

RECLAMATION

Managing Water in the West

Consolidated Place of Use Habitat Mitigation Plan and Monitoring and Reporting Program



**U.S. Bureau of Reclamation
Mid-Pacific Region
Sacramento, California**

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**Prepared for the
State Water Resources Control Board**

Forward

The Consolidated Place of Use (CPOU) Habitat Mitigation Plan (HMP) and Monitoring and Reporting Program (MRP) has been prepared in compliance with the requirements issued in the State Water Resources Control Board (SWRCB) Decision 1641 (D-1641). D-1641 addressed a petition by the Bureau of Reclamation (Reclamation) that, in part, sought to provide consistency between the contracted place of use in the Central Valley Project (CVP) water service contracts, and the authorized place of use as defined by the SWRCB. D-1641 concurred with the petition by expanding Reclamation's authorized place of use to include certain areas already receiving CVP water.

D-1641 also states that Reclamation will provide compensation and habitat values that mitigate for those associated with the delivery of CVP water to lands previously outside the authorized place of use by developing a HMP. Reclamation intends to address and meet the mitigation requirement by describing and using the current programs and activities that address impacts of the CVP. These programs include, among others:

- Central Valley Project Conservation Program
- Central Valley Project Improvement Act Habitat Restoration Program - (b)(1) "other" Program
- Land Retirement Program
- Intermountain West, Central Valley Habitat, and Riparian Joint Ventures

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CHAPTER 1

Introduction

Background

Reclamation filed a petition in 1985 to make four changes to its water rights permits issued by SWRCB for the operation of nine CVP facilities. The petitioned changes were to:

(1) consolidate the CVP authorized place of use (POU); (2) expand the POU; (3) conform the purposes of use; and, (4) extend the time to complete full beneficial use of water under the permits. Together, these changes are referred to as the Consolidated Place of Use (CPOU).

In 1995, Reclamation amended its petition before SWRCB to: (1) exclude the Black Butte and New Melones projects that were addressed in three of the permits, and (2) reduce the requested POU expansion area from about 4,000,000 acres to 851,513 acres. This latter area consisted of lands located outside the authorized POU but eligible to receive CVP water under existing contracts with Reclamation.

SWRCB distributed the *Draft Program Environmental Impact Report for the Consolidated and Conformed Place of Use* (EIR) in December 1997. The final EIR was distributed in November 1999.

Based on continued evaluation of the POU boundary and development of Reclamation's Geographic Information System (GIS), corrections were made to the land area encompassed in Reclamation's petition. The corrected acreage of land was further reduced from 851,513 acres to 834,667 acres. This latter acreage adjustment was addressed in the 1997 draft EIR. The POU boundaries, as depicted in the draft EIR, did not accurately describe the POU boundaries on the POU maps on file with SWRCB. The final EIR depicts POU boundaries that are consistent with the permit maps on file.

The correction of the maps in the final EIR resulted in a recalculation of the acreage of land outside the authorized POU, reducing it to 785,658 acres, and reducing the number of affected CVP water contractor service areas from 26 to 19.

The EIR disclosed significant impacts that were the basis for the SWRCB's D-1641. Consistent with the requirements of the California Environmental Quality Act (CEQA), the SWRCB required that Reclamation develop a HMP to address these impacts.

This HMP for the CPOU describes Reclamation's existing and future measures to mitigate the impacts identified in the CPOU environmental impact report (EIR). These impacts, facilitated by the application of CVP water, were caused by the conversion of naturally-vegetated lands outside

the authorized place of use. These lands, which were converted to either agricultural or municipal and industrial use, are referred to as the *encroachment lands*. As discussed in the EIR, mitigation for conversion of land to municipal and industrial uses was covered under local land use plans and California Environmental Quality Act (CEQA) documents.

This HMP does not cover naturally-vegetated lands outside the authorized place of use which have not yet been converted; these are referred to as the *expansion lands*. Reclamation will apply to the SWRCB to include any of these lands within the authorized place of use if any use of CVP water on these lands is planned. Separate environmental analysis and mitigation would occur for any planned development.

The SWRCB's D-1641:

- Conformed the purpose of use in the individual permits so that the 16 existing permits authorize use of water for the same purposes described in the EIR.
- Consolidated the authorized POU for water diverted from authorized CVP sources. As a result, new POU maps identify all areas where water from a particular facility may be delivered, consistent with the current integrated operation of the CVP.
- Increased the authorized POUs in the appropriate permits by including encroachment lands. These are lands that have already received CVP water within the respective CVP water contractor service areas but are presently outside the authorized POUs.
- Allowed Reclamation to use or deliver CVP water for subsequent use, consistent with the nine beneficial uses for which water may be appropriated pursuant to State law. At present, the purposes of use assigned by the various CVP water rights permits are not consistent with the integrated operations of the existing CVP facilities.
- Allowed Reclamation to deliver CVP water to all areas where water from a particular facility may be used, consistent with the integrated operation of the CVP.
- Allowed Reclamation to continue to deliver CVP water supplies, contracted in accordance with federal Reclamation law, in a manner consistent with state law, to the encroachment lands.
- Did not allow the expansion lands to be added to the POU. Expansion lands could be added on a case-by-case basis in the future, subject to appropriate CEQA documentation and the approval of the SWRCB.

Reclamation's Mitigation Action

Pursuant to the SWRCB's D-1641, this HMP is a report/strategy of how the mitigation requirements will be addressed. The body of this report describes in detail the basic strategy that

will be undertaken by Reclamation, a description of specific programs and activities, and accounting/monitoring efforts.

While the SWRCB's EIR identified impacts associated with the encroachment lands, it must be recognized that (a) these lands are in fact part of the CVP service areas, and (b) that Reclamation is addressing these environmental issues through various mitigation and habitat restoration programs. Thus, Reclamation believes that much of the mitigation identified by the EIR is or will be accomplished by existing/ongoing or new programs undertaken by Reclamation. As such, Reclamation's basic strategy for complying with the SWRCB's mitigation requirements is to document how these existing/ongoing and anticipated programs will meet the intent to address these past impacts associated with agricultural land conversions within the CVP encroachment lands.

CHAPTER 2

Mitigation Program

State Water Resources Control Board Decision

The following is abstracted from SWRCB D-1641: Reclamation shall provide compensation and habitat values equivalent to those that were associated with the lands (encroachment lands) that were receiving CVP water prior to being added to a CVP place of use on December 29, 1999, provided that such lands were converted from native habitat as a result of application of CVP water. The maximum total habitat compensation required by this term is the equivalent of the 45,391 acres of habitat identified in the final EIR for the CPOU as having been converted from native habitat as a result of the delivery of CVP water. The habitat compensation shall consist substantially of the following mix of habitats:

- 3 acres of valley-foothill hardwood-conifer
- 1 acre of mixed chaparral
- 4,278 acres of valley-foothill riparian/fresh water emergent wetland (2,667 without Westlands Water District (WWD))
- 17,944 acres of annual grassland (11,291 without WWD)
- 23,165 acres of alkali scrub (822 without WWD)

A 2003 court decision ruled that the acreage within WWD does not require mitigation under CEQA. The SWRCB appealed this decision. The Court of Appeals of California reversed the decision on February 9, 2006. Therefore, the above acreage is still valid.

If approved by the Executive Director of the SWRCB, the maximum amount of habitat compensation of 45,391 acres may be reduced at the rate of one acre for one acre if Reclamation demonstrates that one or more of the following circumstances exist with respect to a specified encroached area within the 45,391 acres:

1. The encroachment is not subject to CEQA because it occurred prior to the effective date of CEQA;
2. The encroachment has been previously mitigated through measures equivalent to the habitat compensation that would satisfy this permit term; or,
3. The encroachment occurred after the land involved was converted to agriculture from native habitat.

In order to provide habitat values that compensate for those associated with the converted lands subject to this term, Reclamation shall identify, define and delineate existing habitats of special status plant and animal species within the habitat types listed above, in consultation with the Department of Fish and Game (DFG) and the U.S. Fish and Wildlife Service (Service). Upon

delineation of these habitats, Reclamation shall develop, in consultation with DFG and the Service, an upland species HMP with specific mitigation measures, funding methods, and schedules. Suitable mitigation for the impacts to the habitat converted, up to 45,391 acres of habitat, could consist of several different programs to acquire, maintain, and restore the habitat values needed to support the listed species that were previously found on these lands. Measures to obtain these habitat values could include, but are not limited to:

- a. Acquiring lands for habitat restoration for the listed species.
- b. Implementing management programs to enhance existing habitat values for the listed species.
- c. Acquiring development rights or easements to control land use activities to be consistent with target species needs and habitat requirements.

The HMP proposed by Reclamation shall be submitted to the Executive Director of the SWRCB for review and approval within 18 months from the date of this order¹. If Reclamation elects to provide compensation through habitat acquisition, the acreage acquired shall be deemed to provide, for each habitat type acquired, equivalent habitat values to those lost through conversion of an equal acreage of that habitat type to irrigated agriculture, except where Reclamation demonstrates that a lesser acreage of replacement habitat will provide habitat of equivalent value to the acreage that has been converted. The funding of habitat and species mitigation measures identified in the HMP shall focus on and be consistent with existing or future Habitat Conservation Plans for special status terrestrial species and their habitats.

Changes in the HMP may be made through a process of adaptive management after consultation with DFG and the Service and approval by the Executive Director of the SWRCB.

Reclamation shall be responsible for compliance with federal and state environmental laws and any permits necessary to carry out specific mitigation measures in the HMP that are approved by the SWRCB. Any reductions in the habitat compensation due to the encroachment preceding CEQA, or due to previous mitigation equivalent to the habitat compensation required herein, or due to the encroachment having occurred after the land involved was converted to irrigated agriculture from native habitat, shall be subject to notice of interested parties. Reductions in habitat compensation may be approved by the Executive Director of the SWRCB unless there are objections. If objections are filed, the SWRCB will decide whether the habitat compensation can be reduced.

Reclamation shall complete the mitigation identified in the HMP within ten years of the date of

¹Decision 1641 was adopted on December 29, 1999. On March 15, 2000, the SWRCB revised the Decision; this included revisions to the section in the Decision on the HMP. SWRCB Division of Water Rights staff and legal staff stated that the 18-month time period began with the revised decision, June 29, 2001. This meant that the HMP was due September 15, 2001.

this order. An extension for the completion of any remaining mitigation at the end of the ten years may be granted by the Executive Director of the SWRCB after a showing of good cause. At the time of the request for an extension, Reclamation shall be required to provide to the Executive Director of the SWRCB a revised HMP that identifies specific mitigation measures, funding methods and schedules developed in consultation with DFG and the Service. The revised HMP must demonstrate the ability of Reclamation to complete the mitigation obligation during the extension period. The extension period may not exceed an additional ten years.

Reclamation, in consultation with DFG and the Service, shall develop and fund a Monitoring and Reporting Program (MRP) to ensure the continued protection, preservation or enhancement of special status species' habitats in the mitigation areas.

Habitat Mitigation Report History

In July 2001, Reclamation sent copies of the preliminary draft HMP to DFG and the Service for review and comment, as required by D-1641. Neither agency provided comments. In September 2001, Reclamation sent the first draft of the HMP to the SWRCB for review and approval. Reclamation also sent the first MRP document to the SWRCB in April 2003. In June 2003, the SWRCB provided comments on the 2001 HMP and 2003 MRP. Reclamation and SWRCB met in July 2003 to agree on the approach to revising the HMP. Reclamation completed the revised HMP in 2004. Every year, Reclamation updates the HMP to add new projects, add additional information about existing projects, and modify other sections of the HMP.

Habitats and Associated Special Status Species

Section 2.2 of the final EIR describes each CVP water contractor affected by the CPOU project, the habitat types and acres associated with the encroachment lands for each contractor, and special status species which may occur on these lands. Table 1 summarizes the habitat information. Appendix A describes status, distribution and habitat requirements for each of these species.

CVP Water District	Habitat Affected		Species	
	Habitat Type	Acres		
Arvin-Edison Water Storage District	Annual Grassland	284	San Joaquin kit fox California Jewel flower San Joaquin woolly-threads Striped adobe lily	San Joaquin adobe sunburst Hoover's eriastrum Bakersfield cactus

	Valley Foothill Riparian/Fresh Water Emergent Wetland	4	Western yellow-billed cuckoo	
	Alkali Sink Scrub	33	Blunt-nosed leopard lizard Tipton kangaroo rat San Joaquin kit fox California jewelflower	Hoover's eriastrum San Joaquin woolly-threads Bakersfield cactus
Colusa County Water District	Annual Grassland	371	American peregrine falcon	Striped adobe lily
	Valley Foothill Riparian/Fresh Water Emergent Wetland	10	American peregrine falcon Valley elderberry longhorn beetle	
	Valley Foothill Hardwood/Conifer	3	None	
Corning Water District	Annual Grassland	1,230	Swainson's hawk	American peregrine falcon
	Valley Foothill Riparian/Fresh Water Emergent Wetland	266	None	
Del Puerto Water District	Valley Foothill Riparian/Fresh Water Emergent Wetland	224	Giant garter snake American peregrine falcon	Valley elderberry longhorn beetle
	Annual Grassland	1,083	Giant garter snake San Joaquin kit fox San Joaquin antelope squirrel	Swainson's hawk American peregrine falcon
Kanawha Water District	Annual Grassland	354	American peregrine falcon	
	Valley Foothill Riparian/Fresh Water Emergent Wetland	131	None	
Orland-Artois Water District	Annual Grassland	65	Swainson's hawk	
San Luis Water District	Annual Grassland	7,847	San Joaquin woolly-threads Hoover's eriastrum Giant kangaroo rat	San Joaquin kit fox San Joaquin antelope squirrel
	Valley Foothill Riparian/Fresh Water Emergent Wetland	2,032	Giant garter snake	
	Alkali Scrub	789	San Joaquin woolly-threads Hoover's eriastrum Giant kangaroo rat San Joaquin antelope squirrel	San Joaquin kit fox Blunt-nosed leopard lizard Fresno kangaroo rat
Westlands Water	Annual Grassland	6,653	California jewelflower San Joaquin woolly-threads	Giant kangaroo rat San Joaquin antelope

District			Giant garter snake San Joaquin kit fox	squirrel
	Valley Foothill Riparian/Fresh Water Emergent Wetland	1,611	Giant garter snake	
	Alkali Scrub	22,343	Blunt-nosed leopard lizard California jewelflower San Joaquin woolly-threads Fresno kangaroo rat	Giant kangaroo rat San Joaquin antelope squirrel San Joaquin kit fox
Westside Water District	Annual Grassland	122	American peregrine falcon	

Programs for Habitat Compensation

Reclamation is currently implementing or contributing to several programs capable of achieving the mitigation requirements described in the SWRCB order. These programs consist of ongoing, adaptive management efforts that will, over time, restore, create and maintain targeted environmental habitat values. These efforts will mitigate impacts associated with the construction and operation of the CVP. These programs are recognized by the SWRCB as the appropriate means to obtain mitigation for the impacts to encroachment lands, provided that portions of the funds and management efforts would specifically be assigned to mitigating those environmental values and listed species adversely affected by the encroachment of CVP water supplies to the 45,391 acres outside the authorized POU.

CVPIA Programs Mitigating Impacts to Fish and Wetland Resources

In 1992, the Central Valley Project Improvement Act (CVPIA) was passed into law. The CVPIA addressed a number of issues related to the CVP, and made mitigation, protection, and restoration of fish and wildlife habitat an authorized project purpose. A basic intent of the CVPIA was to address/mitigate past impacts of the CVP to fish and wildlife. It did this by mandating a number of specific actions be undertaken to address fish and wildlife resources, and establishing a funding mechanism to help carry out these actions. The CVPIA effectively sets forth a fish and wildlife mitigation program for the CVP as presently configured and operated. The CVPIA provides funding and a certain degree of latitude in establishing programs and funding priorities for addressing past impacts of the CVP (of which the impacts identified in the CPOU EIR are a part). Although it is recognized that the major focus of the CVPIA is to address the needs of anadromous fish and waterfowl, a number of the actions implemented under the CVPIA mandated programs could have corollary benefits to terrestrial vegetation and wildlife species. In addition, there are other programs within the CVPIA that could provide direct benefits to the listed terrestrial species that have been impacted by the CVP.

Among the programs that could provide corollary benefits to terrestrial species are the anadromous fish and wetland restoration activities. The anadromous fish activities will include habitat acquisition and restoration that, while directed at the development/protection of stream-side habitats primarily for fishery purposes, will provide benefits to terrestrial species by virtue of stream-side habitat acquisition and enhancement. Refuge water supply activities also contribute to benefits for terrestrial species.

CVPIA Programs Mitigating Impacts to Wildlife Resources

In addition to the programs discussed above, two CVPIA programs that will specifically address terrestrial habitats are the Land Retirement and the (b)(1) "other" Programs.

Land Retirement Program (Section 3408(h) of the CVPIA)

The CVPIA, enacted in 1992 as Public Law 102-575, Title 34, Section 3408(h), authorized the purchase of land, water and other property interests from willing sellers who received CVP water. Such lands would achieve the program goals to reduce drainage, enhance fish and wildlife resources and make water available for other CVPIA purposes.

Land retirement (i.e., the removal of lands from irrigated agriculture) was proposed as one strategy to reduce drainage-related problems. In this approach, lands that were characterized by low productivity, poor drainage, shallow water tables, and high groundwater selenium concentrations would be retired from irrigated agriculture through a willing seller program.

The Land Retirement Program (LRP) was developed cooperatively by an interagency Department of Interior team with representatives from Reclamation, the Service (Sacramento Office), and the Bureau of Land Management (BLM) (California Office). The Land Retirement Team (LRT) was charged with the task of implementing the Land Retirement Program.

The Land Retirement Demonstration Project (LRDP) was implemented in 1999 at two sites in the western San Joaquin Valley (Tranquility, managed by Reclamation) and the Tulare Lake Basin (Atwell Island, managed by BLM) to study the environmental impacts of land retirement and to evaluate cost-effective restoration strategies for retired lands. The California State University – Stanislaus – Endangered Species Recovery Program has served as a major research partner with the Land Retirement Team in developing effective means for restoring retired farmlands. Data from the LRDP will be used to inform decisions regarding implementation of land retirement at larger scales as a means to address agricultural drainage problems in the San Joaquin Valley.

The San Joaquin Valley Drainage Program (SJVDP) recommended retiring 75,000 acres of drainage impaired farmland from irrigated agricultural production by 2040 (SJVDP, 1990). The Land Retirement Program has three targets that support this long-term goal:

- Retire 15,000 acres of agricultural land by 2014 for the Land Retirement Demonstration Project (LRDP)
- Restore appropriate habitat on 400 acres of retired lands per year on LRDP sites
- Reduce the production of agricultural drainage water annually by 6,000 acre-feet upon completion of the LRDP

Interior has acquired approximately 9,306 acres, of which approximately 8,900 acres have been retired (removed from irrigated agriculture). On average, the LRP has exceeded its land restoration performance goal of 400 acres per year. Since 1998, the LRP has restored approximately 5,300 acres. Complete restoration to upland habitats found in the San Joaquin Valley will take many years to achieve, but the program has developed cost effective restoration techniques and continues to adapt these techniques to achieve desired habitat values.

Restoration efforts on retired lands immediately increased biodiversity and abundance, including Special Status Species. Wildlife surveys of restored units observed important findings of sensitive San Joaquin Valley wildlife species, including populations of endangered Tipton kangaroo rat, burrowing owl, coast horned lizard, San Joaquin Valley coachwhip, Swainson's hawk and a sensitive plant called Hoover's woolly-star. The Atwell Island wildlife sightings database now contains more than 18,000 observations. Utilizing the database, BLM developed plant and animal lists and a photo-illustrated flora for the Atwell Island Project Area

See Appendix B for more information on the LRP results.

Reducing Agricultural Drainage

Implementation of the LRDP has eliminated the production of approximately 3,500 acre feet of poor quality drain water annually. Five years of groundwater monitoring at the LRDP sites show a declining shallow water table in response to land retirement. The water table responses observed at the LRDP sites are representative of conditions present at a high percentage of lands that are targeted for retirement in the western San Joaquin Valley and the Tulare Lake Basin. The declining shallow water table observed beneath demonstration project lands indicates the success of land retirement as a drainage reduction strategy.

The declining shallow water table is an important aspect of land retirement because the groundwater beneath the LRDP lands is generally of poor quality with high concentrations of salt and trace elements such as selenium. As long as the water table continues to decline as expected in response to land retirement, the selenium in the groundwater should have no consequences to biota at the site. Decreasing selenium and salinity trends in the surface soil indicate that upward flux of salt and selenium from capillary rise and evaporation of shallow groundwater at the soil surface is minimal, and that some downward leaching of soluble selenium and salt from surface soils occurred during the five-year LRDP study. Selenium concentrations in biota have not changed significantly over the study period and are below concentrations of concern to the U.S. Environmental Protection Agency (EPA) and the Service

CVPIA (b)(1) "Other" Habitat Restoration Program

The CVPIA (b)(1) "other" Habitat Restoration Program (HRP) is specifically designed to mitigate impacts to species and associated habitats that were not specifically enumerated in the CVPIA. The focus of this program is expected to be on sensitive species and associated habitats. Initial focus of this program will be given to habitats known to have experienced the greatest percentage decline in habitat quantity and quality since construction and initiation of operations of the CVP.

All projects that are funded through the HRP must be clearly linked to either direct or indirect impacts from the CVP, in addition to being ranked in accordance with the program prioritization factors. This program was initially implemented in 1997 and anticipates annual funding in the range of \$1-2 million, annually. Development of specific projects in the HRP is being closely coordinated with other CVPIA programs and with other Federal, State, and private organizations that are implementing programs with similar goals and objectives.

Other Programs to Protect or Restore Habitat

In addition to the CVPIA directed or related programs, Reclamation has undertaken or contributed to additional activities or programs designed to enhance environmental conditions that have been affected by CVP operations. These include the following:

Central Valley Project Conservation Program

The Central Valley Project Conservation Program (CVPCP) was established in 1997 under the authority of Section 7 (a)(1) of the Endangered Species Act (ESA). The concept for CVPCP was developed in 1991 during the ESA section 7 consultation between Reclamation and the Service for the renewal of the Friant Division water contracts. This concept was then applied to CVP water contract renewals and Reclamation's water operations.

The primary goal of the CVPCP is to meet the needs, including habitat needs, of species listed under the Endangered Species Act and other special-status species affected by the CVP. A report describing the CVPCP was completed in September 1997 and updated in August 2004.

A Program Manager and Technical Team are developing and managing the CVPCP. Anticipated funding is estimated to be about \$2,000,000 a year. The CVPCP is addressing the needs of special status species, including federally listed species, state listed species, species that are candidates or are proposed species for federal listing, and other species of concern. Each of these species groups will benefit from the CVPCP if they have high-priority biological needs. The CVPCP is implementing an adaptive management program to protect, restore, and enhance these species and the ecosystems which support them throughout the Central Valley of California and other areas where CVP water is delivered.

Reclamation is committed to a cooperative, interagency approach toward implementation of both the (b)(1)"other" Program and the CVPCP. Guidelines describing these programs and the process for selecting habitat restoration activities to be funded have been developed and are publicly available. These guidelines establish the overall objectives of the programs and a framework for implementation. Both programs are dynamic; consequently, these guidelines will be updated periodically to reflect new information, changing ecological needs of species, and input from interested agencies, technical advisors, and the public.

Over the past 10 years, from 2000 through 2009, the CVPCP has provided \$20,181,394 in grants, contracts, and interagency agreements to acquire and restore lands for Federal and state-listed species and other designated species of concern, and to conduct research into the habitat needs, population status, and other information important to the recovery of those species. During the

same time frame the HRP has contributed \$15,237,454 for the same purposes.

Intermountain West, Central Valley Habitat, and Riparian Habitat Joint Ventures

Reclamation had provided funds for numerous habitat enhancement projects for each of these interagency Joint Ventures. While the focus of the Joint Ventures was primarily wetland and riparian habitat, these projects typically had an upland habitat component associated with them. Reclamation funded several of the projects in Appendix B for these joint ventures, but is no longer funding any new projects.

Summary

These programs demonstrate that Reclamation is actively participating in programs designed to restore and enhance environmental values that were adversely affected by the construction and operation of the CVP. The future application of these programs to mitigate impacts associated with effects to encroachment lands is suitable and appropriate, provided that the program provides mitigation for lost habitat or habitat values for the listed terrestrial species.

CHAPTER 3

Summary of Mitigation Projects

The following table (Table 2) lists projects funded by Reclamation or the U.S. Department of the Interior to mitigate for the past impacts of the CVP. These projects represent the specific mitigation measures which the SWRCB D-1641 required Reclamation to implement to compensate for the loss of 45,391 acres of habitat identified in the final CPOU EIR. This table also shows the rare, threatened and endangered species (from Table 1) to be benefited by each mitigation project. These projects are funded from the programs described in the previous chapter. The projects protect, enhance, create, or restore wildlife habitat. The table is organized by the five habitat types identified in the SWRCB D-1641 and the CPOU EIR. The table does not list all CVP mitigation projects because some mitigation projects do not provide habitat for the specific species in Table 1.

Appendix B describes each mitigation project in more detail.

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
ALKALI SCRUB:								
Allensworth Ecological Reserve Addition	Alkali scrub	San Joaquin kit fox, Tipton kangaroo rat, San Joaquin antelope squirrel, Blunt-nosed leopard lizard,	360	Protection	Tulare and Kern Cos.	1998	100%	360
Carrizo Plains National Monument Inholdings	Alkali scrub	San Joaquin kit fox, San Joaquin antelope squirrel, giant kangaroo rat, Blunt-nosed leopard lizard, San Joaquin wooly-threads, California jewel flower, Hoover's wooly star.	993	Protection	Kern County	2007	100%	993
Elgorriaga Ranch	Alkali scrub	Giant kangaroo rat, San Joaquin antelope squirrel, Blunt-nosed leopard lizard, San Joaquin wooly-threads	1231	Protection	Fresno and San Benito Cos.	2007	100%	1231
Land Retirement Demonstration Project (Atwell Island and Tranquility)	Alkali scrub	Potential for all San Joaquin Valley species in Table 1	7141	Restoration	Fresno, Kings, and Tulare Cos.	2014	100%	7,141
TOTAL ACRES FOR ALKALI SCRUB			9725					9725
ANNUAL GRASSLAND:								
Atwell Island - Valov Property	Annual grassland	San Joaquin kit fox, Tipton kangaroo rat	192	Protection	Tulare and Kings Cos.	2014	100%	192
Bayou Vista Property	Annual grassland	Swainson's hawk, Tipton kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard	515	Protection	Tulare Co.	2004	46%	236.9
Ben Brown Ranch	Annual grassland	Swainson's hawk	370	Protection	Sacramento Co.	2002	25%	92.5

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
Byron-Vasco Connection	Annual grassland	San Joaquin kit fox (non-CPOU species include California red-legged frog, California tiger salamander and vernal pool fairy shrimp)	190	Protection	Contra Costa Co.	2009	32%	60.8
Carrizo Plains National Monument Inholdings	Annual grassland	San Joaquin kit fox, San Joaquin antelope squirrel, giant kangaroo rat, Blunt-nosed leopard lizard, San Joaquin woolly-threads, California jewel flower, Hoover's woolly star.	199	Protection	Kern County	2007	100%	199
Colusa National Wildlife Refuge	Annual grassland	Giant garter snake, Swainson's hawk	30	Restoration	Colusa Co.	Aug-93	60%	18
Cowell Ranch	Annual grassland	San Joaquin kit fox	3,239	Protection	Contra Costa Co.	Jun-05	4%	129.56
Deer Creek Hills Preserve	Annual grassland	Swainson's hawk	1,630	Protection	Sacramento Co.	Jun-05	8%	130.4
Dry Creek	Annual grassland	Valley elderberry longhorn beetle habitat, (non-CPOU species include California red-legged frog, California tiger salamander and vernal pool fairy shrimp, Hartweg's golden sunburst, succulent owl's-clover, seven federal species of concern.)	5,530	Conservation	Merced Co.	2009	9%	470.05

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
Elgorriaga Ranch	Annual grassland	Giant kangaroo rat, San Joaquin antelope squirrel, Blunt-nosed leopard lizard, San Joaquin woolly-threads	1400	Protection	Fresno and San Benito Cos.	2007	100%	1400
Elgorriaga Ranch Phase II Peppergrass Flat Projct	Annual grassland	San Joaquin Kit Fox, Giant kangaroo rat, San Joaquin antelope squirrel	640	Protection	Fresno Co.	2011	80%	512
Furey Ranch	Annual grassland	Swainson's hawk	345	Protection	Merced Co.	2000	76%	262.2
Herbert Vernal Prairie Preserve	Annual grassland	San Joaquin kit fox, Swainson's hawk	374	Protection	Tulare Co.	1999	45.20%	169.048
Howard Ranch	Annual grassland	Giant garter snake, Swainson's hawk, American peregrine falcon	10,675	Protection	Sacramento Co.	1998-1999	2%	213.5
Land Retirement Demonstration Project (Atwell Island and Tranquility)	annual grassland	Potential for all San Joaquin Valley species in Table 1	2021	Restoration	Fresno, Kings, and Tulare Cos.	Unknown	100%	2021
Pixley NWR Acquisition	Annual grassland	San Joaquin kit fox, blunt-nosed leopard lizard, Tipton kangaroo rat	345	Protection	Tulare Co.	2006	100%	212
Rickert Ranch	Annual grassland	Valley elderberry longhorn beetle, (non-CPOU species include Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp, CA Red-legged Frog, Slender Orcutt Grass, red-tailed hawk, northwestern pond turtle)	5,085	Protection	Shasta Co.	2010	22%	1118.7
Santa Cruz Land & Cattle	Annual grassland	Giant garter snake	13	Enhancement	Merced Co.	1999	14%	1.82

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
Schneider Property	Annual grassland	Swainson's hawk, American peregrine falcon	1,136	Protection	Sacramento Co.	2000	29%	329.44
Steidlmayer	Annual grassland	Giant garter snake	60	Restoration	Colusa Co.	1999	25%	15
Stone Lakes National Wildlife Refuge - Samra Property	Annual grassland	Valley elderberry longhorn beetle, giant garter snake, Swainson's hawk;	35	Restoration	Sacramento Co.	2006	47%	16
Sun River Project	Annual grassland	Giant garter snake	32	Restoration	Sacramento Co.	2003	10%	3.2
Valensin Ranch	Annual grassland	Swainson's hawk, Giant garter snake	369	Protection	Sacramento Co.	May-94	6.70%	24.723
W. Bear Creek Native Grass Restoration	Annual grassland		75	Restoration	Merced Co.	2001	70%	52.5
Romero and Simon-Neuman Ranches	Annual grassland	San Joaquin kit fox, blunt-nosed leopard lizard	24,589	Protection	Stanislaus, Santa Clara, Merced Cos.	1988-1999	9.40%	2311.366
TOTAL ACRES FOR ANNUAL GRASSLAND			59,089					10191.707
MIXED CHAPPARAL: (no special status species in encroachment lands for chaparral)								
Contra Costa County Acquisition - Schwartz Property	Chaparral	None	15	Protection	Contra Costa Co.	2009	84%	13

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
Pine Hill Ecological Reserve	Chaparral		257	Protection	El Dorado Co.	1997-2000	35.80%	92.006
		non-CPOU species include El Dorado Bedstraw, Layne's butterweed, federal candidate for listing species Bisbee Peak rush rose, El Dorado mule ears Red Hills soaproot						
Pine Hill Ecological Reserve	Chaparral		80	Protection	El Dorado Co.	2008	52.00%	41.6
		non-CPOU species include El Dorado Bedstraw, Layne's butterweed, federal candidate for listing species Bisbee Peak rush rose, El Dorado mule ears Red Hills soaproot						
Pine Hills	Chaparral		86	Protection	El Dorado Co.	2009	100%	86
		non-CPOU species include El Dorado Bedstraw, Layne's butterweed, federal candidate for listing species Bisbee Peak rush rose, El Dorado mule ears Red Hills soaproot						
Romero and Simon-Neuman Ranches	Chaparral	None	13,657	Protection	Stanislaus, Santa Clara, Merced Cos.	1988-1999	9.40%	1283.758
TOTAL ACRES FOR CHAPPARAL			14,095					1516.364

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
VALLEY								
FOOTHILL/HARDWOOD/CONIFER: (no special status species in encroachment lands for hardwood/conifer)								
Contra Costa County Acquisition - Schwartz Property	Hardwood/conifer	None	103	Protection	Contra Costa Co.	2009	84.17%	87
Deer Creek Hills Preserve	Hardwood/conifer	Swainson's hawk	120	Protection	Sacramento Co.	2003	8.00%	9.6
Fenwood Property	Hardwood/conifer	None	2,033	Enhancement	Shasta Co.	2002	41.00%	833.53
Fine Gold Creek Property	Hardwood/conifer	Valley elderberry longhorn beetle, bald eagle	606	Protection	Madera Co.	2004	18.00%	109.08
Forster Ranch	Hardwood/conifer	None	20	Protection	San Joaquin Co.	2003	18.00%	3.6
Howard Ranch	Hardwood/conifer	None	1950	Protection	Sacramento Co.	1998-1999	2%	39
Pine Hill Ecological Reserve	Hardwood/conifer	None	13	Protection	El Dorado Co.	1997-2000	35.80%	4.654
Romero and Simon-Neuman Ranches	Hardwood/Conifer	None	19,212	Protection	Stanislaus, Santa Clara, Merced Cos.	1988-1999	9.40%	1805.928
TOTAL ACRES FOR HARDWOOD/CONIFER			24,057					2892.392
VALLEY FOOTHILL RIPARIAN/FRESH EMERGENT WETLAND :								
Arambel Unit, San Joaquin	Riparian/Wetland	Valley elderberry longhorn beetle	223	Restoration and enhancement	Stanislaus Co.	2009	60.00%	133.8

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
Bobelaine Audubon Sanctuary	Riparian/Wetland	Western yellow-billed cuckoo	20	Restoration	Sutter Co.	1999	33.33%	6.67
Brood Pond (R.Petersen)	Riparian/Wetland	Giant garter snake	235	Creation	Yuba Co.	Jan-99	100%	235
Colusa National Wildlife Refuge - Zumwalt	Riparian/Wetland	Giant garter snake	368	Restoration	Colusa Co.	1999	33%	121.44
Cosumnes River Preserve, Lost Slough/Crane Ranch	Riparian/Wetland	Swainson's hawk	250	Enhancement	Sacramento Co.	1999	74%	185
Delevan NWR - Tract 30	Riparian/Wetland	Giant garter snake	60		Colusa Co.	2000	75%	45
Dos Rios Ranch	Riparian/Wetland	Valley elderberry longhorn beetle	1493	Protection	Stanislaus Co.	2012	3%	44.79
Double D Land & Cattle	Riparian/Wetland	Giant garter snake	520	Enhancement	Merced Co.	1999	50%	260
Drumheller Slough, Sacramento River National Wildlife Refuge	Riparian/Wetland	Valley elderberry longhorn beetle, Western yellow-billed cuckoo, Swainson's hawk, bald eagle	206	Restoration	Glenn Co.	Dec-07	32%	65.92
Fenwood Property	Riparian/Wetland	Valley elderberry longhorn beetle	60	Enhancement	Shasta Co.	2002	41%	24.6
Fine Gold Property	Riparian/Wetland	Valley elderberry longhorn beetle	102	Protection	Madera Co.	2004	18%	18.36
Forster Ranch	Riparian/Wetland	Valley elderberry longhorn beetle	860	Protection	San Joaquin Co.	2003	18%	154.8
Frasher Farms	Riparian/Wetland	Giant garter snake	282	Enhancement	Merced Co.	1999	30%	84.6
Furey Ranch	Riparian/Wetland	Swainson's hawk	40	Protection	Merced Co.	2000	76%	30.4
Howard Ranch	Riparian/Wetland	Giant garter snake, American peregrine falcon	375	Protection	Sacramento Co.	1998-1999	2%	7.5
Jensen Ranch	Riparian/Wetland	Valley elderberry groundhorn beetle	167	Restoration	Fresno Co.	1997	64%	106.88
Joseph Gallo	Riparian/Wetland	Giant garter snake	360	Enhancement restoration	Merced Co.	May-00	31%	111.6
Kerry-Su Restoration	Riparian/Wetland	Giant garter snake	1,393	Restoration	Merced Co.	unknown	12%	167.16
Mar Land & Cattle	Riparian/Wetland	Giant garter snake	220	Enhancement	Merced Co.	1999	33%	72.6

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
Merced NWR -Meadowlark Unit Riparian	Riparian/Wetland	Valley elderberry longhorn beetle, Western yellow-billed cuckoo	10	Enhancement	Merced Co.	1999-2000	53%	5.3
Mesquite Sportsman Club	Riparian/Wetland	Giant garter snake	200	Enhancement	Merced Co.	1999	50%	100
Ohm Riparian Restoration	Riparian/Wetland	Valley elderberry longhorn beetle, Western yellow-billed cuckoo	206	Restoration	Tehama	2005	16%	32.96
Oh So Hi	Riparian/Wetland	Giant garter snake	188	Enhancement	Merced Co.	1999	50%	94
Pioneer Duck Club	Riparian/Wetland	Giant garter snake	153	Enhancement	Merced Co.	1999	50%	76.5
Prospect Island	Riparian/Wetland	Valley elderberry longhorn beetle	62	Restoration	Solano Co.	1995	100%	62
Ramogni Land Co.	Riparian/Wetland	Giant garter snake	216	Enhancement	Merced Co.	1999	50%	108
Redfern Duck Club	Riparian/Wetland	Giant garter snake	192	Enhancement	Merced Co.	1999	50%	96
Riverfield Cattle Co.	Riparian/Wetland	Giant garter snake	342	Enhancement	Merced Co.	1999	33%	112.86
Rooney Ranch	Riparian/Wetland	Giant garter snake	100	Enhancement	Merced Co.	1999	40%	40
Sacramento NWR, Llano Seco Unit Restoration	Riparian/Wetland	Giant garter snake, Valley elderberry longhorn beetle, and Swainson's hawk		Restoration		2001	100%	
Sacramento NWR, Tracts G & H	Riparian/Wetland	Giant garter snake, Swainson's hawk	431	Enhancement	Glenn Co.	2006	100%	431
Sacramento River NWR & Colusa NWR - Llano Seco, Ranch Bedrock & 80-90 Fields Restoration	Riparian/Wetland	Giant garter snake, Valley elderberry longhorn beetle, western yellow-billed cuckoo	359	Enhancement and restoration	Butte Co. and Colusa Co.	2010	56%	201
San Joaquin NWR Riparian Plantings	Riparian/Wetland	Valley elderberry longhorn beetle	300	Restoration	Stanislaus Co.	2009	24%	72
San Joaquin NWR Riparian Restoration for Riparian Brush Rabbit Refugia	Riparian/Wetland	Valley elderberry longhorn beetle, Swainson's hawk	17.5	Restoration	Stanislaus Co.	2013	100%	17.5
San Joaquin NWR Hagemann Unit	Riparian/Wetland	Valley elderberry longhorn beetle	117	Restoration	Stanislaus Co.	2010	39%	45.63

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
San Luis NWR - Souza Marsh	Riparian/Wetland	Giant garter snake, Valley elderberry longhorn beetle	256	Restoration	Merced Co.	1997	10%	25.6
San Luis NWR - Souza Marsh	Riparian/Wetland	Giant garter snake, Valley elderberry longhorn beetle	467	Enhancement	Merced Co.	1998	43%	200.81
San Luis NWR/West Bear Creek	Riparian/Wetland	Giant garter snake	960	Restoration	Merced Co.	1997	18%	172.8
Santa Cruz Land & Cattle	Riparian/Wetland	Giant garter snake	1,327	Enhancement	Merced Co.	1999	14%	185.78
Schneider Property	Riparian/Wetland	American peregrine falcon, Swainson's hawk	80	Protection	Sacramento Co.	2000	29%	23.2
South City Farms	Riparian/Wetland	Giant garter snake	75	Enhancement	Merced Co.	Jun-99	50%	37.5
Southam Property	Riparian/Wetland	Valley elderberry longhorn beetle, Western yellow-billed cuckoo	74	Restoration	Glenn Co.	Sep-00	59%	43.66
Steidlmayer	Riparian/Wetland	Giant garter snake	280	Restoration	Colusa Co.	1999	25%	70
Stone Lakes National Wildlife Refuge - Samra Property	Annual grassland	Valley elderberry longhorn beetle, giant garter snake, Swainson's hawk;	65	Restoration	Sacramento Co.	2006	47%	30.55
Sun River Project	Riparian/Wetland	Giant garter snake, Valley elderberry longhorn beetle	177	Restoration	Sacramento Co.	2003	10%	17.7
The Duck Club	Riparian/Wetland	Giant garter snake	167	Enhancement	Merced Co.	1999	50%	83.5
Valensin Ranch	Riparian/Wetland	Giant garter snake, Valley elderberry longhorn beetle	4,356	Protection and Restoration	Sacramento Co.	1996	12%	522.72
Waterfowl Brood Program	Riparian/Wetland	Giant garter snake	328	Restoration	Various in Sacramento Valley	1997-1999	77.00%	252.56
Wetland Reserve Program Partnership - Volta Wildlife Area	Riparian/Wetland	Giant garter snake	1,393	Restoration	Merced Co.	2-years duration	12%	167.16
Wong Property	Riparian/Wetland	Giant garter snake	140	Restoration	Sacramento Co.	2004	59%	82.6

TABLE 2.
WILDLIFE MITIGATION/ENHANCEMENT PROJECTS
CONSOLIDATED PLACE OF USE

Project Name	Habitat Type	Special Status Species from CPOU FEIR Being Compensated	Project Size (Acres)	Purpose of Project	Location	Estimated Completion Date	Reclamation % of Total Funding	Pro-rated Acreage Based on % funding
TOTAL ACRES FOR RIPARIAN/WETLAND			20,273					5287.01
TOTAL ACRES FOR ALL HABITAT TYPES			127,239					29,612

Note: Habitat types with none of the sensitive species in Table 1 have been excluded. However, chapparal and hardwood / conifer projects are listed because SWRCB D-1641 requires Reclamation to mitigate for those habitats even though no sensitive species in Table 1 occurred in those habitat types.

CHAPTER 4

Comparison of Mitigation Requirements and Actual Accomplishments

Compilation of Accomplishments

Table 3 contrasts the requirements for mitigation for CPOU with Reclamation's existing mitigation projects and future land retirement program actions. The habitat types are those impacted by delivery of CVP water to the encroachment lands. The compensation requirements in the second column are the amount of acres that Reclamation must provide for each habitat type, based on impact analysis in the CPOU EIR. The third column lists the sensitive species for each habitat type in the encroachment lands. The fourth column in the table is the sum of the acreage of all Reclamation mitigation projects summarized in Chapter 3; these projects are discussed in detail in Appendix B. The fifth column is the sum of the pro-rated acreage of these projects, based on the percentage that Reclamation was funding each project as of August 2010. The sixth column shows sensitive species associated with Reclamation's funded mitigation projects shown in Table 2.

The total acres for Reclamation-funded mitigation projects for all habitat types will increase in the future due to continued Reclamation funding of habitat creation, enhancement, protection, and restoration projects from the programs described in Chapter 2.

Progress Towards Meeting EIR Mitigation Requirements

As shown in Table 3, Reclamation has met the SWRCB requirements for valley-foothill/hardwood conifer, mixed chaparral, and riparian/fresh water emergent wetland habitat types as of March 2010, based on the pro-rated acreage.

Reclamation has not met the requirements for grassland and alkali scrub habitat types due to limited availability of acquiring or restoring these habitat types. Chapter 5 discusses this in more detail.

In terms of species, Reclamation has not yet funded projects which have or could have habitat for the following species: Bakersfield cactus, San Joaquin adobe sunburst, or striped adobe lily. Reclamation funded a project to document the presence or absence of Bakersfield cactus in remaining habitat.

Reclamation will continue to help fund other mitigation or protection projects under the programs discussed in Chapter 2, depending on purchase or conservation easement opportunities and on Congressional funding.

Table 3. CPOU Compensation Requirements and Reclamation-Funded Mitigation Projects as of November 2010

Habitat Type	Compensation Requirements from Decision 1641 in acres.	Sensitive Species Affected by Agricultural Development on Encroachment Lands <i>From table 1</i>	Total Acreage of Existing Reclamation-funded Projects Through August 2010	Pro-rated Existing Acreage Based on Percentage of Reclamation Funding Through August 2010	Sensitive Species Associated with Reclamation-funded Projects <i>From table 2</i>
Annual Grassland	17,944	American peregrine falcon, Bakersfield cactus, California jewelflower, giant garter snake, giant kangaroo rat, Hoover's eriastrum, San Joaquin adobe sunburst, San Joaquin antelope squirrel, San Joaquin kit fox, San Joaquin woolly-threads, striped adobe lily, Swainson's hawk	59,274	10,377	American peregrine falcon, Swainson's hawk blunt-nosed leopard lizard, giant garter snake, San Joaquin kit fox, Tipton kangaroo rat, giant kangaroo rat, San Joaquin antelope squirrel, San Joaquin woolly-threads

Habitat Type	Compensation Requirements from Decision 1641 in acres.	Sensitive Species Affected by Agricultural Development on Encroachment Lands <i>From table 1</i>	Total Acreage of Existing Reclamation-funded Projects Through August 2010	Pro-rated Existing Acreage Based on Percentage of Reclamation Funding Through August 2010	Sensitive Species Associated with Reclamation-funded Projects <i>From table 2</i>
Alkali Scrub	23,165	Bakersfield cactus, blunt-nosed leopard lizard, California jewelflower, giant kangaroo rat, Fresno kangaroo rat, Hoover's eriastrum, San Joaquin antelope squirrel, San Joaquin kit fox, San Joaquin woolly threads, Tipton kangaroo rat	9,725	9,725	Blunt-nosed leopard lizard, San Joaquin antelope squirrel, San Joaquin kit fox, Tipton kangaroo rat, California jewelflower, Hoover's eriastrum
Mixed Chaparral	1	None	14,095	1,516	None
Valley Foothill/Hardwood Conifer	3	none	24,057	2892	None

Habitat Type	Compensation Requirements from Decision 1641 in acres.	Sensitive Species Affected by Agricultural Development on Encroachment Lands <i>From table 1</i>	Total Acreage of Existing Reclamation-funded Projects Through August 2010	Pro-rated Existing Acreage Based on Percentage of Reclamation Funding Through August 2010	Sensitive Species Associated with Reclamation-funded Projects <i>From table 2</i>
Riparian/Fresh Emergent Wetland	4,278	American peregrine falcon, giant garter snake, Western yellow-billed cuckoo, valley elderberry longhorn beetle	20,337	5326	American peregrine falcon, giant garter snake, Swainson's hawk, Western yellow-billed cuckoo, valley elderberry longhorn beetle
TOTAL	45,391		127,488	29,836	

CHAPTER 5

Completing the Mitigation Requirements During the Extension Period 2010-2020

As of August 2010, Reclamation has fulfilled 29,836 acres out of the total 45,391 acres of compensation requirements from D-1641. Table 3 shows that Reclamation has mitigated for 10,377 acres out of the 17,944 acres of required compensation for annual grassland and 9,725 acres out of 23,165 acres of required compensation for alkali scrub. Therefore, Reclamation still needs to compensate for 7,567 acres of annual grassland and 13,440 acres of alkali scrub.

Strategies to Complete the Mitigation Requirements

The programs which can be used to fund this mitigation are the CVPCP and the HRP described in Chapter 2. The LRP described in Chapter 2 has completed all of its acquisitions.

CVPCP and HRP

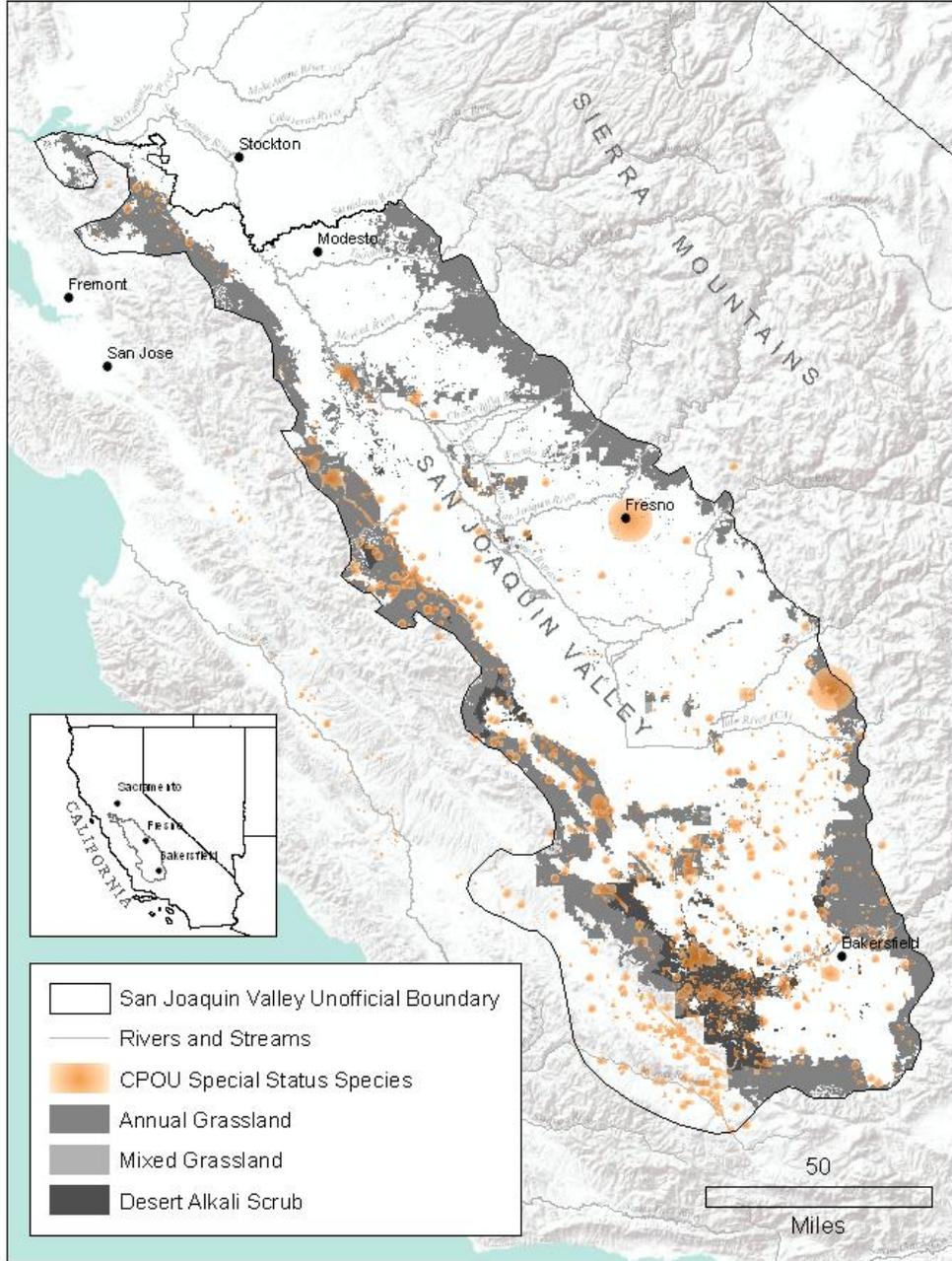
Over the past 10 years, from 2000 through 2009, the CVPCP has provided \$20,181,394 in grants, contracts, and interagency agreements to acquire and restore lands for Federal and state-listed species and other designated species of concern, and to conduct research into the habitat needs, population status, and other information important to the recovery of those species. During the same time frame the HRP has contributed \$15,237,454 for the same purposes.

The CVPCP and HRP have provided funding to protect or restore about 2,300 acres (prorated) of alkali scrub and about 8,600 acres (prorated) of grassland since 1997. Therefore, these two programs would have to significantly accelerate the funding for protecting or restoring these habitat types in order to meet the D-1641 goals. However, funding is limited by Congressional appropriation. The CVPCP funding, up to \$2.4 million each fiscal year, is a line item on Congressional appropriations under Water and Power Operations. Within Reclamation, the CVPCP line item is referred to as the "Endangered Species Recovery Implementation Program" and is a conservation program to offset the impacts of the CVP. The HRP is funded through the CVPIA Restoration Fund. These funds are collected as a restoration fee assigned to CVP contractors when they purchase CVP water. The HRP has been consistently funded at \$1.5 million for the last 7-8 years.

Currently, the two programs combined have an estimated Fiscal Year 2010 assistance award budget of \$2.5 million.

Existing unprotected alkali scrub habitat and existing grassland habitat that supports or could support the species in Table 1 and which would be available for protection/restoration is extremely limited. Figure 1 shows the existing locations of alkali sink habitat and grassland habitat near known locations of the CPOU sensitive species. Oil fields comprise much of the large alkali scrub area in the southeast of the valley. Circles represent precision of species

Existing Alkali Sink and Grassland Habitat Near Locations of CPOU Special Status Species



Data Source: CVHM 2005, CNDDB
3/2/2010

sightings. Smaller circles represent more precise sightings. Larger circles are less precise.

Issues affecting the ability to acquire and restore these habitat types include:

1. Limited habitat remains available. The majority of the historic habitat area has been converted to agricultural land (including dairies), cities, roads, and other human infrastructure. Conversion of lands in their natural state to agricultural and urban and suburban uses is still underway which makes it increasingly difficult with each passing day to acquire and restore lands. For example, it has been estimated that less than one third of one percent of the valley floor of Tulare County remains in natural habitat. Another example is that the current acreage of occupied habitat for the Tipton kangaroo rat is 3.7 percent of historic distribution. Overall, the amount of alkali scrub and arid grasslands in the San Joaquin Valley is only five percent of historic values.
2. Remaining unprotected alkali scrub-shrub habitats, and lands that can potentially be acquired and/or restored to habitat, are of insufficient size or are isolated from other protected parcels and are not suitable for protection or restoration. Linkages between habitat areas are critical for recovering listed species.
3. Some areas where there is potential to acquire and restore alkali scrub habitats have parcels that are logistically difficult to acquire in sufficient quantity to provide adequate habitat functions and values. One example is the area around Alpaugh in what was once the southern portion of Tulare Lake. The area is made up of numerous small (5 to 10 acre) parcels that make it difficult to put together a package of properties to acquire of sufficient size for habitat protection or restoration.

In 2010, the CVPCP/HRP Program Managers and the Technical Team members will be increasing their outreach efforts to agencies, non-profit groups, educational institutions, and others to increase awareness and interest in submitting proposals through the CVPCP/HRP to fund the acquisition and restoration of alkali scrub and grassland habitats in the San Joaquin Valley and Tulare Lake area. Through outreach efforts, it is anticipated that more opportunities to protect and restore those habitats will emerge, thereby improving the outlook for recovering listed species and for achieving the agency's goals for mitigating impacts to alkali scrub and grassland habitats and the diversity of species they support.

Land Retirement

Voluntary land retirement of agricultural lands is a potential source of land which could be restored to natural habitats. Through the CVPCP/HRP, Reclamation could help willing land owners in the San Joaquin Valley who wish to retire their agricultural lands and restore them to natural habitat, using the knowledge gained from the LRP. Reclamation could provide funding to conservancy groups and/or land owners through the CVPCP/ HRP for this restoration.

Land retirement was considered as a component of Reclamation's San Luis Drainage Feature Re-evaluation Project. The environmental impact statement (EIS) for this project analyzed alternatives to provide agricultural drainage service to the San Luis Unit (Unit) (which includes

Westlands Water District) and the general area that achieves long-term, sustainable salt and water balance in the root zone of irrigated lands, as a result of a court order (Sumner Peck Ranch v. Reclamation).

The March 9, 2007 Record of Decision (ROD) selected the In-Valley/Water Needs Land Retirement Alternative. With respect to land retirement, this alternative would retire enough lands to balance internal water use needs of the Unit. The EIS estimated 194,000 acres of retired land, but this estimate is a planning level approximation and should not be viewed as a firm prediction of future water supply or water needs. This would include all lands with selenium concentrations greater than 20 ppb in Westlands, lands already acquired by Westlands, and 10,000 acres in Broadview Water District. It is consistent with key elements of the locally developed Westside Regional Drainage Plan.

The EIS stated that the retired land could be managed for dry land farming, grazing, or could remain fallow. Initial development would be designed not only to attract potential lessees/operators, but to protect the soil and help prevent the spread of noxious weeds until lessees/operators are found. These initial efforts would include disking or turning under the existing irrigated crops or cover, planting new vegetation (if appropriate), controlling weeds, and possibly removing or relocating existing infrastructure.

The ROD stated that Reclamation would work in collaboration with Westlands, the Service, and others to implement the land retirement component to accomplish the following goals and objectives: 1) achieve the source reduction purposes of the land retirement component, 2) minimize local social and economic impacts, 3) facilitate post-retirement management and maintenance of the lands, and 4) contribute to endangered species recovery and other native habitat restoration goals in the area.

Reclamation is currently working toward implementing a portion of the drainage project in the Unit.

Interagency Review and Project Development

The CVPCP/ HRP are managed cooperatively by Reclamation and the Service with management input from DFG. Both programs are guided by a Technical Team comprised of biologists and managers from these three agencies. Members of the team, who have been invited and selected to participate, have a high degree of knowledge concerning Central Valley regions, habitats, and species that have been impacted by the CVP. Projects funded through the programs compete through a ranking process and are recommended for selection by the Technical Team to Reclamation and Service senior management.

CHAPTER 6

Future Monitoring and Reporting

Introduction

SWRCB D-1641 states that Reclamation, in consultation with DFG and the Service, will develop and fund a MRP to ensure the continued protection, preservation or enhancement of special status species habitats in the mitigation areas. The MRP will be submitted to the Executive Director of the SWRCB for review and approval within 18 months from the date of this order. This chapter represents the MRP.

Reclamation will provide annual reports to the SWRCB, DFG and the Service that track the ongoing progress of the HMP. The annual reports are due on or before April 15 of each year. The MRP will continue for a minimum of ten years following the completion of the last mitigation actions identified in the HMP.

Reclamation will file with the Executive Director of the SWRCB a final MRP that demonstrates that Reclamation has completed the HMP mitigation actions and has met its mitigation obligation pursuant to the approval of the petition to add the encroachment lands to the POU.

Current Status of Mitigation Projects

Appendix B describes Reclamation CVP mitigation projects that protect, preserve or enhance habitat for special status species. These projects, as described, mitigate for impacts in the encroachment lands as described in the CPOU EIR. The project descriptions also describe the current status, if known, of special status species in each mitigation area, and a description of ongoing monitoring. Every year, Reclamation adds any newly-funded projects to Appendix B and Table 2 of this HMP.

Monitoring and Reporting Strategy

The MRP is integral to implementing the HMP and in Reclamation's view is not a distinct and separable process. Many of the mitigation programs either have monitoring incorporated in them, or are associated with monitoring activities. As such, MRP in large part consists of the periodic compilation of information generated with the HMP actions. Reclamation will review the conduct of these programs on periodic basis and provide status reports as outlined in the process presented below. The main intent of this MRP is (a) to ensure that the individual mitigation activities accomplish their intent insofar as they contribute to addressing the impacts identified in the SWRCB order and (b) to provide a status report update as to the progress in addressing aforementioned overall mitigation requirements. Reclamation's process for providing this compliance reporting is outlined below:

1. As originally proposed, Reclamation will obtain monitoring information through a systematic sampling of all the projects each year and provide this information annually to

the SWRCB, DFG and the Service. Reclamation has found that many of the older wetland projects have been completed up to 10 years ago and no new information or data is available. Therefore, these older ones will no longer be sampled.

2. The sampling of monitoring information will be rotated so that every project is examined every 10 years

3. Reclamation will update the HMP/MRP every three years and provide this information to the SWRCB, DFG, and the Service. Updates will include descriptions of any new mitigation projects which meet the requirements of the HMP.

4. The triennial report will provide an analysis of the total contribution of all individual mitigation activities toward meeting the overall mitigation needs as identified the SWRCB's order.

Appendix A

Species Accounts for the Consolidated Place of Use

Habitat Mitigation Plan and Monitoring and Reporting Program

The following describes the status, distribution and habitat requirements of the Special Status Species which may occur within the habitat types identified in D-1641.

American peregrine falcon

Status: Was Federally-listed Endangered on August 25, 1999; it was delisted based on continuing data indicating this species was recovered. State-listed Endangered.

Distribution: The range includes most of California, except in deserts, during migrations and in winter. The California breeding range, which has been expanding, now includes the Channel Islands, coast of southern and central California, inland north coastal mountains, Klamath and Cascade ranges, and the Sierra Nevada.

Habitat requirements: Nesting sites are typically on ledges of large cliff faces, but some pairs are nesting on city buildings and bridges. Nesting and wintering habitats are varied, including wetlands, woodlands, other forested habitats, cities, agricultural areas and coastal habitats. The nest is a scrape or depression dug in gravel on a cliff ledge. Rarely, peregrines will nest in a tree cavity or an old stick nest. Some peregrines have readily accepted man-made structures as breeding habitat, for example, skyscraper ledges, tall towers, and bridges serve as the ecological equivalent of a cliff ledge. They feed primarily on other birds, such as songbirds, shorebirds, ducks, and in urban areas, starlings and pigeons. Flying high above their intended prey, peregrines will "stoop" or dive and strike in mid-air, killing the prey with a sharp blow.

Bakersfield cactus

Status: Federally-listed Endangered; State-listed Endangered.

Distribution: Occurs in the valley and foothill grasslands of central Kern County near Bakersfield.

Habitat Requirements: The species occurs on flood plains, ridges, bluffs and rolling hills in saltbush scrub plant communities, and occasionally in blue oak woodland or riparian woodland at elevations from 460 to 1800 feet. Soils supporting the cactus typically are sandy, although gravel, cobbles or boulders also may be present.

Blunt-nosed leopard lizard

Status: Federally-listed Endangered; State-listed Endangered.

Distribution: The blunt-nosed leopard lizard is found in scattered parcels of undeveloped land on the San Joaquin Valley floor, and in the surrounding foothills of the eastern portions of the Coast Ranges.

Habitat Requirements: They inhabit open sparsely vegetated plains of low topographic relief on the valley floor and the surrounding foothills. They also inhabit alkali playa and valley saltbush scrub, alkali flats, low foothills, grasslands, canyon floors, large river washes and arroyos. In general, it is absent from areas of steep slopes, dense vegetation, or areas subject to seasonal flooding. Blunt-nosed leopard lizards are carnivorous. They feed primarily on insects (particularly grasshoppers, crickets and moths), other lizards, and occasionally plant material. They apparently have no requirement for water.

California jewelflower

Status: Federally-listed Endangered; State-listed Endangered.

Distribution: The California jewelflower is now known only from occurrences on the western edge of its range in Santa Barbara, San Luis Obispo, and Fresno counties.

Habitat Requirements: Occurs on nonnative grassland, upper sonoran subshrub scrub, and cismontane juniper woodland and scrub communities, in primarily subalkaline, sandy loam soils, reported on elevations of approximately 240 to 2,950 feet and from level terrain to 25 percent slopes.

Fresno kangaroo rat

Status: Federally-listed Endangered; State-listed Rare.

Distribution: Currently found primarily in the southwestern San Joaquin Valley at elevations up to 1800 ft. This critical habitat includes 857 acres in Fresno County. Twenty-three acres are in a small part of the Mendota Wildlife Management Area, 732

acres comprise the contiguous Alkali Sink Ecological Reserve (both State-owned and managed), and 102 acres are in -five privately-owned parcels.

Habitat Requirements: Fresno kangaroo rats forage on open ground and under shrubs. They use nearly level terrain with sandy loam soils for excavation of burrows, and herbaceous vegetation with scattered shrubs as common above-ground cover. They eat mostly seeds, with small amounts of green, herbaceous vegetation and insects supplementing their diet when available. Most kangaroo rats gather seeds when they are available and cache them for consumption later. Typically, caches are made in small pits that hold the contents of the two cheek pouches. Caches are located on the surface of the soil, and are typically scattered over the home range of the individual.

Giant garter snake

Status: Federally-listed Threatened; State-listed Threatened.

Distribution: The current distribution extends from near Chico, Butte County, to the vicinity of Burrell, south of northern Fresno County. This species is one of the most aquatic garter snakes and is usually found in areas of freshwater marsh and low-gradient streams and adjacent uplands in the Central Valley.

Habitat Requirements: Consist of (1) adequate water during the snakes active season (early-spring through mid-fall) to provide food and cover; (2) emergent, herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat during the active season; (3) grassy banks and openings in waterside vegetation for basking; and (4) higher elevation uplands for cover and refuge from flood waters during the snakes dormant season in the winter.

Giant garter snakes typically select burrows with sunny exposure along south and west facing slopes. Additionally, it has adapted to human-made habitats, such as drainage canals and irrigation ditches, sloughs, ponds, small lakes, other waterways and agricultural wetlands, especially those associated with rice farming. They generally feed in & along streams taking fish and amphibians and amphibian larvae. The most current food may be introduced species such as carp, mosquito fish, tadpoles, and bullfrogs, because the native prey such as blackfish, thick-tailed chub, and red-legged frog are no longer available.

Hoover's eriastrum

Status: Federally-listed Threatened, on October 7, 2003 was delisted based on continuing data indicating this species was recovered; State-listed None.

Distribution: The current distribution has been discovered in Kings and San Benito Counties and at numerous additional sites in the four original counties Kern, San Obispo, Santa Barbara and Fresno County south particularly in foothill areas of Kern & Fresno Counties.

Habitat Requirements: Habitat is characterized by stabilized silty soils, a low cover of competing herbaceous vegetation, and the presence of cryptogamic crust (a layer of moss, lichen, and algae; however, it also has been found on loamy soils, in areas of dense vegetation, and in areas lacking cryptogamic crust.

Populations of Hoover's woolly-star occur in alkali sinks, washes, on both north- and south-facing slopes, and on ridge tops. This species occurs in a wide variety of plant communities characterized by shrubs such as common saltbrush, seepweed, and matchweed, but shrub cover in occupied habitats typically is less than 20 percent. Herbaceous plant species frequently found in association with Hoover's woolly star include red brome, goldfields, many-flowered eriastrum, and red-stemmed filaree. Populations of Hoover's eriastrum have been reported at elevations ranging from 165 to 3,000 feet.

San Joaquin adobe sunburst

Status: Federally-listed Threatened; State-listed Endangered.

Distribution: It is restricted to heavy adobe clay soils on the grassy valley floor and rolling foothills of the eastern San Joaquin Valley. It is concentrated in three major locations: east of Fresno in Fresno County, west of Lake Success in Tulare County, and northeast of Bakersfield in Kern County.

Habitat Requirements: The San Joaquin adobe sunburst grows in heavy adobe clay soils. These soils may be favored for their ability to hold moisture longer into the summer dry season than other soils. The adobe sunburst grows in grasslands dominated by nonnative annual plants, wild oats, charlock, soft chess, red brome, and redstem stork's bill.

San Joaquin antelope squirrel

Status: Federally-listed Endangered; State-listed Threatened.

Distribution: Populations now exist primarily in marginal habitats of the low foothills and mountains of the western edge of the valley. Currently populations of significant size exist only in western Kern County at Elk Hills and on portions of the

Carrizo and Elkhorn plains.

Habitat Requirements: Habitats of antelope squirrels consist of grasslands with moderate shrub cover that includes such species as salt bush, ephedra, bladder pod, goldenbush, snakeweed, and others. They are fossorial animals using burrows that they or other animals have dug. The San Joaquin antelope squirrels are omnivorous. They eat green vegetation, fungi, and insects more often than seeds, even when seeds are relatively abundant. Vegetation and seeds of filaree and red brome are the main food plants. Insects include grasshoppers, & sometimes harvester ants. Both sources of food may be necessary in the diet as sources of protein.

San Joaquin kit fox

Status: Federally-listed Endangered; State-listed Endangered.

Distribution: They are found in grassland and scrubland communities along the San Joaquin Valley floor and in the surrounding foothills of the coastal ranges. Today many of these communities are represented only by small, degraded remnants. San Joaquin kit foxes are also known to live within the city limits of Bakersfield in Kern County.

Habitat Requirements: Dens are used by the fox for temperature regulation, shelter from adverse environmental conditions, and escape from predators. Kit foxes often change dens and many may be used throughout the year. The diet of kit foxes varies geographically, seasonally and annually, based on temporal and spatial variation in abundance of potential prey. In the southern portion of their range, kangaroo rats, pocket mice, white-footed mice, and other nocturnal rodents comprise about one-third or more of their diets. They also prey on California ground squirrels, antelope squirrels, desert cottontails, ground-nesting birds, and insects.

San Joaquin woolly-threads

Status: Federally-listed Endangered; State-listed None.

Distribution: It is endemic to the southern San Joaquin Valley and surrounding hills and plateaus.

Habitat Requirements: It occurs on neutral to subalkaline soils deposited in geologic times by flowing water. On the San Joaquin Valley floor, it typically is found on sandy or sandy loam soils. They occupy microhabitats in nonnative grassland, valley saltbrush scrub, interior coast Range saltbush scrub, and upper sonoran subshrub

communities with less than 10 percent shrub cover but in either sparse or dense herbaceous cover. It has been reported from elevations ranging from 200 to 850 feet on the San Joaquin Valley floor and from 2000 to 2600 feet in San Luis Obispo and Santa Barbara Counties and frequently occurs on sand dunes and sandy ridges and on adjacent terraces.

Striped adobe lily

Status: Federally-listed None; State-listed Threatened.

Distribution: It grows on heavy clay soils in open annual grasslands and blue oak woodlands of the southern Sierra Nevada foothills of eastern Tulare and Kern counties.

Habitat Requirements: It grows on heavy clay soils in open annual grasslands and blue oak woodlands of the southern Sierra Nevada foothills of eastern Tulare and Kern counties.

Swainson's hawk

Status: Federally-listed None; State-listed Threatened.

Distribution: They breed in the Central Valley, Klamath Basin, Northeastern Plateau, Lassen Co., and Mojave Desert.

Habitat Requirements: Roosts in large trees, but will roost on ground if none available. Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Nests on platforms of sticks, bark, and fresh leaves in trees, bushes, or utility poles from 4-100 ft above ground, they also nests in open riparian habitat, in scattered trees or small groves in sparsely vegetated flatlands. Eats mice, gophers, ground squirrels, rabbits, large arthropods, amphibians, reptiles, birds, and rarely fish; soars at low and high levels in search of prey and catches insects and bats in flight. Also may walk on ground to catch invertebrates and other prey are usually found near water in the Central Valley, but also nests in arid regions. Water needs are probably met from prey.

Tipton Kangaroo rat

Status: Federally-listed Endangered; State-listed Endangered.

Distribution: Current occurrences are in the southern San Joaquin Valley which includes the Kern National Wildlife Refuge, Delano, and other scattered areas within Kern County. Also scattered and isolated west of Tipton, Pixley and Earlimart, around Pixley National Wildlife Refuge, Allenswoth Ecological Reserve, and State Historical Park,

Tulare County

Habitat Requirements: Burrow systems are usually in open areas but may occur in areas of thick scrub. They are commonly in slightly elevated mounds, the berms of roads, canal embankments, railroad beds, and bases of shrubs and fences where windblown soils accumulate above the level of surrounding terrain. Eat mostly seeds with small amounts of green, herbaceous vegetation and insects supplementing their diet when available.

Valley elderberry longhorn beetle

Status: Federally-listed Threatened; State-listed None.

Distribution: Current distribution is patchy throughout the remaining habitat of the Central Valley from Redding to Bakersfield. The beetle appears to be only locally common, i.e. found in population clusters that are not evenly distributed across available elderberry shrubs.

Habitat Requirements: Dependent on its host plant, elderberry, which is a common component of the remaining riparian forests of the Central Valley. Use of the plants by the animal, a wool borer, is rarely apparent. Frequently, the only exterior evidence of the shrub's use by the beetle is an exit hole created by the larva just before the pupal stage. The larva galleries can be found in elderberry stems with no evidence of exit holes. Larvae are distributed in stems that are 1.0 inch or greater in diameter at ground level.

Western yellow-billed cuckoo

Status: Federally-listed Candidate; State-listed Endangered

Distribution: Breeding populations reside in the Sacramento and Owens valleys; along the South Fork of the Kern River, Kern County; along the Santa Ana River, Riverside County; and along the Amargosa River, Inyo and San Bernardino counties. Also they may nest along San Luis Rey River, San Diego County.

Habitat Requirements: They inhabit extensive deciduous riparian thickets or forest with dense, low-level or understory foliage, and which abut on slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation. In Sacramento Valley, also utilizes adjacent orchards, especially of walnut. They feed on grasshoppers, cicadas, caterpillars and other larger insects from foliage, and

occasionally preys on frogs, lizards, or fruit.

Appendix B

Description of Individual Mitigation Projects for the Consolidated Place of Use

Addition to the Allensworth Ecological Reserve

Reclamation provided \$310,000 in 1998 and 1999 to DFG to purchase about 400 acres of additional parcels adjacent to Allensworth to protect critical alkali sink habitat for the listed threatened or endangered San Joaquin kit fox, Tipton kangaroo rat, San Joaquin antelope squirrel, and blunt-nosed leopard lizard. Vernal pools and vernal swales at the additional parcels will be expected to support fairy shrimp, western spadefoot toad, heartscale, brittlescale, and lesser saltbush. In addition, these parcels will greatly improve the spatial connectivity and ecological security of existing protected parcels by consolidating ownership and eliminating narrow isolated sections. DFG established Allensworth Ecological Reserve (Allensworth) to protect habitat for the above species. Allensworth is in southwestern Tulare County. Since 1980, 49 parcels of land totaling 4810 acres have been acquired for Allensworth. The Allensworth Conceptual Area Plan authorizes acquiring 10,000 to 20,000 acres or more. After the parcels are acquired, a management committee from the California Department of Fish and Game (DFG) will develop a management plan to be reviewed by Reclamation and the Fish and Wildlife Service (Service). DFG will be responsible for managing the lands consistent with current management criteria for Allensworth. The only construction anticipated will be installing fences at the outer boundaries and possibly installing gates on roads. DFG has a pilot project to restore topography and native vegetation to selected areas of abandoned farmland on Allensworth.

Monitoring:

DFG has taken aerial photographs and monitored in the field to revise and refine acquisition priorities. As strategic parcels have been acquired, they have been fenced and gated, wells, have been capped, and roads have been closed. DFG annually conducts surveys for San Joaquin kit fox, blunt-nose leopard lizard, and Tipton kangaroo rats. Seeds will be collected from native plant populations on acquired parcels and used in DFG's restoration projects. DFG is conducting a pilot topography and vegetation restoration project. DFG is cooperating in a multi-agency grazing study to determine appropriate land management techniques for southern San

Joaquin Valley natural habitats.

April 2003 Update: DFG has developed plant lists and developed quadrat surveys to determine community types. No vernal pools occur. DFG has walked the site to find small animal burrows, but have not done any trapping. Transects were done in 2002 for blunt-nosed leopard lizards, but none were found. Burrowing owls occur on the site. The Tipton kangaroo rat probably occurs, but has not been seen. There has been some kit fox spotlighting surveys, but no kit fox have been seen. No active kit fox dens are present.

February 2005 Update:

DFG sent *San Joaquin Valley Southern Region Habitat Conservation Planning 2003 Annual Report of Vertebrate Monitoring Activities*. This shows monitoring of sensitive species in DFG ecological reserves. There has been monitoring at Allensworth, for the Tipton kangaroo rat and leopard lizard, but not at the specific parcels which Reclamation helped purchase.

January 2010 Update: River Partners has constructed irrigation dams, controlled weeds, prepared area for seeding, sprayed and disced the area and planted seeds.

Contact:

Department of Fish and Game, Fresno
(559) 243-4005, #3

Department of Fish and Game
Wildlife Conservation Board
(916) 445-1716

Atwell Island - Valov Property Acquisition

Reclamation provided \$94,605 from the Central Valley Project Conservation Program (CVPCP) and the Fish and Wildlife Service (Service) provided \$33,908 to the Bureau of Land Management (BLM) in 2006 to acquire approximately 192 acres of existing San Joaquin Valley upland habitat, known as the Valov Property.

The acquisition of the property, surrounded on three sides by lands retired from agriculture, will enhance and improve existing conditions for listed species, especially Tipton kangaroo rat. The south (fourth) side is currently an unfarmed valley grassland. A water conveyance ditch to existing BLM property that transects the proposed acquisition could be managed much more efficiently if these parcels were BLM owned, because both sides of the ditch would be in BLM ownership. Additionally, the project will result in a more manageable boundary for BLM for the entire Atwell Island Project area. BLM will be the managing entity and will be responsible for

maintenance and monitoring.

Monitoring by BLM resource managers of the existing upland habitat vegetation will determine when and if appropriate management treatments, such as grazing by cattle, elk or sheep, will be taken. The proposed project will require few restoration efforts. Neither plant restoration nor topographic manipulation would be required on these lands. Removal of exotic weeds, such as the occasional tamarisk, would be done.

Bayou Vista Property

Reclamation provided \$456,000 to the Sequoia Riverlands Trust (SRT) as part of the total of \$998,875 for fee title acquisition of the Bayou Vista property (515 acres) in Tulare County. Funding to complete the acquisition from public and private sources was done during 2004. The Bayou Vista property is located in the central San Joaquin Valley in an unincorporated portion of Tulare County, on the south side of Avenue 144, approximately five miles southeast of Corcoran, California.

The purpose and need of this action is to provide habitat protection for three federally listed endangered species, the Tipton kangaroo rat, San Joaquin kit fox and blunt-nosed leopard lizard; and protect resident wildlife, including Western burrowing owl and migratory species such as mountain plover. Protection of this parcel from development by fee title acquisition will maintain an important habitat linkage between two existing natural areas in a highly modified and fragmented landscape. Kern National Wildlife Refuge (NWR) Complex staff provides management, biological monitoring and logistical support to Kern NWR and Pixley NWR. The property acquired will be added to Pixley NWR and managed as an addition to existing refuge lands.

Annual grasses and sparse vegetation occupy the site, which is described as California prairie by Kuchler (1977). This type of land form is referred to as California Annual Grassland Series in DFG's California Wildlife Habitat Relationships System. The subject parcel represents part of the transition zone between the grassland community of Pixley NWR and seasonal wetlands along the Tule River on the Creighton Ranch to the north.

According to a February 8, 1995 letter in refuge files from a previous landowner (Theodore Off), past surveys have documented the presence of Tipton kangaroo rat and San Joaquin kit fox on the subject property. Blunt-nosed leopard lizards have been found immediately adjacent to this parcel on the Los Feliz unit of Pixley NWR and on the Creighton Ranch (when it was managed as TNC's Creighton Ranch Preserve) during the 1980's.

Swainson's hawk, listed as a Threatened Species in the State of California, nests in riparian habitat along the nearby Tule River and forages on this grassland property between March and

October (R. Hansen, field notes). Abundant ground squirrel burrows in this open landscape provide ideal habitat for Western burrowing owl, a California Species of Special Concern which is a resident nesting species on this property (R. Hansen, field notes). Other California Species of Special Concern which are year-round residents on the subject property (R. Hansen, field notes) include Northern harrier California horned lark, and loggerhead shrike. California Species of Special Concern that have been observed on the subject property (R. Hansen, field notes) during winter months (outside their normal breeding season) are ferruginous hawk, golden eagle, merlin, prairie falcon, mountain plover, long-billed curlew and short-eared owl.

April 2010 Update:

Bayou Vista is being managed as upland grasslands by the Pixley National Wildlife Refuge. Limited grazing is allowed from November to early May to decrease the volume of non-native grass. Night surveys have not found any kit fox. It is likely that Bayou Vista is a corridor between other Pixley properties that do have kit fox. Blunt-nosed leopard lizards probably inhabit the site, but there have been no official sightings. The refuge has not done any small-mammal trapping for Tipton kangaroo rats.

Contact:

Nick Stanley
Manager, Pixley National Wildlife Refuge
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Ben Brown Ranch

Reclamation provided \$100,000 (out of a total of \$406,800) to TNC to acquire a conservation easement on 370 acres of grasslands in the Cosumnes River watershed in 2001-2002. This protects the Swainson's hawk along with vernal pool species and greater sandhill crane.

Bobelaine Audubon Sanctuary Restoration

Reclamation provided \$20,000 to the Bobelaine Audubon Sanctuary located in Yuba County in the Sacramento Valley. This project restored 20 acres of cottonwood and willow riparian habitat that was destroyed in 1992 by a stand replacement fire on the upper floodplain of the lower Feather River. The fire killed most of the mature cottonwood and willow component in an area that was recognized in the mid-1980's as the best remaining example of mixed riparian forest habitat in California. Post-dam changes in the hydrology of the lower Feather River have resulted in limited opportunities for re-establishment of the cottonwood and willow dominated forest and therefore active planting coupled with three years of irrigation and maintenance was required. Upon maturation, this newly planted mixed riparian forest will provide habitat for numerous Neotropical migratory birds including the yellow-billed cuckoo and Swainson's hawk

and shaded riverine aquatic habitat for salmonids and other fish. Participation in this project helps meet the goals of both the Riparian Habitat Joint Venture and Partners in Flight.

April 2003 Update: There were 3 plantings to restore the riparian habitat. Reclamation provided funding for the third planting. The first two had a success rate of up to 90%, but the third planting had a failure rate of 80 to 90 percent. This was probably due to the use of a different watering system which did not provide enough water. Some survivors are 15 feet tall now and soon will be above the deer feeding level. Beavers are an occasional problem. Some oaks have grown on their own. Tree protectors are being taken off the dead trees and put on all living trees. The year 2003 will be the first year that the trees have not had supplemental water. Due to the lack of many tall trees providing shade, undergrowth (such as blackberries and poison oak) has taken over.

Contact:

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Sacramento Audubon Society (916) 709-2308

Carrizo Plain National Monument Inholdings

Reclamation provided \$832,000 to the Bureau of Land Management (BLM) in 2006 to acquire 16 smaller ownerships totaling an estimated 1932.54 acres within the Carrizo Plain National Monument (CPNM). Habitat types include grasslands, alkali scrub, alkali sink and juniper-oaks. Observed threatened and endangered CPOU species are San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, blunt-nosed leopard lizard, San Joaquin woolly-threads, California jewel flower, and Hoover's woolly star. Many other special status species not being compensated for via CPOU also occur.

September 2007 Update: BLM has purchased parcels totaling 585 acres of grassland and 145 acres of alkali scrub so far. They expect to purchase additional parcels totaling 215 acres of grassland and 520 acres of alkali scrub after appraisals are completed later in 2007.

March 2010 Update:

BLM has completed the purchase of parcels under the interagency agreement with Reclamation. Eight parcels were purchased, totaling 1,324.36 acres. \$797,700 was spent. Habitat types are about 75% scrub, 15% grassland and 10% other (not reported for CPOU).

Contacts:

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661-769-8091

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Diane Simpson, Realty Specialist,
(661) 391-6125

Bureau of Land Management
Bakersfield Field Office
3801 Pegasus Drive
Bakersfield, CA 93308:

Colusa National Wildlife Refuge - Giant Garter Snake Habitat

Reclamation provided funds to the Service to restore 449 acres of fallow rice fields to a complex of wetlands and uplands at the Zumwalt Tract of Colusa NWR in Colusa County. The main emphasis is to create habitat for the GGS and migratory waterfowl. The area will be restored to 70% seasonally flooded wetlands, 10% permanent wetlands, and 20% uplands. The Service constructed two miles of delivery canal to supply water. Construction of the canal also provides maximum habitat benefits to the GGS. The Service enhanced an additional 2,000 acres of wetlands by expanding and improving the water delivery system. The area is still fairly open. It will take time for the vegetation to grow to maturity.

The Service monitors for the presence of GGS. FWS annually monitors for waterfowl and for threatened plants. The Service created a vernal pool habitat for palmate-bracted bird's beak by laying soil from an existing pool in a new pool.

2000 Progress Report:

The goal is to assess the benefits of the restored wetland habitat for GGS and develop a site-specific management plan based on observations. FWS biologists documented the phenology of snake colonization of restored habitat, evaluated habitat use, and estimated densities of GGS in restored habitat versus other habitats. This was done by hand-capturing snakes and implanting radio transmitters in 10 of them. Results show a healthy population of GGS in the restoration area.

February 2005 Update:

Fallow rice fields were converted into wetlands and upland habitat in 1999. Habitat itself will not be monitored. Instead, the U.S. Geological Service is monitoring GGS populations for the FWS. Monitoring reports for 2000 to 2003 (the most recent one available) show increasing numbers of GGSs. (USGS, 2000, 2001, 2002 and 2003.)

March 2010 Update:

The final monitoring report summarized GGS research on the Sacramento National Wildlife Refuge Complex from 1995 to 2005. They continued to find GGS at the refuge. The report concludes that management of the refuge for GGS, which began with the wetland restoration, clearly benefited the GGS population by maintaining and increasing stable summer water habitat, maintaining connectivity among wetland habitats, and providing carefully manage marsh vegetation. The numbers of GGS increased over time and the home ranges decreased. The latter may indicate a shift in movement behavior consistent with an increase in habitat quality.

Contact:

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752 County Road 99W
Willows, CA 95988
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Colusa National Wildlife Refuge - Tract 23 Native Grassland Restoration

Reclamation provided funding for restoration efforts on Tract 23 of Colusa NWR in Merced County. This will recreate 30 acres of native grassland, in association with previously restored wetlands. This benefits the Swainson's hawk among other species. Work is to be completed by the Service and Ducks Unlimited (DU).

April 2003 Update: The Service and DU established native grassland on 70 to 80 acres, expanded from the originally-planned 30 acres. Existing vegetation was burned. The area was then disked, drilled, seeped and sprayed. The new native grassland was burned several times to keep the weeds down. They plan on burning it every 2 to 5 years, depending on weeds, but no spraying will be done. Birds are now being monitored.

February 2005 Update:

Restoration has been effective and native vegetation has been established. (Wolder, pers. comm.)

Contact:

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Contra Costa County Land Acquisition - Mount Diablo to Black Diamond Mine Corridor and Morgan Territory

Reclamation provided \$991,631 (out of a total of an estimated \$2,275,020 to \$3,791,700) in 2006 to the Contra Costa County Habitat Conservancy c/o Contra Costa County Community Development Department to purchase two properties with a total of about 680 acres in eastern Contra Costa County as part of the East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP).

1. Mount Diablo to Black Diamond Mine Corridor Property. The parcel is almost 60% oak woodland, with the remaining landcover in chaparral, grassland and oak savanna. The parcel proposed for acquisition is an integral part of the potential kit fox movement corridor connecting core habitat areas to the northwest and southeast. Approximately 77% of the property is suitable for use by kit fox.

Models generated indicate that the property proposed for acquisition is almost entirely suitable habitat for Alameda Whipsnake. For the California tiger salamander, five ponds (totaling approximately 1.05 acre) are mapped on the property. The ponds are suitable breeding habitat. Subsequent site surveys may identify additional aquatic resources. The surrounding area is suitable migration and aestivation habitat.

The above five ponds are also suitable breeding habitat for the California red-legged frog. There is an additional 1,824.5 feet of mapped stream on the parcels that is suitable breeding habitat. Subsequent site surveys may identify additional aquatic resources. The surrounding area is suitable migration and aestivation habitat.

2. Morgan Territory Property. Models generated indicate that the parcel proposed for acquisition is almost entirely suitable habitat for Alameda whipsnake.

One pond (0.5 acres) mapped on the parcel is suitable breeding habitat for the California tiger salamander. Subsequent site surveys may identify additional aquatic resources. The surrounding area is suitable migration and aestivation habitat. The pond also supports potential breeding habitat for California red-legged frog. There are 106.17 feet of mapped stream that is suitable breeding habitat. Subsequent site surveys may identify additional aquatic resources. The remainder of the parcel is potential migration and aestivation habitat.

The acquisition of these properties would protect them in perpetuity. The acquisition would not only protect habitat on the parcels – but also establish a connection to other protected open space. It would be integrated and managed as part of the growing preserve system. It is a critical link between several large areas of protected open space.

March 2010 update

Due to changes in sellers' interests, acquisition of the previously identified parcels was delayed in 2007. Contra Costa submitted another parcel, the 153 acre Schwartz property, with the following habitat types:

Landcover Type	Acres	%
Chaparral	15.47	10.16
Grassland	33.28	21.86
Oak Savanna	0.68	0.45
Oak Woodland	102.8	67.53
Creek	1,046 feet	n/a
Total	152.23	100

This property will preserve prime habitat for Alameda whipsnake, California red-legged frog, California tiger salamander, Foothill yellow-legged frog, Western pond turtle, Western burrowing owl, and Golden eagle. The proposed acquisition also provides habitat for listed plant species including: Brewer's dwarf flax, big tarplant, Diablo helianthella, Mt. Diablo manzanita, and Mt. Diablo fairy lantern. *However, it does not have habitat for the San Joaquin kit fox or any other CPOU sensitive species.* This property was purchased in 2009.

Contra Costa Land Acquisition – Byron-Vasco

Reclamation provided \$250,000 of Fiscal Year 2008 funds and \$300,000 of existing Federal funds from the CVPCP to the East Contra Costa County Habitat Conservancy (Conservancy) to help purchase the 190.56 acre Byron-Vasco Connection in Contra Costa County. This purchase would be associated with the East Contra Costa County Habitat Conservation Plan and Natural Communities Conservation Plan. (Plan).

The Plan inventory area is located in the eastern portion of Contra Costa County, California. Contra Costa County has a land area of more than 435,000 acres; the inventory area covers approximately one-third of the County, or 174,018 acres, the entirety of which is in East Contra Costa County. The plan provides a blueprint for the acquisition of up to 30,000 acres of land in eastern Contra Costa County to protect habitat for threatened and endangered species.

Parcel 001-011-040 (parcel), totaling 190.56 acres of prime habitat land, is located near the southeastern boundary of the Plan area. To the east (and adjacent to the parcel) are the Byron Airport Habitat Management Lands (managed by Contra Costa County) as well as the Byron Hot Springs Mitigation Bank (managed by Wildlands Inc), both of which are protected by a permanent conservation easement. To the west is land that is part of the Los Vaqueros

Watershed (managed by the Contra Costa Water District).

This action will preserve prime suitable habitat for California red-legged frog, California tiger salamander, San Joaquin kit fox, and vernal pool fairy shrimp (particularly after habitat enhancement and restoration). The proposed acquisition also provides habitat for a number of rare, threatened and endangered plant and animal species. Not only does this parcel support important habitat, it is an important piece in composing a larger preserve system in eastern Contra Costa County.

March 2010 Update

Parcel acquired in 2009. First restoration began, creating 8 acres of wetlands and planting 15,000 plugs of native vegetation. California tiger salamanders have already colonized the wetlands.

Contacts:

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East Contra Costa County Habitat Conservancy
651 Pine Street, 4th Floor, NW
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(925) 335-1227 or 1290

Cosumnes River Preserve - Lost Slough Wetland Enhancement

Reclamation provided \$21,725 to DU to support improvements to the water delivery system and some dike reconstruction to allow for more efficient, independent water management on over 180 acres of wildlife friendly agricultural land and over 250 acres of seasonal and semi-permanent wetlands. The project benefits migratory birds including lesser and greater sandhill cranes and Swainson's hawk. Oaks and willows have been planted.

BLM is doing the monitoring. First plantings did not work. Later plantings have been successful.

February 2005 Update:

Actual cost was \$40,000. DU installed pump and pipeline as planned. Plantings of riparian trees were successful. Riparian strip will mature in about 15 years. Part of the area is an agricultural floodway. When they disk these agricultural lands in the fall, Swainson's hawks use it heavily to feed on small mammals and insects brought up by the disking.

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Cowell Ranch

Reclamation provided \$495,000 to the Trust for Public Land in 2002 to help purchase the 3,942-acre Cowell Ranch Property (Property) in Contra Costa County. The purpose of this grant is to protect, through fee title acquisition, the approximately 3,942-acres Cowell Ranch Property consisting of grassland, oak woodland, valley sink scrub, vernal pool, riparian and other habitats. These habitats support a number of special status species. The property would be turned over to California State Parks (CPS).

The San Joaquin kit fox is possible, but has not been confirmed on the site. When this site was under development review in 1996, the applicant's biologists believed that over 90% of the site was kit fox habitat and consequently, they did not want to undertake the expense of protocol studies to verify its existence.

February 2005 Update:

Superintendent Hickey stated that they are attempting to manage the project. Although it's a state park, it is not open to the public because there is no funding for staffing & it's not current with state park regulations. However, there is limited access to the park to interest groups for certain activities such as hiking, etc. **They are continuing with the grazing lease of 5 years to maintain the resource management purpose of protecting the selected listed species of the property which is the San Joaquin Kit Fox (the lease has 3 years to go).** Currently, the park is involved in a Joint-Power-Agreement (JPA) with the city of Brentwood which may assist in project funding for \$300,000 to help bring it into state park status for operations such as providing staff, trails and other recreational uses that most parks normally contain for public access. The JPA has to go through a public review and several processes which may take about 1 to 2 years of general planning.

Currently Mr. Hickey has no available reports to send to Reclamation, however, he recommended that we contact him in about 6 months to remind him to put Reclamation on a contact list for notifications and updates on the process of maintaining the project activities involved. He also mentioned that a website may be developed for public information as well.

March 2010 Update:

Cattle grazing is continuing. The park is unofficially called the Cowell Ranch/John Marsh State Historic Park. It is not open to the public. CSP is revising the general plan and needs funds for facilities and for rangers.

Starting in 2007, CSP has been surveying the ponds and pools in the park for amphibians. From 2007-2010, they documented California tiger salamander breeding in at least 18 different water bodies in the park. They have also documented California red-legged frog breeding in one pond.

In 2010, they surveyed the vernal pools in Briones Valley for vernal pool crustaceans and found the federally-threatened vernal pool fairy shrimp present in 16 different water bodies.

CSP has not yet conducted any kit fox surveys yet, although they have a project for kit fox surveys and habitat assessment identified in the State Park Project Infrastructure Database, that will hopefully get funded in the future during better state budget times.

Botanists have sampled vegetation and characterize some of the unique plant communities in the park (such as alkali flats and valley sink scrub). They documented new locations for rare plant species such as San Joaquin spearscale.

CSP contracted with U.C. Berkeley to prepare an "Ecosystem Management Alternatives Plan" for Cowell Ranch. This document, which was finalized in January 2010, addresses a range of management methods for vernal pools and riparian habitats, as well as the suite of sensitive species and biological diversity present in the park.

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Deer Creek Hills Preserve

Reclamation provided \$250,000 from the CVPCP and \$200,000 from the HRP (out of a total of \$5,751,200) to the Sacramento Valley Open Space Conservancy in 2002 to help purchase 2,054 acres at Deer Creek. The property is in Sacramento County. The property consists of 1630 acres of grasslands, 120 acres of oak woodland/savannah, and 10 acres of ponds, creeks, and vernal pool swales. The project benefits vernal pool species, and woodland and grassland species, including the Swainson's hawk.

Delevan National Wildlife Refuge Tract 30 (5-00)

Reclamation provided funding for this project located in Colusa County. This project enhanced over 60 acres of seasonal wetland habitat by raising and sloping the perimeter dikes to obtain proper water depth and installing new water control structures for independent water control. This project benefits all wetland-dependent species including the GGS.

Dos Rios Ranch Land Acquisition

Reclamation provided \$806,736 in 2007 (\$434,592 from the CVPCP and \$372,144 from the HRP) to the Tuolumne River Preservation Trust (TRPT) to help acquire the 1,603-acre Dos Rios Ranch in Stanislaus County. Other organizations would provide approximately \$24,500,000 to the TRPT to help acquire the Ranch.

Depending on whether a public agency is immediately available to hold fee title or not, the TRPT's project partner, River Partners, would hold fee title to the property and would be responsible for managing it for an interim period. Ultimately, however, ownership of the site would be transferred from River Partners to an appropriate public agency, such as the Service as an addition to the San Joaquin River National Wildlife Refuge, DFG, or California State Parks.

Following acquisition of the ranch, TRPT would select a specific restoration plan, based on the 2006 *Dos Rios Conceptual Restoration Plan*. TRPT would need additional funding to implement the plan. This would involve restoring the riparian corridor, wetlands, and upland habitat. TRPT expects to increase the riparian zone up to 1,000 feet wide. Long-term management would incorporate adaptive management and monitoring and best management practices to ensure long-term success of habitat restoration and wildlife friendly agriculture.

The Ranch is currently farmed in almonds, tomatoes, corn, alfalfa and mixed row crops. The existing riparian corridor along the two rivers is intermittent. The larger riparian patches on the ranch extend up to 1/4 mile from the river and up to 10 acres in area, while at other locations the riparian corridor is almost nonexistent.

The ranch also contains three large pond/slough features providing a variety of wetland habitat.

About 110 acres of associated uplands are found on the property. Ranch and farm facilities, including but not limited to barns, a large warehouse, an office trailer, truck scales, storage facilities, equipment and hay yard storage, and three houses are located on the upland.

The primary target species for this project is the riparian brush rabbit, a critically endangered species, and the riparian woodrat, also an endangered species. Currently, there are three known populations of the riparian brush rabbit. Acquisition of the Ranch would permanently protect the entire ranch and habitat, and thus provide a long-term, perpetual benefit to the target species by providing a potential reintroduction site for the species.

The project would develop suitable habitat where a colony of riparian woodrats can be established. Currently, there is only one known population of riparian woodrats. Developing additional habitat for the species is critical to its survival.

In addition, a breeding pair of the least Bell's vireo has recently been identified on the nearby San Joaquin River National Wildlife Refuge. Acquisition and restoration would increase vireo habitat and potentially expand population of this species.

Conserving and restoring critical land within the floodway enhances native riparian habitat along the Tuolumne River and would also benefit neotropical migratory birds, the VELB, Chinook salmon, steelhead trout, and numerous other species.

With respect to the CPOU mitigation requirements, there are no known target species on the Dos Rios site. The only habitat is 10 acres of riparian woodland. When restored (not part of Reclamation's current funding for Dos Rios), the only target sensitive species that the ranch would provide habitat for is the VELB.

Drumheller Slough Unit on the Sacramento River National Wildlife Refuge

Reclamation provided \$325,000 to the River Partners in 2004 to help restore 226 acres of riparian habitat at Drumheller Slough (formerly Haleakala) Unit on the Sacramento River National Wildlife Refuge.

Drumheller Slough will be planted or allowed to revegetate with native vegetation as a result of the proposed action. These efforts will focus on restoring or enhancing natural vegetation communities that have been converted to agricultural and other uses in the past. After adequate planning, orchards and other crops will be removed along with most of the related infrastructure (remnant, nonfunctional farming facilities such as pumping units, barns, and sheds). To accomplish restoration, native species will then be planted in a mosaic of riparian communities.

(including grasslands, savannah, and woody vegetation) and actively maintained for several years. This includes planting of about 5,000 elderberry plants. Over time, habitat management and natural processes will control the species composition and overall structure of the plant communities. The restored mixed riparian forest would provide important habitat for neotropical migratory birds and other animals, including the valley elderberry longhorned beetle, bald eagle, and Western yellow-billed cuckoo.

Dry Creek Ranch

Reclamation is providing \$959,000 to the California Rangeland Trust (CRT) in 2009 to help acquire the conservation easement on the Dry Creek Ranch. The Dry Creek Ranch contains approximately 5,530 acres and is located about three miles north of the town of Snelling and 19 miles north of the town of Merced along La Grange Road, also known as Highway 59 in Merced County.

The purpose of the action is to protect habitat at Dry Creek Ranch for one federally endangered species, the Hartweg's golden sunburst, four federally threatened species including the succulent owl's-clover, vernal pool fairy shrimp, California tiger salamander and potential VELB habitat, and seven federal species of concern.

At the time the CRT acquires an easement, the CRT will prepare an initial baseline assessment of the existing development and the agricultural and natural resources on the property. This assessment is known as the Baseline Conditions Report. After the easement is recorded, the CRT will monitor the property at least once each year to ensure that the easement terms are honored. A written monitoring report will be prepared after each site visit and consultation with the landowner. The report will describe the monitoring visit and notes any significant changes to the resources or any compliance issues, and recommends corrective action if necessary.

Contacts:

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Elgorriaga Ranch

Reclamation provided \$1,038,476 in 2005 and \$79,524 in 2007 to BLM to purchase about 3200 acres of the 9,000 acre Elgorriaga Ranch. The Elgorriaga Ranch is located in the Ciervo Hills, along the border of the Fresno-San Benito County line.

The Elgorriaga Ranch property is dominated by annual grasslands but also has saltbush and dune

habitat. The Monvero Residual Sand Dunes are unique, occurring only in this area of the Ciervo Hills and the Mojave Desert.

Two federally listed species have been documented on the Elgorriaga Ranch, the San Joaquin kit fox and the giant kangaroo rat.

Of the species recorded by California Natural Diversity Database records near the property, the species that may occur on site include the Coast (California) horned lizard, Panoche pepper-grass, San Joaquin antelope squirrel, San Joaquin woollythreads, and showy madia. The dune habitat features may also provide habitat to the Ciervo aegilian scarab beetle and the San Joaquin dune beetle. The limited information for these species makes it difficult to determine the likelihood of their presence. The habitat features also provide the potential for western burrowing owls and blunt-nosed leopard lizards to occur on site.

Protecting the Elgorriaga Ranch will also make contributions to species specific goals that are associated with the Ciervo-Panoche region. These goals include protecting 90% of existing habitat for the San Joaquin kit fox in the region, protecting the entire giant kangaroo rat metapopulation of the Ciervo-Panoche Natural Area, and (potentially) protecting 6,000 acres of occupied blunt-nosed leopard lizard habitat on the western valley edge.

March 2010 Update:

Surveys and restoration activities commenced in 2008 and have been ongoing since then. Details of endangered and sensitive species work are provided below.

Monvero Dunes Survey and Restoration: Following the hiring of the current ecologist in October 2008, visits to the Elgorriaga land have occurred semi-weekly (weather allowing). The focus of many of the site visits has been surveys and restoration in the rare dune habitat on section 35, which the Elgorriagas call Indian Tea Hill. In 2009, BLM Hollister received \$25,000.00 to restore the dunes. The work was completed in November 2009, with 30 new dunes constructed on the section 35. Weekly visits to the dunes include surveys for other rare insects with species experts. Species surveyed for including the potentially present Kern evening primrose sphinx moth and potentially present flower-loving fly as well as the black-headed Jerusalem cricket, which was found to be present.

San Joaquin Kit Fox surveys:--Spotlight surveys for San Joaquin kit fox were conducted in the fall of 2009. BLM also set out a trap camera and recorded kit fox from near the section 13 acquired parcel.

Giant Kangaroo Rat:--Giant kangaroo rat precincts have been documented from the area of the new acquisition and are being logged.

Coast horned lizard:--Coast horned lizards have been found on the section 35 acquired parcel on numerous occasions and have been documented.

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Elgorriaga Ranch Acquisition Phase II, Peppergrass Flat Project

Reclamation is providing in 2010 \$217,960 from the CVPCP to BLM as part of a multi-year project to purchase one of three parcels of Peppergrass Flat on the Elgorriaga Ranch in Fresno County, California. This parcel consists of 640 acres of grassland.

The purpose of the action is to protect the Peppergrass Flat area from development in order to maintain existing endangered species populations under permanent conservation and management by the Federal government. Three federally endangered species that have declined as a direct result of the conversion of arid grasslands and scrublands to irrigated agriculture in the western San Joaquin Valley will benefit from the action. Those species include the San Joaquin kit fox, giant kangaroo rat, and San Joaquin woolly-threads. It will also protect habitat for the short-nosed kangaroo rat, San Joaquin antelope squirrel, the coast horned lizard, and several species of endemic insects, all of which have been documented on the property. Protection of the three sections targeted for acquisition will substantially buffer San Joaquin kit fox and giant kangaroo rats from extinction in the face of threats to the Ciervo-Panoche populations from proposed renewable energy projects planned for the vicinity.

Fine Gold Creek Property

Reclamation provided \$350,000 out of a total of \$1,900,000 in 2004 to the Trust for Public Land (TPL) to purchase the 708-acre Fine Gold Creek property in Madera County, California. The property is located on both sides of Fine Gold Creek as it enters the northwestern portion of Millerton Lake, about 32 miles north of downtown Fresno. The title to the property would be conveyed to the California Department of Fish and Game.

The purpose of this action is to protect riparian and blue oak woodland habitat for threatened and

endangered species such as the VELB and the bald eagle.

In addition to the existing VELB habitat, the Fine Gold Creek property would be ideal for restoration planting of the elderberry bush, especially in the riparian corridor along Fine Gold Creek. A recent survey on the property conducted by Live Oak Associates identified 43 blue elderberry bushes. Insect exit holes similar to those made by the VELB were observed on 9 of the 43 bushes included in the survey. According to the study's report, "It is likely that at least some, if not all, of these holes were made by the VELB."

In addition to the likely presence of VELB, the Lake Millerton area provides wintering habitat for adult bald eagles. It has been estimated that as many as 200 bald eagles may use Millerton Lake during a single winter. In order to avoid disturbances, wintering bald eagles tend to roost in the tallest trees, which are generally foothill pines, in areas that are least accessible to water.

Fenwood Property

Reclamation issued a \$600,000 grant in 2001 to the Trust for Public Land (TPL) to help purchase a conservation easement on the 2,160-acre Fenwood Partners Property (Property) in along the Sacramento River in Shasta County, California.

TPL would convey title of the Property to the Shasta Land Trust to manage and enforce the provisions of the conservation easement. The easement includes provisions that contribute to the maintenance and recovery of grassland-vernal pool, riparian, and blue oak woodland systems and associated native species; appropriate measures to avoid and minimize conflict with listed species; and allowance for control of non-native species which may have a detrimental impact on management of native species. Under the easement, cattle ranching during the winter months would continue. SLT would carry out habitat restoration activities based on available funding and in-kind project support from other agencies and conservation groups. The easement would include a monitoring plan. SLT would provide three annual reports to Reclamation.

The Fenwood Partners Property is characterized by blue oak woodland (2033 acres), northern hardpan vernal pool (1.1 acres), Great Valley mixed riparian forest (46.8 acres), and cottonwood riparian forest (12.8 acres). Nearly 100 species of amphibians, reptiles, birds, and mammals have been observed. Thirteen special-status wildlife species and two special status plant species have been observed at the Property. One other special status wildlife species and 10 other special-status plants potentially could occur. One of the riparian areas, China Garden, is a state and federally recognized significant riparian habitat resource. It provides habitat for the winter-run chinook salmon, northwestern pond turtles, foraging bald eagles, and the VELB.

February 2005 Update:

No surveys; some work on nearby Bear Creek which may or may not include this and W. Shasta area.

July 2008 Update

Riparian areas have been fenced, which would enhance the VELB. Interior fencing is being done to manage the cattle herds to control noxious weeds.

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Forster Ranch

Reclamation issued a \$258,585 grant to TNC in 2003 to help purchase a perpetual conservation easement for the 2,865-acre Forster Ranch in northeastern San Joaquin County. The Wildlife Conservation Board provided \$2,741,415.

Forster Ranch consists of grasslands interspersed with seasonal and permanent wetlands, including vernal pools. The federally listed vernal pool fairy shrimp, vernal pool tadpole shrimp, Sacramento orcutt grass, succulent owl's clover and VELB may occur on the property.

After the easement is established, land use would remain as open space primarily used for cattle grazing. Surveys will be conducted for special status species. Avoidance and conservation measures will be incorporated into activities on the property to increase avoidance of potential adverse effects on listed species.

Furey Ranch

Reclamation issued a grant of \$350,000 in 2000 to TNC to help purchase a conservation easement on 391 acres of land on the 1,012-acre Furey Ranch in eastern Merced County. The purpose of the action is to protect vernal pools on Furey Ranch by preventing the rangeland from being subdivided, developed, or converted to cropland. The Furey Ranch vernal pools are part of

the 120,000-acre East Merced Vernal Pool Complex, one of the largest and most intact vernal pool and grassland habitats in California. Special status species are the vernal pool fairy shrimp, Greene's tuctoria, and succulent owl's clover. Swainson's hawk may use the habitat.

The easement will be an agreement between the Merced County Farmland and Open Space Trust (MCFOST) and the landowner. The easement will protect vernal pools by preventing the rangeland from being subdivided, developed, or converted to cropland. It will restrict grazing practices that are inconsistent with vernal pool conservation. This transaction is being done in conjunction with another transaction to protect an additional 621 acres of farmland on the Furey Ranch. TNC has submitted a proposal to the Department of Conservation's Agricultural Land Stewardship Program for the acquisition of an agricultural easement on the cropland. Together, these easements will ensure that the 1,012-acre ranch remains intact and undeveloped, increasing the overall viability of the project. Among the vernal pool species, this project protects the vernal pool fairy shrimp, Greene's tuctoria, succulent owl's clover. Swainson's hawk may use the area for roosting.

The Fureys conduct their cattle-raising operation in a way that is sensitive to the natural habitats on their property. MCFOST, the entity monitoring the easement, will work with the Fureys and future landowners to continue these good stewardship practices. MCFOST will develop a management plan to be reviewed by the Service and Reclamation. To ensure that the range is not overgrazed, the easement specifies that in order for grazing to take place, there must be at least 800 pounds of residual herbaceous dry matter per acre (measured annually in October). Only cattle or sheep may graze. Other domestic livestock (such as goats) may graze only insofar as they are needed for special weed-control tasks.

Baseline information will be established with an environmental documentation report and an aerial base map. The study must take place during the rainy season and will be completed by March 30, 2000. The report will describe the location of improvements such as buildings, roads, and utilities and of natural resources such as vernal pools and plant communities. It will also document current agricultural and residential uses.

The MCFOST intends to conduct monitoring on an annual basis. They will drive around the property (which is readily accessible by road), inspect it, and meet with the owner to determine whether agricultural and residential activities are in compliance with the terms of the easement.

Contact:

Cathy
The Nature Conservancy, San Francisco
(415) 281-0439 – Merced Grasslands Project of TNC

George Dairy

Reclamation provided a grant of \$360,000 in 2000 to TNC to assist in purchasing a conservation easement and restoring approximately 110 acres of the George Dairy Ranch in Sacramento County. The George Dairy is a family-run operation adjacent to TNC's Cosumnes River Preserve. Horizon Organic purchased the property from its present owner in March 2000. The action protected additional GGS habitat along the Cosumnes River. George Dairy is adjacent to two sides of the Valensin Ranch Portion of TNC's Cosumnes Valley Preserve. This action will result in contiguous GGS habitat covering over six miles and will link two known GGS populations, thus reducing fragmentation of the local subpopulation's habitat.

The conservation easement will prohibit all land uses inconsistent with GGS habitat restoration, preservation and management. The easement will allow the use of recycled wastewater from the dairy to be discharged to the wetland to accelerate vegetative growth and to maintain wetland hydrological conditions.

After TNC acquires the easement, a management committee from TNC will develop a restoration plan. The plan will be reviewed by a team from Reclamation, the Service, and DFG. Reclamation and FWS will approve the plan. TNC will coordinate management of the lands protected by the easement. TNC will develop a monitoring program comparing pre- and post-restoration of habitat for the GGS.

TNC will coordinate restoration of the 110-acre restoration area to productive habitat. The main emphasis will be to create optimum GGS habitat. The original meandering of the creek channel will be restored. Broken concrete pieces are planned to be provided for GGSs to escape from flooding and for hibernation.

Benefits to other wildlife include the continuing availability of the open space for foraging by migratory waterfowl, by sandhill cranes, and by Swainson's hawk. It may also benefit other raptors, the western pond turtle, the burrowing owl, short-eared owl, yellow warbler, and tricolored blackbird.

2003 Status:

Horizon demolished the existing dairy infrastructure, but decided not to build a new dairy. They intend to sell the property to another dairy operator and meanwhile are farming the property with dairy crops. It was assumed that there was a reliable source of water for the restored Badger Creek. However, the creek dried up when the dairy was shut down. The creek now goes dry in the summer and remains dry until there are significant rains. Permanent water is necessary for GGSs, so TNC is looking at alternative sources of water, such as pumping groundwater. This

has slowed planning.

Monitoring Plan:

Pre-restoration surveys include both visual searching and aquatic trapping to establish presence or absence of snakes and determine a rough population size. TNC is also evaluating the water supply of Badger Creek as described above. Post-restoration monitoring will continue for about 2 years after completion of restoration work. Visual searching and trapping will be used to capture GGS. The snakes will be measured and ventral scales will be clipped for identification for a mark and recapture study. Ten snakes will be chosen for a radio telemetry study, depending on funding. After the initial baseline population is estimated, a lowest acceptable population should be determined.

TNC prepared the *Conceptual Restoration Planning for George Dairy and Badger Creek for Giant Garter Snake* in September 2002. Surveys were conducted in 2001 and 2002. No signs of GGS were detected east of Highway 99 but a significant population of GGS continues to exist in Snake Marsh, west of Highway 99. This could be a source population for snakes to disperse upstream and recolonize other locations, including North Fork of Badger Creek, if connectivity was improved and aquatic habitat persisted here through the summer.

February 2005 Update:

Permanent wetland was due to previous dairy operations. Horizon purchased the property but decided not to build a new dairy. Badger Creek continues to dry up in the summer. Therefore, the wetlands are no longer a benefit to GGS. Horizon sold the property to Voorhees which may use it for mitigation. TNC looking at large-scale restoration of Badger Creek.

March/October 2010 Update:

In 2004, the owner (Mr. Voorhees) had a couple conceptual plans created by Foothill Associates for wetland mitigation. The lack of natural surface water on site led to the rejection of these plans. There was simply too much uncertainty about whether the proposed mitigation would actually result in wetlands. The conservation easement is no longer a benefit to GGS. Site visit in October 2010 confirmed this. The site is being farmed except for Badger Creek which dries up and is not connected to the known GGS habitat areas outside the property. This project has been removed from Table 2.

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Goose Lake Land Acquisition

Reclamation provided \$265,000 to the Tulare Basin Wildlife Partners in 2007 to appraise, negotiate and purchase a parcel of land in the Goose Lake Bottom area. Goose Lake is located between Wasco and Lost Hills in northwestern Kern County

With native vegetation cover in excess of 95%, the alkali grassland/alkali sink scrub in the project area are the best remaining examples of these habitat types in the southern San Joaquin Valley. The area is of great interest because of both its wetland and upland attributes. Throughout the area, native species are dominant and in some places no non-native species are visible. The habitat grades from alkali ponds and flats surrounded by moist alkali grasslands and flats. The alkali grasslands are dominated by saltgrass, alkali sacaton, creeping wild rye, and alkali heath. With a gain in elevation, the habitat changes to more xeric conditions featuring iodine bush and several species of atriplex.

Twenty-one special status species have been documented from the Semitropic USGS Quad of which this area forms a portion. All of these 21 species have been found on or near the Project area. These species are: southwestern pond turtle, blunt-nosed leopard lizard, Swainson's hawk, greater sandhill crane, Western snowy plover, burrowing owl, loggerhead shrike, Le Conte's thrasher, Buena Vista Lake shrew, San Joaquin antelope squirrel, Tipton kangaroo rat, San Joaquin pocket mouse, San Joaquin kit fox, Earlimart orache, Lost Hills crownscale, slough thistle, recurved larkspur, Kern mallow, alkali goldfields, Munz's tidy-tips, and San Joaquin woollythreads.

The exact acreage and associated special-status species will not be known until the parcel to be purchased is selected. Therefore, there is no acreage for this project in Table 2 or in all acreage totals for CPOU mitigation.

Twelve Grassland Projects

These twelve projects are located in the Grasslands area near Los Banos on private wetlands with federal easements (Service or National Resource Conservation Service). Together, these projects are improving 2,500 acres of seasonal wetlands and grasslands by improving water delivery. These projects benefit the GGS among other species. DU provided administrative services.

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The Duck Club Enhancement

Reclamation excavated a swale to facilitate water delivery and drainage of wetlands and installed of a 24-inch flashboard riser and pipe for a drain. This provided independent water delivery for the brood pond.

Double D Land and Cattle

This project repaired a dilapidated levee and removed an unnecessary interior levee. Three thousand feet of levee were strengthened and 1,600 feet of non-functioning levee were removed. This is restoring a more natural wetland community structure and provides more wetland habitat diversity on 520 acres in Merced County.

Frasher Farms Enhancement

This project in Merced County replaced eight non-functioning water control structures with pipe and excavated a series of drainage swales to enhance moist soil management capabilities. Spoil material from the swales was used to create several islands and strengthen existing levees. One pond was excavated and transformed into a brood pond with several islands.

Mar Land and Cattle

This project excavated of 7,574 feet of swales to enhance water delivery and drainage, removed of 3,500 feet of non-functioning levee, and lowered 3,500 feet of another levee to water level to function as a loafing and roosting bar. A new water delivery system was also excavated to allow management of moist soil plants. The result of this work was creation of a more diverse seasonal marsh complex by de-leveling individual marsh units and promoting a more diverse vegetative plant community.

Mesquite Sportsmen'S Club Enhancement

This project enhanced the water delivery and drainage on the property by replacing a damaged screw gate that impeded water delivery. A swale was extended to the Mesquite drain area, de-leveling the pond creating greater water depth and habitat diversity and improving drainage.

Oh-So-Hi Enhancement

This project installed of a 24-inch flashboard riser and pipe to allow independent management of wetland units. A series of swales were constructed to improve water management and increase topographic and vegetative diversity as well as improve water conveyance capabilities.

Pioneer Duck Club Enhancement

This project in Merced County excavated swales in two adjoining ponds to connect the water delivery inlet to the outlet of the main drain in order to efficiently drain the ponds to manage for moist soil plants and allow for efficient use of irrigation water.

Ramogni Land Company Enhancement

This project repaired several water control structures and created islands for greater habitat diversity for shorebirds and waterfowl.

Redfern Duck Club Enhancement

This project increased habitat diversity on the club by constructing a water conveyance swale and creating islands with the spoil material. A 24-inch flashboard riser was installed to deliver water to a brood pond and a levee in need of repair was strengthened.

Riverfield Cattle Company Enhancement

This project in Merced County restored the capacity of the club's main internal water delivery ditch. In addition, two slide gate structures used to convey and hold water between adjacent wetland units were replaced with a single concrete flashboard riser to improve water efficiency and allow for the management of water depths in individual units. This enhanced the ability to manage water for the purpose of irrigating moist soil vegetation and maintaining desirable water depths for foraging shorebirds and waterfowl.

Rooney Ranch Enhancement

This project excavated of brood pond basins in the west end of the club to provide more diversity

in water depths. In addition, 2,455 feet of a large (20-feet x 3.5 feet) levee and five smaller non-functioning rice levees were removed and two permanent levees were constructed.

South City Farms Enhancement

This project re-contoured an existing levee to prevent erosion, strengthening another levee in several places to prevent failure and cleaning out the main water delivery ditch in order to increase capacity.

Herbert Wetland Prairie Reserve

Reclamation provided \$125,000 in 2000 to the Sierra Los Tulares Land Trust (Trust) to assist in the purchase of the Herbert Wetland Prairie Preserve. The project is needed to protect the Property from development. The Tulare Lake Basin has experienced the largest loss of natural waterfowl habitat in the Central Valley. The Property is one of the few larger pieces of native habitat on the valley floor in Tulare County and the last unprotected remnant of vernal pool habitat in Tulare County.

The Trust is responsible for managing the Property in perpetuity. Management of the lands will continue in the future as they are now, at a minimum. Prior to purchase, they were simply grazed by cattle at light to moderate rates. The lands are also used for environmental education; this use may be expanded and enhanced through obtaining additional smaller grant funds, volunteers and partners. A management plan is being developed by a management committee from the Trust. It will be reviewed by a team from Reclamation, the Service, and DFG.

Purchasing the Property is Phase I of the long-term plans which the Trust is proposing for the Property. Phase II, not yet funded, would consist of enhancing existing drainages and habitats. Phase III, also not yet funded, would consist of restoring adjacent farmed lands.

The vernal pools are habitat for the threatened vernal pool fairy shrimp and potential habitat for the endangered San Joaquin kit fox. It is also a foraging area for the State-listed as threatened Swainson's hawk. It is habitat for the following species of concern: the Western spadefoot toad, white-faced ibis, white-tailed kite, long-billed curlew, tri-colored blackbird, and Western burrowing owl.

April 2003 update: The Sequoia Riverlands Trust (SRT) (formerly Sierra Los Tulares Land Trust) manages this property. SRT has prepared an adaptive-management plan for the entire Preserve and begun a habitat enhancement and restoration project on 83 acres. Both plans are based on an analysis of the historical plant communities and the original hydrology, and on a detailed soil survey. The management plan focuses on livestock grazing and prescribed fire as

the main management tools.

In the Fall of 2002, the 88 acre area was recontoured to establish mounds, seasonal wetlands (including vernal pools) and a channel to convey water and support ponds. Burrowing owl burrows were flagged to avoid channel construction. Oaks and other riparian vegetation will be planted along the channel to establish nesting habitat for Swainson's hawks and other wildlife. Remaining non-native vegetation in this area will be replaced by a mixture of native perennials and annual species.

February 2005 update:

Interim report (Kamansy, Hansen and Combs, 2004) provides revised measures of success and documents monitoring results. 83-acre former pasture converted into seasonal wetland. Irrigated pasture has been altered to mosaic of vegetation with more native species. High alkalinity in planned tree planting area would prevent successful planting; looking into another area for this. Swainson's hawk young fledged for 3 years in a row. Prescribed burning attracts Swainson's hawks. Increased stream channel and pond edge vegetation.

July 2005 Update:

Reclamation provided \$284,521 from the HRP to the SRT to establish a rotational system of prescribed burning and grazing in one area, continue vernal pool and native grassland restoration in another area, evaluate hydrology and soils, conduct trial plantings of native grass, monitor the effects of habitat restoration on special status species, and study the effects of prescribed burning and grazing.

January 2010 Update:

All but one section of fencing is complete. Restoration activities have continued with prescribed burns, regrading the land, clearing weeds, and planting native plants. Bird use is regularly monitored by Rob Hanson with cumulative data on 141 species. There has been an increase in breeding and diversity compared to pre-restoration conditions. Monitoring of Swainson's hawks has shown some increase in abundance compared to pre-restoration conditions.

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Howard Ranch

Reclamation provided \$300,000 in 1998 and 1999 to TNC for the acquisition of the 13,000-acre Howard Ranch. Securing this property protects wetland (including vernal pools), grassland, and valley-foothill hardwood habitat and benefits the federally-listed GGS, vernal pool fairy shrimp), vernal pool tadpole shrimp), and peregrine falcon. Species of concern associated with project area include slender orcutt grass, Sacramento orcutt grass, California tiger salamander, western pond turtle, Swainson's hawk, and sandhill crane. Acquiring this property and subsequently managing its natural resources also benefits migratory waterfowl, shorebirds, and neotropical species besides contributing toward the mitigation of impacts from loss, degradation, and fragmentation of these habitats associated with agricultural, industrial, and urban developments in the Sacramento Valley.

TNC currently holds an option to purchase Howard Ranch. The property will be held in fee title by TNC. TNC anticipates eventual transfer of the property for long-term management to a qualified public or private, non-profit entity. Conservation easements may also be placed on portions of the property.

A grassland and vernal pool ecosystem management plan for Howard Ranch will be developed in coordination with the other interested funding partners and implemented to benefit its native habitats and associated wildlife species. This management plan will be developed according to the TNC's Sacramento County Vernal Pool Protection Strategy. Although specific management components will not be developed until after close of escrow, TNC will continue to graze livestock on the property and permit appropriate passive recreational use. Vernal pool species will be monitored by TNC based on available funding, and grazing will be controlled near the vernal pools during critical periods of the year. Howard Ranch, besides future acquisitions by TNC within the watershed, will become part of TNC's Cosumnes River Preserve. TNC will be responsible for managing the property until it is sold to a private conservation buyer, or a qualified agency or organization.

Anticipated management components will be fencing, strategic placement of cattle-watering facilities where cattle will not damage the resources, grazing strategies to improve the biological resources, and wetland restoration activities.

Current monitoring is to assure vernal pool habitat quality and to study effects of grazing on vernal pools.

April 2010 Update:

Howard Ranch has been sold to a private individual with a conservation easement and right for public access. Livestock grazing continuing. Fencing has been completed. Hiking trails and bridges constructed. Trail opened in 2007 with access from trail from adjacent Rancho Seco

Lake. Public access is occurring on a 10-year trial basis to see if public hiking on the ranch is compatible with grazing. No dogs, bikes or motorized vehicles are allowed.

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Jensen Ranch

Reclamation provided \$200,000 in 1997 to the San Joaquin River Conservancy (SJRC), which holds title to the property and is responsible for management. Jensen Ranch is a 167-acre parcel located along the San Joaquin River in Fresno. It was grazed by livestock. The grazing area is dominated by non-native weedy species but it is immediately adjacent to a fenced, narrow riparian corridor owned by the State Lands Commission. Restoration opportunities include restoration to oak woodland, mesic riparian, native grassland and wetlands. It has suitable habitat for the VELB. Jensen Ranch is part of a 22-mile river restoration area beginning just below Friant Dam, as part of the San Joaquin River Parkway Plan.

2001 Update:

Pasture is still being leased out for grazing. The ranch is being managed by periodic clean-ups of the river bottom and invasive weed removal. The trail has been connected to the road, and intermittent public access to the ranch is now available. No other management or monitoring is currently done. The Trust has approved for release for public review the *Draft Conceptual Plan for Habitat Enhancement and Public Access of Jensen Ranch* (January 2001).

Alternative 1 of the Plan (the recommended alternative) would reshape a channel to mimic old river oxbows. These new features would maintain the current settling of the channel while using the storm water runoff to support new mixed riparian and wetland habitats. This alternative expands riparian habitat along the existing floodplain terrace adjacent to the river and establishes valley oak/sycamore woodland and valley oak savanna habitats.

Alternative 2 reshapes the channel into gentle meander and incorporates mixed riparian habitat

along its perimeter. It expands and establishes habitats similar to Alternative 1.

Alternative 3 significantly alters the existing land form through mining subsurface sand and gravel to create an active river floodplain across most of the site. Stockpiled top soil would create a backwater slough. This alternative creates the most mixed riparian habitat but delays restoration for at least 10 years, when mining will be complete.

February 2005 Update:

Ten elderberry shrubs were identified in the Jensen River Ranch property. Biological Assessment developed by Jones and Stokes. Three hundred and forty-six stems that were 1-inch in diameter or greater were identified and can be considered possible habitat for the VELB. Three shrubs are located along an existing farm road on the property (Jones and Stokes, 2002).

The existing elderberry shrubs will be protected by the revegetation project on the Jensen property. A buffer zone of at least 20 feet and up to 100 feet will be implemented during the construction phase of the project according to the biological assessment. The shrubs will further be protected post-construction since the farm road will no longer be used and the public access trail being constructed will avoid the elderberries by at least 100 feet.

A revegetation plan for the site is being developed and still in the early stages making it difficult to predict how many and where any additional elderberries might be planted. Construction expected in late 2005.

March 2010 Update

Construction began in 2006. Waiting for update from SJRC.

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Revegetation plan:
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Joseph Gallo Farms Seasonal Wetland Restoration

Reclamation provided funding to DU for this project in Merced County. Seasonal wetland swales were created to move flood and late season water through the Gallo Complex in the historical Bear Creek floodplain. Pools with protective berms were also constructed. Nine water control structures were installed to provide water management. The forested wetland was planted with native riparian vegetation during mid-winter. The project added 320 acres of wetlands and

associated upland habitat and 40 acres of cottonwood and willow dominated wetland/riparian habitat to the Gallo properties, thus providing diversity in the Gallo wetland/agricultural complex. Waterfowl, shorebirds, wading birds, Neotropical migratory and resident songbirds, GGS and other wildlife will benefit from this project.

Kerry-Su Restoration

Reclamation provided funding to DU for this project in Merced County. This 1,393-acre site had been converted from seasonal wetlands to agricultural crop production. This project restored the site to a complex of 1,028 acres of emergent wetland habitat and 375 acres of upland habitat and provided linkage to the surrounding wetlands in the Grasslands Ecological Area. Contouring converted the cropland into wetlands by producing shallow basins as well as uplands, thus benefiting northern pintail, green-winged teal, white-faced ibis, black-necked stilt, western sandpipers, and GGS. Water control structures were installed in the individual wetland basins to properly convey water throughout the property and maintain ideal water levels for use by water birds. A lift pump was installed to distribute excess tail waters from an adjoining property to areas of the project site not covered by the Grasslands Water District or Grasslands Resource Conservation District. Upland restoration consisted of preparing the ground for seeding, broadcast seeding a grass mixture and conducting finish work to better promote seed germination. Upland habitat benefits the Fresno kangaroo rat and the San Joaquin kit fox.

Land Retirement Demonstration Project

As explained in more detail in Chapter 2, the Land Retirement Demonstration Project (LRDP) is a project created to examine the effects of treatment of agricultural land characterized by high selenium levels in soils and shallow groundwater. Results will be used to implement the full-scale federal Land Retirement Program (LRP).

Concerns about the unknown physical and biotic effects of land retirement on a large scale led to establishing a 5-year demonstration project. An environmental assessment on the LRP was completed and a finding of no significant impact was signed in November 1999.

15,000 acres were originally planned on being acquired. Approximately 7,000 acres were to be retired in western Fresno County in Westlands Water District (WWD). Reclamation has so far purchased about 2,090 acres in WWD (Tranquility site). WWD has retired more than 70,000 acres on their own and, due to this large amount, Reclamation will not purchase any more land in WWD. Over the course of the 5-year LRDP, a variety of restoration and management activities were initiated on retired lands. Some acreage was part of restoration-related experiments, some underwent active restoration, and other lands were in some form of wildlife-friendly land management.

In 1999, the Demonstration Project Habitat Restoration study plots were laid out on 800 acres of the 2,090 acres acquired in Fresno County. The Atwell Island project site began in the fall of 2001. At both study sites four treatments were replicated five times in a randomized block design. The treatments consisted of: seeding and planting of native plants; installing earthen berms to create micro- topographic contours; seeding and planting native species and installing contours; and control. Each 10-acre plot is located in the center of a 40-acre block with the 30-acre remainder buffer planted in barley to isolate the plots. At Atwell Island, plot size was reduced to 2.5 acres within 10-acre plots.

Data collected includes percent plant cover, productivity, survivorship, invertebrate species richness and abundance, and reptile species richness and abundance. Additional data are collected to examine winter raptor use and the presence of other wildlife species. Tissue samples are taken and analyzed to estimate the potential amount of bioaccumulation of contaminants, notably selenium, throughout the site. This contaminant level are used to determine if further investigation is necessary to evaluate the effects of land restoration on the abundance, diversity and health of wildlife using the restored habitat.

Preliminary results from 1999-2002 at the Tranquillity Demonstration Project site support the concept of a declining shallow groundwater table in response to land retirement. The shallow groundwater beneath the project sites consists of highly saline water with high concentrations of selenium and boron. Soils consist primarily of poorly drained clays and loams with elevated levels of salt, selenium and boron when compared to other soils in the San Joaquin Valley.

Land retirement has led to increased abundance and diversity of wildlife. Increased invertebrate species and abundance have included parasites and predators of agricultural pests as well as beneficial pollinators. Bird species diversity and abundance increased across all treatments immediately following restoration efforts and included special status species. Land retirement has not resulted in increased levels of bio-accumulated selenium. Selenium concentrations in vegetation, invertebrates and mammals have not changed significantly over the study period to date. All selenium levels measured are considered below concentrations of concern to EPA and the Service at both study sites.

Despite the obstacles of restoring retired agricultural lands, localized areas have responded well to the re-introduction of native vegetation. At the Westlands site, results indicate that seeding by imprinting is a successful and cost-effective method of planting a variety of native plant species. At the Atwell Island site, hedgerows with native plant species have been established. *A palate of San Joaquin Valley wildlife species, including a kit fox, has been observed using the hedgerows just established in January 2003.*

As of June 2005, 2,090 acres had been acquired in western Fresno county in WWD (Tranquillity site) and 6,965.35 acres had been purchased in Kings and Tulare Counties

(Atwell Island site).

The WWD site was previously farmed until purchased.

The Alpaugh site was previously farmed but has not been cultivated since 1988. The land has not been leveled unlike other parcels of farmed land. The property is unique in that it is located at the southern extreme of the historic Tulare Lake freshwater marsh. The land is traversed by a ridge of sand that was probably an island or formed a shore of the lake. The plants are mostly weeds, annual grassland species, and a wetland area. A preliminary biological survey in 1988 found the following sensitive species: white-faced ibis, tricolored blackbird, burrowing owl, western snowy plover, San Joaquin pocket mouse, American badger, coachwhip and Western spadefoot toad. The blunt-nosed leopard lizard, San Joaquin kit fox, Tipton kangaroo rat and several rare plants occurred before cultivation.

Fiscal Year 2004 Restoration Efforts & Site Management:

1. The San Joaquin Valley native plant nursery at Tranquility expanded to 5 acres and increased from 34 to 64 species (13 shrubs, 30 annual herbs, 19 perennial herbs, 2 perennial grasses). Collections of 91 species from 78 locations were made on 314 collecting trips. Additionally, 8 species were established in 0.5 acre plots using mechanized production and harvesting methods. Mechanized seed cleaning equipment was purchased and operations established. Large quantities of seed were collected under contracts. An established 1.5 acre contract grow-out area for Alkali Sacaton and Indian Rice Grass continued.
2. Research on seed delivery, plant propagation, and seed production methods continued with the USDA Plant Material Center in Lockeford, CA. Seed augmentation of three targeted species will be done in FY 2005.
3. Restoration and site management activities at both sites were accomplished with cooperating farmers. Barley was planted at Tranquillity on 600 acres in buffers that isolate the study plots from one another, inhibit the establishment of weeds, and reduce erosion and dust. Additionally, barley was planted on 120 acres that was previously used as research trials, so that new trials can be installed in FY 2005. On 80 acres, a new cultivar of barley (UC937) was planted that U.C. Davis developed for use on high saline soils.
4. At Atwell Island, 32 miles (80 acres) of hedgerows were established with native shrubs. On 20 acres of range land, seeding occurred after treatment with propane flamer. Iodine bush was seeded on 7 acres of a sump (former evaporation pond). A mix of native annuals and perennials was planted on an additional 20 acres. A hydro-planter installed 100 tree cuttings in riparian-canal areas along with 25 potted trees and shrubs.
5. At Atwell Island a diversified upland habitat unit was established as a wildlife farming

demonstration area with 15 acres of native shrub plantings interspersed with 20 acres of crops, 5 acres each of vetch, milo maze, wheat, and safflower. The results of this wildlife habitat planting laid the groundwork for a Cooperative Agreement with the Westside Resource Conservation District to implement five units in Fresno County in FY 2005.

6. The existing 20 acres wetland at Atwell Island was managed for wintering waterfowl. Cooperation with the Natural Resources Conservation Service (NRCS) of Visalia led to establishment of a wetland for breeding season waterfowl and shorebirds on an adjacent 10 acres.

The LRP will acquire approximately 900 acres remaining in the demonstration project area in FY 2005 and/or FY2006. The LRP will complete studies in the Tranquillity site in FY 2005 and in the Aspaugh site in three years.

Detailed information is provided in the Final Environmental Assessment, Central Valley Project Improvement Act Land Retirement Program Demonstration Project (Bureau of Reclamation, November 1999).

February 2005 Update:

On Atwell Island: 80 acres of hedgerows were established with native shrubs. Iodine bush was seeded on 7 acres. Native annuals and perennials were planted on 20 acres. 100 tree cuttings and 25 potted trees and shrubs were installed in riparian-canal areas. Various San Joaquin Valley wildlife species, including a kit fox, were observed using the hedgerows.

Data continues to be gathered on experimental plots to determine the effects of habitat restoration on wildlife. Native plant nursery has been established.

2009 Update:

A. Land Acquisitions in FY 2009. Land acquisition at Atwell Island focused on the inclusions within the project area. Appraisals were requested for 200 acres of land. Offers on these parcels are pending as of this date. Willing sellers have been identified for an additional 280 acres and preliminary work on those parcels is in progress. 9,306 acres have been acquired to date for the Land Retirement Demonstration Project at both the Tranquillity and Atwell Island Project Sites in Fresno, Kings and Tulare Counties.

B. Restoration accomplishments for FY 2009. Successful habitat restoration techniques have been developed at the Atwell Island project site. In 2009, 400 acres were planted with seeds of local desert adapted native plants for a total of 3,085 restored acres to date. A good response of annual flora was observed at the restoration sites in the spring of 2009. Approximately 2,400 linear feet of canal bank was also planted with perennial native grasses, shrubs, and trees. A contract was awarded for collection of seed from native plants in the

project vicinity. A contract was also awarded to grow out several species that are rare in the wild. Past wildlife surveys at the site have resulted in important findings of populations of endangered *Tipton kangaroo rat*, *burrowing owls*, *coast horned lizards*, *San Joaquin Valley coachwhips*, *Swainson's hawks* and a sensitive plant, *Hoover's woolly star*. The Atwell Island wildlife sighting database now contains over 18,000 field observations. BLM has developed plant and animal species lists and a photo-illustrated flora documentation for the Atwell Island project area.

C. Reports in FY 2009. A draft report documenting five years of physical and biological monitoring at the Atwell Island Demonstration Project was completed. Selenium toxicity to wildlife was a concern on drainage impaired farmlands retired from irrigated agriculture in the San Joaquin Valley. Water, soil, and biota monitored on LRDP lands comply with the Service's Biological Opinion requirements. Monitoring results are used to inform decisions regarding large scale land retirement as a means to address agricultural drainage problems in the San Joaquin Valley. Complete restoration to upland habitats found in the San Joaquin Valley could take many years to achieve, but the program's work has restored portions of the land and continues to adapt techniques to achieve desired habitat values. Information is available on the CVPIA Land Retirement website at www.usbr.gov/mp/cvpia/3408h/index.html. BLM also completed a draft of a Business Plan and a Long-term Management Plan and have begun work on a report detailing the results of nine years of restoration work on the site.

D. Partnerships in FY 2009. Due to the funding limits for this program, developing partnerships with farmers, non-governmental organizations (NGO), other agencies and educational groups has been pursued from the beginning of the Land Retirement Program. A partnership with the Westside Resource Conservation District has enabled wildlife units to be planted on the Tranquillity Site. Critical to the success of the restoration activities at Atwell Island was the partnership BLM developed with cooperating farmers to carry out restoration activities. Other efforts by BLM and the Service centered on the continued efforts with the Tulare Lake Basin Working Group and the assistance provided to help establish Tulare Basin Wildlife Partners, an NGO which will be a cooperator on the project. A partnership with NRCS is instrumental in establishing adjacent wetland habitat in the former Ton Tache basin. BLM's community partnerships included the Tulare County Audubon Society; Alpaugh School District; Citizens for a Better Alpaugh; California State Park – Allensworth State Historic Park; NRCS; U.S. Forest Service (Trails Unlimited); AmeriCorp National Civilian Community Corps, AmeriCorp Vista, and the Kern National Wildlife Refuge.

February 2010 Update:

Land retirement has led to increased diversity of wildlife. Bird species diversity and abundance increased across all treatments immediately following restoration efforts and included special status species. Selenium in the top foot of soil decreased over 5 years.

At Atwell Island where BLM has done restoration activities, a number of sensitive San Joaquin Valley wildlife species, including kit fox, loggerhead shrikes, burrowing owls and Tipton kangaroo rats have been observed using these restored areas. At Tranquillity, the San Joaquin Valley Native Plant Nursery has over 100 species to amplify limited San Joaquin Valley native seed stock, help determine species for restoration strategies and cost efficient cultivation. The NRCS Plant Materials Center did research to grow some of these with mechanical means. Additional trials focused on weed competition control, the major challenge in successful upland habitat restoration.

Reclamation is currently planning on finishing the restoration work and all land acquisition for the Atwell Island Project in 2014.

Habitat Types to Be Restored for the Demonstration Project

All of the 2090 acres at Tranquillity will be restored to alkali scrub. At the 7,216 acre Atwell Island site, approximately 70% will be uplands (60% alkali scrub and 40 percent grasslands), 20% for flood management, 5 % riparian, and 5% farming.

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Llano Seco Ranch Bedrock & 80-90 Fields – Habitat Restoration for Special Status Species; Vernal Pool Restoration at Sacramento River National Wildlife Refuge and Colusa National Wildlife Refuge

Reclamation provided \$294,112 from the CVPCP (out of total of \$324,931) in 2007 to DU for restoring wetlands, uplands, and vernal pools at the Llano Seco Ranch, the Sacramento River National Wildlife Refuge (SRNWR), and the Colusa National Wildlife Refuge (CNWR). All of these areas are in Butte County.

The Bedrock Fields and 80-90 Fields projects would restore 202 acres of CVP high-priority habitats, including 102 acres of seasonal wetlands, 34 acres of semi-permanent/permanent wetlands, 34 acres of native grassland, and 32 acres of native grassland/valley oak savanna. Project work would improve habitat conditions for 25 CVP high-priority species and increase the efficiency of water use on 136 acres of high-priority wetlands.

The Bedrock Fields and 80-90 Fields projects would benefit seven CVP priority species that

are federally listed or state listed as rare, threatened or endangered or are candidates for federal listing. These are GGS, VELB, and western yellow-billed cuckoo, willow flycatcher, American peregrine falcon, Swainson's hawk, and greater sandhill crane.

The Bedrock Fields and 80-90 Fields projects would also benefit 20 species that are federal and/or state species of concern. Three of these species are also state listed as endangered or threatened and were discussed above (i.e., American peregrine falcon, Swainson's hawk, and greater sandhill crane). Other target species that are known to occur on or near Bedrock or 80-90 Fields, that are federal species of concern and California special concern species, and that would benefit from this project include northwestern pond turtle, burrowing owl, white-faced ibis, long-billed curlew, loggerhead shrike, tricolored blackbird, Townsend's western big-eared bat, and western mastiff bat. Other target species that are known to occur on or near Bedrock or 80-90 Fields, that are federal species of concern, and that would benefit from this project include white-tailed kite, American bittern, Lewis' woodpecker, oak titmouse, and Yuma myotis. Other target species that are known to occur on or near Bedrock or 80-90 Fields, that are California special concern species, and that would benefit from this project include northern harrier, Cooper's hawk, sharp-shinned hawk, and yellow warbler.

The Llano Seco Tract 17 project at SRNWR would enhance 125 acres of wetland and vernal flooded habitat for numerous wetland dependant species by changing hydrology and constructing up to 6 vernal pools. The vernal pool fairy shrimp and California fairy shrimp may colonize the new pools from adjacent existing pools. Migratory birds would benefit by increased habitat diversity.

The CNWR tract project would restore 32 acres of vernal pool habitat with the potential for supporting the vernal pool tadpole shrimp and the fairy shrimp. The project would also provide a greater diversity of elevations and slopes for potential western pond turtle nests and burrowing owls. Shorebird, waterfowl, and amphibian use would increase, also increasing prey for raptors.

Llano Seco Unit of Sacramento River National Wildlife Refuge Restoration

FWS through the HRP provided \$383,716 in 2000-2002 to River Partners to restore 206 acres grassland and riparian habitat at Tract 4 and Tract 8 units of the Llano Seco ranch portion of the Sacramento River National Wildlife Refuge in Colusa County. Native trees, shrubs, and grasses were planted in the Sacramento River floodplain. The purpose was to convert agricultural fields back into riparian forests, wetland and grasslands to benefit native species including the VELB, bald eagle, GGS, Chinook salmon, California red-legged frog and Swainson's Hawk.

Contact:

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Merced National Wildlife Refuge - Meadowlark Unit Restoration

This project restored riparian habitat within the 35-acre Meadowlark Trail Unit of the Merced NWR. One thousand cottonwood and willow cuttings were collected on the refuge and planted in tubex protectors. Five hundred native shrubs (buttonwillow, elderberry, coyote bush, quail bush and California rose) were purchased from the Modesto Junior College nursery and planted with protectors. Fifty valley oaks were locally propagated and donated by Robert Edminster were also planted with protectors. In addition, 15 acres of upland were planted with creeping wild rye using a native plant drill. These plantings occurred between January and April of 2000. The newly planted trees and shrubs were irrigated from May to September of 2000 and a first year survival check was done in August. This project is expected to produce usable habitat for riparian associated wildlife in three to four years. Over the long-term, the mix of mature trees and shrubs will provide habitat for breeding and migrating Neotropical migratory birds (including the Federally endangered least Bell's vireo and State endangered yellow-billed cuckoo), nesting and roosting sites for raptors, rookery sites for herons and egrets, and dense understory vegetation for ground nesting birds and other wildlife. The elderberry shrub component will provide breeding habitat for Federally threatened VELB. Plant survival monitoring will be conducted in the summer of 2001 and bird use monitoring is scheduled for the summer of 2002.

February 2005 Update:

The Service said that the wetland planting have been very successful and they have had to thin the cattails.

Contact:

Dennis Whittington, Service, Merced NWR, 209 826 3508.

Ohm Riparian Restoration

Reclamation provided \$62,000 in 2005 to TNC for the final year of their restoration of 206 acres along the Sacramento River on the Ohm Unit of the Sacramento River National Wildlife Refuge in Tehama County. The restoration benefits the VELB and the bald eagle.

Pixley NWR Land Acquisition

Reclamation provided \$425,942 in 2006 to the FWS to acquire either in fee title or perpetual

conservation easement approximately 162 acres within the current approved boundary of Pixley NWR and approximately 50 acres to potentially expand the Little Deer Creek unit of Pixley NWR in Tulare County.

The purpose of the action is to expand Pixley NWR to provide additional permanent protection of habitat for San Joaquin kit fox, blunt-nosed leopard lizard, Tipton kangaroo rat, and several unique invertebrate species.

The primary plant community on the proposed acquisition is a mix of native and non-native grasses, characteristic of California annual grassland .

There are survey grids on adjacent NWR lands which have documented a healthy population of blunt-nosed leopard lizards. Tipton kangaroo rats and San Joaquin kit fox have been documented on portions of the nearby DFG Ecological Area.

Protection of the above lands would prevent any possible development for homes or crops and preserve the habitat for the above species in perpetuity. Another important purpose is to provide an essential habitat linkage between two existing natural areas.

March 2010 Update:

The total acreage is actually 188 acres. The second area was just recently acquired with escrow just closing. No detailed monitoring yet although a former house site was cleaned up. The refuge assumes that the above species inhabit the properties since the habitat is there. Grazing will be managed similarly to the current management strategy at the existing Pixley lands.

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Prospect Island

Reclamation purchased Prospect Island in 1995 via the Central Valley Project Improvement Act. Prospect Island is located in the northwestern part of the Sacramento - San Joaquin River Delta about 6 miles north of Rio Vista and 20 miles south of Sacramento. It is located in Solano County, CA. The entire island is about 1600 acres. The study area is about 1300 acres. The Army Corps of Engineers and DWR would have constructed the restoration of wetlands and fish

habitat and the Service would have operate Prospect Island as part of its North Delta Refuge Unit.

The purpose of this project was to provide rearing habitat for endangered winter-run chinook salmon and other anadromous fish, spawning and rearing habitat for Delta smelt and proposed Sacramento splittail, habitat for waterfowl and shorebirds on the Pacific Flyway and to provide high quality riparian, shaded riverine aquatic, wetland mudflat, emergent marsh, upland and shallow water habitat for a wide variety of aquatic, avian, and terrestrial species, including the Swainson's hawk and VELB.

Farming operations stopped in 1995. The project was to restore about 1300 acres, including 62 acres of riparian (in addition to the existing 22 acres of riparian), 503 acres of tidal marsh, 594 acres of tidal open water, 54 acres of mudflat 45 acres of upland habitat, 18 acres of shaded riverine aquatic habitat and 15 acres of bare ground.

DWR developed a proposed Prospect Island Monitoring Plan in 1999 to systematically measure progress towards the project's habitat objectives.

January 2004 Update: DWR did not come up with their share of the funds for the project, so habitat restoration and management will not occur. There will be no enhancement of special status species habitat. The Federal Government is in the process of selling the island.

March 2010 Update:

Reclamation turned ownership of Prospect Island to the State of California in January 2010 at no cost to the State. This will still be considered a Reclamation mitigation project for CPOU since Reclamation provided all the funding for the purchase.

Rickert Ranch

Reclamation is providing \$959,000 (\$544,000 from the CVPCP and \$415,000 from the HRP) in 2009 to the Shasta Land Trust (SLT) for the acquisition of a conservation easement on the approximately 5,085-acre Rickert Ranch. The total cost of the acquisition from all sources is \$2,468,000.

Rickert Ranch is located approximately 15 miles east of Redding in Shasta County, California. The property is composed of two separate blocks located just east of the town of Bella Vista south of Highway 299 along Little Cow Creek and on the Swede Creek Plains. The "Wilsey Parcel" is an isolated section in the northern part of the ranch and the balance is a contiguous property. Collectively it is known as the Rickert Brothers Ranch.

This acquisition will permanently protect the natural resource and agricultural values of the Rickert Ranch property through the purchase of a conservation easement. With approximately 8.5 miles of creek frontage along the Little Cow, French and Swede Creeks and undisturbed oak woodlands, the ranch contains varied and diverse habitats and wildlife. Conservatively estimated, the property has over 600 acres of vernal pools and swales.

The Cow Creek Watershed Assessment of 2001 identified several special status wildlife and plant species known or suspected to occur in the Cow Creek Watershed including: Vernal Pool Fairy Shrimp, Vernal Pool Tadpole Shrimp, California Red-legged Frog, VELB, Slender Orcutt Grass, red-tailed hawk, northwestern pond turtle, and several other bird, amphibian, reptile and mammal species. There is a high probability that many of these species are also present on the Rickert Ranch property.

The property was appraised in November 2009, and the appraisal has been reviewed and approved by the federal Appraisal Services Directorate. Prior to acquisition, the SLT will develop a Baseline Conditions Report describing the habitat conditions and species occurrences on the site. Closing on the conservation easement acquisition is expected to occur in Spring 2010. Once acquired, SLT will implement a comprehensive monitoring program to ensure that wildlife, plant, riparian, cultural and scenic resources are adequately protected.

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Romero and Simon Newman Ranches

The Service and Reclamation contributed \$1,800,000 in 1998 and 1999 to TNC for the acquisition of these two parcels totaling 61,030 acres. Securing this property is protecting riparian, wetland, grassland, chaparral, and valley-foothill hardwood habitat for the benefit of the federally listed San Joaquin kit fox, California red-legged frog, and potentially the blunt-nosed leopard lizard. Acquisition of this property and subsequent management for its natural resources also benefits migratory raptors and neotropical species in addition to contributing towards the mitigation of impacts from loss, degradation, and fragmentation of these habitats associated with agricultural, industrial, and urban developments in the San Joaquin Valley.

TNC intends to eventually sell the property to a private conservation buyer, subject to a conservation easement over the ecologically sensitive portions of the property to protect the natural habitat resources. The easement may be held by TNC or transferred to another appropriate public agency or private organization. In addition, or alternatively, easement or fee

interest over portions of the property may be sold to a qualified agency or organization.

Specific management requirements for the ranches will be developed subsequent to close of escrow. Although the land will be managed for its natural resources, specific actions to be implemented may be determined by the future owners and whether they own the property in fee title or hold a conservation easement on a portion of the property. Potential management actions may include fencing all or portions of the riparian corridors to restrict grazing, installation of supplemental livestock watering sources, habitat improvement around some of the lakes, and a complete biological resource survey of the property. The Service and TNC will coordinate in the development of a management plan for the property. TNC will be responsible for managing the property until it is sold to a private conservation buyer, or a qualified agency or organization.

2001 Update: In 2001, Reclamation provided \$65,000 to TNC to complete fencing along Orestimba Creek on the Simon-Newman Ranch, part of the Diablo Range Wildlife Management Area. Reclamation also provided \$110,000 to TNC to complete fencing along Romero Creek on the Romero Ranch. The fencing would exclude cattle from the riparian area to promote regeneration of sycamore alluvial woodland and restore and protect habitat for many listed and sensitive species.

March 2010 Update: Romero property has been sold with a conservation easement. The Simon Newman property has been leased for restricted grazing. The fencing has been installed. Grazing is restricted seasonally in some areas and excluded permanently in the fenced riparian areas. There has been good recovery of cottonwoods, willows, and sycamores. Sensitive species have been surveyed:

Simon Newman Ranch

California tiger salamanders occur in several ponds in the northeastern portion of the ranch. Vernal pool fairy shrimp are also known from small temporary water depressions (mostly artificial) in the same general area. Western spadefoot toads (*Spea hammondi*) have been found in a few of the stock ponds, and tadpoles have been observed in both Orestimba and Garzas Creeks. Foothill yellow-leg frogs do not normally occur on the ranch, but do move onto the property from the upper watershed and breed in Orestimba Creek in large numbers during especially wet years. Western pond turtles are common in Orestimba and Garzas creeks. San Joaquin Kit fox were known historically at the ranch, but probably now just use it as a movement corridor to get between northern and southern populations. Burrowing owls are common in the eastern grasslands. California red-legged frogs have not been found on the property.

Romero Ranch

California red-legged frog are abundant in stock ponds throughout the ranch, and have also been observed in Romero Creek. Western pond turtles are common in stock ponds and Romero creek. San Joaquin Kit fox were known historically at the ranch, and probably still inhabit the property. Burrowing owls are present in the eastern grasslands. California tiger salamander, foothill yellow-legged frog, western spadefoot toad, and vernal pool fairy shrimp have not been found on

the property.

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The Nature Conservancy
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Sacramento National Wildlife Refuge, Tracts G and H – Restoration of Priority Wetlands

Reclamation provided \$294,887 from the Habitat Restoration Program (HRP) in 2006 to DU to help restore 7 acres of vernal pools and 424 acres of vernal pool-alkali meadow complexes on Tracts G and H at Sacramento NWR. The project is located in Glenn County, approximately 4.3 miles south of Willows, California and immediately east of Interstate Highway 5.

Tracts G and H received substantial runoff from sources both on and off the refuge. Ditches that are present north and east of the tracts may previously have moved water around the tracts. However, these ditches and their associated water control structures were degraded and water from these ditches spreaded across large portions of the tracts.

Work would include collecting some additional topographic survey data, particularly for those areas where fill material would be obtained (e.g., Refuge Gun Club and Tract F); preparing the construction sites (e.g., vegetation stripping); rebuilding sections of existing canals and levees; constructing new canals and levees; removing existing water control structures that are no longer functional; installing new water control structures; and placing rock for erosion protection

Listed species that are known to occur on or near Tracts G and H and that would benefit from this project include Hoover's spurge, palmate-bracted bird's beak, hairy orcutt grass, Greene's tuctoria, GGS, bald eagle, vernal pool tadpole shrimp, vernal pool fairy shrimp, and Conservancy fairy shrimp. Palmate-bracted bird's beak, hairy orcutt grass, Greene's tuctoria, vernal pool tadpole shrimp, and Conservancy fairy shrimp are federally listed as endangered. Palmate-bracted bird's beak and hairy orcutt grass are also state listed as endangered and Greene's tuctoria is also state listed as rare. Hoover's spurge, GGS, bald eagle, and vernal pool fairy shrimp are federally listed as threatened. The bald eagle is also state listed as endangered and the GGS is also state listed as threatened. The largest subpopulation of the state and federally threatened GGS occurs in the Sacramento NWR Complex's managed wetlands and water

conveyance systems. An additional species that is state listed as threatened, the Swainson's hawk, would also benefit from the proposed project. This species is also a federal species of concern. In addition to the Swainson's hawk, the proposed project would benefit 10 other species that are federal and/or state species of concern.

San Joaquin River National Wildlife Refuge Riparian Restoration on the Arambel Unit

Reclamation provided \$499,176 (\$299,176 from the CVPCP and \$200,000 from the Habitat HRP) to River Partners to help restore 223 acres of high quality riparian habitat on the Arambel Unit of the San Joaquin River NWR. Reclamation funds will be used for enhancement of field A2 (73 acres) and restoration of a portion of field A1 (148 acres).

The project is located on the 3,166-acre West Unit of the Refuge, managed by the Service. The West Unit is located on the west bank of the San Joaquin River (between River Mile 78 and 88), approximately 12 miles west of Modesto, California in Stanislaus County.

Field A1 – River Partners would plant three plant community types: flood-tolerant riparian, great oak riparian, and willow-buttobush complex.

Field A2 - Enhancement work would consist of establishing herbaceous vegetation (grasses and sedges) within suitable sites, and controlling non-native vegetation.

This action would help restore riparian habitat at the refuge to provide habitat for Federal and State-listed endangered species including the Riparian brush rabbit, Riparian woodrat, Least Bell's Vireo, and VELB, and benefit other wildlife species and increase the connectivity of the project area to existing riparian habitat (decrease fragmentation) and current restoration efforts.

January 2010 Update: River Partners has constructed irrigation dams, controlled weeds, prepared area for seeding, sprayed and disced the area and planted seeds.

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San Joaquin River National Wildlife Refuge Riparian Restoration on the Hagemann Unit

Reclamation provided \$250,000 (out of a total of \$645,000) from the HRP in 2007 to River Partners to help restore riparian habitat on 117 acres on the Hagemann Unit of the San Joaquin River NWR.

The proposed project area currently consists of weed-dominated, abandoned agricultural fields, which provide poor habitat for targeted wildlife species. Mature riparian communities occur only along the San Joaquin River and its old river channel.

The project will convert fallow, weedy farmland into a complex matrix of trees, shrubs, vines, and herbaceous plants. The project will contain more than 20 plant species that will be planted to maximize the habitat potential for the project.

The site is strategically located near the Endangered Species Recovery Program's riparian brush rabbit reintroduction program, documented presence of the riparian woodrat, a successful nesting location of the Least Bell's Vireo, and a restoration project where more than 32,000 elderberries were planted to target the VELB. Restored, this unit will provide critical habitat for high priority, riparian-dependent species. The project capitalizes on previous efforts and connects large areas of habitat and creates wildlife corridors. River Partners recently completed more than 800 acres of riparian habitat restoration and is currently restoring 500 additional acres of wetland and riparian habitat. The Service is restoring over 400 acres of seasonal and permanent wetlands on adjoining parcels.

Due to its strategic location, a great diversity of native wildlife should benefit from the restoration of the Refuge unit, including terrestrial and aquatic species, and threatened and endangered species. The restored mixed riparian forest should provide important habitat for, neotropical migratory birds and a number of other animal species including the VELB, least Bell's vireo, riparian brush rabbit, and riparian woodrat, as well as many other species.

San Joaquin River National Wildlife Refuge Riparian Restoration for Riparian Brush Rabbit Refugia

Reclamation is providing \$206,249 in 2010 from the HRP to River Partners to vegetate 3.6 miles (17.5 acres) of denuded levee sides on the San Joaquin River NWR. Additional funding in future years could vegetate 4.5 acres of fallowed farm fields, and enhance 25.1 acres of cottonwood riparian forest. This project builds on the successes of prior restoration efforts to restore essential native vegetation habitat corridors and upland refugia for riparian brush rabbit (*Sylvilagus bachmani riparius* or RBR) and other terrestrial species.

The purpose of the action is to restore native vegetation on uplands at SJRNWR to provide habitat for priority species, including riparian brush rabbit and riparian woodrat. Other endangered, threatened, or special status species that would benefit from this project include valley elderberry longhorn beetle, Swainson's hawk, least Bell's vireo, and various Neotropical

migratory songbird species.

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San Joaquin River National Wildlife Refuge Riparian Restoration at the West Unit 2006

Reclamation provided \$238,958 from the HRP in 2006 to River Partners to restore and enhance 300 acres of riparian habitat at the West Unit of the San Joaquin River National Wildlife Refuge (SJRNWR). The Wildlife Conservation Board and the Service provided \$742,324. The restoration site is located on the west bank of the San Joaquin River, just south of Highway 132 in Stanislaus County. River Partners is a non-profit conservation organization that has been working with the Service and others to protect and restore riparian habitat.

The purpose of the action is to restore riparian habitat at the SJRNWR to provide habitat for Federal- and State-listed species including the riparian brush rabbit, riparian woodrat, Least Bell's Vireo, and VELB, and to benefit other wildlife species. It would increase the connectivity of the project area to existing riparian habitat (decrease fragmentation) and current restoration efforts.

Before planting, the project area consisted of weed-dominated, abandoned agricultural fields, which provide poor habitat for targeted wildlife species.

Planting occurred in fall 2006 and spring 2007. Field operations would be completed by fall 2009.

Santa Cruz Land and Cattle

Reclamation provided funding to DU to enhance seasonal and semi-permanent wetlands on this 1,440-acre club in the south Grasslands in Merced County. This is expected to benefit waterfowl, wading birds, shorebirds, raptors, lesser nighthawk and GGSs by increasing the

amount and diversity of seasonal wetland habitat and restoring 76 acres of semi-permanent wetland habitat. Prior to the enhancement, about 30% of the property was unable to be drained and concentrated salts had reduced the quality of the area. The project consisted of constructing drainage channels, building and rebuilding levees, excavating water distribution channels, cleaning an existing ditch and installing 20 water control structures. Over 45,000 feet of water distribution channels were excavated to allow proper drainage to maximize moist soil plant growth.

Approximately 6,000 feet of new or rebuilt levee were constructed. A new 4,000-foot internal delivery ditch was constructed allowing the club to utilize a new water source for the north end of the property and deliver water to the brood ponds. Numerous water control structures were replaced on all areas of construction. The club was flooded in early October of 1999 and constructed ditches, levees and water control structures functioned properly. This new water control scheme will allow the club to optimize water use and moist soil management by water manipulation.

Schneider Property

Reclamation provided \$400,000 in 2000 to TNC funds to contribute to acquiring a perpetual conservation easement on the 1,136- acre Jay Schneider property in south Sacramento County. TNC purchased the property on February 4, 2000. The Schneider Property has been incorporated into the Cosumnes River Watershed Project, a multi-agency conservation project.

The purpose of the action is to protect grasslands, vernal pools, wetlands, and a small amount of riparian habitat in the Cosumnes River watershed.

The property will be managed to benefit native habitats and associated wildlife. A grassland and vernal pool ecosystem management plan will be developed in coordination with Reclamation, the Service, and other funding partners. Management of the property will include land use restrictions on livestock grazing, habitat and streambed alteration, mining and dredging, land development, and water acquisition. TNC intends to resell the property to another rancher within 5 years. TNC will eventually transfer holding rights of the conservation easement to the State Wildlife Conservation Board upon sale of the property.

The Schneider site is located in southeastern Sacramento County, in the Cosumnes River watershed, and contains permanent and seasonal wetlands, grasslands, vernal pools and riverine aquatic habitats, and the plants and animal associated with such habitat--particularly waterfowl, vernal pool invertebrates, rare amphibians, annual wildflowers, native grasses, and raptors. The easement benefits federally-listed vernal pool fairy shrimp and vernal pool tadpole shrimp. Species of concern associated with project area include California tiger salamander, California linderiella fairy shrimp, Swainson's hawk, peregrine falcon, and western spadefoot toad.

Protecting and managing this property also will benefit other raptors and neotropical migratory birds.

The Schneider property is currently managed with grazing, and the conservation strategy is to continue that practice while monitoring its biological elements and adapting practices as needed to maximize benefits to wildlife and native flora. Grazing land is used by migratory waterfowl, raptors and other birds during fall, winter and spring, and vernal pools managed with grazing have been shown to support a greater diversity of native plants than those left ungrazed.

Current monitoring consists of a preliminary photographic study of vernal pools. The results are being incorporated into prescribed burns.

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Southam Property

Reclamation provided \$300,000 in 2000 to TNC to purchase the 72-acre Southam Property along the east bank of the Sacramento River near Colusa in Glenn County. At the time of purchase, the property consisted of 64.5 acres of prune orchard and 7.65 acres of riparian habitat. It is adjacent to a large, unfragmented block of natural riparian forest and several other agricultural tracts managed by the Conservancy as transitional agriculture. Future management will include developing and implementing a riparian restoration management plan. This will allow the orchard to be restored to riparian habitat and allow it to resume its function as a natural floodplain. This will allow it to provide habitat for key rearing habitat for chinook salmon and many terrestrial species. This could also provide habitat for Swainson's hawk, yellow-billed cuckoo, and the VELB. TNC will eventually transfer the property to the Service to add to the Sacramento NWR. The Southam Property added to the other adjacent properties to be purchased will add a riparian corridor about 11 miles long of conservation ownership.

Following acquisition, TNC will develop a stewardship plan, including management and monitoring guidelines.

January 2004 Update: In September 2002, TNC prepared a final Southam Conservation

Management Plan. In 2003, Reclamation provided TNC funds (\$192,609) to carry out this plant to restore about 65 acres of mixed riparian forest on the Southam Property. The Point Reyes Bird Observatory has devised tract-specific restoration and adaptive management recommendations for TNC's restoration sites in the Partners In Flight Riparian Conservation Plan. The result will be a high-density, structurally complex, high-species diversity mixed riparian forest that will include 24 native plant species.

Potential habitat for the VELB would be established with the planting of about 1,500 elderberry plants.

Monitoring will be accomplished in three phases: 1) an initial post-planting evaluation; 2) end of growing season monitoring for the first three growing seasons (December 2005, 2006, and 2007); and 3) project completion monitoring (November 2007). TNC seeks an 80% minimum survival of all species planted

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Souza Unit Riparian Restoration San Luis National Wildlife Refuge

This project began restoration of riparian habitat along the San Joaquin River and Mallard Slough adjacent to and within the Souza Unit of the San Luis NWR. Three thousand cottonwood and willow cuttings were collected on the refuge and planted in tubex protectors. 1,500 native shrubs (buttonwillow, elderberry, coyote bush, quail bush and California rose) were purchased from the California Conservation Corps Nursery in Napa and planted with protectors. These plantings occurred between January and April of 1998. In May of 1998, a 30-acre block of the Souza marsh unit will be heavily disced and flooded until early June, at which point it will be drawn down to wet mud flat. This timing coincides with release of seed by nearby willow trees, thus facilitating natural willow regeneration. The project provides habitat for the GGS.

Steidlemeyer Wetland Restoration (4-99)

This project is located in the Colusa Basin, south of the Colusa NWR. The property consists of approximately 340 acres land that was previously rice farmed. Approximately 280 acres of wetland and 60 acres of upland habitat were restored via construction of levees, islands, swales and installation of water control structures. The project provides habitat for the GGS.

A levee break allowed flooding of the property for a few years, beginning establishment of riparian and wetland habitat.

Stone Lakes National Wildlife Refuge, Samra Property

In 2000, the Service provided funds (\$939,698 out of \$1,982,470) to purchase the Samra Property at Stone Lakes National Wildlife Refuge in Sacramento County. The property is being restored to 3 acres permanent wetlands, 56 acres seasonal wetlands, 6 acres riparian, and 35 acres of native grasslands. This is benefitting the VELB, GGS, and Swainson's hawk.

Sun River

In 2002, Reclamation provided funds (\$285,500 out of \$2,861,229) to the California Waterfowl Association (CWA) to restore habitat on the 537-acres Sun River Project site. The Sun River site is located in the heart of the approved project boundary of Stone Lakes NWR in southern Sacramento County, 10 miles south of the City of Sacramento, and 1 mile west of Interstate 5. The Sun River site was previously acquired in a separate action using a \$2.1 million grant from the CALFED Bay Delta Program.

The purpose of this grant is to restore and enhance a mosaic of seasonal and perennial wetlands, riparian areas and associated uplands, which would provide high quality habitat for migratory and resident wildlife species, particularly listed and sensitive species. Additionally, the project would provide wildlife viewing and outdoor recreation activities. The project would address needs of listed and sensitive species in an ecosystem-based manner, assist in the conservation of biological diversity and improve existing conditions for listed and sensitive species.

CWA would work with the Service in cooperation with the CDFG to develop a complete a restoration/management plan to enhance habitat for listed, proposed and sensitive species that currently occupy the site or could occupy the sited if restored. Species of particular interest are the GGS and VELB. Wildlands, Inc. would write the plan and carry out the restoration.

A passive water management system would be installed. This would allow the site to flood and drain seasonally as the surrounding water bodies rise and fall during the rainy season. This system includes three stage outflow structures, and overflow weirs, which would allow the site to flood up in conjunction with the South Stone Lake and adjacent sloughs and canals. Former cropland and pasture would be de-leveled. Wildlands Inc. would also seed irrigated pasture, plant woody riparian cuttings, install burrowing owl boxes, and plant elderberry shrubs. Roads, parking lots, hiking paths, a boat launch facility, wildlife viewing blinds, standard hunting blinds, and handicap hunting blinds.

Restoration would take one construction season to be completed.

In November 2003, CWA prepared a Completion Report for Habitat Restoration of the Sun River Project. The restoration and enhancement is essentially completed. More than 369 acres habitat was enhanced or restored, including approximately 14 acres of open water, 3 acres of channels, 20 acres of managed semi-permanent marsh, 120 acres of managed seasonal marsh, 143 acres of irrigated pasture, 37 acres of restored/enhanced riparian forest, and 32 acres of grasslands as described above.

February 2005 Update:

Restoration successfully completed as planned in 2004. California Waterfowl Association (CWA) transferred the property to the FWS. There was a large public transfer event on April 14, 2005 .

Contact:

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Valensin Ranch

The Service and Reclamation provided \$1,250,000 in 1996 to TNC to purchase a portion of the 4,356 acres Valensin Ranch. The Ranch is located 20 miles south of Sacramento near Galt. The Ranch is adjacent to the Cosumnes River on the west, and is about 3 miles upstream from the existing Cosumnes River Preserve. The Ranch will become part of the existing Cosumnes River Preserve.

The Ranch includes vernal pool, riparian forest, freshwater wetland, annual grassland, valley oak woodland, and cropland habitats. Special-status species include Vernal pool fairy shrimp, vernal pool tadpole shrimp, Swainson's hawk, GGS, and VELB. Other significant species include Western pond turtle, wintering sandhill cranes, and tricolored blackbird. Rare plants include legenere, Mason's lilaeopsis, slender orcutt grass Sacramento orcutt grass, bearded allocarya, and Sanford's arrowhead. It has the largest heron rookery in Sacramento County.

Before purchase, the Ranch was used for cattle grazing. TNC is modifying the grazing to improve nesting and foraging opportunities for waterfowl and endangered species and to allow damaged riparian corridors to regenerate. TNC has developed a range management plan for the Cosumnes River Preserve which is being implemented on the Ranch. TNC is preparing a Preserve Monitoring Strategy to indicate the success of management actions toward achieving objectives and goals. TNC will track key species and community distribution and abundance in relation to management prescriptions; photo-monitor wetland and riparian areas for changes in composition and structure.,

For monitoring, TNC is surveying Badger Creek for GGSs and monitoring the condition of the vernal pools. Prescribed burns will be done in conjunction with the monitoring results.

February 2005 Update:

Swainson's hawks have been seen foraging after control burns. Few elderberry shrubs at the site, and no VELB exit holes have been seen.

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Vino Farms

FWS provided \$186,114 in 2008 to River Partners to help restore 22.5 acres of riparian habitat along 0.6 miles of the Mokelumne River. Prior to restoration, the floodplain fields of Vino Farms were dominated by invasive Himalayan blackberry, tree-of-heaven, and hybridized black walnuts. After removal of the invasive species, River Partners planted about 2,000 trees and shrubs. Tree growth was rapid. Survivorship of plantings was more than 85% in all but one area. All met the survivorship goal of 70%. Monitoring continued through 2010. Species that benefitted include VELB and Swainson's hawk,

Waterfowl Brood Pond Program

Since 1996, the California Department of Fish and Game and the CWA have been working together developing and administering a waterfowl brood pond program. This program provides incentives to landowners to create or maintain small spring and summer flooded ponds on their land. In 1997 and 1999, Reclamation contributed funding to CWA to pay for water control structures in order to implement this program. With these and other funds, 26 brood ponds totaling more than 300 acres were constructed. In addition, upland nesting area was created or maintained. All of these ponds are in agricultural areas. This is a five-year pilot program intended to demonstrate the value of these wetlands to waterfowl and other wetland dependent species.

This program focuses on constructing reverse-cycle wetlands. These shallow wetlands (six to twelve inches deep) are flooded from early March to late July and remain dry (except for incidental flooding) during the fall and winter. This flooding regime is very similar to what occurred naturally in the Central Valley during spring snow melt and subsequent flooding events. Densities of aquatic invertebrates, the most important food for young ducklings, can be up to 200 percent higher than in ponds that are not dry during the fall and winter. During the dry fall and winter period, upland grasses and forbs germinate and begin to grow. When flooded in the spring, the ponds are very high in essential nutrients and provide a “super-rich” environment for aquatic invertebrates. These ponds have provided breeding habitat for mallards, cinnamon teal, gadwall and 55 other species of birds as well as potentially for GGSs.

West Bear Creek Native Grass Restoration San Luis National Wildlife Refuge

The 4,000-acre West Bear Creek Unit of the San Luis NWR was acquired in 1996 as part of the San Joaquin Basin Action Plan. Activities on the Unit focused on restoration of wetlands on leveled agricultural lands using funds provided by the North American Wetlands Conservation Act, Reclamation and DU. A small component of upland restoration consisted of planting a cover crop and limited planting of the native bunchgrass alkali sacaton. Continued invasion by introduced weeds resulted in a need for additional native grass planting to complete restoration.

Two native species were restored to three sites within the West Bear Creek Unit. Alkali sacaton seed collected at the refuge in 1999 and propagated by a commercial nursery produced seedling plugs that were planted at the upland sites. Creeping wild rye seed was obtained through a commercial source and directly planted using a native seed drill on 50 acres. Alkali sacaton was planted at two additional 15-acre sites; one in the Spring of 2000, the other in the Spring of 2001. Planting configuration and species used at individual sites varies depending on soil and other micro-site differences. Refuge staff will have the ability to flood irrigate each site. These restored uplands will provide habitat for Neotropical migratory birds, migratory and wintering geese and sandhill cranes, native herpetofauna and other resident wildlife as well as special status species.

Wetland Reserve Program Partnership - Volta Wildlife Area

This project is a partnership with NCRS, the Conservation Fund, and Private Land Holders as part of the Wetlands Reserve Program, helping to reach the no net loss of wetlands goal for Reclamation. Effectively the proposed project will convert marginal croplands into wetlands, restoring some functions and values of the lands near the Volta Wildlife Area (WA) for both habitat and wildlife.

NRCS is acquiring a Wetland Reserve Program conservation easement on the Su-Lii Chen property located north of the Volta WA. This property consists of 1,393 acres of marginal farmland and is surrounded by wetlands on all but the southeast corner of the property and will provide a vital link between the Volta WA and the North Grasslands.

Since most of this land is currently being cultivated, the project in general, should not have a negative impact on the environment. The project will provide habitat for many species, including migratory waterfowl such as the Aleutian Canada goose, and whitefaced ibis, Neotropical migrants and GGS. However, a gravity water delivery system is being proposed that includes a direct take out from Volta WA and there is concern over how this could affect the GGS and its habitat during construction of the structure. Staff is currently working with the Delta-Mendota Water Authority and an application to Reclamation is being prepared asking for permission to install the take-out. The GGS issue as well as any other concerns that may be found will be addressed in that application. The current water delivery system will be maintained in case construction of the structure is not approved.

Current partners in the project include the Service, DU and NRCS. Reclamation provided 12% of the funding.

This project is designed to ensure adequate habitat is available for fall and winter migrating birds, local breeding waterfowl, and a diversity of water dependent wildlife.

Wong Property

In 2003, Reclamation transferred (\$378,000 out of a total of \$637,000) to TNC to purchase the 146-acre Wong property in south Sacramento County. The property is adjacent to Lost Slough with a small riparian corridor. It is at the main entrance to TNC's Cosumnes River Preserve.

The property consists of fallow agricultural land. TNC is working with DU to restore 20 acres of permanent wetlands, 100 acres of seasonal wetlands, and 20 acres of permanent marsh. The permanent wetlands, combined with those in Lost Slough, will provide an extensive tule marsh for many species and may provide habitat for the GGS. The restored riparian habitat could provide habitat for the Swainson's hawk and other species.

February 2005 Update:

The Cosumnes River Preserve leased the site in 2004 for planting dry-farmed winter oats to level the site and knock down the weeds. DU has surveyed the site for restoration. There is a conceptual design for restoring wetlands at the site. Habitat will be permanent wetlands, moist soil seasonal wetlands, dry seasonal wetlands, native grass, and riparian woodland. The conceptual design takes into consideration the needs of the GGS as well as additional habitat for

the greater sandhill crane and seasonal waterfowl. Expect restoration to begin in 2006 or 2007, depending on funding.

November 2010 Update:

Restoration has been completed. Large variety of water birds are using the restored wetlands, including sandhill cranes. Swainson's hawks are using the property.

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