
Appendix E
Mitigation Availability

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Mitigation Availability

Acronym	Definition
CVFPP	Central Valley Flood Protection Plan
DWR	California Department of Water Resources
RIBITS	Regulatory In-Lieu Fee & Bank Tracking System
SPFCC	State Plan of Flood Control

This appendix describes the status of advance mitigation projects funded by the California Department of Water Resources (DWR) to support implementation of the Central Valley Flood Protection Plan (CVFPP) and the Conservation Strategy. It also describes the availability of compensatory mitigation at mitigation and conservation banks for the Conservation Strategy's target habitats and species.

As described in the 2016 Conservation Strategy (DWR 2016), when compensatory mitigation is not available, project approvals and construction can be delayed by the lengthy procedures involved in mitigation development. Such procedures can entail legal, financial, planning, and restoration implementation actions. In addition to project delays and inflated costs, habitat can be lost between the time when projects are constructed and the time when habitat is re-established. The resulting mitigation may have less long-term viability and may be more poorly integrated with regional conservation priorities than mitigation developed in advance for multiple projects.

In light of these issues related to mitigation availability, DWR funded several projects from 2012 to 2020 to mitigate the future effects of State Plan of Flood Control (SPFC) improvements, many of which have not yet been identified. DWR prepared funding guidelines for such advance mitigation projects and issued a Proposal Solicitation Package in 2012. This package solicited proposals to mitigate unavoidable impacts from the future evaluation, repair, reconstruction, or replacement of SPFC levees, weirs, bypasses, and other facilities. Four advance mitigation projects were funded. Each project was carefully selected in collaboration with the wildlife resource agencies to meet the expected mitigation needs for future improvements to SPFC facilities. DWR also made direct expenditures to secure mitigation credits in advance of project mitigation needs and impacts.



As Table E-1 describes, four projects were funded; mitigation credits are available from two of these four projects and are anticipated to soon be available from a third. It is uncertain when the fourth project will provide mitigation credits.

Table E-1. Advance Mitigation Projects and Mitigation/Conservation Banks Funded 2012–2020

Project Title and Applicant	Proposal Process (Total Project Cost)	Project Description and Status as of November 1, 2020
Grasslands Mitigation Bank <i>Westervelt Ecological Services</i>	Direct expenditure \$4,164,000, of which \$3,164,000 is from Proposition 1E ^[a] (\$9,050,372)	This 281-acre mitigation bank in the San Joaquin Valley is to provide 130 giant gartersnake credits (from USFWS and CDFW), which will be used to offset impacts on giant gartersnakes from SPFC and Delta Levees Program activities. This project is complete. DWR has received the giant gartersnake credits, which are available for use by projects in the bank’s service area.
Hidden Valley Ranch Acquisition <i>Reclamation District 2092</i>	Direct expenditure \$3,900,000 from Proposition 1E and direct expenditure amendment of existing agreement \$2,400,000 \$3,000,000 from Wildlife Conservation Board, Proposition 1E (\$9,300,000)	The acquisition of this 497-acre property in the lower San Joaquin River Conservation Planning Area adds to the flood benefits currently being realized at the adjacent Dos Rios Ranch and the San Joaquin River National Wildlife Refuge. Approximately 191 acres of this property could be used for advance mitigation. Cumulatively, these properties will provide river-floodplain connectivity to more than 1,000 acres, absorb approximately 10,000 acre-feet of floodwaters, and increase flood protection for downstream communities. Phase 2 will focus on achieving mitigation. The project is in progress. The land acquisition is complete. It has not yet been determined how ecological enhancements at the site will be developed into mitigation credits.



Project Title and Applicant	Proposal Process (Total Project Cost)	Project Description and Status as of November 1, 2020
Bullock Bend Mitigation Bank <i>Westervelt Ecological Services^(b)</i>	State contracting process: secondary request for proposals to the original PSP \$4,656,867.50 <i>(Unknown)</i>	This 119.65-acre mitigation bank along the Sacramento River created 116.15 acres of salmonid (for 4 ESU and steelhead) (NMFS and CDFW credits), floodplain (USACE, NMFS, and CDFW credits), riparian (USACE, NMFS, and CDFW), and Swainson's hawk foraging and nesting credits (CDFW), 57.5 credits of which are reserved for DWR to offset impacts from SPFC activities along the Sacramento River. This project is complete. The bank has met performance standards over a period of time. DWR has received all 57.5 salmonid credits and several credits have been used by projects in the bank's service area.
Feather River Conservation Bank <i>Three Rivers Levee Improvement Authority</i>	PSP (grant) of \$4,440,000 and a direct expenditure from State of California General Fund <i>(\$6,482,501)</i>	Funding is to enhance 500 acres of a 1,600 -acre levee setback area by creating mixed riparian habitats. This project is expected to generate advance mitigation credits from CDFW (for riparian habitat and possibly for western yellow-billed cuckoo) and USFWS (for valley elderberry longhorn beetle and possibly for western yellow-billed cuckoo). Planting for this project is complete. The 500 acres have been planted in mixed riparian forest and scrub. Discussions are ongoing with CDFW and USFWS to finalize bank documents that will provide assurances of mitigation credits at the site from CDFW (riparian to mitigate for Section 1600 impacts) and USFWS (VELB).

Source: California Department of Water Resources 2016

^(a) \$1 million of the \$4,164,000 was provided by the Delta Levees Program

^(b) Project originally approved under the PSP, but it was withdrawn and then resubmitted as a direct expenditure.

Notes:

CDFW = California Department of Fish and Wildlife

DWR = California Department of Water Resources

ESU = Evolutionarily Significant Unit

NMFS = National Marine Fisheries Service

PSP = proposal solicitation package

SPFC = State Plan of Flood Control

TRLIA = Three Rivers Levee Improvement Authority

USACE = U.S. Army Corps of Engineers

USFWS = U.S. Fish and Wildlife Service

VELB = valley elderberry longhorn beetle



These projects represent a considerable contribution to the supply of mitigation for flood projects and operations and maintenance. Furthermore, by funding the mitigation projects in Table E-1, DWR has secured a supply of mitigation credits that is allocated and tracked by DWR staff, providing DWR project managers with certainty regarding the availability and cost of these types of mitigation.

Table E-2 summarizes the mitigation credits available from conservation and mitigation banks in October 2021 for the target habitats (riparian, shaded riverine aquatic, marsh, and other wetland habitats) and the federally listed or State-listed target species of this Conservation Strategy. Several different types of credits could apply to each target habitat and species; these credit types are listed in Table E-2 along with the banks that provide them. These tables are based on the credits listed as available in the Regulatory In-Lieu Fee & Bank Tracking System (RIBITS) (U.S. Army Corps of Engineers 2021). Available credits change as projects purchase credits and as new banks are approved and credits released, but the credits available on October 22, 2021, summarized in Tables E-2 and E-3, indicate the general level of credit availability.

Table E-2. Available Compensatory Mitigation for Target Habitats and Federally Listed or State-listed Species Available at Mitigation and Conservation Banks

Category	Credit Type	Credits ^[a]	Notes
Species	Giant gartersnake	181	Colusa Basin Mitigation Bank (SV), Gilsizer Slough South Giant Gartersnake Conservation Bank (SV), Grasslands Mitigation Bank (SJV), Ridge Cut Giant Garter Snake Conservation Bank (SV), Sutter Basin Conservation Bank (SV)
	Salmonid	4	Bullock Bend Mitigation Bank (SV)
	Salmonid (preservation)	55	Liberty Island Conservation Bank (SV)
	Salmonid (restoration)	2	Liberty Island Conservation Bank (SV)
	Swainson's hawk	859	Laguna Creek Mitigation Bank (SV) ^[c] , Meridian Ranch Mitigation Bank (SV) ^[c] , Van Vleck Ranch Mitigation Bank (SV) ^[c]
	Swainson's hawk nesting tree use (restored)	2	Bullock Bend Mitigation Bank (SV)
	Tricolored blackbird	17	Antonio Mountain Ranch Mitigation Bank (SV) ^[c] , SMUD Nature Preserve Mitigation Bank (SV) ^[c]



Category	Credit Type	Credits ^[a]	Notes
Species	Valley elderberry longhorn beetle	1,060	Laguna Creek Mitigation Bank (SV), French Camp Conservation Bank (SJV), Nicolaus Ranch VELB Conservation Bank (SV), River Ranch VELB Conservation Bank (SV), Stillwater Plains Mitigation Bank (SV) ^[c] One credit is approximately 1,800 square feet
Habitats	Seasonal wetland ^[b]	31	Colusa Basin Mitigation Bank (SV), Grasslands Mitigation Bank (SJV), Laguna Creek Mitigation Bank (SV) ^[c] Does not include vernal pools or seasonal wetlands of vernal pool landscapes
	Seasonal wetland (Preservation)	Less than 1	SMUD Nature Preserve Mitigation Bank (SV) ^[c]
	Emergent marsh (federal)	Less than 1	Stillwater Plains Mitigation Bank (SV) ^[c]
	Emergent marsh (nonfederal)	Less than 1	Stillwater Plains Mitigation Bank (SV) ^[c]
	Emergent marsh creation	Less than 1	Stillwater Plains Mitigation Bank (SV) ^[c]
	Floodplain mosaic wetland (re-establishment)	4	Cosumnes Floodplain Mitigation Bank (SV)
	Freshwater emergent marsh (preservation)	8	Elsie Gridley Mitigation Bank
	Freshwater emergent marsh	1	Seigler Valley Wetland Mitigation (SV) ^[c]
	Freshwater marsh complex (creation)	8	River Ranch Wetland Mitigation Bank (SV)
	Open water (preservation)	4	SMUD Nature Preserve Mitigation Bank (SV) ^[c]
	Riparian (preservation)	5	Noonan Ranch Conservation Bank (SV), SMUD Nature Preserve Mitigation Bank (SV) ^[c]
	Riparian (creation)	Less than 1	Beach Lake Mitigation Bank (SV), River Ranch Wetland Mitigation Bank (SV)
	Riparian 404 (establishment)	4	Markham Ravine – Western Placer County ILF Site, Seigler Valley Wetland Mitigation (SV) ^[c]
	Riparian floodplain forest	15	Fremont Landing Conservation Bank (SV)
SRA (re-establishment)	13,803	Cosumnes Floodplain Mitigation Bank (SV) Credit units are linear feet	



Category	Credit Type	Credits ^[a]	Notes
Habitats	SRA preservation	32,758	Cosumnes Floodplain Mitigation Bank (SV) Credit units are linear feet
Groups	Swainson's hawk and burrowing owl	177	Dolan Ranch Conservation Bank (SV), Elsie Gridley Mitigation Bank (SV)
	Delta smelt and longfin smelt	7	Liberty Island Conservation Bank (SV)
	Open water and tricolored blackbird	Less than 1	SMUD Nature Preserve Mitigation Bank (SV) ^[c]
	Perennial stream (CDFW enhancement) and tricolored blackbird habitat	2	Antonio Mountain Ranch Mitigation Bank (SV) ^[c]
	Salmonid, floodplain riparian, and Swainson's hawk nest buffer (enhanced)	10	Bullock Bend Mitigation Bank (SV)
	Salmonid, floodplain riparian, and Swainson's hawk nest buffer (re-established)	10	Bullock Bend Mitigation Bank (SV)
	Salmonid and riverine riparian (enhanced)	Less than 1	Bullock Bend Mitigation Bank (SV)
	Salmonid and riverine riparian (re-established)	18	Bullock Bend Mitigation Bank (SV)
	Salmonid, riverine riparian, and Swainson's hawk nest buffer (re-established)	35	Bullock Bend Mitigation Bank (SV)
	Swainson's hawk foraging and tricolored blackbird foraging	14	Antonio Mountain Ranch Mitigation Bank (SV) ^[c]
	Riparian floodplain forest and off-channel SRA habitat	8	Fremont Landing Conservation Bank (SV)
	Riparian floodplain forest and riverbank SRA habitat	Less than 1	Fremont Landing Conservation Bank (SV)
	Tule marsh SRA and salmonid-smelt restoration	Less than 1	Liberty Island Conservation Bank (SV)

Source: U.S. Army Corps of Engineers 2021.

^[a] Credit units are acres unless otherwise noted.

^[b] Does not include seasonal wetlands of banks in vernal pool landscapes.

^[c] Located outside of the Systemwide Planning Area.

Notes:

SJV = San Joaquin Valley

SRA = shaded riverine aquatic

SV = Sacramento Valley



Table E-3. Summary of Available Compensatory Mitigation by Target Habitats and Species

Habitat ^[a]	Species ^[a]	Credits ^[b]
Riparian Habitat	Acres	109
SRA Habitat	SRA—acres	9
	SRA—miles	8.8
Marsh and Other Wetlands Habitat	Marsh—acres	19
	Seasonal wetlands—acres	32
	Floodplain wetland mosaic—acres	4
Species—Acres	Delta button-celery	0
	Valley elderberry longhorn beetle ^[c]	1,060
	Green sturgeon	0
	Salmonids	135
	Delta smelt	7
	Giant gartersnake	181
	Bank swallow	0
	California black rail	0
	Greater sandhill crane	0
	Least Bell's vireo	0
	Tricolored blackbird	20
	Swainson's hawk—nest tree and nest buffer	57
	Swainson's hawk—foraging	1,050
	Western yellow-billed cuckoo	0
	Riparian brush rabbit	0
Riparian woodrat	0	

Source: U.S. Army Corps of Engineers 2021.

^[a] Only federally listed or State-listed target species are included in the table.

^[b] Credit types grouped at the bank are included in totals for each species or habitat in the group.

^[c] Unit is approximately 1,800 square feet.

Note:

SRA = shaded riverine aquatic

Despite the mitigation provided by DWR-funded mitigation projects, there is limited mitigation available to compensate for unavoidable impacts on this Conservation Strategy's target habitats and species. As Table E-3 shows, mitigation credits are not available for half of the target species; and as Table E-2 shows, the vast majority of available mitigation is located in the



Sacramento Valley, with much less mitigation available in the San Joaquin Valley. Although many established banks have the potential to develop and release additional credits, these are at the same locations and generally of the same types as currently available credits. Therefore, future credit releases will not provide additional types or geographic availability of mitigation. Furthermore, much of the available mitigation is located relatively far from the major rivers, bypasses, and floodplains of the Sacramento and San Joaquin rivers, and thus may not be acceptable as mitigation for the impacts of flood projects.

In summary, the advance mitigation projects funded by DWR have made a considerable contribution to the supply of mitigation available for mitigating unavoidable impacts of flood projects. However, the supply remains limited and multiple types of mitigation are not available in many areas. Consequently, given the current state of mitigation availability, mitigation planning and development will likely continue to complicate project implementation, increase project costs, and lengthen project schedules. These impediments to implementing the CVFPP could be reduced by funding additional advance mitigation projects, and tracking of anticipated demand for mitigation and its supply could focus this funding on the most needed types of mitigation.

References

California Department of Water Resources. 2016. *Central Valley Flood Protection Plan Conservation Strategy*. Sacramento (CA).

U.S. Army Corps of Engineers. 2021. RIBITS: Regulatory In-Lieu Fee & Bank Tracking System. Viewed online: www.usace.com. Accessed: October 22, 2021.

