

Note to Reader: This is a revised working draft prepared by the BDCP consultants. This document is currently undergoing review by the Department of Water Resources with input from the Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and U.S. Bureau of Reclamation and does not necessarily reflect the position of the state or federal agencies. It is expected to go through several more revisions prior to being released for formal public review and comment in 2012. All members of the public will have an opportunity to provide comments on the public draft of a revised version of this document during the formal public review and comment period. Responses will be prepared only on comments submitted in the formal public review and comment period.

APPENDIX 5.K EFFECTS ON NATURAL COMMUNITIES, WILDLIFE, AND PLANTS

ADMINISTRATIVE DRAFT BAY DELTA CONSERVATION PLAN

February 2012



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ICF International. 2012. *Appendix 5.K: Effects on Natural Communities, Wildlife, and Plants*. Administrative Draft. Bay Delta Conservation Plan. February. (ICF 00282.11). Sacramento, CA. Prepared for: California Department of Water Resources, Sacramento, CA.

Appendix 5.K

Effects on Natural Communities, Wildlife, and Plants

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Appendix 5.K

Effects on Natural Communities, Wildlife, and Plants

The tables in this appendix support the effects analysis for natural communities and covered wildlife and plant species. The calculations in the tables are presented in summary form in Chapter 5, *Effects Analysis*. The methods are further discussed in Section 5.2, *Methods*.

Table 5.K-1. Quantitative Effects Analysis Methods and Assumptions

Activity/Impact Mechanism	Method of Impact Estimation	Key Assumptions ¹ for Purposes of Analysis
CM1 Water Conveyance		
Conveyance facilities construction/Permanent removal of natural communities and habitat	<ul style="list-style-type: none"> • GIS layer for construction footprint was overlain on natural community and habitat GIS layers. 	<ul style="list-style-type: none"> • Construction of the forebay, intakes, permanent access roads, and shafts result in permanent removal of natural communities and species habitats located within construction footprint.
Muck Areas/Permanent removal of natural communities and habitat	<ul style="list-style-type: none"> • GIS layer for footprint of muck areas was overlain on natural community and habitat GIS layers. 	<ul style="list-style-type: none"> • Tunnel muck areas will not be returned pre-project conditions.
Conveyance facilities/Temporary removal of natural communities and habitat	<ul style="list-style-type: none"> • GIS layer for footprint of staging areas, intake pipelines, and barge unloading facilities was overlain on natural community and habitat GIS layers. 	<ul style="list-style-type: none"> • Staging areas, intake pipelines, and barge unloading facilities result in temporary impacts on natural communities and species habitats located in the construction footprint of these features. • Affected areas will return to their pre-impact condition following completion of activities. • Subsurface segments of the tunnel/pipeline have no effects on biological resources.
Borrow/Spoil Area /long-term temporary loss of natural communities and habitat	<ul style="list-style-type: none"> • GIS layer for footprint of borrow/spoils area was overlain on natural community and habitat GIS layers. • This is characterized as <i>long-term temporary loss</i> because the affected areas will be restored to their former state over the term of the BDCP, but not within the time frame temporarily characterized as <i>temporary loss</i>. Characterizing this effect as <i>permanent loss</i> would not be accurate. 	<ul style="list-style-type: none"> • Borrow and spoil sites will be reclaimed to their former state over the term of the BDCP. • Borrow/spoil areas are areas that will initially be used for borrow, and will be used for spoils later.

Activity/Impact Mechanism	Method of Impact Estimation	Key Assumptions ¹ for Purposes of Analysis
Spoil Area/long-term temporary loss of natural communities and habitat	<ul style="list-style-type: none"> • GIS layer for footprint of spoil areas and construction areas was overlain on natural community and habitat GIS layers. • This is characterized as long-term temporary loss because the affected areas will be restored to their former state over the term of the BDCP, but not within the time frame temporarily characterized as temporary loss. Also characterizing this effects as permanent loss would not be accurate. 	<ul style="list-style-type: none"> • Spoil sites will be reclaimed to their former state over the term of the BDCP.
Transmission Line/Permanent and temporary loss of natural community and habitat	<ul style="list-style-type: none"> • GIS layer for footprint of proposed transmission line with the greatest impact was overlain on natural community and habitat GIS layers. 	<ul style="list-style-type: none"> • Transmission line impacts will not exceed those evaluated for the current alternative with the greatest level of impact for each natural community.
CM2 Yolo Bypass Fisheries Enhancement		
Construction/permanent removal of natural communities and habitat	<ul style="list-style-type: none"> • GIS layer for footprint of activities resulting in permanent loss (see Assumptions) was overlain on natural community and habitat GIS layers. 	<ul style="list-style-type: none"> • Permanent loss of natural communities and habitat will result from Fremont Weir improvements, Putah Creek realignment activities, Lisbon Weir and fish crossing improvements, and Sacramento Weir improvements.
Construction/temporary removal of natural communities and habitat	<ul style="list-style-type: none"> • GIS layer for footprint of activities resulting in permanent loss (see Assumption) was overlain on natural community and habitat GIS layers. 	<ul style="list-style-type: none"> • Temporary loss of natural communities and habitat will result from construction areas associated with Fremont Weir improvements, Putah Creek realignment activities, Lisbon Weir and fish crossing improvements, and Sacramento Weir improvements.
Operation/periodic inundation from flooding in Yolo Bypass	<ul style="list-style-type: none"> • For each natural community or modeled species habitat type, multiplied 2,851 by the proportion of total Yolo Bypass acreage consisting of the natural community or modeled species habitat. 	<p>Based on Mike21 Model (see Appendix 5.E):</p> <ul style="list-style-type: none"> • Average annual maximum inundated acres under existing condition (west side tributaries plus overflows from Fremont Weir) = 19,178 acres. • Average annual maximum inundated acres under project conditions at the late-long-term evaluation point = 22,029 acres, reflecting a 2,851 acre increase. • There will be short-term change in cropping patterns in years that the Fremont Weir may be operated in late-spring. • Any effects of Weir operations on infrastructure that maintains agricultural cropping patterns and managed wetlands (e.g., ditches, berms) beyond that which is otherwise incurred by flooding from the west side

Activity/Impact Mechanism	Method of Impact Estimation	Key Assumptions ¹ for Purposes of Analysis
		tributaries and Fremont Weir bypass flows, will be maintained as is normal and customary under current practices.
CM4 Tidal Restoration		
Inundation/permanent loss of natural communities and species habitat	<ul style="list-style-type: none"> • GIS layer for hypothetical tidal restoration footprint (RMA model), including only those areas below MHHW elevation, was overlaid on natural community and habitat GIS layer. • Exceptions: <ul style="list-style-type: none"> ○ <u>Natural communities</u>: Tidal perennial aquatic, tidal brackish emergent wetland, and tidal freshwater emergent wetland natural communities were not treated as lost as a result of inundation. ○ <u>Species</u>: See Table 5.K-3. 	<ul style="list-style-type: none"> • All tidally inundated areas below MHHW elevation within the hypothetical footprint, based on tidal restoration model, will result in permanent natural community loss, except for tidal perennial aquatic and tidal emergent wetland natural communities. • All tidally inundated areas below MHHW elevation within the hypothetical footprint, based on tidal restoration model, will result in permanent habitat loss for all species except those listed as exceptions under <i>Method of Impact Estimation</i>.
Desiccation, permanent loss of aquatic and wetland natural communities and species habitat	<ul style="list-style-type: none"> • GIS data for tidal perennial aquatic, tidal brackish emergent wetland, and tidal freshwater emergent wetland communities was overlain on hypothetical tidal restoration footprint (RMA model) for desiccation areas. • See Table 5.K-3 for description of species methods. 	<ul style="list-style-type: none"> • All existing tidal aquatic and tidal emergent wetland within the hypothetical footprint below MHHW elevation will be desiccated as a result of tidal range damping following reintroduction of tidal exchange. • Desiccated natural communities will convert to grassland. • See Table 5.K-3 for description of assumptions made in regard to desiccation for individual covered species. • RMA model hypothetical scenarios predicted where tidal prism would contract and result in dried-out areas, some of which are wetland habitat.
Riparian restoration in ROAs, natural community permanent loss	<ul style="list-style-type: none"> • All natural community (cultivated land or grassland) loss was applied to permanent habitat loss for a species if cultivated lands or grasslands are major components of the species model and the species distribution overlaps geographically with the ROAs. 	<ul style="list-style-type: none"> • 971 acres of riparian restoration will occur as a component of tidal restoration, including 18 acres in Cache Slough ROA, 14 acres in West Delta ROA, and 939 acres in South Delta ROA. • All riparian restoration will occur on existing cultivated land, except for 7 acres in Cache Slough ROA which will occur on existing grassland.

Activity/Impact Mechanism	Method of Impact Estimation	Key Assumptions ¹ for Purposes of Analysis
CM5 Seasonally Inundated Floodplain Restoration		
Riparian Restoration/permanent loss of natural communities and habitat	<ul style="list-style-type: none"> The 3,991- acre cultivated land loss was applied to permanent habitat loss for a species if cultivated lands are major components of the species model and the species distribution overlaps geographically with the hypothetical floodplain restoration footprint. 	<ul style="list-style-type: none"> Riparian restoration in seasonally inundated floodplain will convert up to 3,991 acres of cultivated lands.
Seasonal flooding—periodic inundation of natural communities and habitat	<ul style="list-style-type: none"> Calculation of effects based on hypothetical floodplain restoration designs. GIS layer for hypothetical floodplain restoration was overlain on natural community and species habitat layers. 	<ul style="list-style-type: none"> All areas between setback levees will be subject to periodic inundation from seasonal flooding.
Levee construction—permanent removal of natural communities and habitat	<ul style="list-style-type: none"> Calculation of effects based on hypothetical floodplain restoration designs. GIS layer of hypothetical footprint for floodplain levees overlain on natural community species habitat models. 	<ul style="list-style-type: none"> Floodplain restoration includes an average 1,500 foot setback to levees, with appropriate as-needed grading and lowering of the land elevation to achieve average inundation and intervals noted above. Floodplain restoration will take place in areas with the greatest potential for restoration, primarily in Conservation Zone 7.
Levee construction—temporary removal of natural communities and habitat	<ul style="list-style-type: none"> Calculation of effects based on hypothetical floodplain restoration designs. GIS layer of hypothetical footprint for floodplain levees overlain on natural community species habitat models and buffered 100 feet on each side of the levee footprint. 	<ul style="list-style-type: none"> Temporary work area of 100 feet on either side of the setback levee base.
Conservation Hatcheries Facilities		
Construction/Permanent loss of natural communities and habitat	<ul style="list-style-type: none"> The 35-acre grassland loss was applied to permanent habitat loss for a species if grassland is a major component of the species model and the species distribution overlaps geographically with Conservation Zone 1. 	<ul style="list-style-type: none"> Permanent loss of 35 acres of grasslands will result from hatchery construction in Conservation Zone 1.
<p>¹ This table of impact analysis methods and key assumptions is not intended to be all inclusive of all covered activities. Rather, this table shows how impacts were calculated for covered activities that have impacts significant enough to be estimated. Minor activities described in Chapter 4 are covered under this Plan even though they may not appear in this table. Also, the assumptions made are for the purposes of analysis only and reflect reasonable worst case assumptions for covered activities. Actual footprints of activities may be less than or greater than that assumed and would still fall within the limits of the permits because impacts are within the total range evaluated. GIS = geographic information systems; MHHW = mean high high water; ROAs = Restoration opportunity Areas.</p>		

1 **Table 5.K-2. Covered Activities, Effect Types, and Associated Conservation Measures**

Covered Activity	Effect Type								Relevant CM
	Permanent Loss/ Conversion	Periodic Inundation	Construction-Related Effects				Permanent Indirect (Adjacent to Activity)	Other Indirect	
			Temporary Loss	Long-Term Loss (Borrow and Spoil)	Injury or Mortality	Temporary Indirect (Adjacent to Activity)			
Conveyance Facility Construction and Operation									
Conveyance Facility Construction	X		X	X	X	X			CM1
Transmission Line Construction	X		X		X	X			
Conveyance Facility Operation								X	CM1
Conveyance Facility Maintenance						X	X		CM1
Fremont Weir/Yolo Bypass Improvements									
Fisheries Enhancement Construction	X		X		X	X			CM2
Fisheries Enhancement Facility Maintenance							X		CM2
Yolo Bypass Operations		X							CM2
Tidal Restoration									
Grading, levee breaching, and resulting tidal inundation	X				X			X	CM4
Riparian restoration	X								CM4, CM7
Floodplain Restoration									
Levee construction	X		X		X	X			CM5
Restoration activities resulting in seasonal flooding		X			X				CM5
Riparian restoration	X								CM5, CM7
Nontidal Marsh Restoration									
Marsh restoration	X				X	X			CM10
Conservation Hatcheries Facilities									
Facilities Construction	X				X	x			
Facilities Operation and Maintenance						x			
Natural Community and Habitat Enhancement and Management									
Enhancement and Management			X		X	X			CM11

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1 **Table 5.K-3. Key Assumptions Related to Tidal Restoration Effects on Covered Species Habitat**

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1 **Table 5.K-4. Indirect Effect Distances from Covered Activities, Wildlife**

Covered Species and Habitat Type	Area of Effect Extending from Disturbance Locations into Modeled Species' Habitats				
	100 feet	250 feet	500 feet	1,300 feet	2,600 feet
Mammals					
Riparian brush rabbit		X			
Riparian woodrat	Not applicable. Species currently is not present in the Plan Area.				
Salt marsh harvest mouse	X				
San Joaquin kit fox ¹		X			
Suisun shrew	X				
Townsend's western big-eared bat (roosting sites) ²			X		
Birds					
California black rail			X		
California clapper rail			X		
California least tern ³			X		
Greater sandhill crane ⁷					X
Least Bell's vireo				X	
Suisun song sparrow ³			X		
Swainson's hawk (nesting sites) ³				X	
Swainson's hawk (foraging habitat) ⁴			X		
Tricolored blackbird (nesting colonies) ³				X	
Tricolored blackbird (foraging habitat) ⁴			X		
Western burrowing owl ⁵			X		
Western yellow-billed cuckoo ^{3,6}				X	
White-tailed kite (nesting sites) ³				X	
White-tailed kite (foraging habitat) ⁴			X		
Yellow breasted chat ³				X	
Reptiles					
Giant garter snake ⁸			X		
Western pond turtle ⁸			X		

Covered Species and Habitat Type	Area of Effect Extending from Disturbance Locations into Modeled Species' Habitats				
	100 feet	250 feet	500 feet	1,300 feet	2,600 feet
Amphibians					
California red-legged frog ⁸			X		
California tiger salamander ⁸			X		
Western spadefoot ⁸			X		
Invertebrates					
Valley elderberry longhorn beetle ⁹	X				
California linderiella ¹⁰		X			
Conservancy fairy shrimp ¹⁰		X			
Longhorn fairy shrimp ¹⁰		X			
Mid Valley fairy shrimp ¹⁰		X			
Vernal pool fairy shrimp ¹⁰		X			
Vernal pool tadpole shrimp ¹⁰		X			
<p>¹ This distance applies to all occupied kit fox dens.</p> <p>² This buffer is specific to Townsend's big-eared bat roosting sites, which includes caves and abandoned barns and other similar structures. Construction or restoration activities are not expected to affect Townsend's big-eared bat foraging use of the BDCP Plan Area.</p> <p>³ Many covered bird species are sensitive to noise, lighting, and line-of-sight disturbances during the nesting season. For example, construction activity that is within 1,300 feet of a marsh identified as potential tricolored blackbird nesting habitat can result in the loss of this habitat function due to human disturbances and avoidance of the site by tricolored blackbirds. Construction-related activities can also result in the abandonment of nesting sites by tricolored blackbirds, yellow-breasted chats, and other birds if appropriate distances from breeding sites are not maintained.</p> <p>⁴ For some species, habitat use in the immediate vicinity of construction activities is reduced due to long-term, but temporary, disturbances from excavation and related activities, noise, and human presence. For example, tri-colored blackbirds, greater sandhill cranes, Swainson's hawks, and white-tailed kites may avoid suitable foraging habitat that is near construction activities.</p> <p>⁵ Buffer distances for burrowing owls are applicable to the breeding and non-breeding seasons.</p> <p>⁶ Yellow-billed cuckoo was detected at one location during 2009. While nesting was not confirmed, this disturbance distance applies to any site found to be occupied by this species.</p> <p>⁷ Greater sandhill cranes are sensitive to human disturbances and will avoid areas with excessive human presence. While degradation of potential crane habitat may also occur around the perimeter of developed areas, a zone of avoidance would likely be significantly larger for this species even though habitat function may not be altered.</p> <p>⁸ Habitat function and value for most covered species decreases with proximity to ground disturbances or sources of visual or noise disturbance. For reptiles and amphibians that use upland habitats for nesting or aestivation, ground disturbances distant from aquatic habitats may also have affects. A 500 foot buffer is generally sufficient to avoid direct disturbances to occupied wetland habitats (e.g., ponds, creeks, pools) and most adjacent upland sites; however, where aquatic habitats are found to be occupied by California red-legged frog, western spadefoot toad, California tiger salamander,</p>					

Covered Species and Habitat Type	Area of Effect Extending from Disturbance Locations into Modeled Species' Habitats				
	100 feet	250 feet	500 feet	1,300 feet	2,600 feet
<p>giant garter snake, or western pond turtle occur, care should be taken to determine the potential for movement corridors that might extend beyond the 500 foot buffer. Where aquatic habitats are found to be occupied by any of these species, the buffer will be expanded to incorporate additional features (e.g., watersheds, drainages, or other possible movement corridors) that have a greater likelihood of supporting occupied upland habitat.</p> <p>⁹ 100 feet is the standard distance recommended by the USFWS to avoid direct and indirect effects on elderberry shrubs.</p> <p>¹⁰ Vernal pool invertebrates can be affected by construction-related runoff into vernal pool habitats. A distance of 250 feet is often used to avoid impacts when there may be a hydrologic connection to the pool; however, potential impacts to occupied pools that are subject to construction-related runoff regardless of the distance should be avoided.</p>					

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1 **Table 5.K-5. Indirect Effect Distances from Covered Activity, Plants**

Covered Species and Habitat Type	Area of Effect Extending from Disturbance Locations into Modeled Species' Habitats				
	100 feet	250 feet	500 feet	1,300 feet	2,600 feet
Alkali milk-vetch		X			
Boggs Lake hedge-hyssop		X			
Brittlescale		X			
Caper-fruited tropidocarpum	Not applicable. Plants of this species currently not present in the Plan Area (assumed to exist in seed bank and may occur in future following conveyance construction activities).				
Carquinez goldenbush		X			
Delta button celery		X			
Delta mudwort		X			
Delta tule pea		X			
Dwarf downingia		X			
Heartscale		X			
Heckard's peppergrass		X			
Legenere		X			
Mason's lilaeopsis		X			
San Joaquin spearscale		X			
Suisun thistle		X			
Soft bird's-beak		X			
Suisun Marsh aster		X			
Slough thistle		X			

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1 Table 5.K-6. Natural Communities Loss by Covered Activity

Natural Community	Total Existing in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁴	Conservation Hatcheries Facilities ¹⁴	Total Effects					
		Tidal Natural Communities ¹ Restoration Effects (Inundation)	Tidal Natural Communities ² Restoration Effects (Desiccation)	Tidal Habitat Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁸					Yolo Bypass Fisheries Enhancement ^{7, 14}	Yolo Bypass Fisheries Enhancement ¹⁴	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁴	Floodplain Restoration Effects (Inundation) ¹⁵	Floodplain Restoration Levee Construction Effects ¹⁵	Floodplain Restoration Levee Construction Effects ¹⁵			Acres Removed (Permanent)	Acres of Removed Modeled Habitat (Permanent)	Total Acres Removed (Permanent & Muck)	Total Acres Removed (Temporary)	Total Acres Removed (Borrow & Spoil)	Total Acres Affected (Periodically)
		Acres of Removed/Converted ³ (Permanent) ⁶	Acres of Removed/Converted ³ (Permanent) ⁶	Acres Removed (Permanent)	Acres Removed (Permanent) ⁸	Acres Removed (Permanent - Muck Area)	Acres Removed (Temporary) ⁹	Acres Removed (Borrow/Spoil Area) ⁴	Acres Removed ⁴ (Spoil Area)	Acres Removed (Permanent)	Acres Removed (Temporary)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Removed (Temporary)								
Tidal perennial aquatic ¹³	86,236	0	27	0	28	0	120	0	0	7	0	290	0	39	2	5	0	0	65	125	0	330		
Tidal mudflat ⁵	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not available	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Tidal brackish emergent wetland ¹²	8,351	0	515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	515	0	0	0		
Tidal freshwater emergent wetland ¹³	8,947	0	85	0	2	0	10	0	0	6	0	74	0	3	1	1	0	0	93	5	0	77		
Valley foothill riparian	17,930	778	0	0	24	0	47	0	0	225	112	105	0	265	43	35	0	0	1,070	170	0	370		
Non-tidal perennial aquatic	5,421	174	0	0	9	0	3	0	0	35	17	31	0	25	28	16	0	0	245	36	0	56		
Non-tidal permanent freshwater emergent wetland	1,135	91	0	0	1	0	0	0	0	0	0	2	0	8	0	0	0	0	92	0	0	10		
Alkali seasonal wetland complex	3,722	91	0	0	0	0	0	0	0	45	0	120	0	0	0	0	0	0	136	0	0	120		
Vernal pool complex	7,908	88	0	0	0	0	0	0	0	0	0	75	0	0	0	0	0	0	88	0	0	75		
Managed wetlands	64,861	12,170	0	0	1	0	10	0	0	24	41	300	0	6	0	0	0	0	12,194	47	0	306		
Other natural seasonal wetland	321	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	2		
Grassland	77,495	1,851	0	11	200	2	178	0	151	262	148	303	399	513	50	32	0	35	2,810	253	151	817		
Inland dune scrub	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Cultivated lands ¹⁰																								
Alfalfa	82,282	7,877	0	300	680	40	159	0	63	0	35	74	866	2,194	604	333	0	0	10,367	526	63	2,268		
Irrigated Pasture	49,694	3,096	0	18	50	0	67	0	0	431	1	441	62	158	70	33	0	0	3,727	101	0	598		
Vineyard	28,901	1,016	0	0	386	220	69	28	298	0	0	0	0	336	115	67	0	0	1,737	136	325	336		
Orchard	18,019	167	0	0	75	64	139	0	68	0	82	3	0	85	15	10	0	0	321	231	68	88		
Rice	12,637	0	0	0	0	0	0	0	0	0	0	424	0	0	0	0	0	0	0	0	0	424		
Other Cultivated Crops	229,828	12,535	0	544	759	1,167	740	107	677	130	275	550	2,134	4,987	1,037	598	400	0	18,706	1,613	784	5,538		
<i>Subtotal: Cropland only</i>	<i>421,361</i>	<i>24,691</i>	<i>0</i>	<i>862</i>	<i>1,951</i>	<i>1,492</i>	<i>1,175</i>	<i>135</i>	<i>1,106</i>	<i>561</i>	<i>393</i>	<i>1,492</i>	<i>3,062</i>	<i>7,759</i>	<i>1,840</i>	<i>1,040</i>	<i>400</i>	<i>0</i>	<i>34,858</i>	<i>2,608</i>	<i>1,241</i>	<i>9,251</i>		
Other cultivated lands	82,418	4,793	0	98	302	110	139	126	82	88	2	189	531	1,345	304	193	0	0	6,226	334	208	1,534		
<i>Subtotal: All cultivated lands</i>	<i>503,779</i>	<i>29,484</i>	<i>0</i>	<i>960</i>	<i>2,258</i>	<i>1,601</i>	<i>1,731</i>	<i>260</i>	<i>1,188</i>	<i>649</i>	<i>394</i>	<i>1,681</i>	<i>3,593</i>	<i>9,104</i>	<i>2,144</i>	<i>1,234</i>	<i>400</i>	<i>0</i>	<i>41,084</i>	<i>2,942</i>	<i>1,449</i>	<i>10,786</i>		
Total	786,125	44,728	626	971	2,522	1,604	2,099	260	1,340	1,252	713	2,983	3,991	9,965	2,269	1,322	400	35	58,393	3,578	1,600	12,948		

¹ Inundation: Tidal flooding of existing wetland habitat as a result of tidal restoration actions. See Table 5.K-3 for a description of relevant assumptions.
² Desiccation: The drying out of wetland habitat as a result of tidal dampening (the downward shift in tidal range), the result of which is a conversion from a tidal brackish or freshwater emergent wetland community to the grassland community. See Table 5.K-3 for a description of relevant assumptions.
³ Removed/Converted: Removed: habitat is no longer usable for any life stage of the species. Converted: change from one habitat type (e.g. primary) to another habitat type (e.g. secondary). Conversion is considered an adverse effect only if habitat is converted from one function (e.g., primary or secondary) to another, lesser function. See Table 5.K-2 for a description of relevant assumptions.
⁴ Borrow/Spoil Area: Borrow: a location from where construction material, such as sand or clay, will be taken. Spoil: area where construction by-products, such as removed earth, will be placed and stored. Borrow/spoil: an area that will originally be used for borrow and then later be used for spoil.
⁵ Tidal mudflat features were not mapped within the BDCP vegetation layer, however will be evaluated in linear miles of tidal marsh/shallow subtidal aquatic interface.

Natural Community	Total Existing in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁴	Conservation Hatcheries Facilities ¹⁴	Total Effects					
		Tidal Natural Communities ¹ Restoration Effects (Inundation)	Tidal Natural Communities ² Restoration Effects (Desiccation)	Tidal Habitat Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁸					Yolo Bypass Fisheries Enhancement ^{7, 14}	Yolo Bypass Fisheries Enhancement ¹⁴	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁴	Floodplain Restoration Effects (Inundation) ¹⁵	Floodplain Restoration Levee Construction Effects ¹⁵	Floodplain Restoration Levee Construction Effects ¹⁵			Acres Removed (Permanent)	Acres of Removed Modeled Habitat (Permanent)	Total Acres Removed (Permanent & Muck)	Total Acres Removed (Temporary)	Total Acres Removed (Borrow & Spoil)	Total Acres Affected (Periodically)
		Acres of Removed/Converted ³ (Permanent) ⁶	Acres of Removed/Converted ³ (Permanent) ⁶	Acres Removed (Permanent)	Acres Removed (Permanent) ⁸	Acres Removed (Permanent - Muck Area)	Acres Removed (Temporary) ⁹	Acres Removed ⁴ (Borrow/Spoil Area)	Acres Removed ⁴ (Spoil Area)	Acres Removed (Permanent)	Acres Removed (Temporary)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Removed (Temporary)								
<p>⁶ Calculation of impacts based on hypothetical restoration designs include only areas modeled by RMA that were classified as either 'Below MLLW' or 'MLLW to MHHW' except where noted</p> <p>⁷ Disturbance effect acreages reflect those associated with Fremont Weir improvements, Putah Creek realignment activities Lisbon weir and fish crossing improvements, and Sacramento Weir improvements.</p> <p>⁸ The impact numbers do not incorporate the impacts associated with temporary Transmission Line corridors used during construction as alignments were not available at the time of the analysis.</p> <p>⁹ Features in this category include the following conveyance-related facilities: Forebay, Intake Facilities, Permanent Access Roads, and Shaft Locations. Totals under Conveyance Option (CM1) include Transmission Line impacts.</p> <p>¹⁰ Features in this category include the following conveyance covered activities: Barge Unloading Facility, Control Structure Work Area, Intake Road Work Area, Intake Work Area, Pipeline, Pipeline Work Area, Road Work Area, Safe Haven Work Area, Temporary Access Road Work Area, Tunnel Work Area. Totals under Conveyance Option (CM1) include Transmission Line impacts.</p> <p>¹¹ Does not include removal of agricultural lands to restore 2,000 acres of grassland and 200 acres of vernal pools. These effects will be included in the next version of this table.</p> <p>¹² Impacts assessed for tidal marsh restoration reflect those incurred to tidal brackish emergent wetland habitat components inundated based on RMA modeling results.</p> <p>¹³ Impacts assessed for tidal marsh restoration reflect those incurred to aquatic habitats expected to be inundated based on RMA modeling results.</p> <p>¹⁴ Based on restoration design assumptions described in Appendix E Habitat Restoration and effects analysis assumptions detailed in Table 5.K-2.</p> <p>¹⁵ Calculation of effects based on hypothetical floodplain restoration designs.</p> <p>Note: The following covered activities and associated federal actions (listed here by the header/category as described in Chapter 4) are assumed not to have footprint impacts on natural communities or species habitat: Operations and Maintenance of Existing SWP Facilities; Power Generation Water Use - Mirant Delta, LLC activities; Activities to Reduce Contaminants; Activities to Reduce Predators and Other Sources of Direct Mortality; Monitoring and Research Programs; Emergency Actions; CVP Operations and Maintenance; and Joint Federal and Non-federal Actions.</p>																								

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1 Table 5.K-7. Wildlife Modeled Habitat Loss and Conversion by Covered Activity

Resource	Total Existing in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁰	Conservation Hatcheries ¹⁰	Total Effects			
		Tidal Habitat Restoration Effects (Inundation) ¹	Tidal Habitat Restoration Effects (Dessication) ²	Tidal Habitat Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁵					Yolo Bypass Fisheries Enhancement ^{7, 10}	Yolo Bypass Fisheries Enhancement ¹⁰	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁰	Floodplain Restoration Effects (Inundation) ¹¹	Floodplain Restoration Levee Construction Effects ¹¹	Floodplain Restoration Levee Construction Effects ¹¹			Total Acres Removed (Permanent)	Total Acres Removed (Temporary)	Total Removed (Long-Term Temporary)	Total Acres Affected (Periodically)
		Acres Removed/Converted ³ (Permanent) ¹	Acres of Removed/Converted Modeled Habitat (Permanent) ¹	Acres Removed (Permanent)	Acres of Removed Modeled Habitat (Permanent) ⁵	Acres Removed (Permanent - Muck Area)	Acres Removed (Temporary) ⁹	Acres Removed (Borrow/Spoil Area)	Acres Removed (Spoil Area)	Acres Removed (Permanent)	Acres Removed (Temporary)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Removed (Temporary)						
Mammals																						
Riparian brush rabbit																						
Riparian Habitat	2,894	15	0	0	5	0	0	0	0	0	0	0	0	264	43	35	0	0	63	165	0	264
Grassland Habitat	3,103	18	0	0	131	0	13	0	3	0	0	0	0	423	26	20	0	0	175	32	3	423
Riparian bush rabbit Total	5,997	33	0	0	137	0	142	0	3	0	0	0	0	686	69	54	0	0	238	197	3	686
Riparian woodrat																						
Riparian woodrat Total	2,156	5	0	0	0	0	25	0	0	0	0	0	0	202	41	33	0	0	46	33	0	202
Salt marsh harvest mouse																						
Wetland habitat	14,265	3,479	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,562	109	0	0
Upland habitat	3,733	808	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	808	0	0	0
Salt marsh harvest mouse Total	17,998	4,287	82	0	1	0	109	0	0	0	0	0	0	0	0	0	0	0	4,287	109	0	0
San Joaquin kit fox																						
Breeding, Foraging, and Dispersal	5,217	0	0	0	163	0	10	0	151	0	0	0	0	0	0	0	0	0	163	120	151	0
San Joaquin kit fox Total	5,217	0	0	0	164	0	115	0	151	0	0	0	0	0	0	0	0	0	163	120	151	0
Suisun shrew																						
Primary Habitat	2,987	865	318	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,183	0	0	0
Secondary Habitat	518	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	0	0	0
Suisun shrew Total	3,505	961	318	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1,279	0	0	0
Townsend's big-eared bat ¹² :																						
Primary foraging habitat	10,880	0 ¹³	0	0	17	0	15	0	0	145	58	74	0	99	9	7	0	0	172	637	0	173
Roosting and primary foraging habitat	7,493	0 ¹³	0	0	6	0	8	0	0	80	53	31	0	169	34	28	0	0	237	90	0	200
Secondary foraging habitat	768,626	0 ¹³	0	0 ¹³	2,492	1,604	1,520	260	1,340	1,028	600	2,878	3,991	9,698	2,227	1,287	0 ¹³	35	12,747	3,407	1,600	12,575
Townsend's big-eared bat Total	787,000	0	0	0	2,517	1,604	2,099	260	1,340	1,253	712	2,983	3,991	9,965	2,269	1,323	400	35	13,156	4,134	1,600	12,948
Birds																						
California black rail					0	0	0	0	0													
Primary Habitat	3,880	1,278	379	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1,657	0	0	1
Secondary Habitat	22,559	4,538	0	0	0	0	0	0	0	0	0	51	0	0	0	0	0	0	4,538	0	0	51
California black rail Total	26,439	5,816	379	0	0	0	10	0	0	0	0	51	0	0	0	0	0	0	6,195	0	0	51
California clapper rail																						
Primary Habitat	154	59	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	0	0	0

Resource	Total Existing in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁰	Conservation Hatcheries Facilities ¹⁰	Total Effects					
		Tidal Habitat ¹ Restoration Effects (Inundation)	Tidal Habitat ² Restoration Effects (Dessication)	Tidal Habitat ³ Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁶					Yolo Bypass Fisheries Enhancement ^{7, 10}	Yolo Bypass Fisheries Enhancement ¹⁰	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁰	Floodplain Restoration Effects (Inundation) ¹¹	Floodplain Restoration Levee Construction Effects ¹¹	Floodplain Restoration Levee Construction Effects ¹¹			Acres Removed (Permanent)	Acres Removed (Permanent)	Total Acres Removed (Permanent)	Total Acres Removed (Temporary)	Total Removed (Long-Term Temporary)	Total Acres Affected (Periodically)
		Acres Removed/Converted ³ (Permanent) ¹	Acres of Removed/Modeled Habitat (Permanent) ¹	Acres Removed (Permanent)	Acres of Removed Modeled Habitat (Permanent) ⁸	Acres Removed (Permanent - Muck Area)	Acres Removed (Temporary) ⁹	Acres Removed (Borrow/Spoil Area)	Acres Removed (Spoil Area)	Acres Removed (Permanent)	Acres Removed (Temporary)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Removed (Temporary)								
Secondary Habitat	6,443	889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	889	0	0	0		
California clapper rail Total	6,597	948	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	959	0	0	0		
California least tern Total	86,231	0	27	0	28	0	120	0	0	7	0	290	0	39	2	5	0	0	65	125	0	330		
Greater sandhill crane																								
Primary Use Area	4,556	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0		
Secondary Use Area	191,531	4,794	0	0	1,002	712	937	107	620	0	0	6	0	0	0	0	0	0	6,507	937	727	6		
Greater sandhill crane Total	196,087	4,794	0	0	1,007	712	1,466	107	620	0	0	6	0	0	0	0	0	0	6,507	940	727	6		
Least Bell's vireo Total	14,731	778	0	0	13	0	35	0	0	212	100	97	0	147	28	21	0	0	1,032	131	0	244		
Suisun song sparrow																								
Primary Habitat	3,431	977	324	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,301	0	0	0		
Secondary Habitat	22,248	5,010	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,010	0	0	0		
Suisun song sparrow Total	25,678	5,987	324	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	6,311	0	0	0		
Swainson's hawk																								
Foraging habitat	435,087	26,432	0	971	1,690	1,238	1,042	107	848	877	480	1,688	3,991	7,332	1,688	955	400	35	37,323	2,476	954	9,021		
Nesting habitat	10,149	407	0	0	12	0	13	0	0	210	100	38	0	188	38	31	0	0	666	144	0	226		
Swainson's hawk Total	445,235	26,839	0	971	1,708	1,238	1,606	107	848	1,087	579	1,726	3,991	7,521	1,726	986	400	35	37,988	2,621	954	9,247		
Tricolored blackbird:																								
Breeding Habitat-Ag Foraging	68,830	3,141	0	7	441	18	44	0	47	448	296	390	3,991	1,427	390	213	0	0	8,436	552	47	1,817		
Breeding Habitat-Foraging	59,660	2,276	0	11	181	0	17	0	151	154	203	47	0	355	47	30	200	35	2,904	250	151	402		
Breeding Habitat-Nesting	1,472	53	0	0	7	0	0	0	0	11	28	4	0	30	4	2	0	0	76	30	0	35		
Nonbreeding Hab-Foraging Ag	293,846	17,934	0	953	1,352	1,358	817	93	894	66	0	1,387	0	6,008	1,387	794	200	0	23,256	1,611	987	7,395		
Nonbreeding Hab-Roosting	29,911	4,588	0	0	6	0	6	0	0	8	0	1	0	30	1	1	0	0	4,604	7	0	31		
NonBreeding Habitat-Foraging	37,719	2,025	0	0	18	2	56	0	0	169	0	3	0	158	3	3	0	0	2,217	59	0	162		
Tricolored blackbird Total	491,438	30,017	0	971	2,012	1,379	1,497	93	1,093	856	527	1,833	3,991	8,009	1,833	1,043	400	35	41,487	2,510	1,186	9,841		
Western burrowing owl:																								
High-value habitat	67,906	2,856	0	0	199	2	73	0	151	55	148	50	0	513	50	32	0	35	3,203	253	151	564		
Moderate-value habitat	58,790	3,859	0	11	50	0	68	0	0	687	2	70	0	159	70	33	0	0	4,677	103	0	228		
Low-value habitat	294,238	17,340	0	960	1,364	1,157	756	65	593	115	329	1,469	3,991	6,555	1,469	848	400	0	26,796	1,934	659	8,024		
Western burrowing owl Total	420,935	24,056	0	971	1,619	1,159	1,423	65	744	857	479	1,589	3,991	7,226	1,589	914	400	35	34,676	2,290	810	8,816		

Resource	Total Existing in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁰	Conservation Hatcheries Facilities ¹⁰	Total Effects					
		Tidal Habitat ¹ Restoration Effects (Inundation)	Tidal Habitat ² Restoration Effects (Desiccation)	Tidal Habitat ³ Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁶					Yolo Bypass Fisheries Enhancement ^{7, 10}	Yolo Bypass Fisheries Enhancement ¹⁰	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁰	Floodplain Restoration Effects (Inundation) ¹¹	Floodplain Restoration Levee Construction Effects ¹¹	Floodplain Restoration Levee Construction Effects ¹¹			Acres Removed (Permanent)	Acres Removed (Permanent)	Total Acres Removed (Permanent)	Total Acres Removed (Temporary)	Total Removed (Long-Term Temporary)	Total Acres Affected (Periodically)
		Acres Removed/Converted ³ (Permanent) ¹	Acres of Removed/Modeled Habitat (Permanent) ¹	Acres Removed (Permanent)	Acres of Removed Modeled Habitat (Permanent) ⁸	Acres Removed (Permanent - Muck Area)	Acres Removed (Temporary) ⁹	Acres Removed (Borrow/Spoil Area)	Acres Removed (Spoil Area)	Acres Removed (Permanent)	Acres Removed (Temporary)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Removed (Temporary)								
Western Yellow-billed Cuckoo																								
<i>Breeding Habitat</i>	4,735	271	0	0	0	0	0	0	0	205	88	11	0	28	11	9	0	0	488	97	0	39		
<i>Migratory Habitat</i>	7,868	346	0	0	8	0	9	0	0	6	12	10	0	114	10	7	0	0	371	28	0	124		
Western yellow-billed cuckoo Total	12,603	617	0	0	8	0	33	0	0	212	100	21	0	141	21	17	0	0	859	125	0	163		
White-tailed kite:																								
<i>Breeding habitat</i>	14,315	560	0	0	13	0	17	0	0	211	100	42	0	229	42	33	0	0	832	676	0	271		
<i>Foraging habitat</i>	494,710	33,273	0	971	1,696	1,241	1,042	107	848	892	492	1,697	3,991	7,423	1,697	960	400	35	44,196	2,494	954	9,120		
White-tailed kite Total	509,026	33,833	0	971	1,715	1,241	1,585	107	848	1,103	591	1,739	3,991	7,653	1,739	993	400	35	45,028	3,170	954	9,391		
Yellow-breasted chat																								
<i>Primary Nesting and Migratory Habitat</i>	7,384	306	0	0	8	0	3	0	0	5	4	23	0	91	23	15	0	0	342	23	0	115		
<i>Secondary Nesting and Migratory Habitat</i>	5,530	447	0	0	5	0	7	0	0	3	0	5	0	56	5	6	0	0	460	13	0	60		
<i>Suisun Marsh/Upper Yolo Bypass Nest and Migratory Habitat</i>	1,849	26	0	0	0	0	0	0	0	205	95	0	0	0	0	0	0	0	230	95	0	0		
Yellow-breasted chat Total	14,764	779	0	0	13	0	35	0	0	212	100	28	0	147	28	21	0	0	1,032	131	0	175		
Reptiles																								
Giant garter snake																								
<i>Aquatic Breeding, Foraging and Movement</i>	29,430	742	0	0	23	0	19	0	0	43	17	30	0	44	30	18	0	0	838	54	0	74		
<i>Upland-High</i>	18,377	814	0	0	34	0	45	1	0	81	3	0	0	0	0	0	0	0	935	47	1	0		
<i>Upland-Moderate</i>	40,192	2,702	0	0	201	5	86	7	8	82	20	38	0	672	38	31	0	35	3,063	136	15	710		
<i>Upland-Low</i>	36,709	1,429	0	0	80	110	98	0	20	11	0	108	0	987	108	62	0	0	1,738	160	20	1,095		
Giant garter snake Total	124,708	5,687	0	0	344	115	780	9	27	218	39	176	0	1,703	176	111	0	35	6,574	398	36	1,879		
Western pond turtle:																								
<i>Aquatic habitat¹⁰</i>	81,509	5,747	0	0	23	0	70	0	0	45	2	32	0	75	32	21	0	0	5,847	94	0	107		
<i>Dispersal habitat</i>	619,335	39,604	0	961	2,341	1,604	1,367	260	1,253	958	123	2,217	3,991	9,481	2,217	1,283	400	35	52,112	2,773	1,514	11,698		
<i>Upland nesting and overwintering</i>	46,089	1,613	0	10	135	0	49	0	86	225	3	20	0	410	20	19	0	0	2,003	627	86	430		
Western pond turtle Total	746,934	46,965	0	971	2,506	1,604	2,043	260	1,340	1,228	128	2,269	3,991	9,965	2,269	1,323	400	35	59,968	3,494	1,600	12,235		
Amphibians																								
California red-legged frog:																								
<i>Aquatic habitat (miles) California red-legged frog</i>	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
<i>Aquatic habitat</i>	149	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0		

Resource	Total Existing in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁰	Conservation Hatcheries Facilities ¹⁰	Total Effects					
		Tidal Habitat ¹ Restoration Effects (Inundation)	Tidal Habitat ² Restoration Effects (Dessication)	Tidal Habitat ³ Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁶					Yolo Bypass Fisheries Enhancement ^{7, 10}	Yolo Bypass Fisheries Enhancement ¹⁰	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁰	Floodplain Restoration Effects (Inundation) ¹¹	Floodplain Restoration Levee Construction Effects ¹¹	Floodplain Restoration Levee Construction Effects ¹¹			Acres Removed (Permanent)	Acres Removed (Permanent)	Total Acres Removed (Permanent)	Total Acres Removed (Temporary)	Total Removed (Long-Term Temporary)	Total Acres Affected (Periodically)
		Acres Removed/Converted ³ (Permanent) ¹	Acres of Removed/Modeled Habitat (Permanent) ¹	Acres Removed (Permanent)	Acres of Removed Modeled Habitat (Permanent) ⁸	Acres Removed (Permanent - Muck Area)	Acres Removed (Temporary) ⁹	Acres Removed (Borrow/Spoil Area)	Acres Removed (Spoil Area)	Acres Removed (Permanent)	Acres Removed (Temporary)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Removed (Temporary)								
Upland cover and dispersal habitat	9,055	0	0	0	168	0	10	0	151	0	0	0	0	0	0	0	0	0	168	10	151	0		
Dispersal habitat	19,644	0	0	0	663	0	5	0	480	0	0	0	0	0	0	0	0	0	663	5	480	0		
California red-legged frog Total	28,848	0	0	0	838	0	572	0	631	0	0	0	0	0	0	0	0	0	832	15	631	0		
California tiger salamander :																								
Aquatic Breeding Habitat	7,332	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0		
Terrestrial Cover and Aestivation Habitat	28,895	239	0	0	161	0	10	0	151	42	0	0	0	0	0	0	0	35	477	10	151	0		
California tiger salamander Total	36,226	280	0	0	162	0	115	0	151	42	0	0	0	0	0	0	0	35	519	10	151	0		
Western spadefoot																								
Aquatic Breeding Habitat (miles) western spadefoot	78	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0		
Aquatic Breeding Habitat	7,335	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0		
Terrestrial Cover and Aestivation Habitat	29,546	317	0	0	161	0	10	0	151	42	0	0	0	0	0	0	0	35	556	10	151	0		
Western spadefoot Total	36,881	359	0	0	162	0	115	0	151	42	0	0	0	0	0	0	0	35	598	10	151	0		
Invertebrates																								
Valley elderberry longhorn beetle:																								
Riparian vegetation	17,796	778	0	0	24	0	22	0	0	213	100	43	0	265	43	35	0	0	1,058	157	0	308		
Non-riparian channels and grasslands	16,485	431	0	0	105	0	38	0	0	52	147	8	0	286	8	13	0	0	596	198	0	295		
Valley elderberry longhorn beetle Total	34,281	1,209	0	0	129	0	190	0	0	265	246	51	0	552	51	48	0	0	1,654	355	0	603		
California linderiella																								
High Quality Habitat	7,770	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0		
Low Quality Habitat	2,631	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0		
California linderiella Total					0		0						0	0	0	0	0	0	94	0	0	0		
Conservancy fairy shrimp																								
High Quality Habitat	7,770	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0		
Low Quality Habitat	2,631	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0		
Conservancy fairy shrimp Total					0		0						0	0	0	0	0	0	94	0	0	0		
Longhorn fairy shrimp																								
High Quality Habitat	7,770	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0		

Resource	Total Existing in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁰	Conservation Hatcheries Facilities ¹⁰	Total Effects					
		Tidal Habitat ¹ Restoration Effects (Inundation)	Tidal Habitat ² Restoration Effects (Desiccation)	Tidal Habitat Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁶					Yolo Bypass Fisheries Enhancement ^{7, 10}	Yolo Bypass Fisheries Enhancement ¹⁰	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁰	Floodplain Restoration Effects (Inundation) ¹¹	Floodplain Restoration Levee Construction Effects ¹¹	Floodplain Restoration Levee Construction Effects ¹¹			Acres Removed (Permanent)	Acres Removed (Permanent)	Total Acres Removed (Permanent)	Total Acres Removed (Temporary)	Total Removed (Long-Term Temporary)	Total Acres Affected (Periodically)
		Acres Removed/Converted ³ (Permanent) ¹	Acres of Removed/Modeled Habitat (Permanent) ³	Acres Removed (Permanent)	Acres of Removed Modeled Habitat (Permanent) ⁸	Acres Removed (Permanent - Muck Area)	Acres Removed (Temporary) ⁹	Acres Removed (Borrow/Spoil Area)	Acres Removed (Spoil Area)	Acres Removed (Permanent)	Acres Removed (Temporary)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Affected (Periodic)	Acres Removed (Permanent)	Acres Removed (Temporary)								
Low Quality Habitat	2,631	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	
Longhorn fairy shrimp Total					0		0					0	0	0	0	0	0	0	0	94	0	0	0	
Mid valley fairy shrimp																								
High Quality Habitat	7,770	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	
Low Quality Habitat	2,631	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	
Mid valley fairy shrimp Total					0		0					0	0	0	0	0	0	0	0	94	0	0	0	
Vernal pool fairy shrimp																								
High Quality Habitat	7,770	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	
Low Quality Habitat	2,631	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	
Vernal pool fairy shrimp Total					0		0					0	0	0	0	0	0	0	0	94	0	0	0	
Vernal pool tadpole shrimp																								
High Quality Habitat	7,770	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	
Low Quality Habitat	2,631	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	0	0	0	
Vernal pool tadpole shrimp Total					0		0					0	0	0	0	0	0	0	0	94	0	0	0	

¹ Inundation: Tidal flooding of existing wetland habitat as a result of tidal restoration actions. See Table 5.K-3 for a description of relevant assumptions.
² Desiccation: The drying out of wetland habitat as a result of tidal dampening (the downward shift in tidal range), the result of which is a conversion from a tidal brackish or freshwater emergent wetland community to the grassland community. See Table 5.K-3 for a description of relevant assumptions.
³ Removed/Converted: Removed: habitat is no longer usable for any life stage of the species. Converted: change from one habitat type (e.g. primary) to another habitat type (e.g. secondary). Conversion is considered an adverse effect only if habitat is converted from one function (e.g., primary or secondary) to another, lesser function. See Table 5.K-2 for a description of relevant assumptions.
⁴ Borrow/Spoil Area: Borrow: a location from where construction material, such as sand or clay, will be taken. Spoil: area where construction by-products, such as removed earth, will be placed and stored. Borrow/spoil: an area that will originally be used for borrow and then later be used for spoil.
⁵ Calculation of effects based on hypothetical restoration designs include only areas modeled by RMA that were classified as either 'Below MLLW' or 'MLLW to MHHW' except where noted.
⁶ The impact numbers do not incorporate the impacts associated with temporary Transmission Line corridors used during construction as alignments were not available at the time of the analysis.
⁷ Disturbance effect acreages reflect those associated with Fremont Weir improvements, Putah Creek realignment activities, Lisbon Weir and fish crossing improvements, and Sacramento Weir improvements.
⁸ Features in this category include the following conveyance-related facilities: Forebay, Intake Facilities, Permanent Access Roads, and Shaft Locations. Totals under Conveyance Option (CM1) include Transmission Line impacts.
⁹ Features in this category include the following conveyance covered activities: Barge Unloading Facility, Control Structure Work Area, Intake Road Work Area, Intake Work Area, Pipeline, Pipeline Work Area, Road Work Area, Safe Haven Work Area, Temporary Access Road Work Area, Tunnel Work Area. Totals under Conveyance Option (CM1) include Transmission Line impacts.
¹⁰ Based on restoration design assumptions described in Appendix E Habitat Restoration and effects analysis assumptions detailed in Table 5.K-2.
¹¹ Calculation of effects based on hypothetical floodplain restoration designs.
¹² Foraging habitat will remain suitable for Townsend's big-eared bat with tidal inundation or desiccation.
¹³ Effect is conversion from one habitat type to another of equal or better habitat value, so no loss of habitat is incurred.

Note: The following covered activities and associated federal actions (listed here by the header/category as described in Chapter 4) are assumed not to have footprint impacts on natural communities or species habitat: Operations and Maintenance of Existing SWP Facilities; Power Generation Water Use - Mirant Delta, LLC activities; Activities to Reduce Contaminants; Activities to Reduce Predators and Other Sources of Direct Mortality; Monitoring and Research Programs; Emergency Actions; CVP Operations and Maintenance; and Joint Federal and Non-federal Actions.

Resource	Total Existing Habitat in Plan Area	Tidal Restoration (CM4)			Conveyance Option (CM1)					Fremont Weir/Yolo Bypass Improvements (CM2)			Floodplain Restoration (CM5)				Nontidal Marsh Restoration ¹⁰	Conservation Hatcheries ¹⁰	Total Effects			
		Tidal Habitat ¹ Restoration Effects (Inundation)	Tidal Habitat ² Restoration Effects (Desiccation)	Tidal Habitat Restoration Effects (Riparian)	Tunnel/Pipeline Effects ⁶					Yolo Bypass Fisheries Enhancement ^{7,10}	Yolo Bypass Fisheries Enhancement ^{7,10}	Yolo Bypass Operations	Floodplain Restoration Effects (Riparian) ¹⁰	Floodplain Restoration Effects (Inundation) ¹¹	Floodplain Restoration Levee Construction Effects ¹¹	Floodplain Restoration Levee Construction Effects ¹¹			Total Acres of Modeled Habitat Removed (Permanent & Muck)	Total Acres of Modeled Habitat Removed (Temporary)	Total Acres of Modeled Habitat Removed (Borrow & Spoil)	Total Acres of Modeled Habitat Affected (Periodically)
		Acres of Removed/Converted ³ Modeled Habitat (Permanent) ⁵	Acres of Removed/Converted ³ Modeled Habitat (Permanent) ⁶	Acres of Removed Modeled Habitat (Permanent)	Acres of Removed Modeled Habitat (Permanent) ⁸	Acres of Removed Modeled Habitat (Permanent - Muck Area)	Acres of Removed Modeled Habitat (Temporary) ⁹	Acres of Removed Modeled Habitat (Borrow/Spoil Area)	Acres of Removed Modeled Habitat (Spoil Area)	Acres of Removed Modeled Habitat (Permanent)	Acres of Removed Modeled Habitat (Temporary)	Acres of Modeled Habitat Affected (Periodic)	Acres of Removed Modeled Habitat (Permanent)	Acres of Modeled Habitat Effects (Periodic)	Acres of Removed Modeled Habitat (Permanent)	Acres of Removed Modeled Habitat (Temporary)						
Mason's lilaeopsis Total	6,074	140	10	0	14	0	42	0	0	3	0	21	0	12	1	2	0	0	140	44	0	33
San Joaquin spearscale																						0
Vernal pool Complex	7,907	88	0	0	0	0	0	0	0	0	0	76	0	0	0	0	0	0	89	0	0	76
Degraded Vernal Pool Complex	2,494	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0
San Joaquin spearscale Total	10,401	93	0	0	1	0	0	0	0	0	0	76	0	0	0	0	0	0	94	0	0	76
Side-flowering skullcap Total	2,495	31	0	0	2	0	28	0	0	0	0	9	0	5	1	1	0	0	34	29	0	14
Slough thistle Total	1,834	0	0	0	0	0	25	0	0	0	0	0	0	6	5	6	0	0	5	25	0	6
Soft bird's-beak Total	1,225	86	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	658	0	0	0
Suisun Marsh aster Total	5,817	1,132	467	0	0	0	33	0	0	0	0	3	0	1	0	0	0	0	1,599	33	0	4
Suisun thistle Total	1,129	86	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	572	0	0	0

¹ Inundation: Tidal flooding of existing wetland habitat as a result of tidal restoration actions. See Table 5.K-3 for a description of relevant assumptions.

² Desiccation: The drying out of wetland habitat as a result of tidal dampening (the downward shift in tidal range), the result of which is a conversion from a tidal brackish or freshwater emergent wetland community to the grassland community. See Table 5.K-3 for a description of relevant assumptions.

³ Removed/Converted: Removed: habitat is no longer usable for any life stage of the species. Converted: change from one habitat type (e.g. primary) to another habitat type (e.g. secondary). Conversion is considered an adverse effect only if habitat is converted from one function (e.g., primary or secondary) to another, lesser function. See Table 5.K-2 for a description of relevant assumptions.

⁴ Borrow/Spoil Area: Borrow: a location from where construction material, such as sand or clay, will be taken. Spoil: area where construction by-products, such as removed earth, will be placed and stored. Borrow/spoil: an area that will originally be used for borrow and then later be used for spoil.

⁵ Calculation of impacts based on hypothetical restoration designs include only areas modeled by RMA that were classified as either 'Below MLLW' or 'MLLW to MHHW' except where noted.

⁶ The impact numbers do not incorporate the impacts associated with temporary Transmission Line corridors used during construction as alignments were not available at the time of the analysis.

⁷ Disturbance effect acreages reflect those associated with Fremont Weir improvements, Putah Creek realignment activities Lisbon Weir and fish crossing improvements, and Sacramento Weir improvements.

⁸ Features in this category include the following conveyance-related facilities: Forebay, Intake Facilities, Permanent Access Roads, and Shaft Locations. Totals under Conveyance Option (CM1) include Transmission Line impacts.

⁹ Features in this category include the following conveyance features: Barge Unloading Facility, Control Structure Work Area, Intake Road Work Area, Intake Work Area, Pipeline, Pipeline Work Area, Road Work Area, Safe Haven Work Area, Temporary Access Road, Tunnel Work Area. Totals under Conveyance Option (CM1) include Transmission Line impacts.

¹⁰ Based on restoration design assumptions described in Appendix E Habitat Restoration and effects analysis assumptions detailed in Table 5.K-2.

¹¹ Calculation of effects based on hypothetical floodplain restoration designs.

Note: The following covered activities and associated federal actions (listed here by the header/category as described in Chapter 4) are assumed not to have footprint impacts on natural communities or species habitat: Operations and Maintenance of Existing SWP Facilities; Power Generation Water Use - Mirant Delta, LLC activities; Activities to Reduce Contaminants; Activities to Reduce Predators and Other Sources of Direct Mortality; Monitoring and Research Programs; Emergency Actions; CVP Operations and Maintenance; and Joint Federal and Non-federal Actions.

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Administrative Draft

1 **Table 5.K-9. Permanent Loss of Modeled Species Habitat from Transmission Line Construction¹**

Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Mammals															
Riparian brush rabbit <i>Sylvilagus bachmani riparius</i>					0.2					0.1		0.8			1.1
Riparian (San Joaquin valley) woodrat <i>Neotoma fuscipes riparia</i>					0.2					0.1					0.3
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>			0.0							0.1		0.8			0.9
San Joaquin kit fox <i>Vulpes macrotis mutica</i>								0.0	0.0	0.1		0.8			0.9
Suisun shrew <i>Sorex ornatus sinuosus</i>			0.0							0.1					0.1
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.8		5.0	1.7
Birds															
California black rail <i>Laterallus jamaicensis coturniculus</i>			0.0	0.1			0.0			0.1					0.2
California clapper rail <i>Rallus longirostris obsoletus</i>		0.0	0.0												0.0
California least tern <i>Sternula antillarum browni</i>	0.0														0.0
Greater sandhill crane <i>Grus canadensis tabida</i>								0.0	0.0	0.1	0.0	0.8		5.0	5.9

¹ The natural community impact was either applied completely or not at all. That is, the total acreage of the natural community impact was applied as an impact to modeled species habitat even though many species' models only include a portion (i.e., only some alliances associated the community) of the natural community within their model. The natural community impact acreage was applied to the total species impact if the species model contained approximately 30 percent of the natural community within its model. The exception to this was applied when the transmission line alignment was known to completely, or almost completely, avoid the species' habitat. In these cases, no impact acreage was applied to the species.

Note to Reader: This is a revised working draft prepared by the BDCP consultants. This document is currently undergoing review by the Department of Water Resources with input from the Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries Service, and U.S. Bureau of Reclamation and does not necessarily reflect the position of the state or federal agencies. It is expected to go through several more revisions prior to being released for formal public review and comment in 2012. All members of the public will have an opportunity to provide comments on the public draft of a revised version of this document during the formal public review and comment period. Responses will be prepared only on comments submitted in the formal public review and comment period.

Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Least Bell's vireo <i>Vireo bellii pusillus</i>					0.2										0.2
Suisun song sparrow <i>Melospiza melodia maxillaris</i>			0.0	0.1						0.1					0.2
Swainson's hawk <i>Buteo swainsoni</i>					0.2			0.0	0.0	0.1	0.0	0.8		5.0	6.1
Tricolored blackbird <i>Agelaius tricolor</i>			0.0	0.1	0.2		0.0	0.0	0.0	0.1	0.0	0.8		5.0	6.2
Western burrowing owl <i>Athene cunicularia hypugaea</i>								0.0	0.0	0.1	0.0	0.8		5.0	5.9
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>					0.2										0.2
White-tailed kite <i>Elanus leucurus</i>					0.2			0.0	0.0	0.1	0.0	0.8		5.0	6.1
Yellow-breasted chat <i>Icteria virens</i>					0.2										0.2
Reptiles															
Giant garter snake <i>Thamnophis gigas</i>	0.0			0.1		0.0	0.0	0.0	0.0	0.1		0.8		5.0	6.0
Western pond turtle <i>Actinemys marmorata</i>			0.0	0.1	0.2	0.0	0.0		0.0	0.1		0.8		5.0	6.3
Amphibians															
California red-legged frog <i>Rana draytonii</i>				0.1	0.2	0.0	0.0	0.0	0.0	0.1		0.8		5.0	6.3
California tiger salamander (Central Valley distinct population segment [DPS]) <i>Ambystoma californiense</i>								0.0	0.0			0.8			0.8
Western spadefoot <i>Spea hammondi</i>						0.0		0.0	0.0		0.0	0.8			0.8

Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Invertebrates															
California linderiella <i>Linderiella occidentalis</i>									0.0						0.0
Conservancy fairy shrimp <i>Branchinecta conservatio</i>									0.0						0.0
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>									0.0						0.0
Midvalley fairy shrimp <i>Branchinecta mesovallensis</i>									0.0						0.0
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>					0.2							0.8			1.0
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>									0.0						0.0
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>									0.0						0.0
Plants															
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>								0.0	0.0			0.8			0.8
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>								0.0	0.0						0.0
Brittlescale <i>Atriplex depressa</i>								0.0	0.0			0.8			0.8
Caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>												0.8			0.8
Carquinez goldenbush <i>Isocoma arguta</i>								0.0				0.8			0.8
Delta button-celery <i>Eryngium racemosum</i>					0.2			0.0	0.0			0.8			1.0
Delta mudwort <i>Limosella subulata</i>		0.0	0.0	0.1	0.2										0.3

Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>			0.0	0.1	0.2										0.3
Dwarf downingia <i>Downingia pusilla</i>									0.0						0.0
Heartscale <i>Atriplex cordulata</i>								0.0	0.0			0.8			0.8
Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>Heckardii</i>									0.0			0.8			0.8
Legenere <i>Legenere limosa</i>									0.0						0.0
Mason's lilaeopsis <i>Lilaeopsis masonii</i>			0.0	0.1	0.2										0.3
San Joaquin spearscale <i>Atriplex joaquiniana</i>								0.0	0.0			0.8			0.8
Side-flowering skullcap <i>Scutellaria lateriflora</i>					0.2										0.2
Slough thistle <i>Cirsium crassicaule</i>					0.2										0.2
Soft bird's-beak <i>Cordylanthus mollis</i> ssp. <i>Mollis</i>			0.0												0.0
Suisun Marsh aster <i>Symphyotrichum lentum</i>			0.0	0.1	0.2										0.3
Suisun thistle <i>Cirsium hydrophilum</i> var. <i>Hydrophilum</i>			0.0												0.0
<p>¹ Valley/foothill riparian natural community support salmonids by providing riparian shade, cooler water temperatures and undercut bank cover and through detrital and terrestrial insect export that supports the aquatic foodweb.</p> <p>² Managed wetland and cultivated lands support aquatic species through both directly through habitat accessible during periods of flooding (e.g., to splittail and Chinook), as well as through detrital export that supports phytoplankton and zooplankton communities and thus provides aquatic foodweb support.</p>															

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Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Natural community codes: TPA = tidal perennial aquatic. TM = tidal mudflat. TBEW = tidal brackish emergent wetland. TFEW = tidal freshwater emergent wetland. VFR = valley/foothill riparian. NPA = nontidal perennial aquatic. NFPEW = nontidal freshwater perennial emergent wetland.					ASWC = alkali seasonal wetland complex. VPC = vernal pool complex. MW = managed wetland. ONSW = other natural seasonal wetland. G = grassland. IDS = inland dune scrub. CL = cultivated lands.										

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Administrative Draft

1 **Table 5.K-10. Temporary Loss of Modeled Species Habitat from Transmission Line²**

Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Mammals															
Riparian brush rabbit <i>Sylvilagus bachmani riparius</i>					24.5							105.1			129.6
Riparian (San Joaquin valley) woodrat <i>Neotoma fuscipes riparia</i>					24.5										24.5
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>			0.0							3.9		105.1			109.0
San Joaquin kit fox <i>Vulpes macrotis mutica</i>								0.0	0.0			105.1			105.1
Suisun shrew <i>Sorex ornatus sinuosus</i>			0.0							3.9					3.9
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	0.0	0.0	0.0	6.4	24.5	0.0	0.0	0.0	0.0	3.9	0.0	105.1		417.0	556.8
Birds															
California black rail <i>Laterallus jamaicensis coturniculus</i>			0.0	6.4			0.0			3.9					10.3
California clapper rail <i>Rallus longirostris obsoletus</i>		0.0	0.0												0.0
California least tern <i>Sternula antillarum browni</i>	0.0														0.0
Greater sandhill crane <i>Grus canadensis tabida</i>								0.0	0.0	3.9	0.0	105.1		417.0	525.9

² The natural community impact was either applied completely or not at all. That is, the total acreage of the natural community impact was applied as an impact to modeled species habitat even though many species' models only include a portion (i.e., only some alliances associated the community) of the natural community within their model. The natural community impact acreage was applied to the total species impact if the species model contained approximately 30 percent of the natural community within its model. The exception to this was applied when the transmission line alignment was known to completely, or almost completely, avoid the species' habitat. In these cases, no impact acreage was applied to the species.

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Appendix 5.K.

Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Least Bell's vireo <i>Vireo bellii pusillus</i>					24.5										24.5
Suisun song sparrow <i>Melospiza melodia maxillaris</i>			0.0	6.4						3.9					10.0
Swainson's hawk <i>Buteo swainsoni</i>					24.5			0.0	0.0	3.9	0.0	105.1		417.0	550.8
Tricolored blackbird <i>Agelaius tricolor</i>			0.0	6.4	24.5		0.0	0.0	0.0	3.9	0.0	105.1		417.0	556.9
Western burrowing owl <i>Athene cunicularia hypugaea</i>								0.0	0.0	3.9	0.0	105.1		417.0	525.9
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>					24.5										24.5
White-tailed kite <i>Elanus leucurus</i>					24.5			0.0	0.0	3.9	0.0	105.1		417.0	525.9
Yellow-breasted chat <i>Icteria viriens</i>					24.5										24.5
Reptiles															
Giant garter snake <i>Thamnophis gigas</i>	0.0			6.4		0.0	0.0	0.0	0.0	3.9		105.1		417.0	532.3
Western pond turtle <i>Actinemys marmorata</i>			0.0	6.4	24.5	0.0	0.0		0.0	3.9		105.1		417.0	556.9
Amphibians															
California red-legged frog <i>Rana draytonii</i>				6.4	24.5	0.0	0.0	0.0	0.0	3.9		105.1		417.0	556.9
California tiger salamander (Central Valley distinct population segment [DPS]) <i>Ambystoma californiense</i>								0.0	0.0			105.1			105.1
Western spadefoot <i>Spea hammondi</i>						0.0		0.0	0.0		0.0	105.1			105.1

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Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Invertebrates															
California linderiella <i>Linderiella occidentalis</i>									0.0						0.0
Conservancy fairy shrimp <i>Branchinecta conservatio</i>									0.0						0.0
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>									0.0						0.0
Midvalley fairy shrimp <i>Branchinecta mesovallensis</i>									0.0						0.0
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>					24.5							105.1			129.6
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>									0.0						0.0
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>									0.0						0.0
Plants															
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>								0.0	0.0			105.1			105.1
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>								0.0	0.0						0.0
Brittlescale <i>Atriplex depressa</i>								0.0	0.0			105.1			105.1
Caper-fruited tropidocarpum <i>Tropidocarpum capparideum</i>												105.1			105.1
Carquinez goldenbush <i>Isocoma arguta</i>								0.0				105.1			105.1
Delta button-celery <i>Eryngium racemosum</i>					24.5			0.0	0.0			105.1			129.6
Delta mudwort <i>Limosella subulata</i>		0.0	0.0	6.4	24.5										30.9

Common Name Scientific Name	Plan Area Natural Communities														Total Acres
	TPA	TM	TBEW	TFEW	VFR	NPA	NTFPE	ASWC	VPC	MW	ONSW	G	IDS	CL	
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>			0.0	6.4	24.5										30.9
Dwarf downingia <i>Downingia pusilla</i>									0.0						0.0
Heartscale <i>Atriplex cordulata</i>								0.0	0.0			105.1			105.1
Heckard's pepper-grass <i>Lepidium latipes</i> var. <i>Heckardii</i>									0.0			105.1			105.1
Legenere <i>Legenere limosa</i>									0.0						0.0
Mason's lilaeopsis <i>Lilaeopsis masonii</i>		0.0	0.0	6.4	24.5										30.9
San Joaquin spearscale <i>Atriplex joaquiniana</i>								0.0	0.0			105.1			105.1
Side-flowering skullcap <i>Scutellaria lateriflora</i>					24.5										24.5
Slough thistle <i>Cirsium crassicaule</i>					24.5										24.5
Soft bird's-beak <i>Cordylanthus mollis</i> ssp. <i>Mollis</i>			0.0												0.0
Suisun Marsh aster <i>Symphotrichum lentum</i>			0.0	6.4	24.5										30.9
Suisun thistle <i>Cirsium hydrophilum</i> var. <i>Hydrophilum</i>			0.0												0.0
¹ Valley/foothill riparian natural community support salmonids by providing riparian shade, cooler water temperatures and undercut bank cover and through detrital and terrestrial insect export that supports the aquatic foodweb. ² Managed wetland and cultivated lands support aquatic species through both directly through habitat accessible during periods of flooding (e.g. to splittail and Chinook), as well as through detrital export that supports phytoplankton and zooplankton communities and thus provides aquatic foodweb support.															

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Common Name Scientific Name	Plan Area Natural Communities														Total Acres
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Administrative Draft

1 **Table 5.K-11. Natural Community Restoration Contributing to Covered Species Conservation, Wildlife**

Resource	Acres of Natural Community that Comprise the Species Model	Percent Increase in Natural Community Acres due to Restoration	Total Potential Increase in Species Habitat due to Natural Community Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration*
Mammals					
Riparian brush rabbit Total	5,997.1		888.1		
<i>Riparian Habitat</i>	2,894.2		807.5		
Valley/Foothill Riparian	2,894.2	27.9%	807.5		
<i>Grassland Habitat</i>	3,102.9		80.7		
Grassland	3,102.9	2.6%	80.7		
Riparian woodrat Total	2,156.4		601.6		602.00
<i>Habitat</i>	2,156.4		601.6		
Valley/Foothill Riparian	2,156.4	27.9%	601.6	300	
Salt marsh harvest mouse Total	17,998.5				
<i>Wetland habitat</i>	14,265.6		-		
Agricultural	42.0		-		
Alkali Seasonal Wetland Complex	1.2		-		
Developed	7.8		-		
Grassland	14.7		-		
Managed Wetland	13,242.2		-		
Nontidal Freshwater Perennial Emergent Wetland	0.7		-		
Tidal Brackish Emergent Wetland	935.9		-		
Tidal Perennial Aquatic	3.5		-		
Vernal Pool Complex	17.5		-		
<i>Upland habitat</i>	3,732.9		-		
Agricultural	33.2		-		
Alkali Seasonal Wetland Complex	3.6		-		
Developed	16.3		-		
Grassland	258.7		-		

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Resource	Acres of Natural Community that Comprise the Species Model	Percent Increase in Natural Community Acres due to Restoration	Total Potential Increase in Species Habitat due to Natural Community Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration*
Managed Wetland	3,272.1		-		
Tidal Brackish Emergent Wetland	118.8		-		
Tidal Perennial Aquatic	1.4		-		
Vernal Pool Complex	28.8		-		
San Joaquin kit fox Total	25,790.8				
<i>Breeding, Foraging, and Dispersal Habitat</i>	<i>5,217.3</i>		-	<i>1,000</i>	<i>1,000.0</i>
Grassland	5,193.9		-		
Vernal Pool Complex	23.3		-		
Agricultural	20,573.5		-		
Suisun shrew Total	3,505.4				
<i>Primary Habitat</i>	<i>2,987.4</i>				
Agricultural	60.8				
Alkali Seasonal Wetland Complex	1.7				
Developed	10.6				
Grassland	12.2				
Nontidal Freshwater Perennial Emergent Wetland	0.7				
Tidal Brackish Emergent Wetland	2,818.9				
Tidal Perennial Aquatic	71.0				
Vernal Pool Complex	11.6				
<i>Secondary Habitat</i>	<i>518.0</i>				
Agricultural	41.3				
Alkali Seasonal Wetland Complex	3.6				
Developed	15.0				
Grassland	164.6				
Managed Wetland	79.1				
Tidal Brackish Emergent Wetland	186.7				

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Tidal Perennial Aquatic	0.4				
Vernal Pool Complex	27.2				
Townsend's big-eared bat Total	787,034.9		34,546.2		
<i>Primary Foraging</i>	<i>10,880.4</i>		<i>3,034.2</i>		
Agricultural	3.4	0.0%	-		
Developed	0.0	0.0%	-		
Grassland	0.0	2.6%	0.0		
Managed Wetland	2.3	0.5%	0.0		
Tidal Brackish Emergent Wetland	0.6	57.5%	0.3		
Tidal Perennial Aquatic	0.0	11.6%	0.0		
Valley/Foothill Riparian	10,874.0	27.9%	3,033.9		
<i>Roosting and Primary Foraging</i>	<i>7,493.4</i>				
Agricultural	233.8				
Developed	6.4				
Grassland	2.8				
Managed Wetland	149.8				
Tidal Brackish Emergent Wetland	40.8				
Tidal Perennial Aquatic	3.9				
Valley/Foothill Riparian	7,056.0				
<i>Secondary Foraging</i>	<i>768,661.1</i>		<i>31,512.01</i>		
Agricultural	504,425.2	0.0%	-		
Alkali Seasonal Wetland Complex	3,725.6	0.0%	-		
Developed	6.4	0.0%	-		
Grassland	77,497.3	2.6%	2,014.9		
Inland Dune Scrub	19.5	0.0%	-		
Managed Wetland	64,708.9	0.5%	323.5		

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Nontidal Freshwater Perennial Emergent Wetland	1,135.2	0.0%	-		
Nontidal Perennial Aquatic	5,420.5	7.4%	401.1		
Other Natural Seasonal Wetland	321.4	0.0%	-		
Tidal Brackish Emergent Wetland	8,309.6	57.5%	4,778.0		
Tidal Freshwater Emergent Wetland	8,947.2	155.4%	13,904.0		
Tidal Perennial Aquatic	86,236.3	11.6%	10,003.4		
Vernal Pool Complex	7,908.0	1.1%	87.0		
Birds					
California black rail Total	26,439.2		9,792.6		
<i>Primary Habitat</i>	<i>3,879.5</i>		<i>2,245.0</i>		
Agricultural	67.7	0.0%	-		
Alkali Seasonal Wetland Complex	1.7	0.0%	-		
Developed	10.8	0.0%	-		
Grassland	12.3	2.6%	0.3		
Managed Wetland	0.0	0.5%	0.0		
Nontidal Freshwater Perennial Emergent Wetland	0.7	0.0%	-		
Tidal Brackish Emergent Wetland	3,592.4	57.5%	2,065.6		
Tidal Freshwater Emergent Wetland	109.8	155.4%	170.6		
Tidal Perennial Aquatic	72.6	11.6%	8.4		
Vernal Pool Complex	11.6	1.1%	0.1		
<i>Secondary Habitat</i>	<i>22,559.7</i>		<i>7,547.6</i>		
Developed	0.0	0.0%	-		
Grassland	0.3	2.6%	0.0		
Managed Wetland	17,739.3	0.5%	88.7		
Nontidal Freshwater Perennial Emergent Wetland	15.9	0.0%	-		
Tidal Brackish Emergent Wetland	6.6	57.5%	3.8		

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Tidal Freshwater Emergent Wetland	4,797.3	155.4%	7,455.1		
Tidal Perennial Aquatic	0.1	11.6%	0.0		
California clapper rail Total	6,595.6		4,305.4		
<i>Primary Habitat</i>	153.9		55.7		
Agricultural	24.6	0.0%	-		
Alkali Seasonal Wetland Complex	1.1	0.0%	-		
Developed	8.0	0.0%	-		
Grassland	11.8	2.6%	0.3		
Nontidal Freshwater Perennial Emergent Wetland	0.7	0.0%	-		
Tidal Brackish Emergent Wetland	96.2	57.5%	55.3		
Vernal Pool Complex	11.6	1.1%	0.1		
<i>Secondary Habitat</i>	6,441.7		4,249.7		
Agricultural	65.0	0.0%	-		
Alkali Seasonal Wetland Complex	3.6	0.0%	-		
Developed	9.5	0.0%	-		
Grassland	93.4	2.6%	2.4		
Managed Wetland	11.3	0.5%	0.1		
Tidal Brackish Emergent Wetland	5,317.9	57.5%	3,057.8		
Tidal Freshwater Emergent Wetland	752.5	155.4%	1,169.4		
Tidal Perennial Aquatic	170.0	11.6%	19.7		
Vernal Pool Complex	18.5	1.1%	0.2		
California least tern Total	86,248.0				
<i>Nesting and Migratory Habitat</i>	86,248.0				
Developed	0.0				
Managed Wetland	5.2				
Tidal Brackish Emergent Wetland	2.5				

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Tidal Perennial Aquatic	86,240.3				
Valley/Foothill Riparian	0.0				
Greater sandhill crane Total	196,087.0		230.2		
<i>Roosting</i>	<i>4,556.0</i>		<i>230.2</i>	<i>550.21</i>	
Agricultural	4,144.9	0.0%	-		
Alkali Seasonal Wetland Complex	12.1	0.0%	-		
Developed	26.1	0.0%	-		
Managed Wetland	18.8	0.5%	0.1		
Nontidal Freshwater Perennial Emergent Wetland	25.4	0.0%	-	320	
Nontidal Perennial Aquatic	140.6	7.4%	10.4		
Tidal Freshwater Emergent Wetland	132.3	155.4%	205.6		
Tidal Perennial Aquatic	9.0	11.6%	1.0		
Valley/Foothill Riparian	46.8	27.9%	13.1		
<i>Foraging habitat</i>	<i>191,530.9</i>		-		
Agricultural	162,216.0	0.0%	-		
Alkali Seasonal Wetland Complex	21.8	0.0%	-		
Grassland	23,180.8	2.6%	602.7		
Managed Wetland	4,843.0	0.5%	24.2		
Other Natural Seasonal Wetland	187.2	0.0%	-		
Vernal Pool Complex	1,082.2	1.1%	11.9		
Least Bell's vireo Total	14,731.4		4,101.5	1000	4,102.00
<i>Nesting and Migratory Habitat</i>	<i>14,731.4</i>		<i>4,101.49</i>		
Agricultural	8.0	0.0%	-		
Developed	0.3	0.0%	-		
Grassland	0.0	2.6%	0.0		
Managed Wetland	169.5	0.5%	0.8		

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Tidal Brackish Emergent Wetland	138.6	57.5%	79.7		
Tidal Perennial Aquatic	5.2	11.6%	0.6		
Valley/Foothill Riparian	14,409.8	27.9%	4,020.3		
Suisun song sparrow	25,684.4		5,108.9		
<i>Primary Habitat</i>	<i>3,430.7</i>		<i>2,082.7</i>		
Agricultural	55.3	0.0%	-		
Alkali Seasonal Wetland Complex	1.7	0.0%	-		
Developed	8.3	0.0%	-		
Grassland	11.5	2.6%	0.3		
Managed Wetland	0.0	0.5%	0.0		
Nontidal Freshwater Perennial Emergent Wetland	0.7	0.0%	-		
Tidal Brackish Emergent Wetland	3,069.0	57.5%	1,764.6		
Tidal Freshwater Emergent Wetland	198.9	155.4%	309.0		
Tidal Perennial Aquatic	73.9	11.6%	8.6		
Vernal Pool Complex	11.6	1.1%	0.1		
<i>Secondary Habitat</i>	<i>22,253.6</i>		<i>3,026.2</i>		
Agricultural	42.0	0.0%	-		
Alkali Seasonal Wetland Complex	3.6	0.0%	-		
Developed	15.3	0.0%	-		
Grassland	166.5	2.6%	4.3		
Managed Wetland	18,125.8	0.5%	90.6		
Tidal Brackish Emergent Wetland	2,990.3	57.5%	1,719.4		
Tidal Freshwater Emergent Wetland	771.3	155.4%	1,198.6		
Tidal Perennial Aquatic	111.4	11.6%	12.9		
Vernal Pool Complex	27.4	1.1%	0.3		
Swainson's hawk Total	445,235.8		4,677.3		

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Appendix 5.K.

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<i>Foraging habitat</i>	435,087.2		1,943.4		
Agricultural	350,041.8	0.0%	-		
Alkali Seasonal Wetland Complex	3,181.1	0.0%	-		
Developed	45.2	0.0%	-		
Grassland	57,903.6	2.6%	1,505.5		
Managed Wetland	16,271.2	0.5%	81.4		
Other Natural Seasonal Wetland	239.6	0.0%	-		
Tidal Brackish Emergent Wetland	487.4	57.5%	280.2		
Tidal Perennial Aquatic	2.2	11.6%	0.3		
Valley/Foothill Riparian	0.0	27.9%	0.0		
Vernal Pool Complex	6,915.2	1.1%	76.1		
<i>Nesting habitat</i>	10,148.6		2,733.9		
Agricultural	224.9	0.0%	-		
Developed	7.3	0.0%	-		
Grassland	7.8	2.6%	0.2		
Managed Wetland	156.1	0.5%	0.8		
Tidal Brackish Emergent Wetland	42.5	57.5%	24.4		
Tidal Perennial Aquatic	3.9	11.6%	0.5		
Valley/Foothill Riparian	9,706.1	27.9%	2,708.0		
Tricolored blackbird Total	491,453.6		20,406.1		
<i>Breeding Habitat-Ag Foraging</i>	68,830.0				
Agricultural	68,830.0				
Alkali Seasonal Wetland Complex	0.0				
Tidal Perennial Aquatic	0.0				
<i>Breeding Habitat-Foraging</i>	59,669.2		1,603.5		
Agricultural	871.9	0.0%	-		

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Alkali Seasonal Wetland Complex	3,472.1	0.0%	-		
Developed	6.2	0.0%	-		
Grassland	40,202.9	2.6%	1,045.3		
Managed Wetland	6,991.7	0.5%	35.0		
Nontidal Perennial Aquatic	0.0	7.4%	0.0		
Other Natural Seasonal Wetland	201.5	0.0%	-		
Tidal Brackish Emergent Wetland	772.9	57.5%	444.4		
Tidal Perennial Aquatic	1.4	11.6%	0.2		
Valley/Foothill Riparian	0.0	27.9%	0.0		
Vernal Pool Complex	7,148.6	1.1%	78.6		
<i>Breeding Habitat-Nesting</i>	<i>13,162.8</i>		<i>346.2</i>		
Agricultural	38.5	0.0%	-		
Alkali Seasonal Wetland Complex	0.6	0.0%	-		
Developed	4.3	0.0%	-		
Grassland	0.4	2.6%	0.0		
Managed Wetland		0.5%	-		
Nontidal Freshwater Perennial Emergent Wetland	169.2	0.0%	-		
Tidal Brackish Emergent Wetland		57.5%	-		
Tidal Perennial Aquatic	40.6	11.6%	4.7		
Valley/Foothill Riparian	1,223.8	27.9%	341.4		
<i>Nonbreeding Hab-Foraging Ag</i>	<i>293,845.5</i>				
Agricultural	293,845.5				
Developed	0.0				
<i>Nonbreeding Hab-Roosting</i>	<i>18,226.8</i>		<i>17,435.5</i>		
Developed	0.0	0.0%	-		
Managed Wetland	11,125.0	0.5%	55.6		

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Nontidal Freshwater Perennial Emergent Wetland	934.7	0.0%	-		
Tidal Brackish Emergent Wetland	5,286.0	57.5%	3,039.5		
Tidal Freshwater Emergent Wetland	8,511.0	155.4%	13,226.0		
Tidal Perennial Aquatic	104.5	11.6%	12.1		
Valley/Foothill Riparian	3,950.8	27.9%	1,102.3		
<i>Nonbreeding Habitat-Foraging</i>	<i>37,719.3</i>		<i>1,021.0</i>		
Agricultural	0.0	0.0%	-		
Alkali Seasonal Wetland Complex	122.3	0.0%	-		
Developed	3.7	0.0%	-		
Grassland	35,624.3	2.6%	926.2		
Managed Wetland	1,587.9	0.5%	7.9		
Tidal Brackish Emergent Wetland	145.0	57.5%	83.4		
Tidal Perennial Aquatic	8.1	11.6%	0.9		
Vernal Pool Complex	228.0	1.1%	2.5		
Western burrowing owl Total	420,935.1		2,896.7		
<i>High-value habitat</i>	<i>67,906.7</i>		<i>1,706.2</i>		
Agricultural	2,422.1	0.0%	-		
Alkali Seasonal Wetland Complex	32.2	0.0%	-		
Developed	69.0	0.0%	-		
Grassland	54,963.3	2.6%	1,429.0		
Managed Wetland	5,329.3	0.5%	26.6		
Tidal Brackish Emergent Wetland	344.5	57.5%	198.1		
Tidal Perennial Aquatic	2.1	11.6%	0.2		
Valley/Foothill Riparian	0.0	27.9%	0.0		
Vernal Pool Complex	4,744.2	1.1%	52.2		
<i>Moderate-value habitat</i>	<i>58,789.8</i>		<i>202.6</i>		

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Agricultural	45,424.6	0.0%	-		
Alkali Seasonal Wetland Complex	3,049.0	0.0%	-		
Developed	1.4	0.0%	-		
Grassland	6,312.0	2.6%	164.1		
Managed Wetland	2,322.9	0.5%	11.6		
Other Natural Seasonal Wetland	2.9	0.0%	-		
Tidal Brackish Emergent Wetland	15.0	57.5%	8.6		
Tidal Perennial Aquatic	0.2	11.6%	0.0		
Vernal Pool Complex	1,661.8	1.1%	18.3		
<i>Low-value habitat</i>	294,238.5		987.9		
Agricultural	280,382.3	0.0%	-		
Alkali Seasonal Wetland Complex	641.5	0.0%	-		
Developed	1.1	0.0%	-		
Grassland	28.4	2.6%	0.7		
Managed Wetland	9,652.5	0.5%	48.3		
Other Natural Seasonal Wetland	227.4	0.0%	-		
Tidal Brackish Emergent Wetland	56.3	57.5%	32.4		
Tidal Perennial Aquatic	0.0	11.6%	0.0		
Valley/Foothill Riparian	3,249.0	27.9%	906.5		
Western Yellow-billed Cuckoo Total	12,602.8		3,512.1		
<i>Breeding Habitat</i>	4,735.2		1,321.11		500
Valley/Foothill Riparian	4,735.2	27.9%	1,321.1	500	
<i>Migratory Habitat</i>	7,867.6		2,190.97		
Agricultural	3.9	0.0%	-		
Developed	0.0	0.0%	-		
Managed Wetland	11.6	0.5%	0.1		

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Tidal Brackish Emergent Wetland	0.6	57.5%	0.3		
Valley/Foothill Riparian	7,851.5	27.9%	2,190.6		
White-tailed kite Total	509,036.7		7,221.9		
<i>Breeding habitat</i>	<i>14,315.1</i>		<i>3,892.2</i>		
Agricultural	237.7	0.0%	-		
Developed	7.5	0.0%	-		
Grassland	7.8	2.6%	0.2		
Managed Wetland	157.8	0.5%	0.8		
Tidal Brackish Emergent Wetland	42.5	57.5%	24.4		
Tidal Perennial Aquatic	3.9	11.6%	0.5		
Valley/Foothill Riparian	13,857.9	27.9%	3,866.4		
<i>Foraging</i>	<i>494,721.6</i>		<i>3,329.7</i>		
Agricultural	360,317.7	0.0%	-		
Alkali Seasonal Wetland Complex	3,373.0	0.0%	-		
Developed	154.9	0.0%	-		
Grassland	76,020.2	2.6%	1,976.5		
Managed Wetland	44,807.7	0.5%	224.0		
Nontidal Freshwater Perennial Emergent Wetland	1.7	0.0%	-		
Nontidal Perennial Aquatic	0.0	7.4%	0.0		
Other Natural Seasonal Wetland	242.8	0.0%	-		
Tidal Brackish Emergent Wetland	1,740.9	57.5%	1,001.0		
Tidal Perennial Aquatic	16.5	11.6%	1.9		
Valley/Foothill Riparian	140.7	27.9%	39.2		
Vernal Pool Complex	7,905.6	1.1%	87.0		
Yellow-breasted chat Total	14,763.6		4,110.5		
<i>Primary Nesting and Migratory Habitat</i>	<i>7,384.4</i>		<i>2,060.2</i>		2,060.00

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Developed	0.0	0.0%	-		
Valley/Foothill Riparian	7,384.4	27.9%	2,060.2		
<i>Secondary Nesting and Migratory Habitat</i>	<i>5,530.4</i>		<i>1,543.0</i>		
Agricultural	0.0	0.0%	-		
Developed	0.0	0.0%	-		
Valley/Foothill Riparian	5,530.4	27.9%	1,543.0		
<i>Suisun Marsh/Upper Yolo Bypass Nest and Migratory Habitat</i>	<i>1,848.8</i>		<i>507.2</i>		
Agricultural	8.0	0.0%	-		
Developed	0.3	0.0%	-		
Grassland	0.0	2.6%	0.0		
Managed Wetland	169.5	0.5%	0.8		
Tidal Brackish Emergent Wetland	138.6	57.5%	79.7		
Tidal Perennial Aquatic	5.2	11.6%	0.6		
Valley/Foothill Riparian	1,527.2	27.9%	426.1		
Reptiles					
Giant Garter Snake Total	124,708.7		13,836.3		
<i>Aquatic Breeding, Foraging and Movement</i>	<i>29,430.3</i>		<i>9,888.4</i>	<i>400</i>	
Agricultural	12,636.8	0.0%	-		
Developed	0.0	0.0%	-		
Grassland	0.0	2.6%	0.0		
Nontidal Freshwater Perennial Emergent Wetland	1,108.8	0.0%	-		
Nontidal Perennial Aquatic	5,265.4	7.4%	389.6	<i>400</i>	
Tidal Freshwater Emergent Wetland	5,757.9	155.4%	8,947.7		
Tidal Perennial Aquatic	4,661.4	11.6%	540.7		
Valley/Foothill Riparian	0.0	27.9%	0.0		

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<i>Upland-High</i>	18,377.6		343.0		
Agricultural	4,344.0	0.0%	-		
Alkali Seasonal Wetland Complex	349.1	0.0%	-		
Developed	0.0	0.0%	-		
Grassland	13,070.7	2.6%	339.8		
Managed Wetland	596.3	0.5%	3.0		
Other Natural Seasonal Wetland	0.8	0.0%	-		
Valley/Foothill Riparian	0.0	27.9%	0.0		
Vernal Pool Complex	16.7	1.1%	0.2		
<i>Upland-Moderate</i>	40,192.4		2,092.7		
Agricultural	20,308.3	0.0%	-		
Alkali Seasonal Wetland Complex	224.3	0.0%	-		
Developed	840.8	0.0%	-		
Grassland	7,821.8	2.6%	203.4		
Managed Wetland	3,716.9	0.5%	18.6		
Other Natural Seasonal Wetland	95.8	0.0%	-		
Valley/Foothill Riparian	6,685.7	27.9%	1,865.3		
Vernal Pool Complex	498.8	1.1%	5.5		
<i>Upland-Low</i>	36,708.5		1,512.2		
Agricultural	24,883.0	0.0%	-		
Developed	6,305.7	0.0%	-		
Grassland	0.0	2.6%	0.0		
Managed Wetland	30.0	0.5%	0.2		
Valley/Foothill Riparian	5,416.5	27.9%	1,511.2		
Vernal Pool Complex	73.3	1.1%	0.8		
Western pond turtle Total	746,963.6		30,981.3		

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<i>Aquatic Habitat</i>	81,523.2		23,444.6		
Agricultural	49.2	0.0%	-		
Alkali Seasonal Wetland Complex	12.7	0.0%	-		
Developed	4.9	0.0%	-		
Grassland	0.5	2.6%	0.0		
Managed Wetland	10,825.4	0.5%	54.1		
Nontidal Freshwater Perennial Emergent Wetland	757.8	0.0%	-		
Nontidal Perennial Aquatic	5,420.5	7.4%	401.1		
Tidal Brackish Emergent Wetland	5,769.9	57.5%	3,317.7		
Tidal Freshwater Emergent Wetland	8,946.1	155.4%	13,902.2		
Tidal Perennial Aquatic	49,736.2	11.6%	5,769.4		
Valley/Foothill Riparian	0.0	27.9%	0.0		
<i>Dispersal habitat</i>	619,350.8		6,280.4		
Agricultural	503,507.4	0.0%	-		
Alkali Seasonal Wetland Complex	3,712.8	0.0%	-		
Developed	6.4	0.0%	-		
Grassland	36,949.0	2.6%	960.7		
Managed Wetland	51,415.7	0.5%	257.1		
Other Natural Seasonal Wetland	321.4	0.0%	-		
Valley/Foothill Riparian	17,928.3	27.9%	5,002.0		
Vernal Pool Complex	5,509.8	1.1%	60.6		
<i>Upland nesting and overwintering habitat</i>	46,089.6		1,256.4		
Agricultural	222.4	0.0%	-		
Developed	13.3	0.0%	-		
Grassland	40,550.6	2.6%	1,054.3		
Managed Wetland	2,619.9	0.5%	13.1		

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Tidal Brackish Emergent Wetland	281.6	57.5%	161.9		
Tidal Perennial Aquatic	1.9	11.6%	0.2		
Valley/Foothill Riparian	1.7	27.9%	0.5		
Vernal Pool Complex	2,398.2	1.1%	26.4		
Amphibians					
California red-legged frog Total	28,848.2		410.6		
<i>Aquatic Habitat</i>	<i>148.9</i>		<i>15.8</i>		
Managed Wetland	23.3	0.5%	0.1		
Nontidal Freshwater Perennial Emergent Wetland	34.4	0.0%	-		
Nontidal Perennial Aquatic	74.0	7.4%	5.5		
Tidal Freshwater Emergent Wetland	5.8	155.4%	9.0		
Tidal Perennial Aquatic	10.5	11.6%	1.2		
Vernal Pool Complex	0.9	1.1%	0.0		
<i>Upland Cover and Dispersal Habitat</i>	<i>9,054.9</i>		<i>394.8</i>		
Agricultural	0.0	0.0%	-		
Developed	0.0	0.0%	-		
Grassland	8,150.3	2.6%	211.9		
Valley/Foothill Riparian	645.3	27.9%	180.0		
Vernal Pool Complex	259.4	1.1%	2.9		
<i>Dispersal Habitat</i>	<i>19,644.4</i>		<i>-</i>		
Agricultural	19,644.4	0.0%	-		
California tiger salamander Total	36,226.5		770.3		
<i>Aquatic Breeding Habitat</i>	<i>7,331.8</i>		<i>80.5</i>		
Other Natural Seasonal Wetland	17.0	0.0%	-		
Vernal Pool Complex	7,314.8	1.1%	80.5		
<i>Terrestrial Cover and Aestivation</i>	<i>28,894.7</i>		<i>689.9</i>		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Natural Community that Comprise the Species Model	Percent Increase in Natural Community Acres due to Restoration	Total Potential Increase in Species Habitat due to Natural Community Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration*
Alkali Seasonal Wetland Complex	2,361.0	0.0%	-		
Grassland	26,533.7	2.6%	689.9		
Nontidal Perennial Aquatic	0.0	7.4%	0.0		
Western spadefoot Total	36,884.5		775.5		
<i>Aquatic Breeding Habitat</i>	<i>7,335.2</i>		<i>80.5</i>		
Other Natural Seasonal Wetland	20.4	0.0%	-		
Vernal Pool Complex	7,314.8	1.1%	80.5		
<i>Terrestrial Cover and Aestivation Habitat</i>	<i>29,549.3</i>		<i>695.1</i>		
Alkali Seasonal Wetland Complex	2,815.8	0.0%	-		
Grassland	26,733.5	2.6%	695.1		
Nontidal Perennial Aquatic	0.0	7.4%	0.0		
Invertebrates					
Valley elderberry longhorn beetle Total	34,281.1		5,432.4		
<i>Riparian vegetation</i>	<i>17,796.4</i>		<i>4,962.1</i>		
Agricultural	7.5	0.0%	-		
Developed	0.2	0.0%	-		
Grassland	0.0	2.6%	0.0		
Managed Wetland	4.0	0.5%	0.0		
Tidal Brackish Emergent Wetland	0.6	57.5%	0.3		
Tidal Perennial Aquatic	0.0	11.6%	0.0		
Valley/Foothill Riparian	17,784.0	27.9%	4,961.7		
<i>Non-riparian channels and grasslands</i>	<i>16,484.8</i>		<i>470.3</i>		
Agricultural	28.5	0.0%	-		
Alkali Seasonal Wetland Complex	0.0	0.0%	-		
Developed	10.9	0.0%	-		
Grassland	15,847.2	2.6%	412.0		

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Managed Wetland	350.5	0.5%	1.8		
Nontidal Perennial Aquatic	0.0	7.4%	0.0		
Tidal Brackish Emergent Wetland	95.0	57.5%	54.6		
Tidal Perennial Aquatic	2.1	11.6%	0.2		
Vernal Pool Complex	150.5	1.1%	1.7		
California linderiella Total	10,401.0				
<i>Vernal Pool Complex</i>	7,770.4				
Vernal Pool Complex	7,770.4				
<i>Degraded Vernal Pool Complex</i>	2,630.5				
Grassland	2,479.8				
Other Natural Seasonal Wetland	13.2				
Vernal Pool Complex	137.5				
Conservancy fairy shrimp Total	10,401.0				
<i>Vernal Pool Complex</i>	7,770.4				
Vernal Pool Complex	7,770.4				
<i>Degraded Vernal Pool Complex</i>	2,630.5				
Grassland	2,479.8				
Other Natural Seasonal Wetland	13.2				
Vernal Pool Complex	137.5				
Longhorn fairy shrimp Total	10,401.0				
<i>Vernal Pool Complex</i>	7,770.4				
Vernal Pool Complex	7,770.4				
<i>Degraded Vernal Pool Complex</i>	2,630.5				
Grassland	2,479.8				
Other Natural Seasonal Wetland	13.2				
Vernal Pool Complex	137.5				

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Resource	Acres of Natural Community that Comprise the Species Model	Percent Increase in Natural Community Acres due to Restoration	Total Potential Increase in Species Habitat due to Natural Community Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration*
Midvalley fairy shrimp Total	10,401.0				
<i>Vernal Pool Complex</i>	7,770.4				
Vernal Pool Complex	7,770.4				
<i>Degraded Vernal Pool Complex</i>	2,630.5				
Grassland	2,479.8				
Other Natural Seasonal Wetland	13.2				
Vernal Pool Complex	137.5				
Vernal pool fairy shrimp Total	10,401.0				
<i>Vernal Pool Complex</i>	7,770.4				
Vernal Pool Complex	7,770.4				
<i>Degraded Vernal Pool Complex</i>	2,630.5				
Grassland	2,479.8				
Other Natural Seasonal Wetland	13.2				
Vernal Pool Complex	137.5				
Vernal pool tadpole shrimp Total	10,401.0				
<i>Vernal Pool Complex</i>	7,770.4				
Vernal Pool Complex	7,770.4				
<i>Degraded Vernal Pool Complex</i>	2,630.5				
Grassland	2,479.8				
Other Natural Seasonal Wetland	13.2				
Vernal Pool Complex	137.5				
* The number in this column represent the restoration/protection total brought into the net effects table. If the % contribution of restoration/protection is greater than the BGO commitment, the percent contribution was used.					

1
2

1 **Table 5.K-12. Natural Community Protection Contributing to Covered Species Conservation, Wildlife**

Resource	Acres of Protected Natural Community in the Model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (Acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Mammals							
Riparian brush rabbit Total	5,997.1						
<i>Riparian Habitat</i>	2,894.2				121.0		
Valley/Foothill Riparian	2,894.2	17,930.0	16%	750.0	121		
<i>Grassland Habitat</i>	3,102.9				322		
Grassland	3,102.9	77,000.0	4%	8000	322		
Riparian woodrat Total	2,156.4						
<i>Habitat</i>	2,156.4				90.0		
Valley/Foothill Riparian	2,156.4	17,930.0	12%	750.0	90		
Salt marsh harvest mouse Total	17,998.5						
<i>Primary Habitat</i>	14,265.6				311.0		
Agricultural	42.0	503,779.0	0%	20,000.0	2		
Alkali Seasonal Wetland Complex	1.2	3,722.0	0%	150.0	0		
Developed	7.8						
Grassland	14.7	77,495.0	0%	8,000.0	2		
Managed Wetland	13,242.2	64,861.0	20%	1,500.0	306		
Nontidal Freshwater Perennial Emergent Wetland	0.7	1,135.0	0%	0.0	0		
Tidal Brackish Emergent Wetland	935.9	8,351.0	11%	0.0	0		
Tidal Perennial Aquatic	3.5	86,236.0	0%	0.0	0		
Vernal Pool Complex	17.5	7,908.0	0%	600.0	1		
<i>Secondary Habitat</i>	3,732.9				30.0		
Agricultural	33.2	503,779.0	0%	20,000.0	1		
Alkali Seasonal Wetland Complex	3.6	3,722.0	0%	150.0	0		
Developed	16.3						

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Protected Natural Community in the Model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (Acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Grassland	258.7	77,495.0	0%	8,000.0	27		
Managed Wetland	3,272.1	64,861.0	5%	1,500.0	76		
Tidal Brackish Emergent Wetland	118.8	8,351.0	1%	0.0	0		
Tidal Perennial Aquatic	1.4	86,236.0	0%	0.0	0		
Vernal Pool Complex	28.8	7,908.0	0%	600.0	2		
San Joaquin kit fox Total	25,790.8						
<i>Breeding</i>	<i>5,217.3</i>				<i>538.0</i>		
Grassland	5,193.9	77,495.0	7%	8,000.0	536		
Vernal Pool Complex	23.3	7,908.0	0%	600.0	2		
<i>Foraging and Dispersal</i>	<i>20,573.5</i>				<i>817.0</i>		
Agricultural	20,573.5	503,779.0	4%	20,000.0	817		
Suisun shrew Total	3,505.4						
<i>Primary Habitat</i>	<i>2,987.4</i>						
Agricultural	60.8						
Alkali Seasonal Wetland Complex	1.7						
Developed	10.6						
Grassland	12.2						
Nontidal Freshwater Perennial Emergent Wetland	0.7						
Tidal Brackish Emergent Wetland	2,818.9						
Tidal Perennial Aquatic	71.0						
Vernal Pool Complex	11.6						
<i>Secondary Habitat</i>	<i>518.0</i>				<i>22.7</i>		
Agricultural	41.3	503,779.0	0%	20,000.0	1.6		
Alkali Seasonal Wetland Complex	3.6	3,722.0	0%	150.0	0.1		
Developed	15.0				0.0		

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Grassland	164.6	77,495.0	0%	8,000.0	17.0		
Managed Wetland	79.1	64,861.0	0%	1,500.0	1.8		
Tidal Brackish Emergent Wetland	186.7	8,351.0	2%	0.0	0.0		
Tidal Perennial Aquatic	0.4	86,236.0	0%	0.0	0.0		
Vernal Pool Complex	27.2	7,908.0	0%	600.0	2.1		
Townsend's big-eared bat Total	787,034.9						
<i>Primary Foraging</i>	<i>10,880.4</i>				<i>455.0</i>		
Agricultural	3.4	503,779.0	0%	20,000.0	0		
Developed	0.0						
Grassland	0.0	77,495.0	0%	8,000.0	0		
Managed Wetland	2.3	64,861.0	0%	1,500.0	0		
Tidal Brackish Emergent Wetland	0.6	8,351.0	0%	0.0	0		
Tidal Perennial Aquatic	0.0	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	10,874.0	17,930.0	61%	750.0	455		
<i>Roosting and Primary Foraging</i>	<i>7,493.4</i>				<i>308.2</i>		
Agricultural	233.8	503,779.0	0%	20,000.0	9.3		
Developed	6.4				0.0		
Grassland	2.8	77,495.0	0%	8,000.0	0.3		
Managed Wetland	149.8	64,861.0	0%	1,500.0	3.5		
Tidal Brackish Emergent Wetland	40.8	8,351.0	0%	0.0	0.0		
Tidal Perennial Aquatic	3.9	86,236.0	0%	0.0	0.0		
Valley/Foothill Riparian	7,056.0	17,930.0	39%	750.0	295.1		
<i>Secondary Foraging</i>	<i>768,661.1</i>				<i>30,273.0</i>		
Agricultural	504,425.2	503,779.0	100%	20,000.0	20026		
Alkali Seasonal Wetland Complex	3,725.6	3,722.0	100%	150.0	150		

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Developed	6.4						
Grassland	77,497.3	77,495.0	100%	8,000.0	8000		
Inland Dune Scrub	19.5	19.0	102%	0.0	0		
Managed Wetland	64,708.9	64,861.0	100%	1,500.0	1496		
Nontidal Freshwater Perennial Emergent Wetland	1,135.2	1,135.0	100%	0.0	0		
Nontidal Perennial Aquatic	5,420.5	5,421.0	100%	0.0	0		
Other Natural Seasonal Wetland	321.4	321.0	100%	0.0	0		
Tidal Brackish Emergent Wetland	8,309.6	8,351.0	100%	0.0	0		
Tidal Freshwater Emergent Wetland	8,947.2	8,947.0	100%	0.0	0		
Tidal Perennial Aquatic	86,236.3	86,236.0	100%	0.0	0		
Vernal Pool Complex	7,908.0	7,908.0	100%	600.0	600		
Birds							
California black rail Total	26,439.2						
<i>Primary</i>	3,879.5				5.0		
Agricultural	67.7	503,779.0	0%	20,000.0	3		
Alkali Seasonal Wetland Complex	1.7	3,722.0	0%	150.0	0		
Developed	10.8						
Grassland	12.3	77,495.0	0%	8,000.0	1		
Managed Wetland	0.0	64,861.0	0%	1,500.0	0		
Nontidal Freshwater Perennial Emergent Wetland	0.7	1,135.0	0%	0.0	0		
Tidal Brackish Emergent Wetland	3,592.4	8,351.0	43%	0.0	0		
Tidal Freshwater Emergent Wetland	109.8	8,947.0	1%	0.0	0		
Tidal Perennial Aquatic	72.6	86,236.0	0%	0.0	0		
Vernal Pool Complex	11.6	7,908.0	0%	600.0	1		
<i>Secondary</i>	22,559.7				410.0		

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Developed	0.0						
Grassland	0.3	77,495.0	0%	8,000.0	0		
Managed Wetland	17,739.3	64,861.0	27%	1,500.0	410		
Nontidal Freshwater Perennial Emergent Wetland	15.9	1,135.0	1%	0.0	0		
Tidal Brackish Emergent Wetland	6.6	8,351.0	0%	0.0	0		
Tidal Freshwater Emergent Wetland	4,797.3	8,947.0	54%	0.0	0		
Tidal Perennial Aquatic	0.1	86,236.0	0%	0.0	0		
California clapper rail Total	6,595.6						
<i>Primary</i>	<i>153.9</i>				<i>3.0</i>		
Agricultural	24.6	503,779.0	0%	20,000.0	1		
Alkali Seasonal Wetland Complex	1.1	3,722.0	0%	150.0	0		
Developed	8.0						
Grassland	11.8	77,495.0	0%	8,000.0	1		
Nontidal Freshwater Perennial Emergent Wetland	0.7	1,135.0	0%	0.0	0		
Tidal Brackish Emergent Wetland	96.2	8,351.0	1%	0.0	0		
Vernal Pool Complex	11.6	7,908.0	0%	750.0	1		
<i>Secondary</i>	<i>6,441.7</i>				<i>15.0</i>		
Agricultural	65.0	503,779.0	0%	20,000.0	3		
Alkali Seasonal Wetland Complex	3.6	3,722.0	0%	150.0	0		
Developed	9.5						
Grassland	93.4	77,495.0	0%	8,000.0	10		
Managed Wetland	11.3	64,861.0	0%	1,500.0	0		
Tidal Brackish Emergent Wetland	5,317.9	8,351.0	64%	0.0	0		
Tidal Freshwater Emergent Wetland	752.5	8,947.0	8%	0.0	0		
Tidal Perennial Aquatic	170.0	86,236.0	0%	0.0	0		

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Vernal Pool Complex	18.5	7,908.0	0%	750.0	2		
California least tern Total	86,248.0				0.0		
<i>Nesting and Migratory Habitat</i>	<i>86,248.0</i>						
Developed	0.0						
Managed Wetland	5.2						
Tidal Brackish Emergent Wetland	2.5						
Tidal Perennial Aquatic	86,240.3						
Valley/Foothill Riparian	0.0						
Greater sandhill crane Total	196,087.0						
<i>Roosting</i>	<i>4,556.0</i>				<i>167.0</i>		
Agricultural	4,144.9	503,779.0	1%	20,000.0	165		
Alkali Seasonal Wetland Complex	12.1	3,722.0	0%	150.0	0		
Developed	26.1						
Managed Wetland	18.8	64,861.0	0%	1,500.0	0		
Nontidal Freshwater Perennial Emergent Wetland	25.4	1,135.0	2%	0.0	0		
Nontidal Perennial Aquatic	140.6	5,421.0	3%	0.0	0		
Tidal Freshwater Emergent Wetland	132.3	8,947.0	1%	0.0	0		
Tidal Perennial Aquatic	9.0	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	46.8	17,930.0	0%	750.0	2		
<i>Foraging</i>	<i>191,530.9</i>				<i>0.0</i>		
Agricultural	162,216.0	503,779.0	32%	20,000.0	6440		
Alkali Seasonal Wetland Complex	21.8	3,722.0	1%	150.0	1		
Grassland	23,180.8	77,495.0	30%	8,000.0	2393		
Managed Wetland	4,843.0	64,861.0	7%	1,500.0	112		
Other Natural Seasonal Wetland	187.2	321.0	58%	0.0	0		

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Vernal Pool Complex	1,082.2	7,908.0	14%	600.0	82		
Least Bell's vireo Total	14,731.4						
<i>Nesting and Migratory Habitat</i>	<i>14,731.4</i>				<i>607.0</i>		
Agricultural	8.0	503,779.0	0%	20,000.0	0		
Developed	0.3						
Grassland	0.0	77,495.0	0%	8,000.0	0		
Managed Wetland	169.5	64,861.0	0%	1,500.0	4		
Tidal Brackish Emergent Wetland	138.6	8,351.0	2%	0.0	0		
Tidal Perennial Aquatic	5.2	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	14,409.8	17,930.0	80%	750.0	603		
Suisun song sparrow	25,684.4						
<i>Primary</i>	<i>3,430.7</i>				<i>4.3</i>		
Agricultural	55.3	503,779.0	0%	20,000.0	2.2		
Alkali Seasonal Wetland Complex	1.7	3,722.0	0%	150.0	0.1		
Developed	8.3				0.0		
Grassland	11.5	77,495.0	0%	8,000.0	1.2		
Managed Wetland	0.0	64,861.0	0%	0.0	0.0		
Nontidal Freshwater Perennial Emergent Wetland	0.7	1,135.0	0%	0.0	0.0		
Tidal Brackish Emergent Wetland	3,069.0	8,351.0	37%	0.0	0.0		
Tidal Freshwater Emergent Wetland	198.9	8,947.0	2%	0.0	0.0		
Tidal Perennial Aquatic	73.9	86,236.0	0%	0.0	0.0		
Vernal Pool Complex	11.6	7,908.0	0%	600.0	0.9		
<i>Secondary</i>	<i>22,253.6</i>				<i>440.0</i>		
Agricultural	42.0	503,779.0	0%	20,000.0	2		
Alkali Seasonal Wetland Complex	3.6	3,722.0	0%	150.0	0		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Protected Natural Community in the Model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (Acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Developed	15.3						
Grassland	166.5	77,495.0	0%	8,000.0	17		
Managed Wetland	18,125.8	64,861.0	28%	1,500.0	419		
Tidal Brackish Emergent Wetland	2,990.3	8,351.0	36%	0.0	0		
Tidal Freshwater Emergent Wetland	771.3	8,947.0	9%	0.0	0		
Tidal Perennial Aquatic	111.4	86,236.0	0%	0.0	0		
Vernal Pool Complex	27.4	7,908.0	0%	600.0	2		
Swainson's hawk Total	445,235.8						
<i>Foraging</i>	<i>435,087.2</i>				<i>26,806.7</i>		
Agricultural	350,041.8	503,779.0	69%	20,000.0	13897	19800	
Alkali Seasonal Wetland Complex	3,181.1	3,722.0	85%	150.0	128		
Developed	45.2				0		
Grassland	57,903.6	77,495.0	75%	8,000.0	5978		
Managed Wetland	16,271.2	64,861.0	25%	1,500.0	376		
Other Natural Seasonal Wetland	239.6	8,351.0	3%	0.0	0		
Tidal Brackish Emergent Wetland	487.4	8,947.0	5%	0.0	0		
Tidal Perennial Aquatic	2.2	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	0.0	17,930.0	0%	750	0		
Vernal Pool Complex	6,915.2	7,908.0	87%	600.0	525		
<i>Nesting</i>	<i>10,148.6</i>				<i>419.0</i>		
Agricultural	224.9	503,779.0	0%	20,000.0	9		
Developed	7.3						
Grassland	7.8	77,495.0	0%	8,000.0	1		
Managed Wetland	156.1	64,861.0	0%	1,500.0	4		
Tidal Brackish Emergent Wetland	42.5	8,351.0	1%	0.0	0		

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Tidal Perennial Aquatic	3.9	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	9,706.1	17,930.0	54%	750.0	406		
Tricolored blackbird Total	491,453.6						
<i>Breeding Habitat-Ag Foraging</i>	<i>68,830.0</i>						
Agricultural	68,830.0						
Alkali Seasonal Wetland Complex	0.0						
Tidal Perennial Aquatic	0.0						
<i>Breeding Habitat-Foraging</i>	<i>59,669.2</i>				<i>5,029.0</i>		
Agricultural	871.9	503,779.0	0%	20,000.0	35		
Alkali Seasonal Wetland Complex	3,472.1	3,722.0	93%	150.0	140		
Developed	6.2						
Grassland	40,202.9	77,495.0	52%	8,000.0	4150		
Managed Wetland	6,991.7	64,861.0	11%	1,500.0	162		
Nontidal Perennial Aquatic	0.0	5,421.0	0%	0.0	0		
Other Natural Seasonal Wetland	201.5	321.0	63%	0.0	0		
Tidal Brackish Emergent Wetland	772.9	8,351.0	9%	0.0	0		
Tidal Perennial Aquatic	1.4	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	0.0	17,930.0	0%	750.0	0		
Vernal Pool Complex	7,148.6	7,908.0	90%	600.0	542		
<i>Breeding Habitat-Nesting</i>	<i>13,162.8</i>				<i>53.0</i>		
Agricultural	38.5	503,779.0	0%	20,000.0	2		
Alkali Seasonal Wetland Complex	0.6	3,722.0	0%	150.0	0		
Developed	4.3						
Grassland	0.4	77,495.0	0%	8,000.0	0		
Managed Wetland	7,672.4	64,861.0	12%	1,500.0	177		

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Nontidal Freshwater Perennial Emergent Wetland	169.2	1,135.0	15%	0.0	0		
Tidal Brackish Emergent Wetland	4,012.9	8,351.0	48%	0.0	0		
Tidal Perennial Aquatic	40.6	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	1,223.8	17,930.0	7%	750.0	51		
<i>Nonbreeding Hab-Foraging Ag</i>	<i>293,845.5</i>						
Agricultural	293,845.5						
Developed	0.0						
<i>Nonbreeding Hab-Roosting</i>	<i>18,226.8</i>				<i>245.1</i>		
Developed	0.0				0		
Managed Wetland	3,452.6	64,861.0	5%	1,500.0	80		
Nontidal Freshwater Perennial Emergent Wetland	934.7	1,135.0	82%	0.0	0		
Tidal Brackish Emergent Wetland	1,273.1	8,351.0	15%	0.0	0		
Tidal Freshwater Emergent Wetland	8,511.0	8947.0	95%	0.0	0		
Tidal Perennial Aquatic	104.5	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	3,950.8	17,930.0	22%	750.0	165		
<i>Nonbreeding Habitat-Foraging</i>	<i>37,719.3</i>				<i>3,737.0</i>		
Agricultural	0.0	503,779.0	0%	20,000.0	0		
Alkali Seasonal Wetland Complex	122.3	3,722.0	3%	150.0	5		
Developed	3.7						
Grassland	35,624.3	77,495.0	46%	8,000.0	3678		
Managed Wetland	1,587.9	64,861.0	2%	1,500.0	37		
Tidal Brackish Emergent Wetland	145.0	8,351.0	2%	0.0	0		
Tidal Perennial Aquatic	8.1	86,236.0	0%	0.0	0		
Vernal Pool Complex	228.0	7,908.0	3%	600.0	17		
Western burrowing owl Total	420,935.1						

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<i>High Value</i>	67,906.7				6,255.0		
Agricultural	2,422.1	503,779.0	0%	20,000.0	96		
Alkali Seasonal Wetland Complex	32.2	3,722.0	1%	150.0	1		
Developed	69.0						
Grassland	54,963.3	77,495.0	71%	8,000.0	5674		
Managed Wetland	5,329.3	64,861.0	8%	1,500.0	123		
Tidal Brackish Emergent Wetland	344.5	8,351.0	4%	0.0	0		
Tidal Perennial Aquatic	2.1	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	0.0	17,930.0	0%	750.0	0		
Vernal Pool Complex	4,744.2	7,908.0	60%	600.0	360		
<i>Moderate Value</i>	58,789.8				2,758.0		
Agricultural	45,424.6	503,779.0	9%	20,000.0	1803		
Alkali Seasonal Wetland Complex	3,049.0	3,722.0	82%	150.0	123		
Developed	1.4						
Grassland	6,312.0	77,495.0	8%	8,000.0	652		
Managed Wetland	2,322.9	64,861.0	4%	1,500.0	54		
Other Natural Seasonal Wetland	2.9	321.0	1%	0.0	0		
Tidal Brackish Emergent Wetland	15.0	8,351.0	0%	0.0	0		
Tidal Perennial Aquatic	0.2	86,236.0	0%	0.0	0		
Vernal Pool Complex	1,661.8	7,908.0	21%	600.0	126		
<i>Low Value</i>	294,238.5				11,519.0		
Agricultural	280,382.3	503,779.0	56%	20,000.0	11131		
Alkali Seasonal Wetland Complex	641.5	3,722.0	17%	150.0	26		
Developed	1.1						
Grassland	28.4	77,495.0	0%	8,000.0	3		

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Managed Wetland	9,652.5	64,861.0	15%	1,500.0	223		
Other Natural Seasonal Wetland	227.4	321.0	71%	0.0	0		
Tidal Brackish Emergent Wetland	56.3	8,351.0	1%	0.0	0		
Tidal Perennial Aquatic	0.0	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	3,249.0	17,930.0	18%	750.0	136		
Western Yellow-billed Cuckoo Total	12,602.8						
<i>Breeding Habitat</i>	<i>4,735.2</i>				<i>198.0</i>		
Valley/Foothill Riparian	4,735.2	17,930.0	26%	750.0	198		
<i>Migratory Habitat</i>	<i>7,867.6</i>				<i>328.0</i>		
Agricultural	3.9	503,779.0	0%	20,000.0	0		
Developed	0.0						
Managed Wetland	11.6	64,861.0	0%	1,500.0	0		
Tidal Brackish Emergent Wetland	0.6	8,351.0	0%	0.0	0		
Valley/Foothill Riparian	7,851.5	17,930.0	44%	750.0	328		
White-tailed kite Total	509,036.7						
<i>Breeding/Roosting</i>	<i>14,315.1</i>				<i>594.0</i>		
Agricultural	237.7	503,779.0	0%	20,000.0	9		
Developed	7.5						
Grassland	7.8	77,495.0	0%	8,000.0	1		
Managed Wetland	157.8	64,861.0	0%	1,500.0	4		
Tidal Brackish Emergent Wetland	42.5	8,351.0	1%	0.0	0		
Tidal Perennial Aquatic	3.9	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	13,857.9	17,930.0	77%	750.0	580		
<i>Foraging</i>	<i>494,721.6</i>				<i>29,425.6</i>		
Agricultural	360,317.7	503,779.0	72%	20,000.0	14305	19800	

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Alkali Seasonal Wetland Complex	3,373.0	3,722.0	91%	150.0	136		
Developed	154.9						
Grassland	76,020.2	77,495.0	98%	8,000.0	7848		
Managed Wetland	44,807.7	64,861.0	69%	1,500.0	1036		
Nontidal Freshwater Perennial Emergent Wetland	1.7	1,135.0	0%	0.0	0		
Nontidal Perennial Aquatic	0.0	5,421.0	0%	0.0	0		
Other Natural Seasonal Wetland	242.8	321.0	76%	0.0	0		
Tidal Brackish Emergent Wetland	1,740.9	8,351.0	21%	0.0	0		
Tidal Perennial Aquatic	16.5	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	140.7	17,930.0	1%	750.0	6		
Vernal Pool Complex	7,905.6	7,908.0	100%	600.0	600		
Yellow-breasted chat Total	14,763.6						
<i>Primary</i>	<i>7,384.4</i>				<i>309.0</i>		
Developed	0.0				0		
Valley/Foothill Riparian	7,384.4	17,930.0	41%	750.0	309		
<i>Secondary</i>	<i>5,530.4</i>				<i>231.0</i>		
Agricultural	0.0	503,779.0	0%	20,000.0	0		
Developed	0.0						
Valley/Foothill Riparian	5,530.4	17,930.0	31%	750.0	231		
<i>Suisun-Yolo Bypass</i>	<i>1,848.8</i>				<i>68.0</i>		
Agricultural	8.0	503,779.0	0%	20,000.0	0		
Developed	0.3						
Grassland	0.0	77,495.0	0%	8,000.0	0		
Managed Wetland	169.5	64,861.0	0%	1,500.0	4		
Tidal Brackish Emergent Wetland	138.6	8,351.0	2%	0.0	0		

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Tidal Perennial Aquatic	5.2	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	1,527.2	17,930.0	9%	750.0	64		
Reptiles							
Giant Garter Snake Total	124,708.7						
<i>Aquatic</i>	<i>29,430.3</i>				<i>502.0</i>		
Agricultural	12,636.8	503,779.0	3%	20,000.0	502		
Developed	0.0						
Grassland	0.0	77,495.0	0%	8,000.0	0		
Nontidal Freshwater Perennial Emergent Wetland	1,108.8	1,135.0	98%	0.0	0		
Nontidal Perennial Aquatic	5,265.4	5,421.0	97%	0.0	0		
Tidal Freshwater Emergent Wetland	5,757.9	8,947.0	64%	0.0	0		
Tidal Perennial Aquatic	4,661.4	86,236.0	5%	0.0	0		
Valley/Foothill Riparian	0.0	17,930.0	0%	750.0	0		
<i>Upland-High</i>	<i>18,377.6</i>				<i>172.0</i>		
Agricultural	4,344.0	503,779.0	1%	20,000.0	172		
Alkali Seasonal Wetland Complex	349.1	3,722.0	9%	150.0	14		
Developed	0.0						
Grassland	13,070.7	77,495.0	17%	8,000.0	1349		
Managed Wetland	596.3	64,861.0	1%	1,500.0	14		
Other Natural Seasonal Wetland	0.8	321.0	0%	0.0	0		
Valley/Foothill Riparian	0.0	17,930.0	0%	750.0	0		
Vernal Pool Complex	16.7	7,908.0	0%	600.0	1		
<i>Upland-Moderate</i>	<i>40,192.4</i>				<i>806.0</i>		
Agricultural	20,308.3	503,779.0	4%	20,000.0	806		
Alkali Seasonal Wetland Complex	224.3	3,722.0	6%	150.0	9		

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Developed	840.8						
Grassland	7,821.8	77,495.0	10%	8,000.0	807		
Managed Wetland	3,716.9	64,861.0	6%	1,500.0	86		
Other Natural Seasonal Wetland	95.8	321.0	30%	0.0	0		
Valley/Foothill Riparian	6,685.7	17,930.0	37%	750.0	280		
Vernal Pool Complex	498.8	7,908.0	6%	600.0	38		
<i>Upland-Low</i>	<i>36,708.5</i>				<i>1,221.0</i>		
Agricultural	24,883.0	503,779.0	5%	20,000.0	988		
Developed	6,305.7						
Grassland	0.0	77,495.0	0%	8,000.0	0		
Managed Wetland	30.0	64,861.0	0%	1,500.0	1		
Valley/Foothill Riparian	5,416.5	17,930.0	30%	750.0	227		
Vernal Pool Complex	73.3	7,908.0	1%	600.0	6		
Western pond turtle Total	746,963.6						
<i>Aquatic Habitat</i>	<i>81,523.2</i>				<i>253.0</i>		
Agricultural	49.2	503,779.0	0%	20,000.0	2		
Alkali Seasonal Wetland Complex	12.7	3,722.0	0%	150.0	1		
Developed	4.9						
Grassland	0.5	77,495.0	0%	8,000.0	0		
Managed Wetland	10,825.4	64,861.0	17%	1,500.0	250		
Nontidal Freshwater Perennial Emergent Wetland	757.8	1,135.0	67%	0.0	0		
Nontidal Perennial Aquatic	5,420.5	5,421.0	100%	0.0	0		
Tidal Brackish Emergent Wetland	5,769.9	8,351.0	69%	0.0	0		
Tidal Freshwater Emergent Wetland	8,946.1	8,947.0	100%	0.0	0		
Tidal Perennial Aquatic	49,736.2	86,236.0	58%	0.0	0		

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Valley/Foothill Riparian	0.0	17,930.0	0%	750.0	0		
<i>Dispersal</i>	<i>619,350.8</i>				<i>26,310.0</i>		
Agricultural	503,507.4	503,779.0	100%	20,000.0	19989		
Alkali Seasonal Wetland Complex	3,712.8	3,722.0	100%	150.0	150		
Developed	6.4						
Grassland	36,949.0	77,495.0	48%	8,000.0	3814		
Managed Wetland	51,415.7	64,861.0	79%	1,500.0	1189		
Other Natural Seasonal Wetland	321.4	321.0	100%	0.0	0		
Valley/Foothill Riparian	17,928.3	17,930.0	100%	750.0	750		
Vernal Pool Complex	5,509.8	7,908.0	70%	600.0	418		
<i>Upland</i>	<i>46,089.6</i>				<i>4,438.0</i>		
Agricultural	222.4	503,779.0	0%	20,000.0	9		
Developed	13.3						
Grassland	40,550.6	77,495.0	52%	8,000.0	4186		
Managed Wetland	2,619.9	64,861.0	4%	1,500.0	61		
Tidal Brackish Emergent Wetland	281.6	8,351.0	3%	0.0	0		
Tidal Perennial Aquatic	1.9	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	1.7	17,930.0	0%	750.0	0		
Vernal Pool Complex	2,398.2	7,908.0	30%	600.0	182		
Amphibians							
California red-legged frog Total	28,848.2						
<i>Aquatic Habitat</i>	<i>148.9</i>				<i>1.0</i>		
Managed Wetland	23.3	64,861.0	0%	1,500.0	1		
Nontidal Freshwater Perennial Emergent Wetland	34.4	1,135.0	3%	0.0	0		
Nontidal Perennial Aquatic	74.0	5,421.0	1%	0.0	0		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Protected Natural Community in the Model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (Acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Tidal Freshwater Emergent Wetland	5.8	8,947.0	0%	0.0	0		
Tidal Perennial Aquatic	10.5	86,236.0	0%	0.0	0		
Vernal Pool Complex	0.9	7,908.0	0%	600.0	0		
<i>Upland Cover and Dispersal Habitat</i>	<i>9,054.9</i>				<i>888.0</i>		
Agricultural	0.0	503,779.0	0%	20,000.0	0		
Developed	0.0						
Grassland	8,150.3	77,495.0	11%	8,000.0	841		
Valley/Foothill Riparian	645.3	17,930.0	4%	750.0	27		
Vernal Pool Complex	259.4	7,908.0	3%	600.0	20		
<i>Dispersal Habitat</i>	<i>19,644.4</i>				<i>780.0</i>		
Agricultural	19,644.4	503,779.0	4%	20,000.0	780		
California tiger salamander Total	36,226.5						
<i>Aquatic Breeding Habitat</i>	<i>7,331.8</i>				<i>555.0</i>		
Other Natural Seasonal Wetland	17.0	321.0	5%	0.0	0		
Vernal Pool Complex	7,314.8	7,908.0	92%	600.0	555		
<i>Terrestrial Cover and Aestivation</i>	<i>28,894.7</i>				<i>2,834.0</i>		
Alkali Seasonal Wetland Complex	2,361.0	3,722.0	63%	150.0	95		
Grassland	26,533.7	77,495.0	34%	8,000.0	2739		
Nontidal Perennial Aquatic	0.0	5,421.0	0%	0.0	0		
Western spadefoot Total	36,884.5						
<i>Aquatic Breeding Habitat</i>	<i>7,335.2</i>				<i>555.0</i>		
Other Natural Seasonal Wetland	20.4	321.0	6%	0.0	0		
Vernal Pool Complex	7,314.8	7,908.0	92%	600.0	555		
<i>Terrestrial Cover and Aestivation Habitat</i>	<i>29,549.3</i>				<i>2,873.0</i>		
Alkali Seasonal Wetland Complex	2,815.8	3,722.0	76%	150.0	113		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

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Grassland	26,733.5	77,495.0	34%	8,000.0	2760		
Nontidal Perennial Aquatic	0.0	5,421.0	0%	0.0	0		
Invertebrates							
California linderiella Total	10,401.0						
<i>High Quality Habitat</i>	7,770.4						
Vernal Pool Complex	7,770.4						
<i>Low Quality Habitat</i>	2,630.5						
Grassland	2,479.8						
Other Natural Seasonal Wetland	13.2						
Vernal Pool Complex	137.5						
Valley elderberry longhorn beetle Total	34,281.1						
<i>Riparian Habitat</i>	17,796.4				744.0 ¹		
Agricultural	7.5	503,779.0	0%	20,000.0	0		
Developed	0.2				0		
Grassland	0.0	77,495.0	0%	8,000.0	0		
Managed Wetland	4.0	64,861.0	0%	1,500.0	0		
Tidal Brackish Emergent Wetland	0.6	8,351.0	0%	0.0	0		
Tidal Perennial Aquatic	0.0	86,236.0	0%	0.0	0		
Valley/Foothill Riparian	17,784.0	17,930.0	99%	750.0	744		
<i>Grassland within 200ft</i>	16,484.8				1,657.0		
Agricultural	28.5	503,779.0	0%	20,000.0	1		
Alkali Seasonal Wetland Complex	0.0	3,722.0	0%	150.0	0		
Developed	10.9						
Grassland	15,847.2	77,495.0	20%	8,000.0	1636		
Managed Wetland	350.5	64,861.0	1%	1,500.0	8		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Protected Natural Community in the Model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (Acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Nontidal Perennial Aquatic	0.0	5,421.0	0%	0.0	0		
Tidal Brackish Emergent Wetland	95.0	8,351.0	1%	0.0	0		
Tidal Perennial Aquatic	2.1	86,236.0	0%	0.0	0		
Vernal Pool Complex	150.5	7,908.0	2%	600.0	11		
Conservancy fairy shrimp Total	10,401.0						
<i>High Quality Habitat</i>	7,770.4						
Vernal Pool Complex	7,770.4						
<i>Low Quality Habitat</i>	2,630.5						
Grassland	2,479.8						
Other Natural Seasonal Wetland	13.2						
Vernal Pool Complex	137.5						
Longhorn fairy shrimp Total	10,401.0						
<i>High Quality Habitat</i>	7,770.4						
Vernal Pool Complex	7,770.4						
<i>Low Quality Habitat</i>	2,630.5						
Grassland	2,479.8						
Other Natural Seasonal Wetland	13.2						
Vernal Pool Complex	137.5						
Midvalley fairy shrimp Total	10,401.0						
<i>High Quality Habitat</i>	7,770.4						
Vernal Pool Complex	7,770.4						
<i>Low Quality Habitat</i>	2,630.5						
Grassland	2,479.8						
Other Natural Seasonal Wetland	13.2						
Vernal Pool Complex	137.5						

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Protected Natural Community in the Model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (Acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Vernal pool fairy shrimp Total	10,401.0						
<i>High Quality Habitat</i>	7,770.4						
Vernal Pool Complex	7,770.4						
<i>Low Quality Habitat</i>	2,630.5						
Grassland	2,479.8						
Other Natural Seasonal Wetland	13.2						
Vernal Pool Complex	137.5						
Vernal pool tadpole shrimp Total	10,401.0						
<i>High Quality Habitat</i>	7,770.4						
Vernal Pool Complex	7,770.4						
<i>Low Quality Habitat</i>	2,630.5						
Grassland	2,479.8						
Other Natural Seasonal Wetland	13.2						
Vernal Pool Complex	137.5						
¹ Only a portion will benefit the species.							

1
2

1 **Table 5.K-13. Natural Community Restoration Contributing to Covered Species Conservation, Plants**

Resource	Acres of Natural Community in the Model	Percent Increase in Community Type due to Restoration	Total Potential Increase in Species Habitat due to Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration
Plants					
Alkali milk-vetch Total	10,401.0		153.5		
<i>Degraded Vernal Pool</i>	2,493.0		64.47		
Grassland	2,479.8	2.6%	64.5		
Other Natural Seasonal Wetland	13.2	0.0%	-		
<i>Vernal Pool Complex</i>	7,908.0		86.99	89	
Vernal Pool Complex	7,908.0	1.1%	87.0		
Caper-fruited tropidocarpum Total	1,409.7		35.8		
<i>Habitat</i>	1,409.7		35.77		
Developed	0.0	0.0%	-		
Grassland	1,350.6	2.6%	35.1		
Vernal Pool Complex	59.1	1.1%	0.6		
Carquinez goldenbush Total	1,018.0		22.4		
<i>Habitat</i>	1,018.0		22.37		
Agricultural	67.9	0.0%	-		
Alkali Seasonal Wetland Complex	20.1	0.0%	-		
Developed	9.0	0.0%	-		
Grassland	502.6	2.6%	13.1		
Managed Wetland	37.3	0.5%	0.2		
Nontidal Freshwater Perennial Emergent Wetland	3.5	0.0%	-		
Nontidal Perennial Aquatic	3.1	7.4%	0.2		
Other Natural Seasonal Wetland	18.7	0.0%	-		
Tidal Brackish Emergent Wetland	1.6	57.5%	0.9		
Tidal Freshwater Emergent Wetland	1.1	155.4%	1.7		
Tidal Perennial Aquatic	0.2	11.6%	0.0		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Natural Community in the Model	Percent Increase in Community Type due to Restoration	Total Potential Increase in Species Habitat due to Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration
Valley/Foothill Riparian	8.8	27.9%	2.5		
Vernal Pool Complex	344.1	1.1%	3.8		
Delta button-celery Total	3,329.2		276.7		
<i>Habitat</i>	<i>3,329.2</i>		<i>276.68</i>		
Agricultural	575.0	0.0%	-		
Alkali Seasonal Wetland Complex	94.2	0.0%	-		
Developed	8.6	0.0%	-		
Grassland	1,532.6	2.6%	39.8		
Other Natural Seasonal Wetland	2.7	0.0%	-		
Tidal Freshwater Emergent Wetland	12.7	155.4%	19.7		
Valley/Foothill Riparian	764.8	27.9%	213.4		
Vernal Pool Complex	338.7	1.1%	3.7		
Delta mudwort Total	6,074.2		2,018.0		
<i>Habitat</i>	<i>6,074.2</i>		<i>2,017.97</i>		
Agricultural	123.8	0.0%	-		
Alkali Seasonal Wetland Complex	4.7	0.0%	-		
Developed	464.6	0.0%	-		
Grassland	272.5	2.6%	7.1		
Managed Wetland	79.5	0.5%	0.4		
Nontidal Freshwater Perennial Emergent Wetland	3.9	0.0%	-		
Nontidal Perennial Aquatic	1.0	7.4%	0.1		
Other Natural Seasonal Wetland	0.8	0.0%	-		
Tidal Brackish Emergent Wetland	364.6	57.5%	209.6		
Tidal Freshwater Emergent Wetland	761.3	155.4%	1,183.1		
Tidal Perennial Aquatic	3,052.5	11.6%	354.1		
Valley/Foothill Riparian	944.8	27.9%	263.6		
Vernal Pool Complex	0.1	1.1%	0.0		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Natural Community in the Model	Percent Increase in Community Type due to Restoration	Total Potential Increase in Species Habitat due to Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration
Delta tule pea Total	5,819.1		3,092.1		
<i>Habitat</i>	<i>5,819.1</i>		<i>3,092.08</i>		
Agricultural	42.9	0.0%	-		
Grassland	157.8	2.6%	4.1		
Tidal Brackish Emergent Wetland	5,137.3	57.5%	2,954.0		
Tidal Perennial Aquatic	1.1	11.6%	0.1		
Valley/Foothill Riparian	479.8	27.9%	133.9		
Heartscale Total	6,070.5		112.7		
<i>Habitat</i>	<i>6,070.5</i>		<i>112.75</i>		
Alkali Seasonal Wetland Complex	541.2	0.0%	-		
Grassland	3,461.7	2.6%	90.0		
Vernal Pool Complex	2,067.5	1.1%	22.7		
Mason's lilaeopsis Total	6,074.2		2,018.0		
<i>Habitat</i>	<i>6,074.2</i>		<i>2,017.97</i>		
Agricultural	123.8	0.0%	-		
Alkali Seasonal Wetland Complex	4.7	0.0%	-		
Developed	464.6	0.0%	-		
Grassland	272.5	2.6%	7.1		
Managed Wetland	79.5	0.5%	0.4		
Nontidal Freshwater Perennial Emergent Wetland	3.9	0.0%	-		
Nontidal Perennial Aquatic	1.0	7.4%	0.1		
Other Natural Seasonal Wetland	0.8	0.0%	-		
Tidal Brackish Emergent Wetland	364.6	57.5%	209.6		
Tidal Freshwater Emergent Wetland	761.3	155.4%	1,183.1		
Tidal Perennial Aquatic	3,052.5	11.6%	354.1		
Valley/Foothill Riparian	944.8	27.9%	263.6		
Vernal Pool Complex	0.1	1.1%	0.0		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Natural Community in the Model	Percent Increase in Community Type due to Restoration	Total Potential Increase in Species Habitat due to Restoration	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Restoration
San Joaquin spearscale Total			151.5		
<i>Degraded Vernal Pool Complex</i>	2,493.0		64.47		
Grassland	2,479.8	2.6%	64.5		
Other Natural Seasonal Wetland	13.2	0.0%	-		
<i>Vernal Pool Complex</i>	7,908.0		86.99		
Vernal Pool Complex	7,908.0	1.1%	87.0		
Slough thistle Total	1,834.5		245.3		
<i>Habitat</i>	1,834.5		245.34		
Agricultural	575.0	0.0%	-		
Developed	8.6	0.0%	-		
Grassland	470.7	2.6%	12.2		
Other Natural Seasonal Wetland	2.7	0.0%	-		
Tidal Freshwater Emergent Wetland	12.7	155.4%	19.7		
Valley/Foothill Riparian	764.8	27.9%	213.4		
Soft bird's-beak Total	1,224.8		649.2		
<i>Habitat</i>	1,224.8		649.20		
Alkali Seasonal Wetland Complex	95.8	0.0%	-		
Grassland	0.0	2.6%	0.0		
Tidal Brackish Emergent Wetland	1,129.0	57.5%	649.2		
Suisun marsh aster Total	5,819.1		3,092.1		
<i>Habitat</i>	5,819.1		3,092.08		
Agricultural	42.9	0.0%	-		
Grassland	157.8	2.6%	4.1		
Tidal Brackish Emergent Wetland	5,137.3	57.5%	2,954.0		
Tidal Perennial Aquatic	1.1	11.6%	0.1		
Valley/Foothill Riparian	479.8	27.9%	133.9		
Suisun thistle Total	1,129.0		649.2		

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<i>Habitat</i>	1,129.0		649.20		
Grassland	0.0	2.6%	0.0		
Tidal Brackish Emergent Wetland	1,129.0	57.5%	649.2		
Side-flowering skullcap Total	2,494.7		696.0		
<i>Habitat</i>	2,494.7		696.01		
Developed	0.0	0.0%	-		
Valley/Foothill Riparian	2,494.7	27.9%	696.0		

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2

Administrative Draft

1 **Table 5.K-14. Natural Community Protection Contributing to Covered Species Conservation, Plants**

Resource	Acres of Protected Natural Community in the model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Plants							
Alkali milk-vetch Total	10,401.0						
<i>Degraded Vernal Pool</i>	2,493.0				256.0		
Grassland	2,479.8	77,495.0	3%	8,000.0	256		
Other Natural Seasonal Wetland	13.2	321.0	4%	0.0	0		
<i>Vernal Pool Complex</i>	7,908.0				600.0		
Vernal Pool Complex	7,908.0	7,908.0	100%	600.0	600		
Caper-fruited tropidocarpum Total	1,409.7						
<i>Habitat</i>	1,409.7				143.0		
Developed	0.0				0		
Grassland	1,350.6	77,495.0	0.0	8,000.0	139		
Vernal Pool Complex	59.1	7,908.0	0.0	600.0	4		
Carquinez goldenbush Total	1,018.0						
<i>Habitat</i>	1,018.0				83.0		
Agricultural	67.9	503,779.0	0.0	20,000.0	3		
Alkali Seasonal Wetland Complex	20.1	3,722.0	0.0	150.0	1		
Developed	9.0						
Grassland	502.6	77,495.0	0.0	8,000.0	52		
Managed Wetland	37.3	64,861.0	0.0	1,500.0	1		
Nontidal Freshwater Perennial Emergent Wetland	3.5	1,135.0	0.0	0.0	0		
Nontidal Perennial Aquatic	3.1	5,421.0	0.0	0.0	0		
Other Natural Seasonal Wetland	18.7	321.0	0.1	0.0	0		
Tidal Brackish Emergent Wetland	1.6	8,351.0	0.0	0.0	0		
Tidal Freshwater Emergent Wetland	1.1	8,947.0	0.0	0.0	0		

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Appendix 5.K.

Resource	Acres of Protected Natural Community in the model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Tidal Perennial Aquatic	0.2	86,236.0	0.0	0.0	0		
Valley/Foothill Riparian	8.8	17,930.0	0.0	750.0	0		
Vernal Pool Complex	344.1	7,908.0	0.0	600.0	26		
Delta button-celery Total	3,329.2						
<i>Habitat</i>	<i>3,329.2</i>				<i>243.0</i>		
Agricultural	575.0	503,779.0	0.0	20,000.0	23		
Alkali Seasonal Wetland Complex	94.2	3,722.0	0.0	150.0	4		
Developed	8.6						
Grassland	1,532.6	77,495.0	0.0	8,000.0	158		
Other Natural Seasonal Wetland	2.7	321.0	0.0	0.0	0		
Tidal Freshwater Emergent Wetland	12.7	8,947.0	0.0	0.0	0		
Valley/Foothill Riparian	764.8	17,930.0	0.0	750.0	32		
Vernal Pool Complex	338.7	7,908.0	0.0	600.0	26		
Delta mudwort Total	6,074.2						
<i>Habitat</i>	<i>6,074.2</i>				<i>75.0</i>		
Agricultural	123.8	503,779.0	0.0	20,000.0	5		
Alkali Seasonal Wetland Complex	4.7	3,722.0	0.0	150.0	0		
Developed	464.6						
Grassland	272.5	77,495.0	0.0	8,000.0	28		
Managed Wetland	79.5	64,861.0	0.0	1,500.0	2		
Nontidal Freshwater Perennial Emergent Wetland	3.9	1,135.0	0.0	0.0	0		
Nontidal Perennial Aquatic	1.0	5,421.0	0.0	0.0	0		
Other Natural Seasonal Wetland	0.8	321.0	0.0	0.0	0		
Tidal Brackish Emergent Wetland	364.6	8,351.0	0.0	0.0	0		
Tidal Freshwater Emergent Wetland	761.3	8,947.0	0.1	0.0	0		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Protected Natural Community in the model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Tidal Perennial Aquatic	3,052.5	86,236.0	0.0	0.0	0		
Valley/Foothill Riparian	944.8	17,930.0	0.1	750.0	40		
Vernal Pool Complex	0.1	7,908.0	0.0	600.0	0		
Delta tule pea Total	5,819.1						
<i>Habitat</i>	<i>5,819.1</i>				<i>38.0</i>		
Agricultural	42.9	503,779.0	0.0	20,000.0	2		
Grassland	157.8	77,495.0	0.0	8,000.0	16		
Tidal Brackish Emergent Wetland	5,137.3	8,351.0	0.6	0.0	0		
Tidal Perennial Aquatic	1.1	86,236.0	0.0	0.0	0		
Valley/Foothill Riparian	479.8	17,930.0	0.0	750.0	20		
Heartscale Total	6,070.5						
<i>Habitat</i>	<i>6,070.5</i>				<i>536.0</i>		
Alkali Seasonal Wetland Complex	541.2	3,722.0	15%	150.0	22		
Grassland	3,461.7	77,495.0	4%	8,000.0	357		
Vernal Pool Complex	2,067.5	7,908.0	26%	600.0	157		
Mason's lilaepsis Total	6,074.2						
<i>Habitat</i>	<i>6,074.2</i>				<i>75.0</i>		
Agricultural	123.8	503,779.0	0.0	20,000.0	5		
Alkali Seasonal Wetland Complex	4.7	3,722.0	0.0	150.0	0		
Developed	464.6						
Grassland	272.5	77,495.0	0.0	8,000.0	28		
Managed Wetland	79.5	64,861.0	0.0	1,500.0	2		
Nontidal Freshwater Perennial Emergent Wetland	3.9	1,135.0	0.0	0.0	0		
Nontidal Perennial Aquatic	1.0	5,421.0	0.0	0.0	0		
Other Natural Seasonal Wetland	0.8	321.0	0.0	0.0	0		

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Tidal Brackish Emergent Wetland	364.6	8,351.0	0.0	0.0	0		
Tidal Freshwater Emergent Wetland	761.3	8,947.0	0.1	0.0	0		
Tidal Perennial Aquatic	3,052.5	86,236.0	0.0	0.0	0		
Valley/Foothill Riparian	944.8	17,930.0	0.1	750.0	40		
Vernal Pool Complex	0.1	7,908.0	0.0	600.0	0		
San Joaquin spearscale Total							
<i>Degraded Vernal Pool Complex</i>	2,493.0				256.0		
Grassland	2,479.8	77,495.0	0.0	8,000.0	256		
Other Natural Seasonal Wetland	13.2	321.0	0.0	0.0	0		
<i>Vernal Pool Complex</i>	7,908.0				600.0		
Vernal Pool Complex	7,908.0	7,908.0	1.0	600.0	600		
Soft bird's-beak Total	1,224.8						
<i>Habitat</i>	1,224.8				4.0		
Alkali Seasonal Wetland Complex	95.8	3,722.0	0.0	150.0	4		
Grassland	0.0	77,495.0	0.0	8,000.0	0		
Tidal Brackish Emergent Wetland	1,129.0	8,351.0	0.1	0.0	0		
Slough thistle Total	1,834.5						
<i>Habitat</i>	1,834.5				103.0		
Agricultural	575.0	503,779.0	0%	20,000.0	23		
Developed	8.6						
Grassland	470.7	77,495.0	1%	8,000.0	49		
Other Natural Seasonal Wetland	2.7	321.0	1%	0.0	0		
Tidal Freshwater Emergent Wetland	12.7	8,947.0	0%	0.0	0		
Valley/Foothill Riparian	764.8	17,930.0	4%	750.0	32		
Side-flowering skullcap Total	2,494.7						
<i>Habitat</i>	2,494.7				104.0		

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Effects on Natural Communities, Wildlife, and Plants

Appendix 5.K.

Resource	Acres of Protected Natural Community in the model	Total Acres of Natural Community in the Plan Area	Percent of the Natural Community in the Species Model	Natural Community Protection	Increase in Protected Lands (acres)	Minimum Restoration Commitment from Species-Specific BGO	Total Natural Community Contribution to Species-Specific Habitat Protection
Developed	0.0				0		
Valley/Foothill Riparian	2,494.7	17,930.0	0.1	750.0	104		
Suisun marsh aster Total	5,819.1						
<i>Habitat</i>	<i>5,819.1</i>				<i>38.0</i>		
Agricultural	42.9	503,779.0	0.0	20,000.0	2		
Grassland	157.8	77,495.0	0.0	8,000.0	16		
Tidal Brackish Emergent Wetland	5,137.3	8,351.0	0.6	0.0	0		
Tidal Perennial Aquatic	1.1	86,236.0	0.0	0.0	0		
Valley/Foothill Riparian	479.8	17,930.0	0.0	750.0	20		
Suisun thistle Total	1,129.0						
<i>Habitat</i>	<i>1,129.0</i>				<i>0.0</i>		
Grassland	0.0	77,495.0	0%	8,000.0	0		
Tidal Brackish Emergent Wetland	1,129.0	8,351.0	14%	0.0	0		

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1 **Table 5.K-15. Natural Community Loss by Transmission Line Construction**

Natural Community	Extent Removed (acres)							
	Alternative 1— North Alignment		Alternative 2— North Alignment		Alternative A— South Alignment		Alternative B— South Alignment	
	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary	Permanent	Temporary
Tidal perennial aquatic ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tidal mudflat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tidal brackish emergent wetland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tidal freshwater emergent wetland	0.1	3.2	0.0	0.8	0.0	6.4	0.0	1.3
Valley foothill riparian	0.2	22.7	0.1	13.8	0.0	11.8	0.1	24.5
Non-tidal perennial aquatic ¹	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-tidal permanent freshwater emergent wetland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Alkali seasonal wetland complex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Vernal pool complex	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Managed wetlands	0.0	0.0	0.1	3.1	0.0	3.8	0.1	3.9
Other natural seasonal wetland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grassland	0.2	37.4	0.2	33.9	0.8	93.2	0.7	105.1
Cultivated lands								
Alfalfa	0.1	9.4	0.2	16.3	0.6	40.3	1.4	109.9
Irrigated Pasture	0.0	4.0	0.5	37.9	0.1	16.4	0.9	72.9
Rice	0.0	0.0	0.0	0.0	0.0	0.6	0.2	12.9
Other Cultivated Crops	0.4	77.4	0.5	79.8	3.1	264.9	2.4	221.3
Subtotal	0.5	90.8	1.1	134.0	3.8	322.1	5.0	417.0
Total	1.0	154.1	1.4	185.7	4.6	437.3	5.9	551.8

¹ Transmission line towers/poles are assumed to not be placed in water and, therefore, no effects are assumed for this community.
Shading indicates maximum acres (permanent or temporary) applied to acres of species habitat removed by transmission lines.

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