeled foraging habitat for northern harrier is preserved (see Objectives VG1, AG1, VPG1, VP1, VP3, FWM1, and SW1).	Are northern harriers using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for northern harrier, including identification of reference sites if appropriate.
Objective NH2. During preserve assembly, ensure that a minimum of 30,048 acres of modeled nesting/foraging habitat for northern harrier is preserved (see Objectives VG1 and AG1).	Are northern harriers nesting in the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for northern harrier, including identification of reference sites if appropriate.

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective NH3. During preserve assembly, ensure that a minimum of 856 acres of modeled foraging habitat for northern harrier is re-established and/or established (see Objectives VP2, FWM2, and SW2).	Are northern harriers using the re-established and/ or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for northern harrier, including identification of reference sites if appropriate
Objective WK1. During preserve assembly, ensure that a minimum of 31,205 acres of modeled foraging habitat for white-tailed kite is preserved (see Objectives VG1, AG1, RIP1, RIP3, VPG1, SW1, VP1, VP3, and BOW1).	Are white-tailed kites using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for white-tailed kite, including identification of reference sites if appropriate.
Objective WK2. During preserve assembly, ensure that a minimum of 974 acres of modeled nesting or nesting/foraging habitat for white-tailed kite is preserved (see Objectives RIP1, RIP3, and BOW1).	Are white-tailed kites using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for white-tailed kite, including identification of reference sites if appropriate.
Objective WK3. During preserve assembly, ensure a minimum of 767 acres of modeled foraging habitat for white-tailed kite is re-established and/or established (see Objectives VP2, RIP2, RIP4, and SW2).	Are white-tailed kites using the re-established and/ or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for white-tailed kite, including identification of reference sites if appropriate.
Objective WK4. During preserve assembly, ensure that a minimum of 601 acres of modeled nesting or nesting/foraging habitat for white-tailed kite is re-established and/or established (see Objectives RIP2 and RIP4).	Are white-tailed kites using the re-established and/ or established habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for white-tailed kite, including identification of reference sites if appropriate.
Objective GS1. During preserve assembly, ensure that a minimum of 257 acres of	Are greater sandhill cranes using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing	5 years for surveys, include	Survey methodology for roosting greater sandhill

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
modeled roosting or roosting/foraging habitat for greater sandhill crane is preserved. Roosting habitat will be preserved and maintained within PPUs 4, 6, and 8, with a minimum of 75% within PPU 6 (see Objectives VP1, SW1, and FWM1).		Entity staff.	staff observations in Annual Report.	crane, including identification of reference sites if appropriate.
Objective GS2. During preserve assembly, ensure that a minimum of 7,751 acres of modeled foraging habitat for greater sandhill crane is preserved (see Objectives AG1, AG2, and VG1).	Are greater sandhill cranes using the preserved habitat?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for greater sandhill crane, including identification of reference sites if appropriate.
Objective GS3. During preserve assembly, ensure that a minimum of 184 acres of modeled roosting habitat or roosting/foraging habitat for greater sandhill crane is re-established and/or established. Re-establish two new roost sites (minimum of 90 acres of freshwater marsh/seasonal wetland complex each) every 2 miles in the gap between the Cosumnes population and the Stone Lakes' population or other strategic locations if that gap is closed by another HCP or conservation project (see Objectives VP2, SW2 and FWM2).	Are greater sandhill cranes using the re-established and/ or established habitat or roost sites?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for roosting greater sandhill crane, including identification of reference sites if appropriate.
Objective GS4. Create a visual screen of woody vegetation near human disturbances such as buildings, bridges, and paved roads from permanent roosting habitat within PPU	Is roosting habitat located behind planted screens being occupied by greater sandhill cranes?	Conduct occupancy surveys, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for roosting greater sandhill crane, including identification of reference sites if

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
6. Screens should be located as appropriate to not interfere with habitat usage by greater sandhill cranes.				appropriate.
Objective GS5. As part of the 2,000 acres preserved under Objective AG2, establish and maintain 10 food plots in strategic locations totaling a minimum of 200 acres within an agricultural setting for greater sandhill crane foraging habitat within PPU 6. Maintain the 200 acres among the 10 food plots as irrigated pasture or planted with crops preferred by greater sandhill crane as foraging habitat. Crops may include, but are not limited to, alfalfa, corn, wheat, or rice. Strategic placement of food plots will include locations for food plots in upland areas above the floodplain.	Are food plots being used by greater sandhill cranes?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for greater sandhill crane, including identification of reference sites if appropriate.
Objective GS6. During preserve assembly, ensure that a minimum of 1,000 acres of high-value modeled foraging habitat for greater sandhill crane outside the 100-year floodplain is preserved (see Objectives VP1, SW1, and FWM1).	Are greater sandhill cranes using the preserved habitat? Is their usage of the habitat limited to periods of flooding?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff. Conduct special study of the habitat during and immediately following a 10-year flood or greater, as described in Section 8.3.3.5.	5 years: Occupancy surveys. Targeted surveys during flood events.	Survey methodology for greater sandhill crane, including identification of reference sites if appropriate.
Objective LS1. During preserve assembly, ensure that a minimum of 9,152 acres of modeled foraging habitat for loggerhead shrike (*Lanius ludovicianus*) is preserved (see	Are loggerhead shrikes using the preserved habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for loggerhead shrike, including identification of reference sites if appropriate.

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objectives VG1, AG1, VPG1, SW1, VP1, and VP3).				
Objective LS2. During preserve assembly, ensure that a minimum of 22,014 acres of modeled nesting/foraging habitat for loggerhead shrike is preserved (see Objectives VG1, RIP1, and RIP3).	Are loggerhead shrikes using the preserved habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for loggerhead shrike, including identification of reference sites if appropriate.
Objective LS3. During preserve assembly, ensure that a minimum of 592 acres of modeled nesting habitat for loggerhead shrike is re-established and/or established (see Objectives RIP2 and RIP4).	Are loggerhead shrikes using the established and re-established habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for nesting loggerhead shrike, including identification of reference sites if appropriate.
Objective LS4. During preserve assembly, ensure that a minimum of 965 acres of modeled nesting habitat for loggerhead shrike is preserved (see Objectives RIP2 and RIP4).	Are loggerhead shrikes using the preserved habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for nesting loggerhead shrike, including identification of reference sites if appropriate.
Objective LS5. During preserve assembly, ensure that a minimum of 729 acres of modeled foraging habitat for loggerhead shrike is re-established and/or established (see Objective SW2).	Are loggerhead shrike using the preserved habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology for loggerhead shrike, including identification of reference sites if appropriate.
Objective WR1. During preserve assembly, ensure that a minimum of 23,910 acres of modeled foraging habitat for western red bat (*Lasiurus blossevillii*) is preserved (see Objectives BOW1, RIP1, RIP3, AG1, VPG1, VG1, VP1, VP3, SW1, OW1, FWM1, and SC1).	Are western red bat using the preserved habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology, potentially passive acoustic monitoring.

Table 8-4
Framework for Monitoring Effectiveness of the SSHCP Conservation Strategy

Measurable Objective	What do we need to know to assess effectiveness?	How do we monitor what we need to know?	When and how often?	What protocols and methods need to be developed in the Preserve System Monitoring and Management Program?
Objective WR2. During preserve assembly, ensure that a minimum of 841 acres of modeled roosting/foraging habitat for western red bat is preserved (see Objectives BOW1, RIP1, and RIP3).	Are western red bat using the preserved habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology, potentially passive acoustic monitoring.
Objective WR3. During preserve assembly, ensure that a minimum of 1,317 acres of modeled foraging habitat for western red bat is re-established and/or established (see Objectives VP2, SW2, OW2, FWM2, RIP2, and RIP4).	Are western red bat using the re-established and/ or established habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology, potentially passive acoustic monitoring.
Objective WR4. During preserve assembly, ensure that a minimum of 450 acres of modeled roosting/foraging habitat for western red bat is re-established and/or established (see Objectives RIP2 and RIP4).	Are western red bat using the re-established and/ or established habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology, potentially passive acoustic monitoring.
Objective AB1. During preserve assembly, ensure that a minimum of 23,171 acres of modeled habitat for American badger (*Taxidea taxus*) is preserved (see Objectives BOW1, VG1, VP1, VP3, VPG1, and SW1).	Are American badgers using the preserved habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology, potentially deployment of wildlife cameras.
Objective AB2. During preserve assembly, ensure that a minimum of 767 acres of modeled habitat for American badger is re-established and/or established (see Objectives VP2 and SW2).	Are American badgers using the re-established and/ or established habitat?	Conduct occupancy surveys at food plots, review observations made by Implementing Entity staff.	5 years for surveys, include staff observations in Annual Report.	Survey methodology, potentially deployment of wildlife cameras.

8.3.3.1 Phases of Monitoring

Preserve System management (see Section 8.3.4) will be conducted on all SSHCP Preserves during all three phases of the Permit Term. Preserve management decisions will be directed from the results of the Preserve monitoring.

Phase 1 – Develop and Test Monitoring Protocols

During Phase 1 – Develop and Test Monitoring Protocols, the proposed monitoring techniques for each land cover type and Covered Species will be further developed and tested in the field at least once. During this phase of refining the monitoring protocols, statistical methods to be used to analyze the monitoring data will also be developed and key statistical parameters, such as detection probabilities, will be identified and estimated.

Phase 2 – Intensive Monitoring Period

The second phase in the SSHCP Preserve System Monitoring and Management Program involves an intensive monitoring period in which Effectiveness Monitoring is conducted every year for the first 10 years. The purpose of a more intensive monitoring period is to further test and evaluate the effectiveness of survey protocols and to begin to establish statistically valid baseline data (e.g., population estimate or population index value) for the development of biologically meaningful significance thresholds. Since the Preserve System will continue to grow throughout Plan implementation, not all areas in the Preserve System will be included in this intensive monitoring phase. The intent of the data collected during this period is not designed to be Preserve-specific, but rather to inform the nature of variation within the biological system (e.g., population levels of Covered Species or composition of the natural community) intended to be preserved and managed. The 10-year time frame of intense monitoring should also allow sufficient time to experience a range of climatic conditions, typically one drought and one wet rainy season cycle, plus variations in timing and duration. This should provide a reasonable assessment of the annual population fluctuations for Covered Species and Natural Community-level variables to develop more biologically meaningful management thresholds and comparisons to interpret data during the long-term monitoring phase.

Phase 3 - Long-Term Monitoring

This phase involves implementation of the long-term monitoring program, which consists of a continuation of the monitoring protocols developed during Phase 1 and further refinement during Phase 2, only conducted at 3-year or 5-year intervals instead of every year as in Phase 2.

Programmatic Review of Monitoring and Adaptive Management Program

This additional component of the SSHCP Preserve System Monitoring and Management Program involves a programmatic review of the monitoring techniques, assessment of reserve management practices and an overall assessment of the effectiveness of the operating Conservation Program. Each review will assess the effectiveness of the Plan in achieving all of the Biological Goals and Measureable Objectives. These reviews are integral to the process of adaptive management. A programmatic review will occur every 5 years for the permit duration (i.e., 50 years) coinciding with the 5-year Annual Report (Section 8.4.1) and every 10 years after that in perpetuity. The first review will assess the results of the initial tests of the monitoring protocols, use these results to modify monitoring as necessary in Phase 2, and further define biologically meaningful performance criteria and significance thresholds. Data from the intensive monitoring during reviews in years 10 and 15 will be used to further refine performance criteria and significance thresholds. The final review in year 45 will assess the effectiveness of the Plan in achieving all of the Biological Goals and Measureable Objectives. After this review, review frequency will decrease to every 10 years in perpetuity. This frequency will allow for three monitoring cycles during the Long-Term Monitoring Phase. All reviews will summarize the results of special studies and incorporate results into the Preserve System Monitoring and Management Program.

8.3.3.2 Monitoring Status and Trends of Covered Species

Several of the Biological Measurable Objectives will require the Implementing Entity to monitor the status of the species in the Plan Area and identify trends in abundance and distribution on individual Preserves and across the Preserve System. Methods to monitor Covered Species status and trends to comply with the Covered Species objectives will be developed by the Implementing Entity with input from the TAC.

Potential ways to monitor status and trends include presence/absence data (CDFW 2009) or the Proportion of Area Occupied (PAO) (MacKenzie et al. 2003). Presence/absence surveys in a representative subset of vernal pools will be used for the vernal pool invertebrate species. This methodology is appropriate because determining abundance can be very damaging to the vernal pool community, and determining presence/absence in all vernal pools within the Preserve System would be extremely time consuming and costly.

The PAO may be appropriate for amphibian and reptile Covered Species and is becoming a widely used, useful, cost-effective metric for large-area monitoring programs. For example, PAO has been adopted by the Amphibian Research and Monitoring Initiative as the metric by which many amphibian populations nationwide will be measured. The PAO statistical approach evaluates the fraction of the landscape that is occupied by a species of interest, but not the actual

abundance of the population across the landscape. This is useful for more cryptic species, such as amphibians or reptiles, where actual abundance estimates are more difficult and costly to obtain. The PAO methodology

However, for certain Covered Species, such as plants, additional data may be collected on densities. In addition to presence/absence or PAO, data may also be collected to assess the overall health and status of these occurrences to see if their population levels and distribution are actually increasing throughout the Plan Area. There are two main methods for assessing population status and trends: (1) complete periodic censuses of the Covered Species in the Plan Area; and (2) sampling methods that allow for statistical estimates of some population parameter (e.g., population size, population density, occupancy rates, etc.).

Complete periodic censuses may have several advantages, including full information for the particular response variable and elimination of sampling error. Complete censuses provide more powerful data for assessing trends (i.e., an observed increase or decrease is real, although the difference may not be biologically significant). For example, if a 20% population decline (e.g., number of individuals, number of occupied sites) is the threshold for triggering management), a decline from 100 to 79 would trigger management. However, the census approach can be very costly, and the detection probability of any given survey has to be 1.0, or virtually 1.0, which is seldom the case for most species. For example, highly mobile birds or bats may simply be absent from a site at the time the survey is conducted even though they normally frequent the site, or nesting birds that are present may not be calling to advertise or defend their territories. Similarly, the reptiles and amphibians may be underground or otherwise cryptic and hard to detect during surveys. Studies that use trapping also seldom trap all individuals in a population due to factors such as limited encounter rates with traps and trap shyness (i.e., not all individuals are trappable).

For these reasons, the SSHCP will generally rely on the numerous sampling methods that have been developed for the Covered Species. Such methods generate population status information ranging from simple presence/absence or indices such as relative abundance (i.e., there is no population or other parameter estimate) to statistically-estimated occupancy rates or population sizes and/or densities using sophisticated mathematical formulations (see MacKenzie et al. 2006). The usual drawback of the statistical estimates is that minimum necessary samples sizes for making reasonably precise population estimates are often prohibitively large. In some cases, the minimum sample sizes (e.g., nest pairs of a species) may be larger than the entire population of a study area. In addition, determining adequate sample sizes and/or intensity of sampling at each site for species often requires substantial pilot testing because minimum sample size and sample effort is affected by factors such as rarity or commonness of the species, detection probabilities (e.g., samples sizes can be smaller or fewer sites need sampling with species that are reliably detected) and the inherent variability of a species population (which increases sampling error).

8.3.3.3 Success Criteria

The function of re-established or established habitat will be evaluated through monitoring of success criteria tailored to each particular site. The minimum success criteria will be developed during the 18-month preparation of the SSHCP Compliance and AMM Monitoring Program and the SSHCP Preserve System Monitoring and Management Program. The Implementing Entity will be advised by the TAC and the Permitting Agencies on the best available science regarding success criteria, and the Permitting Agencies must approve the success criteria as part of the two programs. Success criteria for new re-establishment/establishment sites may be updated over the duration of the permit to ensure that the best available science is being applied. The exact monitoring effort for each site will be site-specific. Monitoring of the success criteria must include, at a minimum, occupancy status and population trends of the target Covered Species at the habitat re-establishment/establishment site. If monitoring indicates that success criteria are not being met at any time in perpetuity, the Implementing Entity will take remedial action until success criteria are met and the re-established/established land cover type is providing the required Covered Species habitat.

8.3.3.4 Reference Sites

The Implementing Entity, in coordination with the Wildlife Agencies and TAC, will identify reference sites to compare with Covered Activity sites. This will allow the Implementing Entity to better separate regional effects from those caused by Preserve Management Covered Activities. Reference sites will include permanent and impermanent plots. Reference sites for vernal pools should be located as far away from human disturbance as feasible. Vernal pool reference sites for the SSHCP Preserve System must include plots both within and outside the UDA because of soils, geologic formations, vernal pool type, species distributions and weather patterns differ in the Plan Area between the UDA and the Plan Area south of the Cosumnes River (see Chapters 2, 3, and 4).

For plant monitoring, reference sites will be established (nearby accessible occurrences of the plants) and used to determine whether those species are identifiable at the time of the survey and to obtain a visual image of the target species, associated habitat, and associated natural community.

8.3.3.5 Special Studies to Evaluate Effectiveness

Monitoring effectiveness of AMMs and biological measurable objectives will require several in-depth investigations, which the SSHCP terms Special Studies. Special Studies differ from regular Preserve Monitoring because they will pose a hypothesis, and then test that hypothesis. The SSHCP will use the results of Special Studies for effectiveness monitoring and to inform Preserve adaptive management. Depending on the monitoring need, Special

Studies may be conducted once or regularly repeated throughout the Permit Term to inform preserve management decisions. Preserve Managers and the Implementing Entity will carry out Special Studies to gain insights into key questions identified in the SSHCP Preserve System Monitoring and Management Program (Table 8-5) and questions that arise during SSHCP implementation. The details of special studies, including methods and timing, will be developed by the Implementing Entity in coordination with the TAC.

Table 8-5
Special Studies Known at the Time of SSHCP Preparation

Special Study Topic	Preliminary Special Study Timing
Conduct a study on Ahart's dwarf rush and other vernal pool plants to determine population responses to SSHCP Preserve management methods.	Collect baseline data on Ahart's dwarf rush and other vernal pool plants in SSHCP Preserves as Preserves are acquired. Timing for experiments to test the effects of management methods to be determined through the TAC.
Conduct a special study on indirect effects on vernal pools in a SSHCP Preserve that abuts a development area. Measure vernal pool crustacean occupation of pools and other potential habitat covariates such as water chemistry and presence of invasive species from the zone of indirect effects along a transect from the edge toward the interior. Evaluate the effectiveness of EDGE AMMs in avoiding or reducing the edge effects of adjacent development on Preserves.	Special study to include a pre-project study and repeating post-project studies. Pre-project study to be conducted as soon as possible before one of the five master plan projects (Section 5.2.1.3) begins construction. First post-project study to be conducted no less than 5 years after completion of at least 25% of master plan project. Repeat study at several time intervals (e.g., 4 to 5 years) until development has been in place for the long term (approximately 15 years).
Special study on effectiveness of inoculation and inocula banking. Test different methods for storage of inocula soils and the storage method's effects on cyst and seed viability. Evaluate the success rate of vernal pools that have been inoculated compared with ones that have not been inoculated.	Evaluations of inocula banking techniques to begin with first deposition of vernal pool soils within the inocula bank. Schedule for sampling of inocula bank to be determined by the Implementing Entity in first 6 months after permit issuance, in collaboration with the TAC. Study ongoing for at least 10 years after commencement of inocula banking.
Investigate what types and abundances of wildlife travel through Linkage Preserves and Wildlife Corridors, and identify any seasonal differences in wildlife using the corridors.	Implementing Entity to develop in first 18 months a preliminary design for the special study. Special study to commence within 5 years of establishment of at least 5 Linkage Preserves and intact Laguna Creek Wildlife Corridor. 1 year before study commences Implementing Entity to work with directed study investigator to Identify locations for camera placement, duration of camera deployment, procedures for deploying, maintaining, and processing the data from the cameras. Repeat the study every 5 years.
Conduct a study of greater sandhill crane use of upland foraging habitat during and immediately following a 10-year flood or greater. This study would demonstrate the value of the upland foraging habitat that is required to be preserved under the Conservation Strategy and ensure that effects on this species are being mitigated to the maximum extent possible.	Design for special study developed within 18 months of SSHCP permit issuance; study conducted only after preservation of at least 500 acres of upland foraging habitat, and conducted during and immediately following 10-year flood or greater flood event.

Additional needs for Special Studies will be identified by the Preserve Managers, Implementing Entity, and TAC. The Permittees expect that many Special Studies will be

conducted by the Preserve Managers and Implementing Entity or by consulting scientists hired by the Implementing Entity. Special Studies that are identified as necessary during Plan implementation will likely be conducted by or in partnership with outside scientists from academic institutions, consulting firms, and nonprofit organizations.

As discussed in Chapter 12, Economics Analysis and Funding Program, the Permittees anticipate that funding provided by the Implementing Entity for Special Studies could be matched or supplemented by other entities. In addition to the Special Studies undertaken to answer Preserve management uncertainties (Table 8-5), the Permittees expect that the Implementing Entity will develop partnerships with academic institutions (e.g., undergraduate student projects, Masters theses, Ph.D. dissertations) to study the SSHCP Preserve System. These academic partnerships and studies will inform and improve SSHCP Preserve management and monitoring techniques.

8.3.4 SSHCP Preserve System Management

Typical Preserve System facility activities include controlling public access to sensitive areas, fencing construction and/or repairs of existing fences, signage placement and/or repairs, trash removal, and patrols would typically not require effectiveness monitoring or adaptive management. Where there is little uncertainty in a management outcome, an adaptive management approach usually is not necessary. For more information on Preserve management, refer to Appendix G-3 (Preserve Management Toolbox).

However, even common activities such as fencing may be part of a preserve habitat-restoration effort to preclude human or animal disturbance while the restored site is recovering, and monitoring the effectiveness of the fencing (or different kinds of fencing) may be of interest. Similarly, grazing to control thatch will be included in most Individual PMPs. Different methods of thatch control (e.g., grazing, weed-whacking, fire, or herbicides), or different timing of controls and/or intensity of controls will be monitored for effectiveness in meeting management goals defined by the Individual PMP and management may be adjusted accordingly.

8.3.4.1 Summary of SSHCP Preserve Adaptive Management Tasks

The following will be elements of the SSHCP Preserve System Monitoring and Management Program:

- Incorporate hypothesis testing and experimental land-management to address key uncertainties about response of natural resources to management methods, and to improve monitoring methods. The SSHCP may address uncertainties through the completion of special studies (Section 8.3.3.5)

- Evaluate monitoring protocols. For example, the frequency of vernal pool crustacean monitoring may need to be adjusted if it is not providing adequate information to gauge status and trends at an individual Preserve or across the Preserve System.
- Incorporate new and best available scientific information into the SSHCP Preserve System Monitoring and Management Program. The Implementing Entity will regularly review scientific literature and consult with the TAC and the Wildlife Agencies to ensure that new information about species and/or monitoring approaches is incorporated into the into the SSHCP Preserve System Management Program. For example, use of wildlife crossings and mobility across the landscape is not well known for SSHCP species. As the Preserves are studied, new information may indicate that linkages should be expanded and wildlife crossings relocated or enlarged.
- Refine existing Chapter 3 maps of each Covered Species habitat locations in the Plan Area. As more Preserve monitoring data becomes available (e.g., annual bird surveys) and as new scientific information results in changed assumptions, the maps should reflect new information to continue to provide guidance for prioritization of Preserve land acquisitions.
- Review all results of Preserve monitoring and directed studies. Examine unexpected results to understand the reason. Further adjust Preserve management actions and monitor the results of those adjustments.
- Refine success criteria for re-established and established land cover types during Phase 1 of monitoring. Minimum success criteria will be developed by the TAC and approved by the Permitting Agencies as part of the SSHCP Preserve System Monitoring and Management Program. As part of adaptive management, these minimum success criteria for re-established species habitat may be adjusted if monitoring demonstrates they are inappropriate indicators of functional habitat.

Proposed changes to Preserve monitoring and success criteria will not implemented by the Implementing Entity until approved by the Permitting Agencies.

8.3.4.2 Preserve Management Plans

As directed by measureable Objective HAB1, all lands preserved by the SSHCP shall have a PMP, which is prepared by the Implementing Entity and approved by the Wildlife Agencies. The following describes the process for PMP development and the minimum requirements for PMPs.

Initial PMP

The Implementing Entity will compile the history of management on each parcel or group of parcels (as appropriate) from available records and interviews with current and past land managers. These historical land use and management practices, combined with other information compiled in the

Preserve Documentation Report (PDR) (Chapter 9), will form the basis for an Initial PMP (refer to Conservation Action HAB 3.1). Pursuant to the principles described in Section 8.3.2, the Initial PMP will describe continuation of existing preserve land management until results of SSHCP Preserve System effectiveness monitoring (Section 8.3.3) demonstrate that land management type, intensity, or frequency should be changed by the Implementing Entity.

Individual PMP

After parcel acquisition, the Implementing Entity will prepare an Individual PMP for each preserve (or preserve-parcel) within 18 months of acquisition, using the Preserve Management "toolbox" that is outlined in Appendix G-3. The Individual PMP will identify necessary routine management and routine preserve monitoring, building on the Initial PMP as appropriate. If appropriate, Individual PMPs may include separate discussions for each Preserve unit – a parcel or group of parcels within a Preserve subject to the same management regime.

Each Individual PMP will clearly identify maintenance and repair responsibilities for infrastructure that borders Preserves, such as Preserve fencing that borders Preserve setbacks. The Individual PMP will also specify the mechanisms by which the Changed Circumstances provided for in the SSHCP (Chapter 11) are addressed

The Implementing Entity will ensure that the Individual PMPs are prepared by a qualified person(s) experienced in the monitoring and management of Plan Area natural communities, and qualified in planning and implementation of habitat restoration, if appropriate for the Preserve site. Draft Individual PMPs will be reviewed and approved by the Permitting Agencies (including Wildlife Agencies) prior to final Implementing Entity approval and implementation. Individual Preserve Management Plans will also be developed in coordination with the TAC.

SSHCP Individual PMPs will have this minimum framework:

- A prioritized list of environmental stressors (see Section 6.3) specific to the natural communities present in the Preserve or the Preserve parcel that must be addressed by PMP actions.
- Step-down each Biological Goal and Measureable Objective to Preserve unit level (i.e., Preserve-level goals and objectives)
- Prescribe necessary fire or grazing regimes, or other standard mechanisms of vegetation control
- All PMPs will include monitoring for invasive weeds, and prescribe measures for control of invasive weeds selected from the Preserve Management Toolbox (Appendix G-3). Preserve monitoring and management, including the weed-control programs shall be

conducted in perpetuity on each preserve. Each PMP shall include at least annual surveys to visually monitor extent of weed infestations and an IPM decision tree to select appropriate weed-control measures.

- When indicated by Preserve monitoring, Individual PMPs will be revised to include control measures for any destructive non-native animal species (e.g., bullfrogs). These measures shall be conducted in perpetuity on each SSHCP preserve, and shall include at least annual surveys to visually assess and identify new invasions.
- Identify and prioritize opportunities for habitat re-establishment and establishment
- Monitoring to document the status and continued persistence of Covered Species and presence of Covered Species modeled habitat.
- Facility maintenance schedules and requirements (e.g., fencing, trails)
- Responsibilities for implementation of the monitoring, PMP, interim and long-term ownership and/or management of the Preserve parcels.
- Process for annual monitoring of individual Preserves, management of the data, compilation and analysis of the monitoring data, and submittal to the Implementing Entity.

Individual PMPs for Cropland and Irrigated-Pasture Preserves

The primary purpose of the SSHCP Cropland and Irrigated-Pasture Preserves is to provide foraging habitat for certain bird Covered Species (e.g., greater sandhill crane, Swainson's hawk) while allowing viable agricultural operations to continue on the property (see Chapter 7). The Individual PMP will reflect the conditions required on the property by the conservation easement (Section 9.4.3). The Individual PMP for Cropland and Irrigated-Pasture Preserves will include at a minimum the following required components:

- Invasive species control;
- Pesticide/herbicide restrictions;
- Crop selection to enhance value of habitat or food plots for Covered Species;
- Erosion and runoff controls;
- Strategic planting or maintenance of existing trees and shrubs for perching, roosting, nesting, and refuge habitat; and
- If appropriate, planting of hedgerows (Objective AG3) to provide foraging habitat and/or screen food plots and other species-habitats from roads and other human travel corridors.

Additional management would be selected from the Preserve System Monitoring and Management Program for each individual Cropland or Irrigated-Pasture PMP depending on the conditions and conservation targets associated with each Preserve or Preserve parcel.

Habitat Re-Establishment/Establishment Plans

A stand-alone Habitat Re-Establishment/Establishment Plan will be developed by the Implementing Entity for a newly acquired parcel or an existing Preserve where habitat re-establishment and/or establishment is desired. The Habitat Re-Establishment/Establishment Plan will include detailed information on habitat design, including earthmoving, species inoculation, and planting palette, and will be consistent with the requirements of the ARP (Appendix I of the SSHCP Environmental Impact Statement/Environmental Impact Report). Individual PMPs will be updated by the Implementing Entity to include the monitoring and management requirements of the re-established/established habitat.

8.3.5 Monitoring and Management outside the Preserve System

The SSHCP Preserve System Monitoring and Management Program will include direction to Implementing Entity for any monitoring or management occurring outside individual Preserves. At the time of SSHCP preparation this is limited to two potential efforts: (1) monitoring and management of road shoulders, ditches, ROW areas, trails, Preserve Setbacks, and Stream Setbacks that border SSHCP Preserves for invasive weeds or other exotic plant species; and (2) monitoring of reference sites located outside the SSHCP Preserve System (Section 8.3.3.4). Invasive weed and exotic plant removal-protocols will be coordinated with those of other local entities to ensure consistency with these programs and facilitate the sharing of weed-removal monitoring results. This monitoring information will be used to determine the need to adapt management actions for controlling the spread of existing invasive plant infestations as well as potential future invasions. The monitoring results will be reviewed to assess the effectiveness of control method used. This weed removal monitoring information, along with all SSHCP monitoring results, will be shared with state and local land management agencies charged with the control of invasive plants, including the Sacramento River Watershed Program (www.sacriver.org) and the California Invasive Plant Council (www.cal-ipc.org), as well as with managers of other regional HCPs and adjacent public lands.

8.4 Data Management and Reporting

Proper data management, analysis, and reporting are critical to the success of the SSHCP Compliance and AMM Monitoring Program (Section 8.2) and the SSHCP Preserve System Monitoring and Management Program (Section 8.3). Data on monitoring methods, results, and analysis of results must be managed, stored, and made available to Implementing Entity staff,

decision makers, scientific advisors, the Permitting Agencies, and other appropriate persons. A database and clear reporting procedure are also required for permit compliance. Details regarding the scope and maintenance of the Data Repository, maintenance, and data reporting for monitoring are described in Section 9.8, Data Repository Development and Maintenance.

8.4.1 Annual Reports

This section describes the contents of the Annual Reports, which must be prepared by the Implementing Entity and submitted to the Permitting Agencies. Use of the Annual Reports in SSHCP implementation is described in Chapter 9.

At a minimum, all SSHCP Annual Reports will include the following information.

- Number and acreage of each Covered Activity implemented during the reporting period categorized by Covered Activity type (per Chapter 5). Reporting will include a map of Covered Activity locations.
- A year-to-date and cumulative summary (i.e., from the start of the Permit Term) of permanent and temporary impacts on all SSHCP land cover types. Impacts to riparian and wetland land cover types will also be reported by watersheds. Reporting will include a map of impacted locations.
- A year-to-date and cumulative summary of impacts to modeled habitat of Covered Species. Reporting will include a map of impacted areas.
- A year-to-date and cumulative summary of the total impacts to Critical Habitat of vernal pool fairy shrimp, vernal pool tadpole shrimp, Sacramento Orcutt grass, slender Orcutt grass, and California tiger salamander, and to Covered Species plant occurrences. Reporting will include a map of Critical Habitat impacts.
- A year-to-date and cumulative summary of impacts associated with projects exempt from fees and/or conditions of the SSHCP.
- An accounting of all conditions on Covered Activities applied to these activities (see Chapter 5).
- A list of all Stream Setback exceptions and any other exceptions granted each calendar year (Chapter 5).
- A description of all re-establishment and establishment implemented during the reporting period. Riparian and wetland re-establishment and establishment will also be reported by the watersheds shown in Figure 3-1 to facilitate regional coordination of wetland mitigation for the U.S. Army Corps of Engineers (USACE), State Water Resources

Control Board (SWRCB), and Regional Water Quality Control Board (RWQCB). Reporting will include a map of re-establishment/establishment project locations.

- A year-to-date and cumulative summary of the acreage of SSHCP land cover types preserved, re-established, and/or established. The success rate for re-establishment and establishment projects will also be documented. For each Preserve parcel acquired, document whether it was purchased in fee title or protected under a conservation easement. If conservation easements were used, the report will describe who holds the easements. Maps and GIS shapefiles will be provided identifying which parcels have been acquired and whether acquisition was via fee title or easement.
- A year-to-date and cumulative summary of the extent of modeled habitat for Covered Species preserved. This will be calculated by overlaying the most current species habitat models. Reporting will include a map of modeled habitat preservation for each Covered Species.
- A copy of all easements recorded during the reporting year. Reporting will include a map of easements.
- An assessment of the progress toward all preserve acquisition requirements, including SSHCP land cover types, Covered Species colony or breeding sites, plant Covered Species occurrences, and wetland protection. This assessment will include evaluation of compliance with the preserve designs in Chapter 7 (e.g., minimizing edge).
- An assessment of compliance with the Jump-Start and Stay-Ahead provisions (Section 9.4.6) to assure that some elements of the SSHCP Preserve System are in place before the permit is issued (Jump-Start) and that mitigation requirements of the Conservation Strategy stay ahead of Covered Activity impacts (Stay-Ahead).
- An accounting of all revenues received, by type (e.g., development fees, wetland fees, grants) and an assessment of progress towards total revenue goals. Funding from local, state, and federal sources must be tracked separately. Any fee adjustments must also be reported.
- A summary of monitoring results, including species status and trends.
- A description of the adaptive management process utilized during the reporting period.
- A summary of the recommendations or advice provided by the Wildlife Agencies and TAC regarding adaptive management and monitoring.

Every 5 years, the Annual Report will include more detailed analysis of progress and effectiveness of the Conservation Strategy. The following information will be provided in the 5-year Annual Report, in addition to the information required above for all Annual Reports:

- A summary of all land and water management activities undertaken on and off the preserves and a discussion of the management issues facing the Implementing Entity.
- An evaluation of the economic assumptions on which the SSHCP was based (e.g., SSHCP costs, revenue rates and grant funding projections).
- An assessment of progress toward a complete funding strategy for implementation after the Permit Term (Chapter 12).
- An assessment of the efficacy of the SSHCP Preserve System Monitoring and Management Program, including lessons learned from Individual PMPs and recommended changes to the SSHCP Preserve System Monitoring and Management Program based on interpretation of monitoring results and research findings.
- An assessment of the efficacy of habitat re-establishment and/or establishment methods in achieving performance objectives (if applicable) and recommended changes to improve the efficacy of the methods.
- A description of all SSHCP special studies undertaken during the reporting period; a summary of study results; and a description of integration with monitoring, assessment, and compliance elements.
- An assessment of the appropriateness of any performance indicators and objectives based on the results of effectiveness monitoring, and recommended changes to performance indicators and objectives.
- A description of any actions taken or expected regarding changed circumstances, including remedial actions.
- A description of any unforeseen circumstances that arose and responses taken.
- A summary of any administrative changes, minor modifications, or major amendments proposed or approved during the reporting year.

Electronic copies of the following data will be provided upon request to the Wildlife Agencies and to the public:

- Copies of all non-confidential, non-proprietary portions of the database that track Covered Activities and land acquisition in the possession and control of the Implementing Entity in its current state.
- Copies of all relevant GIS data in possession and control of the Implementing Entity in its current state, including land cover, the location of Covered Activities, and the boundaries of the current SSHCP Preserve System.

- Copies of all non-confidential, non-proprietary financial data in possession and control of the Implementing Entity in its current state.

8.4.2 SSHCP Implementing Entity will Share SSHCP Preserve Monitoring Data with Other Programs

The Implementing Entity will coordinate and share the results of monitoring and directed studies, as appropriate, with other regional restoration and management programs and the Wildlife Agencies. This sharing will enable the Implementing Entity and others to measure and evaluate change in resources and threats within individual preserves, across the entire Plan Area, and throughout the southern Sacramento Valley and northern San Joaquin Valley.

Environmental monitoring already occurs throughout the Plan Area to varying degrees on some of the existing public and private preserves (see Chapter 3 discussion of existing preserves). The SSHCP Preserve System Monitoring and Management Program will borrow methodologies from these existing preserve monitoring programs where appropriate. The Implementing Entity will confer with the existing Plans during the preparation of the SSHCP Preserve System Monitoring and Management Program to determine what aspects of their monitoring are compatible with SSHCP monitoring requirements. There may also be opportunities to conduct joint monitoring efforts to meet the needs of both entities.

Other opportunities for cooperation and collaboration are the other HCPs being implemented or are under preparation in the Sacramento region. Conservation plans approved or underway in the Southern Sacramento Valley and northern San Joaquin Valley include:

- Natomas Basin Habitat Conservation Plan (HCP)
    - Approved, applies to the 53,341-acre interior of the Natomas Basin, located in the northern portion of Sacramento County and the southern portion of Sutter County.
- Pacific Gas & Electric (PG&E) San Joaquin Valley Operations and Maintenance HCP
    - Approved, covers PG&E operations and maintenance within nine San Joaquin Valley counties.
- Sacramento Municipal Utilities District (SMUD) HCP (Limited Effect HCP)
    - In process, covers SMUD operations, maintenance, and minor construction actions on transmission and gas line corridors inside SMUD's 571,909-acre service area within Sacramento County and small portions of Placer and Yolo Counties.
- Butte Regional Conservation Plan (HCP/Natural Community Conservation Plan (NCCP))
    - In process, this plan covers regional development. Preliminary draft November 2012. Plan area includes approximately the western half of Butte County, and includes the entire extent of vernal pool landscapes within Butte County.

- Placer County Conservation Plan (HCP/NCCP)
    - In process, this plan covers regional development. Preliminary draft January 2011. Plan area includes approximately 201,000 acres of western Placer County.
- Yolo County (HCP/NCCP)
    - In process, this plan covers regional development. Preliminary draft May 2015. Plan area includes all of Yolo County, approximately 654,000 acres.
- Feather River HCP
    - In process, this plan covers flood control projects in a plan area along Feather River, Bear River, and other tributaries within five counties.
- Solano HCP
    - In process, preliminary draft published October 2012. Covers activities related to continued delivery of Solano project water, including delivery, operations, and maintenance within 585,000 acres mostly in Solano County.
- Yuba-Sutter NCCP/HCP
    - In process, this plan covers regional development. Plan area totals approximately 469,000 acres encompassing the valley floors of Yuba and Sutter Counties.
- San Joaquin County Multi-Species Habitat Conservation and Open Space Plan
    - Approved, this plan covers regional development. Plan area includes all lands in San Joaquin County except for federally owned lands and select project areas that are not covered by the plan.

In addition to coordination with the above-listed programs, the Implementing Entity will acquire data to the extent feasible and useful from other conservation monitoring programs within the Plan Area (e.g., existing preserves and established mitigation and conservation banks within the Plan Area) to improve the quality of the SSHCP Compliance and AMM Monitoring Program and the SSHCP Preserve System Monitoring.

While the SSHCP will seek opportunities to establish and improve cross-compatibility of monitoring data sets between these various regional conservation plans, requiring such compatibility could impede SSHCP implementation because each program will have its own unique monitoring and data collection requirements. Therefore, as the various HCPs and NCCPs are approved and implemented, means to coordinate efforts will be investigated and implemented by the various implementing entities and agencies involved.

8.5 References Cited

California Government Code, Sections 54950– 54963. Title 5: Local Agencies; Division 2: Cities, Counties, and Other Agencies; Part 1: Powers and Duties Common to Cities, Counties, and Other Agencies; Chapter 9: Meetings.

CDFW (California Department of Fish and Wildlife). 2009. "Protocols for surveying and evaluating impacts to special status native plant populations and natural communities." Accessed January 12, 2016. https://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf.

MacKenzie, D.I., J.D. Nichols, J.E. Hines, M.G. Knutson, and A.B. Franklin. 2003. "Estimating Site Occupancy, Colonization, and Local Extinction Probabilities when a Species is Detected Imperfectly." *Ecology* 84:2200–2207.

MacKenzie, D.I., J.D. Nichols, J.A. Royle, K.H. Pollock, L.A. Bailey, and J.E. Hines. 2006. *Occupancy Estimation and Modeling*. San Diego, California: Elsevier.

USFWS (U.S. Fish and Wildlife Service). 1999. *Conservation Guidelines for the Valley Elderberry Longhorn Beetle.* Sacramento, California: USFWS, Sacramento Fish and Wildlife Office. July 9, 1999.

USFWS and NOAA (U.S. Fish and Wildlife Service and National Oceanic and Atmospheric Association). 2000. Notice of final policy: "Availability of a Final Addendum to the Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." June 1, 2000. Federal Register, Volume 65, pages 35242–35257.

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