

6.0 Conservation Plan

The Water Authority will protect Covered Species and their habitats by meeting the Plan's goals and objectives (Section 6.1) and implementing habitat conservation measures contained in this section and as described for individual Covered Species in the Conservation Analysis (Appendix B). The Covered Species (Section 6.2) were selected because of the potential for Covered Activities (Section 5.0) to impact those species and their habitats. Based on the commitments in this Plan, sufficient conservation will be implemented (Section 6.3) to justify the incidental take authorizations (exemptions) for listed Covered Species and any Covered Species that is subsequently listed (with the exception of three species, vernal pool fairy shrimp, Orcutt grass, and Munz's onion, which require a Major Amendment). The Plan describes minimization (Section 6.4) and mitigation (Sections 6.5 through 6.7) measures; the Preserve Area (Section 6.8); previously conserved and managed mitigation areas (Section 6.9); the process to augment the Preserve Area (Section 6.10); and Preserve management (Section 6.11) and monitoring and adaptive management (Section 6.12) that comprise the essential conservation measures.

In addition to the designated Preserve Area and MMAs, where conservation actions would not adversely affect its mission, the Water Authority agrees to maintain its fee-owned rights-of-way as native habitat where they occur in and around its facilities. The Water Authority will retain and manage its fee-owned rights-of-way habitat to supplement adjoining preserve lands that are part of, or provide connections to, other conservation plan lands. To the extent that fee-owned rights-of-way can serve two purposes (i.e., function for Water Authority facilities and connect fragmented habitat areas) or may contribute to the habitat carrying capacity of other preserve lands managed as a part of other conservation plans, the Water Authority-owned rights-of-way and easements would provide building blocks for the creation of wildlife corridors, similar to SDG&E utility corridors. No conservation easements are proposed over Water Authority rights-of-way. If the Wildlife Agencies desire to utilize such lands to link habitats or be preserves, the Water Authority will work to achieve these shared goals as long as such joint uses do not impede the Water Authority's ability to maintain facilities and fulfill the Water Authority's mission.

The Water Authority will compensate for impacts to Covered Species and loss of their habitat by deducting credits from its upland and wetland HMAs established for this use, either previous to or as a requirement of this Plan. The use of mitigation credits (acres) for permanent impacts will require the permanent withdrawal of credits. Where on-site habitat enhancement and restoration are expected to mitigate temporary impacts, the Water Authority will ensure sufficient credits remain in one or more HMAs to provide off-site mitigation should the enhancement or restoration not meet the performance criteria.

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Through the implementation of conservation measures identified in this section, the Water Authority will minimize and mitigate impacts to Covered Species. The Water Authority's Plan includes 63 Covered Species. Of the Covered Species, 18 are considered narrow endemics. Three species are considered Major Amendment Species because they are known to primarily occur in the Plan's Major Amendment Area in Riverside County.

6.1 Conservation Plan Strategy, Goals and Objectives

6.1.1 Conservation Strategy

This Plan adheres to the intent and expectations of the state's NCCPA (as amended) and federal HCP process, as described in Section 1.5.1. The Water Authority is not a general land use agency, has a general set of projects and activities that traverse many other agencies' conservation plan reserves, and has assembled its conservation plan primarily by providing additional habitat lands to complement those reserves, rather than creating a "stand-alone" preserve system. The Plan's central conservation strategy relies on previous contributions of regionally-significant habitat lands (baseline conservation that benefited many of the conserved habitats and Covered Species), full compensation for all new impacts to conserved habitats and any incidental take of Covered Species, a significant additional habitat land contribution (above the anticipated required compensation for future impacts), and funding to ensure monitoring and management of the preserve lands.

After reviewing the Water Authority's draft Plan, the Independent Science Advisors Report (Attachment B-2 of Appendix B) stated that this Plan represents a unique case because the projects are mostly linear and the mitigation areas were for the most part already established. For those reasons, the advisors stated that there was no clear opportunity to review whether the Plan adequately addressed (all of) the NCCP tenets of reserve design. However, they recommended that the preserve lands be evaluated for their contribution to the regional conservation strategies of the other conservation plans, connectivity to other protected areas, and support of Covered Species. The conservation contributions of the Preserve Area and MMAs are described in Sections 6.8 and 6.9, respectively.

6.1.2 Goals and Objectives

6.1.2.1 Goal 1

Ensure habitat and species diversity through the identification and protection of lands in Preserve Areas for the benefit of Covered Species.

- Objective 1.1: Preserve Area managers will ensure that the approximately 1,920 acres of Preserve Area lands are conserved and managed consistent with the needs of the Covered Species known or expected to occur on those lands. The 1,147 acres of MMA lands provide additional habitat (baseline conservation) value to Covered Species but are not part of the Preserve Area.
- Objective 1.2: Water Authority will ensure the conservation of specified acreages of suitable vegetation communities as described in Sections 6.8 and 6.9 to support the Covered Species known or expected to occur in the Preserve Area and MMAs.
- Objective 1.3: Identify/document the conserved habitats and Covered Species that are proposed to be created/supported on each proposed Preserve Area property (creation will occur primarily in wetland HMAs).

6.1.2.2 Goal 2

Provide and implement conservation measures that meet the environmental needs of the Covered Species, based on the best available scientific information.

- Objective 2.1: Preserve Area managers will document that the conserved habitats are adequate to contribute to support populations of the Covered Species known or expected to occur within each Preserve Area property.
- Objective 2.2: Water Authority and Preserve Area managers will document that the Preserve Area's credits are sufficient to mitigate the types and acres of habitats and Covered Species anticipated to be impacted by the Plan; or, that appropriate additional credits or habitats will be provided by the Plan.
- Objective 2.3: Preserve Area managers will document that each Preserve Area property (and the Water Authority for its properties, if appropriate) provides for movement and interchange of Covered Species.

6.1.2.3 Goal 3

Identify and implement environmentally sensitive methods for planning, construction, and O&M (Covered Activities) that minimize project impacts and ensure that activities

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within the Preserve Area are compatible with the habitats and species conservation and ecological functions.

- Objective 3.1: Water Authority will document that the Covered Activities specify procedures and practices to minimize impacts to conserved habitats and Covered Species that may occur within the project areas.
- Objective 3.2: Preserve Area managers will document that management plans developed for each Preserve Area property specifies procedures and practices to minimize impacts to conserved habitats and Covered Species.

6.1.2.4 Goal 4

Provide and implement an adaptive management program with measurable objectives for vegetation types and Covered Species, where appropriate.

- Objective 4.1: Water Authority will document that each Preserve Area has, or specifies an appropriate timeline to produce, a management plan with an adaptive management element. Adaptive management measures will complement (and generally be consistent with) those in other conservation plans within the Plan Area.
- Objective 4.2: Water Authority will document that delegated preserve managers are implementing the management plans/adaptive management programs and that adequate funding is available to carry out management functions.

6.1.2.5 Goal 5

Provide and implement a monitoring and reporting process.

- Objective 5.1: Water Authority will prepare an annual report summarizing impacts/mitigation, conservation, and management/monitoring occurring under the Plan.
- Objective 5.2: Preserve Area managers will document that each Preserve Area property has, or provides an appropriate timeline to produce, an annual monitoring and reporting plan.
- Objective 5.3: Water Authority will document that each annual reporting plan provides the required information and is submitted to the appropriate agencies in a timely manner.

6.2 Covered Species

Covered Species are those plant and animal species, listed or unlisted, that are considered adequately conserved and managed by actions outlined in this Plan, and for which impacts will be avoided or minimized and mitigated, such that impacts to these species and loss of their habitat can occur pursuant to the Plan and IA. Under the state NCCPA standards, the Plan must assure that the Covered Species are conserved and managed. As such, coverage for each species will require a determination of conservation as defined in the NCCPA (Fish and Game Code, Section 2805). Pursuant to federal ESA standards, species can be covered when there is a potential for impact, provided Plan implementation will contribute to a net benefit to the species' overall viability throughout the region by increasing protection of habitat and beneficial management.

For species Covered by the Plan, impacts will be avoided, minimized, and mitigated; Plan implementation will support the species' viability in the Plan Area; and, for listed species, Plan implementation will contribute to their recovery. The Water Authority will be authorized for incidental take of these species and loss of their habitat (including losses that do not adversely modify designated critical habitat) resulting from implementation of Covered Activities, provided the Plan is implemented as described in this document and the IA. The standards for mitigation and protection afforded to the non-listed Covered Species in this Plan are equivalent to those afforded to the listed Covered Species.

6.2.1 Covered Species

Species that are identified as covered by this Plan that are not listed as threatened or endangered at the time the IA is signed, but that are listed in the future, will be covered by the permits without the need for a Plan amendment. Table 6-1 is a summary list of the Covered Species. These include:

- Twenty-six plant species;
- Five invertebrate species;
- Two amphibian species;
- Nine reptile species;
- Thirteen bird species; and
- Eight mammal species.

The Plan Area covers a wide range of habitats and spans portions of the ranges for numerous plants and animals. To determine which species within the Plan Area

**TABLE 6-1
COVERED SPECIES SUMMARY LIST**

Scientific Name	Common Name
Plants	
<i>Acanthomintha ilicifolia</i>	San Diego thorn-mint
<i>Adolphia californica</i>	California adolphia
<i>Ambrosia pumila</i>	San Diego ambrosia
<i>Baccharis vanessae</i>	Encinitas baccharis
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea
<i>Brodiaea orcuttii</i>	Orcutt's brodiaea
<i>Calochortus dunnii</i>	Dunn's mariposa lily
<i>Ceanothus cyaneus</i>	Lakeside ceanothus
<i>Centromadia parryi</i> ssp. <i>Australis</i>	Southern tarplant
<i>Centromadia pungens</i> ssp. <i>Laevis</i>	Smooth tarplant
<i>Deinandra conjugens</i>	Otay tarplant
<i>Dudleya variegata</i>	Variegated dudleya
<i>Dudleya viscida</i>	Sticky-leaved dudleya
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery
<i>Ferocactus viridescens</i>	San Diego barrel cactus
<i>Iva hayesiana</i>	San Diego marsh-elder
<i>Monardella hypoleuca</i> ssp. <i>Lanata</i>	Felt-leaved monardella
<i>Monardella viminea</i>	Willow monardella
<i>Muilla clevelandii</i>	San Diego goldenstar
<i>Navarretia fossalis</i>	Spreading navarretia
<i>Nolina cismontana</i>	Chaparral nolina
<i>Pogogyne abramsii</i>	San Diego mesa mint
<i>Pogogyne nudiuscula</i>	Otay Mesa mint
<i>Quercus dumosa</i>	Nuttall's scrub oak
<i>Salvia munzii</i>	Munz's sage
<i>Tetracoccus dioicus</i>	Parry's tetracoccus
Invertebrates	
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly
<i>Euphyes vestris harbisoni</i>	Harbison's Dun skipper
<i>Lycaena hermes</i>	Hermes copper butterfly
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp
Amphibians	
<i>Anaxyrus (=Bufo) californicus</i>	Arroyo toad
<i>Spea hammondi</i>	Western spadefoot toad
Reptiles	
<i>Actinemys marmorata pallida</i>	Southern Pacific (Southwestern) pond turtle
<i>Aspidoscelis hyperythra beldingi</i>	Belding's orange-throated whiptail
<i>Aspidoscelis tigris stejnegeri</i>	Coastal (western) whiptail
<i>Coleonyx variegates abbottii</i>	San Diego banded gecko
<i>Crotalus ruber</i>	(Northern) red diamond rattlesnake

**TABLE 6-1
COVERED SPECIES SUMMARY LIST
(continued)**

Scientific Name	Common Name
<i>Diadophis punctatus similis</i>	San Diego ring-neck snake
<i>Eumeces skiltonianus interparietalis</i>	Coronado skink
<i>Lichanura trivirgata roseofusca</i>	Coastal rosy boa
<i>Phrynosoma coronatum blainvillii</i>	Coast (San Diego horned) lizard
Birds	
<i>Agelaius tricolor</i>	Tricolored blackbird
<i>Aimophila ruficeps canescens</i>	Southern California rufous-crowned sparrow
<i>Ammodramus savannarum</i>	Grasshopper sparrow
<i>Amphispiza belli belli</i>	Bell's sage sparrow
<i>Athene cunicularia hypugaea</i>	Western burrowing owl
<i>Campylorhynchus brunneicapillus sandiegensis</i>	San Diego cactus wren
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher
<i>Eremophila alpestris californica</i>	California horned lark
<i>Dendroica petechia brewsteri</i>	Yellow warbler
<i>Icteria virens</i>	Yellow-breasted chat
<i>Lanius ludovicianus</i>	Loggerhead shrike
<i>Polioptila californica californica</i>	Coastal California gnatcatcher
<i>Vireo belli pusillus</i>	Least Bell's vireo
Mammals	
<i>Chaetodipus californicus femoralis</i>	Dulzura pocket mouse
<i>Chaetodipus fallax fallax</i>	Northwestern San Diego pocket mouse
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat
<i>Felis concolor</i>	Mountain lion
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit
<i>Neotoma lepida intermedia</i>	San Diego woodrat
<i>Onychomys torridus ramona</i>	Southern grasshopper mouse
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse

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warranted consideration for coverage under the Plan, information such as distribution, status, and degree of existing protection of the species on Water Authority HMAs, MMAs, and rights-of-way was evaluated to determine the potential that a Covered Activity (including Planned and Future Projects) could impact a species. The process to determine the list of Covered Species is discussed further in Section 1.2, Species Coverage, of Appendix B. Based on current listing and sensitivity information, habitat distribution data, and proposed and existing conservation/management conditions, a total of 26 plant species and 37 animal species are known to occur or have potential to occur within the Plan Area and are proposed for coverage under this Plan. Appendix B includes descriptions of each species, their habitat requirements, management commitments, and applicable policies for each Covered Species. Three of these species, Orcutt grass, vernal pool fairy shrimp, and Munz's onion, are Major Amendment Species, and coverage would be processed under a Major Amendment for the Riverside County portion of the Plan Area.

Species included are federally and/or state-listed as rare, threatened, endangered, or are likely candidates for future listing as rare, threatened, or endangered based on present population declines, diminishing habitat, or existing levels of sensitivity. Assessments of the sensitivity of species are based primarily on the following documents: California Native Plant Society (CNPS; 2001), State of California (2000, 2006a, 2006b, 2007a, 2007b), and USFWS (2006). Floral nomenclature for common plants follows Hickman (1993) as updated by the Jepson Online Interchange (Jepson Flora Project 2008). Zoological nomenclature is in accordance with the following: birds—the American Ornithologists' Union Checklist (1998 and supplements); fish—University of Texas (2006) and State of California (2000); butterflies—Mattoni (1990) and Opler and Wright (1999); mammals—Hall (1981) and Baker et al. (2003); and amphibians and reptiles—Crother (2001) and Crother et al. (2003). Where noted, the common names of some species may not be consistent with accepted nomenclature in order to remain consistent with other MSCP documents from the region. A description of the data sources and methods related to Covered Species is provided as an introduction to the Conservation Analysis (see Section 1.1, Selection Criteria of Appendix B).

6.2.2 General Conditions for Covered Species Not Documented in Preserve Areas

Most Covered Species are known to occur or have potential to occur within the Survey Area and are present in the Preserve Area. The conservation and mitigation commitments for many of the Covered Species will be provided by the use of habitat credits available in the Preserve Area properties, which support key vegetation communities and a number of the Covered Species. However, not all of the Covered Species are known to occur within the Preserve Area. For a Covered Species whose presence has not been documented in the Preserve Area, coverage will require demonstration that one or more of the following conditions is met, as well as

implementation of both general and species-specific conditions that have been identified for Covered Species (see Section 2.1 and the Conditions for Coverage for each Covered Species in Appendix B). In addition to these conditions, the Water Authority shall demonstrate that a Covered Activity will avoid, minimize, or mitigate impacts to the species (by meeting the species-specific criteria and one or more of the following conditions) at the time that a Covered Activity is proposed to be implemented. The Water Authority will select which of the following conditions are appropriate on a species-by-species basis in consultation with the Wildlife Agencies. No impacts may occur to the species in question unless the Wildlife Agencies have concurred in writing the selection of the conditions to be applied.

1. Demonstrate that adequate suitable habitat already exists (either occupied or not) within Preserve Area to justify coverage. Such habitat must be biologically viable to support the species.
2. Acquire additional habitat with known species' occurrences or the potential to support the species with suitable occupiable habitat. Suitable habitat should have enhancement or restoration potential and should be biologically viable for the species' persistence. Such habitat must be added to the Plan's Preserve Area and managed and monitored in perpetuity consistent with this Plan.
3. Restore and/or enhance habitat within the Plan Area's existing mitigation lands within the Preserve Area, where appropriate. Restoration or enhancement sites shall be managed and monitored in perpetuity consistent with this Plan.
4. Contribute funds to other regional conservation efforts or species-specific management programs.
5. Implement a biologically superior conservation alternative for the species at appropriate locations within the Plan Area.
6. Propagate species for reintroduction and/or introduction into biologically suitable habitat within the Plan Area in accordance with a Wildlife Agency-approved restoration and monitoring program.
7. Salvage and relocate species into suitable, occupiable habitat in accordance with a Wildlife Agency-approved restoration and monitoring program.
8. Purchase mitigation bank credits within established mitigation banks that support and provide active management for the species.

6.2.3 Plant Species

Table 6-2 lists the covered plant species, along with a summary of the species' status. The sensitive plant list includes state and federal status, as well as sensitivity according to CNPS (2001). Plant species that have special conservation and avoidance requirements under this Plan because they are narrow endemic and/or vernal pool species are listed in Table 6-3. Species-specific avoidance, minimization, and compensation measures for covered plant species are outlined in Appendix B.

Designated and/or proposed critical habitat, as defined by USFWS for the following listed covered plant species, is mapped within the Plan Area: San Diego thornmint, Otay tarplant, spreading navarettia, San Diego ambrosia, willowy monardella, and thread-leaved brodiaea. Although there is designated critical habitat for Munz's onion – a Major Amendment Species – none occurs within the Plan Area or PIZ. The potential impacts to and conservation of these Covered Species' critical habitat is discussed in the species accounts in Appendix B. In addition, Orcutt grass is found predominantly within the Major Amendment Area in Riverside County. Because of this, it is a Major Amendment Species. Take of these two species would occur through a Major Amendment that is approved for a project that affects these species.

6.2.4 Wildlife Species

Table 6-4 lists the covered wildlife species, including a summary of the species status. The sensitive wildlife list includes state and federal status according to USFWS (USFWS 2006a) and CDFG (State of California 2000, 2006a, 2006b, 2007a, and 2007b). Animal species that have special conservation and avoidance requirements under this Plan because they are narrow endemic and/or vernal pool species are listed in Table 6-3. Species-specific avoidance, minimization, and compensation measures for covered wildlife species are outlined in Appendix B.

Designated and/or proposed critical habitat, as defined by USFWS, for the following listed covered wildlife species, is mapped within the Plan Area: San Diego fairy shrimp, Riverside fairy shrimp, quino checkerspot butterfly, arroyo toad (re-proposed only), coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher. The potential for Water Authority projects to impact one or more designated or proposed critical habitat areas is discussed in the Covered Species' accounts in Appendix B. Impacts to and conservation of Covered Species critical habitat is discussed in the species accounts (see Appendix B). Although there is critical habitat for the vernal pool fairy shrimp, there is no critical habitat within the Plan Area.

In addition, because vernal pool fairy shrimp is found predominantly within the Major Amendment Area, this species is a Major Amendment Species. Take of this species

**TABLE 6-2
COVERED PLANT SPECIES**

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
<i>Acanthomintha ilicifolia</i>	San Diego thorn-mint	CE/FT/CH	1B	NE	K	K	P
<i>Adolphia californica</i>	California adolphia	-/-	2	--	K	K	K
<i>Ambrosia pumila</i>	San Diego ambrosia	-/FE/CH	1B	NE	K	K	NP
<i>Baccharis vanessae</i>	Encinitas baccharis	CE/FT	1B	NE	K	K	NK
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	CE/FT/CH	1B	NE, VP	K	K	NP
<i>Brodiaea orcuttii</i>	Orcutt's brodiaea	-/-	1B	--	K	K	NP
<i>Calochortus dunnii</i>	Dunn's mariposa lily	CR/-	1B	NE	K	N	P
<i>Ceanothus cyaneus</i>	Lakeside ceanothus	-/-	1B	NE	K	K	K
<i>Centromadia parryi</i> ssp. <i>australis</i>	Southern tarplant	-/-	1B	--	K	N	N
<i>Centromadia pungens</i> ssp. <i>laevis</i>	Smooth tarplant	-/-	1B	--	K	K	N
<i>Deinandra conjugens</i>	Otay tarplant	CE/FT/CH	1B	NE	K	K	K
<i>Dudleya variegata</i>	Variegated dudleya	-/-	1B	NE	K	K	K
<i>Dudleya viscida</i>	Sticky-leaved dudleya	-/-	1B	--	K	K	N
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	CE/FE	1B	NE, VP	K	K	N
<i>Ferocactus viridescens</i>	San Diego barrel cactus	-/-	2	--	K	K	K
<i>Iva hayesiana</i>	San Diego marsh-elder	-/-	2	--	K	K	K
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	Felt-leaved monardella	-/-	1B	NE	K	K	N
<i>Monardella viminea</i>	Willow monardella	CE/FE/CH	1B	NE	K	K	N
<i>Muilla clevelandii</i>	San Diego goldenstar	-/-	1B	--	K	K	K
<i>Navarretia fossalis</i>	Spreading navarretia	-/FT/CH	1B	NE, VP	K	K	N
<i>Nolina cismontana</i>	Chaparral nolina	-/-	1B	--	K	K	N

**TABLE 6-2
COVERED PLANT SPECIES (continued)**

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
<i>Pogogyne abramsii</i>	San Diego mesa mint	CE/FE	1B	NE, VP	K	K	N
<i>Pogogyne nudiuscula</i>	Otay Mesa mint	CE/FE	1B	NE, VP	K	N	N
<i>Quercus dumosa</i>	Nuttall's scrub oak	-/-	1B	--	K	K	N
<i>Salvia munzii</i>	Munz's sage	-/-	2	--	K	P	K
<i>Tetracoccus dioicus</i>	Parry's tetracoccus	-/-	1B	--	K	K	P

California Native Plant Society (CNPS) Lists

- 1B = Species rare, threatened, or endangered in California and elsewhere.
 2 = Species rare, threatened, or endangered in California, but more common elsewhere.
 3 = Species for which more information is needed (a review list).
 4 = A watch list of species of limited distribution.

Federal and State Listed Plants

- FE = Federally listed, endangered
 FT = Federally listed, threatened
 FC = Federal Candidate for listing
 CH = Critical Habitat
 CE = State listed, endangered
 CT = State listed, threatened
 CR = State listed, rare

Plan Policies

- NE = Narrow Endemic Policy
 VP = Vernal Pool Protection Policy

Occurrence

- K = Known to occur
 N = Not known to occur
 P = Potential to occur

‡ Covered Species not subject to take.

** Refer to species-specific Conservation Analysis in Appendix B for details on potential habitat locations in Survey Area, PIZ, and Preserve Area.

TABLE 6-3
SPECIES COVERED BY THE NARROW ENDEMIC POLICY AND/OR VERNAL POOL POLICY

Scientific Name	Common Name	Narrow Endemic Policy	Vernal Pool Protection Policy
Plants			
<i>Acanthomintha ilicifolia</i>	San Diego thorn-mint	*	
<i>Allium munzii</i>	Munz's onion [‡]	*	
<i>Ambrosia pumila</i>	San Diego ambrosia	*	
<i>Baccharis vanessae</i>	Encinitas baccharis	*	
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	*	*
<i>Calochortus dunnii</i>	Dunn's mariposa lily	*	
<i>Ceanothus cyaneus</i>	Lakeside ceanothus	*	
<i>Deinandra conjugens</i>	Otay Tarplant	*	
<i>Dudleya variegata</i>	Variiegated dudleya	*	
<i>Eryngium aristulatum</i> var. <i>parishii</i>	San Diego button-celery	*	*
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	Felt-leaved monardella	*	
<i>Monardella linioides</i> ssp. <i>viminea</i>	Willowy monardella	*	
<i>Navarretia fossalis</i>	Spreading navarretia	*	*
<i>Orcuttia californica</i>	California Orcutt grass [‡]	*	*
<i>Pogogyne abramsii</i>	San Diego mesa mint	*	*
<i>Pogogyne nudiuscula</i>	Otay mesa mint	*	*
Wildlife			
<i>Branchinecta lynchi</i>	Vernal Pool fairy shrimp [‡]		*
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	*	*
<i>Campylorhynchus brunneicapillus sandiegonensis</i>	San Diego cactus wren	*	
<i>Euphyes vestris harbisoni</i>	Harbison's dun skipper	*	
<i>Spea hammondi</i>	Western spadefoot toad		*
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	*	*

SOURCE: City of San Diego 1997, RCIP 2003

[‡]Major Amendment Species

**TABLE 6-4
COVERED WILDLIFE SPECIES**

Scientific Name	Common Name	Federal/State Status	Plan Policies	Occurrence		
				Survey Area	PIZ	Preserve Area**
Invertebrates						
<i>Branchinecta lynchi</i>	Vernal pool fairy shrimp	FT, CH	VP	K	N	N
<i>Branchinecta sandiegonensis</i>	San Diego fairy shrimp	FE, CH	NE, VP	K	K	P
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	FE, CH	--	K	K	K
<i>Euphyes vestris harbisoni</i>	Harbison's dun skipper	*	NE	P	P	P
<i>Lycaena hermes</i>	Hermes copper butterfly	*	--	K	P	K
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp	FE, CH	NE, VP	K	N	N
Amphibians						
<i>Anaxyrus (= Bufo) californicus</i>	Arroyo toad	FE, CSC, CH	--	K	K	K
<i>Spea hammondi</i>	Western spadefoot toad	CSC	VP	K	K	K
Reptiles						
<i>Actinemys marmorata pallida</i>	Southern Pacific (southwestern) pond turtle	CSC	--	K	K	P
<i>Aspidoscelis hyperythra beldingi</i>	Belding's orange-throated whiptail	CSC	--	K	K	K
<i>Aspidoscelis tigris stejnegeri</i>	Coastal (western) whiptail	*	--	K	K	K
<i>Coleonyx variegatus abbottii</i>	San Diego banded gecko	*	--	P	N	P
<i>Crotalus ruber ruber</i>	(Northern) red-diamond rattlesnake	CSC	--	K	K	K
<i>Diadophis punctatus similis</i>	San Diego ring-neck snake	*	--	K	K	K
<i>Eumeces skiltonianus interparietalis</i>	Coronado skink	CSC	--	K	P	K
<i>Lichanura trivirgata roseofusca</i>	Coastal rosy boa	*	--	K	N	K
<i>Phrynosoma coronatum blainvillii</i>	Coast (San Diego) horned lizard	CSC, *	--	K	K	K
Birds						
<i>Agelaius tricolor</i>	Tricolored blackbird	CSC	--	K	N	K

**TABLE 6-4
COVERED WILDLIFE SPECIES
(continued)**

Scientific Name	Common Name	Federal/State Status	Plan Policies	Occurrence		
				Survey Area	PIZ	Preserve Area**
<i>Aimophila ruficeps canescens</i>	Southern California rufous-crowned sparrow	*	--	K	K	K
<i>Ammodramus savannarum</i>	Grasshopper sparrow	CSC	--	P	N	K
<i>Amphispiza belli belli</i>	Bell's sage sparrow	*	--	K	K	K
<i>Athene cunicularia hypugaea</i>	Western burrowing owl	CSC	--	K	K	N
<i>Campylorhynchus brunneicapillus sandiegensis</i>	San Diego cactus wren	CSC, *	NE	K	K	K
<i>Dendroica petechia brewsteri</i>	Yellow warbler	CSC	--	K	P	K
<i>Empidonax traillii eximius</i>	Southwestern willow flycatcher	FE, CE, CH	--	K	P	N
<i>Eremophila alpestris californica</i>	California horned lark	CSC	--	K	P	K
<i>Icteria virens</i>	Yellow-breasted chat	CSC	--	K	K	K
<i>Lanius ludovicianus</i>	Loggerhead shrike	CSC	--	P	N	K
<i>Polioptila californica californica</i>	Coastal California gnatcatcher	FT, CH, CSC	--	K	K	K
<i>Vireo bellii pusillus</i>	Least Bell's vireo	FE, CE, CH	--	K	K	P
Mammals						
<i>Chaetodipus californicus femoralis</i>	Dulzura (California) pocket mouse	CSC	--	K	K	K
<i>Chaetodipus fallax fallax</i>	Northwestern San Diego pocket mouse	CSC	--	K	K	K
<i>Dipodomys stephensi</i>	Stephens' kangaroo rat	FE, CT	--	K	K	N
<i>Felis concolor</i>	Mountain lion	*	--	P	P	K
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	CSC	--	K	K	K
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	CSC	--	K	K	K
<i>Onychomys torridus ramona</i>	Southern grasshopper mouse	CSC	--	P	N	P

**TABLE 6-4
COVERED WILDLIFE SPECIES (continued)**

Scientific Name	Common Name	Federal/State Status	Plan Policies	Occurrence		
				Survey Area	PIZ	Preserve Area**
<i>Perognathus longimembris brevinasus</i>	Los Angeles pocket mouse	CSC	--	K	K	N

Listed/Proposed

FE = Federally listed, endangered
 FT = Federally listed, threatened
 CH = Critical Habitat
 CE = State-listed, endangered
 CT = State-listed, threatened

Other

CFP = California Fully Protected Species. No take of individuals is permitted.
 CSC = CDFG Species of Special Concern
 * = Taxa listed with an asterisk fall into one or more of the following categories:

- Taxa considered under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California. (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

Plan Policies

NE = Narrow Endemic Policy
 VP = Vernal Pool Protection Policy

Occurrence

K = Known to occur
 N = Not known to occur
 P = Potential to occur

Major Amendment Species

** Refer to species-specific Conservation Analysis in Appendix B for details on potential habitat locations in Survey Area, PIZ, and Preserve Area.

would occur through a Major Amendment that is approved for a project that affects this species.

6.2.5 Species Not Currently Covered Under the Plan

Listed species not covered by this Plan will continue to be regulated under the ESA and CESA. Take of listed species can be authorized separately from this Plan under section 7 or section 10 of the ESA, and take exceptions under Section 2081 of the Fish and Game Code. Impacts to species not covered under this Plan can also be addressed through the Plan and Permit Amendment process described in Section 8.0. Adding species to the Covered Species list may involve additional mitigation including reprioritized management practices or habitat acquisition.

For the non-listed species occurring within the Plan Area that are not covered under this Plan, available information suggests that many are unlikely candidates for future listing by either state or federal agencies and were given lower priority for potential coverage in this Plan. Other species occur only within portions of the Plan Area that are not anticipated to be affected by Water Authority project work. Based on the available information on the biological and potential listing status of these species and their distributions relative to planned and future Covered Activities, these species are not addressed or covered by this Plan.

This Plan provides an initial analysis of 26 species in addition to the Covered Species (see Appendix B). Based on that analysis, the Water Authority determined that it would not seek coverage for those species. However, if additional information becomes available to warrant the Water Authority seeking coverage for one or more of these species, such as a species subsequently being proposed for listing, this Plan provides the basis for supplementing the species' assessment and conditions for coverage that would be augmented as part of an amendment to add the species to the Covered Species list (see Section 8.0).

6.3 Plan Implementation

This Plan requires that Covered Activities demonstrate compliance with the implementation commitments, in particular measures to avoid, minimize, and mitigate impacts. In addition, the Preserve Area properties will be managed and monitored to demonstrate that suitable conditions are maintained on those lands to support Covered Species. Avoidance and minimization of effects on Covered Species and their habitats will be implemented through a process to verify that construction and O&M Activities (Covered Activities) adhere to a set of protection measures. These measures address planning, construction, and maintenance phases. In addition, the Plan contains policies for protecting wetlands/vernal pools, narrow endemic species, and breeding birds.

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Unavoidable impacts will be mitigated by compliance with a set of habitat-based compensation criteria that reflect the biological significance of the impact and mitigation sites, as well as by meeting species-specific conditions. Finally, lands that are preserved for conserving Covered Species will be managed and monitored pursuant to guidelines specified in this Plan.

A verification process to ensure conformance with the Plan commitments will be prepared when a Covered Activity is proposed. The process will be overseen by Water Authority personnel who supervise the Plan. Key items to be discussed in the conformance verification are the following, which are described in detail in subsequent sections of this section and summarized below:

1. New construction or O&M Activities (Covered Activities) that has the potential to impact habitats that may support Covered Species will be required to assess the potential impacts and propose avoidance, minimization, and mitigation measures.
2. A Pre-activity Survey Form (PSF) will be completed for each Covered Activity that has the potential to impact habitat that may support Covered Species.
3. The PSF (and any associated CEQA document) will identify whether the Covered Activity is within a Biologically Significant Resource Area (BSRA) and why (or why not) the project site qualifies as a BSRA (see Section 6.5.1.4.1).
4. The proposed mitigation measures will comply with the BSRA determination and apply the appropriate mitigation ratios as specified in the Plan.
5. The Covered Activity will comply with this Plan's breeding bird season avoidance restrictions and narrow endemic species conservation and vernal pool policies.
6. All personnel involved in the on-site project implementation will be required to participate in a pre-construction training program to understand the avoidance, minimization, and mitigation obligations on the project.
7. The mitigation/conservation is consistent with the species-specific requirements in Appendix B to this Plan.
8. Any off-site mitigation is secured by obtaining credits from the approved HMAs, from approved conservation or mitigation banks within the Plan Area, by acquiring additional suitable habitat for the Covered Species and adding that habitat to the Preserve Area, or by providing a biologically superior alternative mitigation with the concurrence of the Wildlife Agencies.

6.4 Plan Minimization Measures

The measures listed below represent appropriate, environmentally-sound approaches to Water Authority construction, O&M Activities, and rights-of-way activities that will be implemented through this Plan to reduce effects to Covered Species and their habitats. These standard minimization measures will be applied to all activities covered by this Plan, as described below. The appropriate measures for an individual project will be identified and documented by an Environmental Surveyor. The Water Authority will provide oversight of all Environmental Surveyor activities and incorporate appropriate measures into the Covered Activities to ensure compliance with the Plan's requirements.

6.4.1 Environmental and Water Authority Personnel

The Water Authority will assign staff to administer and report on the Plan's implementation. In addition, all Water Authority personnel (and construction contractors) will be trained to ensure that the Plan commitments are adhered to as Covered Projects are planned and implemented. An Environmental Surveyor (which may be a Water Authority staff or a consultant) will oversee pre-project evaluations/needs of Covered Activities and work with the project engineer and contractors to ensure implementation compliance of Covered Activities with Plan commitments.

6.4.1.1 Environmental Surveyor

The Environmental Surveyor may be one or more firms or individuals retained by the Water Authority, or qualified Water Authority staff. An individual who is designated to function as an Environmental Surveyor is responsible for pre-activity surveys and determining the appropriate minimization measures (e.g., flagging sensitive zones and habitats) prior to the commencement of construction or O&M Activities. An Environmental Surveyor will have a B.S. or B.A. degree in wildlife management, ecology, zoology, botany, biology, or a similar degree, at least two years of field experience in southern California, knowledge of any sensitive species or habitats that may be impacted, and, if undertaking surveys that could result in take of any federally or state-listed species, will possess appropriate section 10(a)(1)(A) recovery permits or state permits/memoranda to conduct such surveys. Qualifications and selection of an Environmental Surveyor for any given individual project will be approved by the Water Authority. More than one Environmental Surveyor may work on any particular project at any given time. The Environmental Surveyor will be responsible for, but not be limited to, the following activities:

1. If the Environmental Surveyor discovers that the Water Authority is out of compliance with the permits associated with this Plan, he/she will report the non-compliance to the Water Authority within one working day and to the Wildlife

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Agencies within five working days so that the Water Authority and Wildlife Agencies can determine how to put the Plan back into compliance.

2. Before any clearing and/or construction activities are performed in habitat areas that may support Covered Species, the Environmental Surveyor will review the site, identify any sensitive plant and animal species, and identify requirements pursuant to the Plan for impact avoidance and minimization. A standard PSF will be prepared for each project and submitted to the Water Authority for review and tracking purposes. The PSF is described in Section 6.4.1.2 below, and a copy of the form is included as Appendix F.
3. The Environmental Surveyor will determine the extent of potential Covered Species habitat and will flag the sensitive resources to be avoided. If a Covered Species is present, the Environmental Surveyor will refer to Appendix B for species-specific conservation measures. In the case of unavoidable impacts to a Covered Species, the Environmental Surveyor will determine the extent of impact, the appropriate mitigation measures, and recommend to the project engineer additional measures to minimize impacts in accordance with Appendix B.
4. The Environmental Surveyor will work with the project engineer to identify and mark areas appropriate for staging and temporary equipment storage, placement of heavy machinery, as well as vehicle turn around and access, that will result in the least amount of impact to sensitive vegetation and/or Covered Species. The Environmental Surveyor will verify that all areas specified on the plans to be avoided are marked with flagging in the field prior to construction start.
5. The Environmental Surveyor will attend pre-construction meetings for projects in sensitive areas. The Environmental Surveyor will provide brief presentations to field staff, as needed, to familiarize field personnel with the natural resources to be protected and avoid on project sites and outline environmental expectations. The Environmental Surveyor will also be available to answer questions and address any last-minute construction changes.
6. The Environmental Surveyor will be present during clearing, topsoil salvage, and construction activities located within sensitive habitat. The frequency and duration of required monitoring will be specified in the PSF that is completed by the Environmental Surveyor and submitted to the Water Authority on a project-by-project basis prior to the start of construction.
7. The Environmental Surveyor will advise the construction manager during construction to ensure compliance with all avoidance, minimization, and mitigation measures (see Section 6.5 for mitigation measures).

8. The Environmental Surveyor will conduct (and document) monitoring as required by the PSF. At the completion of the Covered Activity, the Environmental Surveyor will prepare a brief report to verify compliance with the avoidance and minimization recommendations in the PSF. This report will include documentation that the flagged areas were avoided and that minimization measures were properly implemented. The Environmental Surveyor will be responsible for the identification and monitoring of any Covered Species that are found on the project site prior to and during construction activities. Monitoring activities will be in accordance with the species-specific measures (see Appendix B).
9. If any previously unidentified Covered Species or otherwise sensitive species, nests, dens, or burrows are located on a project site during construction activities, the Environmental Surveyor will provide guidance, through the construction manager, as to how best to minimize or avoid impacting the resource(s).
10. The Environmental Surveyor will be on-call (via phone) to respond within 24 hours for potential emergency deployment to assess and monitor potentially critical biological issues.
11. If the Environmental Surveyor determines that the Covered Activity is out of compliance with the requirements of the Plan, the Environmental Surveyor will report it to the Water Authority. The Water Authority will be responsible for bringing the project back into compliance and determine the appropriate remedial action, if necessary, through coordination with the Wildlife Agencies.
12. The Environmental Surveyor or construction manager will be responsible for ensuring the removal of all habitat flagging from the construction site at completion of work.
13. If included in the PSF, the Environmental Surveyor will direct the relocation of Covered Species that can be moved from harm's way in coordination with the species-specific Conditions of Coverage in Appendix B (in non-emergency situations) with notification to the Wildlife Agencies.

6.4.1.2 Pre-Activity Survey Form (PSF)

To ensure all Water Authority Covered Activities comply with the Plan, an Environmental Surveyor must survey the project area for sensitive biological resources within 30 days prior to initiation of ground disturbing activities for new construction and O&M and complete a PSF (Appendix F). PSFs are the Plan's primary tool and documentation for Covered Activities that have statutory or categorical exemption from CEQA. For Covered Activities not exempt from CEQA, a Mitigation, Monitoring and Reporting Plan

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(MMRP) is required to be prepared (California Code of Regulations, Title 14, Chapter 3, Section 15097). Project design features (e.g., Water Authority “General Conditions and Standard Specifications, 2005”), CEQA mitigation measures, and Permit conditions will be compiled into a single plan to track all project activities/requirements. PSFs do not replace or substitute for a required MMRP. The PSF prepared for a Covered Activity that does not require an MMRP will include the following information and timing considerations:

1. The PSF will include avoidance, minimization, and mitigation requirements based on the general measures outlined in this section and the species-specific conditions in Appendix B. USFWS biological survey protocols performed by qualified and appropriately authorized personnel will be conducted where appropriate and required.
2. The PSF will be reviewed by designated Water Authority staff. The Water Authority will summarize information in the required annual monitoring report, a copy of which will be sent to the Wildlife Agencies in accordance with annual reporting requirements (see Section 6.12).
3. The pre-activity survey is valid for 30 days unless the project is scheduled to begin during the avian breeding season, in which case the nesting bird clearance must be conducted within five days of project implementation (Section 6.4.2.1). If ground disturbance activities have not commenced within 30 days after the survey is completed, the Environmental Surveyor will conduct a verification survey to confirm that biological conditions have not significantly changed that would alter the specified avoidance, minimization and mitigation commitments prior to construction.
4. As soon as the pre-activity survey is completed and the PSF approved, the Water Authority’s project may proceed during this 30-day period (subject to the conditions in #3 above) as long as it is in compliance with this Plan, and the terms and conditions outlined in the associated state and federal Permits and IA.

When a PSF is prepared for a project that has an MMRP, the PSF will be used to compare the biological baseline presented in the CEQA document with the pre-construction biological condition. The Environmental Surveyor will confirm the location of sensitive biological resources and that the MMRP addresses current conditions. If a significant change has occurred, the PSF will address:

1. A description of the significant change compared to the CEQA document’s biological conditions.

2. Identify whether the MMRP requirements would achieve compliance with the Plan's commitments and if not, what measures must be added to the MMRP to ensure compliance.

The designated Water Authority staff will review the PSF and any recommended measures to ensure Plan compliance. The Water Authority will summarize information in the required annual report, which will be provided to the Wildlife Agencies (Section 6.12).

6.4.1.3 Field Personnel Education Training

Field personnel working within sensitive habitat areas, including both Water Authority employees and contractors, will participate in an education training program at the start of each project. The program will be conducted on-site by an Environmental Surveyor under the direction of the Water Authority. The training will include: an overview of Covered Species identification and the legal protections afforded to each species; a brief discussion of their biology; habitat requirements; status under ESA and CESA; conservation measures being taken by the project for the protection of the Covered Species and their habitats under this Plan; and penalties for non-compliance.

The training program will also educate field personnel in the identification of invasive species that may be removed, as well as desirable seeded and planted species, to ensure that native species are not affected by invasive species control. A fact sheet conveying this information will also be available to all personnel working in the project area. The Water Authority, either directly or through the services of the Environmental Surveyor, will be responsible for the education and training for new field personnel coming on-site after the start of a project.

6.4.1.4 Field Personnel (and Contractor) Responsibilities

1. Contractors or other project personnel will not collect plants or wildlife, unless specifically authorized and directed by the Environmental Surveyor. Only qualified and appropriately authorized personnel will handle or collect plants or wildlife as required by species-specific measures (see Appendix B).
2. Field personnel will not intentionally harm or harass wildlife or damage nests, burrows, rock outcrops, or other habitat components.
3. Drivers on unpaved roads in native habitats will not exceed a speed of 20 miles per hour in order to avoid injury to animals and minimize dust generation.
4. Impacts to adjacent native vegetation that would be significantly affected by excessive fugitive dust will be avoided and minimized through watering of access roads (except in areas with vernal pools) or other appropriate measures, such as

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reducing the number or speed of vehicles or adding inert materials that reduce dust. Projects with the potential for excessive dust generation include those that involve more than occasional use of roads in dust-prone soils (i.e., more than three to five vehicle roundtrips per day) or require multiple vehicles to transport heavy equipment and supplies.

5. Vehicles will not park in areas where catalytic converters may ignite vegetation. Construction vehicles will be equipped with shovels and fire extinguishers in order to reduce the risk of wildfires.
6. Littering will be strictly prohibited. All trash will be deposited in secured, closed containers or hauled out daily by field personnel.
7. No pets will be allowed on any construction site.
8. No firearms or other weapons will be allowed on any construction site except as carried by governmental law enforcement, or as authorized in writing by Water Authority staff.
9. Field personnel will be prohibited from pushing or dumping soil and brush into sensitive habitats.
10. All vehicles, tools, and machinery will be restricted to access roads, approved staging areas, or within designated construction zones.
11. If any field personnel identify a previously unnoticed Covered Species on a construction site, work activities will cease in order to immediately notify the Water Authority's construction manager, project engineer, and the Environmental Surveyor. In conjunction with Water Authority environmental staff, the Environmental Surveyor will determine what actions would be taken to avoid or minimize impacts to the species according to the species-specific conditions outlined in Appendix B.
12. Field personnel will notify the project engineer/environmental staff of any sick, injured, or dead wildlife found on site.
13. Parking or driving underneath oak trees, except in established traffic areas, will not be allowed in order to protect root structures.

6.4.2 Protection Measures during Project Development and Construction

This section outlines the avoidance and minimization protocols for project development and construction activities. All field personnel will adhere to all the following measures for any covered construction activities. Project-specific minimization and mitigation

measures will be outlined within the CEQA document prepared for the project as well as the PSF.

6.4.2.1 Planning and Coordination

1. When sensitive biological resources or approved preserves are affected by a new project, the Water Authority will coordinate with the Wildlife Agencies during the early phase of project planning. This coordination is designed to identify any specific concerns and potential alternatives, and to collect information regarding potential Covered Activities that may affect Water Authority planning and decision making. This coordination will occur prior to, or as part of, the issuance of public notices pursuant to CEQA.
2. The Water Authority will design facility and alignment alternatives to achieve desired resource goals at the beginning of the planning process. This maximizes opportunities to avoid and/or minimize biological impacts associated with project development.
3. The Water Authority will incorporate design features that minimize impacts to Covered Species from night lighting, noise, and vehicle speed. Examples of these measures could include, but are not limited to: provision of animal passage over or around trenches, erection of exclusion or noise barriers for some species, directed lighting away from adjacent habitat areas, and rescue of animals in the work area (by a permitted biologist if a listed species is involved).
4. When crossing through a sensitive habitat or an established preserve, the most direct, least damaging, feasible alignment will be used to minimize disturbance in these areas.
5. To protect all covered avian species, vegetation clearing will be performed generally outside of the nesting and breeding seasons of bird species to comply with the requirements of the MBTA, BEPA, and Fish and Game Code Section 3513, or specific state or federal permits, unless otherwise specified in Appendix B. Breeding season dates may be modified to reflect the species known or expected to occur on the specific site. The following general breeding season dates shall be used: January 15 to July 31 for raptor species; March 15 to September 15 for riparian species; and February 15 to August 15 for upland species. For least Bell's vireo, noise levels at the nest will be restricted to less than 60 dB(A) $L_{eq(1)}$ or the ambient noise level plus three decibels (perceptible change threshold), whichever is greater. Conditions imposed to authorize clearing work during the nesting and breeding season will include, but are not limited to, pre-construction surveys to document absence of nesting birds, buffers around active nests (as identified for a Covered Species in Appendix B or determined by the Environmental Surveyor if no specific buffer is specified), and

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construction beginning prior to nesting/breeding season and continuing into that period (see Section 2.3 of Appendix B for Avian Breeding Season Policy).

Construction that starts prior to the breeding season and continues uninterrupted and at the same intensity into the breeding season will minimize potential for birds to move into areas adjacent to construction areas. If birds move into areas adjacent to construction areas during construction, it is expected that the project's indirect construction activities will not substantially affect those individuals. However, in such circumstances, the Environmental Surveyor will monitor and document continued nesting activity; if the Environmental Surveyor determines that nesting is being negatively affected and may cause nesting abandonment/failure, additional protection measures will be implemented and the Water Authority will summarize the results in the annual report. A breeding season survey may begin up to 10 days prior to the planned disturbance, and at least one survey will be completed within five days of planned disturbance (minimum of one survey is required within five days of impacts). If relevant to the site, other species' breeding season conditions will be included. The PSF prepared by the Environmental Surveyor would include all appropriate conditions. When Covered Activities must occur during the breeding season, or at such time or manner as may affect nesting birds, the Water Authority will consult with the Wildlife Agencies to review any issues prior to project initiation.

6. Narrow endemic species are species that are considered to have highly restrictive habitat requirements, localized soil requirements, other ecological factors, and limited but important populations within the Plan Area (see Table 6-3 and Appendix B). A substantial decrease in these populations or loss of their habitat may jeopardize the continued existence or recovery of that species within the Plan Area. The size of the population and extent of occupied habitat that could be impacted will be determined by the Environmental Surveyor.

Narrow endemic species' populations will be avoided to the maximum extent feasible. Unavoidable impacts to a narrow endemic population and occupied acreage will be minimized to the maximum extent practicable, and associated mitigation will be designed to meet a minimum 1:1 conservation ratio (e.g., by restoring/creating/expanding suitable habitat or reintroducing the species into unoccupied, suitable habitat) within the Preserve Area or other Wildlife Agency-approved mitigation sites. For new projects, the conservation objective will be to avoid at least 80 percent of the population. To the extent feasible, the Water Authority will attempt to achieve this level of conservation on existing Water Authority rights-of-way (including easements and fee-owned parcels). The rights-of-way have been previously impacted by construction activities and continue to be impacted by O&M Activities. Pre-activity surveys will be used to identify the location of narrow endemic populations to ensure that they are

avoided and protected. Mitigation will be designed to minimize adverse effects to species viability and to contribute to the biological objectives of the Plan.

6.4.2.2 Facility Siting

To the extent feasible:

- Facilities will be sited to avoid permanent disruption of wildlife movement corridors or habitat linkages;
- Facilities will be sited adjacent to and within an approved rights-of-way or other publicly-owned property;
- Project footprints for Facilities, including all temporary construction related areas (e.g., staging areas), will be restricted to existing developed or disturbed habitats;
- Facilities will be located to use existing access roads to limit the need for new access roads;
- Facilities will be set back from riparian corridors a minimum of 100 feet from the edge of riparian vegetation to avoid any adverse direct or indirect impacts to these areas.

6.4.2.3 Pipeline Siting

To the extent feasible, pipelines and minor support facilities (e.g., blow-off valves and valve vaults) will be placed in existing or future public rights-of-way, including streets, highways, utility corridors, or other publicly owned properties, to minimize impacts to native habitat.

6.4.2.4 Existing Pipeline Relining

1. Where habitat for Covered Species occurs, pre-activity surveys and appropriate USFWS protocol surveys (for listed species for which protocols have been written) will be conducted in accordance with species-specific measures outlined in Appendix B.
2. Portals will be located within disturbed or developed areas, and away from habitat occupied by Covered Species to the extent feasible.
3. Project construction will be initiated outside the Covered Species breeding seasons (as explained in Section 6.4.2.1), including vegetation removal or other habitat modifications. If construction must occur during the breeding season (e.g., due to water system operational constraints, amount of pipeline to be

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relined, and pipeline condition), a pre-construction nesting survey will be conducted to assess the potential for direct impacts to nests/breeding sites and/or indirect noise effects. Conditions that may be imposed on the activity are described in Section 6.4.2.1 and in the species-specific Conditions for Coverage (see Appendix B).

4. If Covered Activities need to occur during the breeding season, an Environmental Surveyor will evaluate the need for noise walls or other feasible noise reduction measures to reduce construction noise levels. The PSF will specify the appropriate noise minimization requirements. For least Bell's vireo nesting sites, noise levels at the nest will be restricted to less than 60 dB(A) $L_{eq(1)}$ or the ambient noise level plus three decibels (perceptible change threshold), whichever is greater. If noise cannot be kept below 60 dB(A) $L_{eq(1)}$, construction will cease until nests have fledged or failed (as determined by the Environmental Surveyor).
5. The PSF will specify the appropriate sound minimization techniques, possibly including activity setbacks/buffers, temporary noise barriers, limited hours of work, etc.

6.4.2.5 Design and Construction Controls

1. Projects will be designed to avoid and minimize impacts to biological resources, to the extent feasible.
2. Construction and operation activities will be designed and implemented to avoid and minimize new disturbance, erosion on manufactured and other slopes, and off-site degradation from sedimentation.
3. Storage and staging areas will be located in disturbed areas or within the least biologically sensitive areas established by the Environmental Surveyor. No filling, excavating, trenching, or stockpiling of materials will be permitted outside of the approved construction footprint, unless the area to be used is already disturbed and does not support habitat for Covered Species.
4. Construction footprints will be delineated in the construction documents. In addition, if the construction footprint is located within or near sensitive habitat, the project footprint will be fenced or continuously flagged with streamers or a boundary rope barrier to ensure that habitat is not removed beyond the limits of work. These barriers will be established prior to any grading, grubbing, or clearing, and will be monitored by the Environmental Surveyor.
5. Projects will be refined, where possible, during the engineering and construction phases to further avoid and minimize impacts to Covered Species or their

habitat through seasonal timing of work, minor realignments, and narrowing of construction limits.

6. Clearing and grubbing will be performed within the construction areas only as necessary for safe vehicle movement and construction activities.

6.4.2.6 Stormwater Best Management Practices

Prior to the start of ground disturbing activities, the Water Authority or their consultants will prepare a Storm Water Pollution Prevention Plan (SWPPP) to reduce or eliminate pollutants during and after construction. The most current and applicable Best Management Practices (BMPs) will be implemented at all construction sites in or adjacent to native habitat in accordance with the approved Water Authority's General Conditions and Standard Specifications manual, including, but not limited to, Sections 02140 Dewatering, 02270 Temporary Erosion Control, and 02940 Revegetation. In addition to the approved manual, BMPs listed in the most recent National Pollutant Discharge Elimination System (NPDES) General Permit and the BMP Fact Sheet located in State Water Resources Control Board (SWRCB) General Permit for Small Linear Underground/Overhead Projects will apply. The fact sheet is attached as an Appendix G and the SWRCB or RWQCB will be contacted for the latest requirements.

In addition to the above resources, which are used during the preparation of a site-specific SWPPP for each project, typical design features identified in a site-specific SWPPP may include, but are not limited to:

1. Identification all pollutant sources, including sources of sediment that may affect the quality of storm water discharges associated with construction activity (e.g., storm water discharges from the construction site); non-storm water discharges; structural and/or treatment control BMPs that are to be implemented in accordance with a time schedule to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site during construction; and a maintenance schedule for permanent or post-construction BMPs that will, to the maximum extent possible, reduce or eliminate pollutants after construction is completed.
2. Implementation of a detailed, site-specific BMP to prevent hazardous materials impacts to water quality will be included in the project SWPPP.
3. Conformance by the grading/construction contractor with all applicable NPDES General Groundwater Extraction and Waste Discharge Permit criteria prior to disposal of extracted ground water.

All SWPPP prepared for Water Authority activities will conform to the latest RWQCB requirements.

6.4.2.7 New Access Roads

1. New access roads will be sited in previously disturbed areas, or in the least biologically sensitive areas that require the least amount of construction grading, whenever feasible in order to avoid and minimize impacts to Covered Species.
2. New access roads will be constructed outside of the avian or other Covered Species' breeding seasons, to the extent feasible. In the event construction is unavoidable during the breeding seasons, the Environmental Surveyor will determine the presence or absence of nesting or breeding Covered Species, and the appropriate protection and minimization recommendations will be followed (as identified in Appendix B).
3. New access roads will be constructed to avoid or minimize impacts to streambeds, rivers, or other waterways, to the extent feasible. In addition, construction will comply with applicable CDFG, USACE, and RWQCB regulations and policies independent of the requirements of this Plan (see also Section 6.6). This Plan does provide for a streamlining process to address the CDFG requirements (see Section 6.7.2).

6.4.2.8 Clean-up

Refuse and trash will be regularly removed from activity sites and disposed of in a lawful manner. Timing of refuse and trash removal will be determined by the Environmental Surveyor and comply with the Water Authority's Standard Specifications (Section 01560-Temporary Controls) that require debris to be removed as work is completed. Petroleum products, including gasoline, diesel, and hydraulic fluid, will be used during construction in accordance with all federal, state, and local laws, regulations, and permitting requirements. In the event that hazardous materials are encountered or generated during construction, contractors certified by the responsible regulatory agency will conduct all recovery operations and dispose of hazardous waste in accordance with existing regulations and required permits. As required, petroleum products, trash, and other materials will be taken to a disposal facility authorized to accept such materials.

6.4.3 Protection Measures during Operations and Maintenance (O&M) Activities

Some O&M Activities (described below) have the potential to impact sensitive habitats and Covered Species. These activities will be conducted in a manner that avoids and/or minimizes impacts to sensitive resources, primarily by staying within the limits of existing disturbance. If the O&M Activity will require impacts beyond the existing limits of disturbance, the activity will be located away from sensitive resources and ground disturbance will be minimized. The Water Authority and Environmental Surveyor will include in the PSF the relevant protective measures (based on the conditions described

in the subsections below), which Operation and Maintenance staff or contractors will follow. A PSF will be prepared for all activities that have the potential to impact Covered Species or their habitat, especially projects that involve new disturbance, occur within/adjacent to a known Covered Species location, or occur during the breeding season in habitat that supports a Covered Species.

6.4.3.1 Weeding and Mowing

1. Weeding and mowing activities for fuel management generally require a mower, mechanical brusher, weed-whacker, or hand clipping. Mowing is typically conducted from September 1 to January 31, which is mostly outside of the avian breeding season. If weeding and mowing activities must occur during the avian breeding season, at least one pre-construction nesting survey will be conducted by the Environmental Surveyor no more than five days prior to clearing activities to determine potential impacts to nesting birds. If weeding and mowing must occur in such a time or manner as may affect nesting birds, the Water Authority shall consult with the Wildlife Agencies to review any issues prior to project initiation.
2. Isolated facilities surrounded by high fuel volume and that are located in sensitive habitat will be selectively hand cleared or weed-whacked to avoid impacts to sensitive habitats or Covered Species, consistent with the San Diego County Fire Chief's Association (1997 or more recent versions) Wildland/Urban Interface Development Standards.
3. Herbicides used to control vegetation will be applied per applicable federal, state, and local regulations and label directions/restrictions (see Section 5.5).
4. Herbicide use as part of O&M Activities within areas of native vegetation will be applied to avoid non-target exposure.
5. Power spray application of herbicides will not be used within 50 feet of any covered plant species population. Hand application may be performed in these areas.

6.4.3.2 Clearing and Grubbing

To the extent feasible, crushing or mowing of vegetation will be substituted for clearing or grubbing activities. Crushed vegetation is more likely to return to its natural state faster and more completely than cleared vegetation. Crushing may also reduce the need to reseed some areas.

6.4.3.3 Fire Protection

1. Fuel management around existing facilities will be conducted in accordance with local fire department requirements, consistent with the San Diego County Fire Chief's Association (1997 or more recent versions) Wildland/Urban Interface Development Standards. The minimum distance required to adequately protect structures against fires will be determined by local regulations/guidelines and refined during project design and marked prior to any vegetation clearing. To the extent feasible, fuel management will be scheduled occur outside the avian breeding season.
2. The Environmental Surveyor will monitor clearing in areas with native vegetation and Covered Species to ensure compliance with the avian breeding season policy and specific Covered Species Conditions of Coverage.
3. Fuel management will occur around surface facilities to maintain a mowed strip between surface structures and upright vegetation, or as required by order of local fire departments. To the extent feasible, the Water Authority will maintain a 15-foot radius mowed area around all line structures. In locations where this is not feasible, the Water Authority will work with the landowner to clear a safe working area for the crews on at least three sides of the structure. The mowed strip will allow a valve service truck to circle the structure. The mowed strip will also provide a safe and designated work area for field personnel.
4. Fuel management around facilities for fire protection will not be conducted during the avian nesting season (see Section 6.4.2.1). The Environmental Surveyor will conduct at least one pre-activity survey no more than five days prior to the initiation of clearing activities to ensure that the habitat contains no active nests, burrows, or dens of Covered Species. If active nests, burrows or other evidence of breeding are discovered, then the Environmental Surveyor shall notify the Water Authority environmental staff, who will notify the Wildlife Agencies so that an acceptable avoidance/minimization plan can be developed.

6.4.3.4 Drains and Drawdowns

1. Individual pipeline segments and associated facilities will typically be drained for routine internal inspection during low water demand periods, generally during the winter months. Water released from structures located at low points along the rights-of-way flows into adjacent natural or channelized drainages at rates engineered to avoid or minimize downstream erosion. In such areas, energy dissipating structures, rock riprap, or temporary erosion control measures will be installed to minimize habitat damage. Dechlorination occurs as necessary, based on testing, to current RWQCB discharge standards.

2. When water levels in surface reservoirs are lowered, the Water Authority may make an effort to control or manage vegetation growing within the reservoir or, at a minimum, clear vegetation that could be suitable for nesting outside of the avian breeding season (Section 6.4.2.1). Vegetation growing on the reservoir bottom may be allowed to remain and provide interim habitat value as long as no mitigation is required when reservoir is refilled. Vegetation that is occupied by active, nesting birds will not be removed or inundated by the artificial filling of the reservoir during the nesting season, except as described in Section 5.2.7 of the Plan.
3. Prior to conducting draindowns that release into streams or drainages reported to support arroyo toads (*Anaxyrus californicus*) and where breeding conditions have been identified down stream of the discharge point, surveys will be conducted during the arroyo toad breeding season (March 15 to July 31). If draindowns must occur in such a time or manner as may affect active breeding habitat, the Water Authority shall consult with the Wildlife Agencies to develop discharge flow and volume rates appropriate to the area.

6.4.3.5 Stream Crossing

1. Where required, the Water Authority will coordinate stream crossing maintenance with the CDFG, RWQCB, and USACE.
2. Where facilities cross streambeds and require maintenance and repair, water may be temporarily diverted around the construction area as long as natural drainage patterns are restored. All diversions will be planned (appropriate permits obtained, if necessary) and implemented in accordance with applicable regulations. Erosion control during construction, in the form of intermittent check dams and culverts, will be implemented to prevent alteration to natural drainage patterns and prevent siltation.

6.4.3.6 Erosion Control

1. Field personnel will conduct all construction, repair, and maintenance activities in a manner that will minimize erosion; avoid adverse impacts to adjacent sensitive habitats; and conform to the Water Authority's "General Conditions and Standard Specifications," Section 02270 for Temporary Erosion Control and Section 02940 for Revegetation.
2. The Environmental Surveyor will prepare a restoration plan that includes an appropriate native seed mix based on surrounding native vegetation and maintenance and monitoring schedules, prior to seeding in areas where erosion control is necessary.

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3. Supplemental planting of particular species of concern may be considered in areas where expansion of existing colonies is desired. However, care will be taken to avoid habitat conversion and impacts to extant native vegetation.
4. Construction areas located adjacent to native habitat may be reseeded with a mostly low-growing mix of non-dominant native erosion control species similar in composition to the surrounding vegetation. In construction areas surrounded by non-native landscaping, non-invasive, non-native cover crop species may be added to the native hydroseed mix. Exceptions to use non-native, non-invasive species may be made by the Environmental Surveyor in disturbed areas that have been landscaped with non-native species, or elsewhere with concurrence from the Wildlife Agencies.
5. Clean, weed-free straw mulch will be applied on all slopes that are at a 2:1 ratio (every two feet of horizontal change, there is a vertical change of one foot) or steeper promptly after seeding operations are complete. The straw will be applied at a rate of 4,000 pounds per acre, and then rolled into the surface with straw roller equipment where feasible. The straw will be rolled into the soil to a sufficient depth to tie down the surface soils. All straw mulch used adjacent to native habitats shall be weed-free.
6. Silt fences, sedimentation ponds, sand bag dikes, stabilized construction entrances, and any other erosion control measures will be installed by field personnel and checked by the Environmental Surveyor to prevent sediment from entering any adjacent lakes, streams, ponds, vernal pools, or drainages.
7. Erosion and sedimentation control measures will remain in place until the work site is prepared for permanent drainage and erosion control measures. While removing temporary erosion and sediment control measures, care will be taken to avoid damage to permanent drainage, erosion control, and restoration areas.

6.4.3.7 Tree Trimming and Removal

1. Tree trimming will be conducted to the extent necessary to conduct work. Tree removal will be avoided to the maximum extent practicable.
2. Tree removal or tree trimming during the general avian nesting season (see Section 6.4.2.1) may occur only after a survey (conducted within five days of the planned trimming) has determined that no active nests are present. If active bird nests are present, the tree with the nest may not be removed or trimmed until the nest fails or nestlings have fledged. In addition, the nest will be encompassed by an avoidance buffer consistent with Section 2.4 of Appendix B. The buffer will remain in place until the nestlings fledge or the nest fails. Removal of native

trees, such as coast live oaks, will be reviewed by the Water Authority on a case-by-case basis.

3. Any cuts or other tree damage as a result of trimming or construction will be appropriately treated, if necessary, to minimize damage to tree health.

6.4.3.8 Vehicle Operation

Vehicles will be kept on access roads to the maximum extent possible. A 20 miles per hour speed limit will be observed on unimproved dirt access roads to limit death or injury of wildlife species that may be present on the roadway and minimize dust generation. Vehicles must be turned around in established or designated areas only.

6.4.3.9 Cut and Fill Slopes

Maintenance of cut and fill slopes will consist primarily of erosion control. In situations where revegetation would improve the success of erosion control, planting or seeding with a locally native hydroseed mix may occur on slopes adjacent to native habitats. Exceptions to use non-native, non-invasive species may be made by the Environmental Surveyor in disturbed areas that have been landscaped with non-native species, or elsewhere with concurrence from the Wildlife Agencies.

6.4.3.10 Urgent Repairs

The majority of urgent repairs are performed during scheduled shutdown and inspection periods. An Environmental Surveyor will identify sensitive resource issues, as appropriate. All repairs qualifying as urgent will be conducted in accordance with this Plan, the Water Authority Urgent Repair Manual (Water Authority, September 2007), and the Integrated Contingency Plan (Water Authority September 2008), respectively.

6.4.3.11 Maintenance of Access Roads

Maintenance of access roads within rights-of-way will be designed to avoid or minimize disturbance and protect off-site areas from indirect effects (e.g., soil erosion and sedimentation). Routine maintenance of general rights-of-way typically includes visual inspections and minor servicing of existing valves/facilities. Routine patrol and inspection activities of the Water Authority do not result in impacts to habitat, as patrols utilize existing roadways. The following measures will be implemented to avoid and minimize impacts to Covered Species and their habitats:

1. Erosion will be minimized on access roads and other locations primarily with water bars (i.e., mounds of soil shaped to direct flow and prevent erosion).

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2. Access road erosion repair will be accomplished through grading, addition of fill, and compacting as needed. In each case of repair, the total area of disturbance will be minimized by careful access and use of appropriately sized equipment. Repairs will be done in accordance with construction protocols. Consideration will be given to the source of the erosion problem. Road filling material will not be obtained from the sides of the road in sensitive habitat.
3. Access road maintenance will not expand the existing roadbed. The standard road parameters for Water Authority access roads include an approximate 12-foot road bed (one-way access only) with an additional four-foot mow strip on each shoulder (i.e., a 20-foot-wide corridor) to reduce the potential for fires ignited by vehicles. Care will be taken to utilize equipment that is appropriately sized for project needs. Schedule and resource constraints do not allow the Water Authority to mow 100 percent of the line roads every year. Grading and mowing the roads and line structures for shutdowns will be a priority for the Water Authority.
4. Road maintenance will be on a yearly basis to prevent new road ruts from becoming occupied by Covered Species (e.g., fairy shrimp). Where vernal pools and road ruts are present within access roads, vehicles will avoid these areas during the wet season. If wet season impacts are unavoidable, options such as temporary covers or spans will be placed over the resource to avoid damaging habitat or impacting sensitive species (e.g., crushing fairy shrimp or spreading individuals to other non-natural areas) where feasible (Section 6.7.3 describes vernal pool protection measures).

6.5 Plan Mitigation Measures

The Water Authority's Covered Activities serve a public need (providing a safe and reliable water supply) and are considered compatible uses when implemented by the Water Authority in conformance with this Plan, even within existing preserves. However, as described in Section 6.4, the Water Authority will make all feasible efforts to avoid or minimize impacts from Covered Activities to Covered Species and their conserved habitats (vegetation communities). If impacts cannot be avoided, then identified impacts to those species and habitats covered will be minimized and mitigated in accordance with the requirements in this Plan. All permanent impacts will be mitigated by deducting appropriate habitat acres (credits) from the Water Authority's upland and wetland HMAs, by obtaining credits from other banks within the Plan Area, or by acquiring and protecting additional qualifying habitat within the Plan Area that contributes to the Water Authority's Preserve Area or another participating agency's preserve/reserve lands.

6.5.1 Habitat-based Mitigation

This Plan's biological mitigation approach is habitat-based. All of the vegetation communities/land covers (habitat types) known to occur within the Plan Area are grouped into tiers (Section 6.5.1.3 and Table 6-5) that are deemed to have similar ecological values, based on rarity, Covered Species diversity, environmental sensitivity, etc. Impacts to habitats caused by Covered Activities will be mitigated with the same or biologically-equivalent habitat. Wetland habitats are separated from upland habitats because of the qualitative and regulatory differences attributed to wetlands. Mitigation ratios reflect the different relative ecological values among the tiers, as well as the location of the impact and mitigation sites (Section 6.5.1.3 and Tables 6-6 for uplands and 6-7 for wetlands).

The Plan will ensure that impacts from Covered Activities are fully compensated by providing the required acres of appropriate mitigation credits from the HMAs, by augmenting the Preserve Area (and qualifying mitigation acres) through acquisition of additional Preserve Area land within the Plan Area (and preparation of a minor amendment for this activity, as described in Section 8.0), or by acquiring credits in other approved conservation/wetland banks within the Plan Area (after notifying the Wildlife Agencies of the intent to use this option). Before implementation of each Covered Activity, the Water Authority will demonstrate that the Plan has those habitat (credit) acres available, or how the required compensating habitat will be obtained. Impact acres and mitigation acres will be tracked to confirm that they are in "rough step" and that conservation commitments are being met; this information will be summarized in the annual report on Plan activities.

Appendix B summarizes the potential habitat within the Survey Area, PIZ, and HMAs that may support the Covered Species, as well as the reported occurrences of Covered Species in the Survey Area and PIZ (see Table B-1 in Appendix B). For each Covered Species, Appendix B provides an assessment of the potential take by the Planned Projects and the documented or potential conservation provided by the HMAs and MMAs. The habitat and occurrence-specific impacts from Future Projects cannot be determined, but the HMAs, as noted in Section 6.5.1.1, have available or proposed habitat credits to address most of the projected habitat acreage impacts from planned and future projects. If the HMAs do not contain the appropriate Covered Species habitat or Covered Species, then additional suitable habitat will be added to the Preserve Area (Section 6.5.1.2).

6.5.1.1 Stay Ahead Commitment

As part of its conservation strategy and commitments, the Water Authority has acquired and manages (or assured/will assure the management of) approximately 3,067 acres of regionally significant habitat that supports Covered Species (1,920 acres in the HMAs

**TABLE 6-5
VEGETATION COMMUNITIES/LAND COVER TYPES TIER LEVELS**

Vegetation Tier	Vegetation Community/Land Cover Type	Subcommunities
<u>Upland Habitats</u>		
I	Chaparral I	Northern Mixed Chaparral (Mafic) Southern Maritime Chaparral Southern Mixed Chaparral (Mafic)
	Coastal	Open Beach Southern Foredunes
	Coniferous Forest I	Southern Interior Cypress Forest Torrey Pine Forest
	Grasslands I	Native Grassland (Valley and Foothill Needle Grassland)
	Oak Woodland and Forest	Black Oak Forest Black Oak Woodland Coast Live Oak Forest Coast Live Oak Woodland Engelmann Oak Forest (Dense Engelmann Oak Woodland) Engelmann Oak Woodland (Open Engelmann Oak Woodland) Mixed Oak Woodland
	Coastal Sage-Scrub I	Alluvial Fan Scrub Cactus Scrub Maritime Succulent Scrub Riversidean Alluvial Fan Scrub Southern Coastal Bluff Scrub
II	Coniferous Forest II	Big Cone Spruce- Canyon Oak Forest Mixed Coniferous Forest
	Coastal Sage-Scrub II	Coastal Sage-Chaparral Scrub Coastal Sage Scrub (Diegan) Coastal Sage Scrub (Inland) Flat-topped Buckwheat Scrub Riversidean Sage Scrub Big Sagebrush Scrub (Great Valley)
	Sage-Scrub, Montane/Trans-montane	
III	Chaparral III	Ceanothus crassifolius Chaparral Chamise Chaparral (Granitic Chamise chaparral) Interior Live Oak Chaparral Northern Mixed Chaparral Northern Mixed Chaparral (Granitic) Scrub Oak Chaparral Southern Mixed Chaparral Southern Mixed Chaparral (Granitic) Montane Chaparral
	Chaparral, Montane/Trans-montane	
	Grasslands III	Redshank Chaparral Non-Native Grassland
IV	Agricultural	General Agriculture Extensive Agriculture (Row Crops, Pastures)

**TABLE 6-5
VEGETATION COMMUNITIES/LAND COVER TYPES TIER LEVELS (Cont.)**

Vegetation Tier	Vegetation Community/Land Cover Type	Subcommunities
	Disturbed/Developed	Intensive Agriculture (Dairies, Nurseries, Chicken Ranches) Orchards and Vineyards Bare Ground Disturbed
	Exotic Landscapes	Urban/Developed Land Eucalyptus/Non-native woodland Ornamental
<u>Wetland Habitats</u>		
I	Aquatic, Marine I Riparian I	Saltpan/Mudflats Southern Arroyo Willow Riparian Forest Southern Coast Live Oak Riparian Forest Southern Cottonwood-Willow Riparian Forest Southern Sycamore Woodland Southern Sycamore-alder Riparian Woodland White Alder Riparian Forest
	Wetland I	Alkali wetlands (Alkali Seep, Alkali Marsh, Cismontane Alkali Marsh) Alkali Vernal Pools Montane Meadow San Diego Mesa Claypan Vernal Pools San Diego Mesa Hardpan Vernal Pools Southern Coastal Salt Marsh Vernal Lake
II	Aquatic, Freshwater II Aquatic, Marine II Riparian II	Open Freshwater (Freshwater, Open Water, Water) Open Saltwater (Bays, Estuarine, Subtidal) Arrowweed Scrub Mule Fat Scrub Southern Willow Scrub
	Wetland II	Freshwater Meadow or Seep Freshwater Marsh (Coastal and Valley Freshwater Marsh, Emergent Wetland)
III	Aquatic, Freshwater III Riparian III	Non-vegetated Floodplain or Channel Arundo Scrub Tamarisk Scrub
	Wetland III	Wetland (Disturbed)

**TABLE 6-6
UPLAND HABITAT MITIGATION RATIOS**

Mitigation Site	Impacted Land Classification	
	Meets criteria for Biologically Significant Resource Area	Does not meet criteria for Biologically Significant Resource Area
Tier I		
Meets criteria for Biologically Significant Resource Area	2:1	1:1
Does not meet criteria for Biologically Significant Resource Area	3:1	2:1
Tier II		
Meets criteria for Biologically Significant Resource Area	1.5:1	1:1
Does not meet criteria for Biologically Significant Resource Area	2:1	1.5:1
Tier III		
Meets criteria for Biologically Significant Resource Area	1:1	0.5:1
Does not meet criteria for Biologically Significant Resource Area	1.5:1	1:1
Tier IV	No mitigation required	No mitigation required

**TABLE 6-7
WETLAND HABITAT MITIGATION RATIOS**

Mitigation Site	Impacted Land Classification	
	Meets criteria for Biologically Significant Resource Area	Does not meet criteria for Biologically Significant Resource Area
Tier I		
Meets criteria for Biologically Significant Resource Area	2.5:1	2:1
Does not meet criteria for Biologically Significant Resource Area	4:1	3:1
Tier II		
Meets criteria for Biologically Significant Resource Area	2:1	1.5:1
Does not meet criteria for Biologically Significant Resource Area	3:1	2:1
Tier III		
Meets criteria for Biologically Significant Resource Area	1.5:1	1:1
Does not meet criteria for Biologically Significant Resource Area	2:1	1.5:1

and 1,147 acres in the MMAs). Some of these lands were acquired for previous Water Authority projects, and others have been acquired specifically to address planned and future projects. So, unlike most NCCP/HCPs, the Water Authority Plan has already assembled and will ensure the management of a Preserve Area system well in advance of the occurrence of impacts. A number of the HMAs include habitat acreage credits in excess of current and foreseeable mitigation needs.

As shown in Table 6-8, the Water Authority Preserve Area includes approximately 704 acres of upland and wetland habitat credits, exceeding the estimated approximately 373 acres of impacts from Covered Projects and Activities (consisting of 71.4 and 182.8 acres from Planned and Future Projects and O&M Activities, respectively, and 118.9 acres if the Pipeline 6 Existing Project alignment is modified). Assuming an average 2:1 mitigation ratio for projects/activities (e.g., roughly 746 mitigation acres), the currently available/proposed credits in the HMAs are nearly sufficient to meet the Plan's mitigation needs for Pipeline 6 and Planned Projects and nearly sufficient to meet the projected needs over the 55-year term of the Plan. Future Projects and Covered Activities will require the use of these credits, and the amounts and types of credits will be specified and updated in the annual reports. Therefore, the Water Authority's Plan is and will continue to stay ahead of its anticipated mitigation needs.

6.5.1.2 Rough (Step) Proportionality Commitment

The Water Authority, pursuant to the NCCPA and federal requirements, must ensure that implementation of conservation and mitigation measures, on a plan basis, is roughly proportional in time and extent to the impacts on Covered Species (and their habitats). The Water Authority commits to implement this obligation by using the following approach, and as further explained in subsequent subsections. Each Covered Activity will be assessed for its potential impacts to vegetation communities (habitats) and Covered Species. As described in Table 6-5, each affected vegetation community will be assigned to a "tier" denoting its relative sensitivity. Tables 6-6 and 6-7 identify the mitigation ratios required to effectively mitigate impacts to each tier. Furthermore, mitigation must occur within the same vegetation type or, where justified on a biological basis, with a higher value or comparable vegetation type. As Covered Activities occur that require habitat mitigation, the mitigation process assures that conservation and loss of each vegetation community remains in rough step. As noted above, the Water Authority has already assembled an initial Preserve Area, so the only rough step issue arises from assuring that mitigation obligations are met. As described in Section 6.12, Plan Monitoring and Adaptive Management, the Plan requires reporting of all impacts and mitigation/credit use. The reporting would use the CDFG "Habitrak" or a GIS-based approach to track and report impacts and mitigation.

The Water Authority, pursuant to the NCCPA and federal requirements, must ensure that implementation of conservation and mitigation measures, on a plan basis, is roughly proportional in time and extent to the impacts on Covered Species (and their habitats).

**TABLE 6-8
SUMMARY OF IMPACTS TO MITIGATED VEGETATION/LAND COVER TYPES
AND HMA MITIGATION ACRES**

Vegetation Tier	Vegetation Community/Land Cover Type	Estimated Project Impacts from Pipeline 6 Alternate Alignment ¹	Estimated Planned Projects Impacts (acres) ²	Estimated Future Projects and O&M Impacts (acres) ³	Existing/Proposed HMA Mitigation Credits (acres)
<u>Upland Habitats</u>					
I	Chaparral I	--	--	--	--
	Coastal	--	--	--	--
	Coniferous Forest I	--	--	--	--
	Grasslands I	--	--	--	8.3
	Oak Woodland and Forest	11.5	3.9	9.9	7.6
	Coastal Sage-Scrub I	--	--	--	--
II	Coniferous Forest II	--	--	--	--
	Coastal Sage-Scrub II	42.2	30.4	77.9	518.2
III	Sage-Scrub, Montane/Trans-montane	--	--	--	--
	Chaparral III	30.1	16.3	41.9	122.7
	Chaparral, Montane/Trans-montane	--	--	--	--
	Grasslands III	28.3	7.9	20.1	--
	Subtotal – mitigated habitats	112.1	58.5	149.8	656.8
<u>Wetland Habitats</u>					
I	Aquatic, Marine I	--	--	--	--
	Riparian I	3.6	8.4	21.6	25.5
	Wetland I	--	--	--	--
II	Aquatic, Freshwater II	--	0.5	1.2	--
	Aquatic, Marine II	--	--	--	--
	Riparian II	3.2	3.5	8.8	19.8
	Wetland II	--	0.5	1.2	1.3
III	Aquatic, Freshwater III	--	--	--	1.0
	Riparian (Disturbed)	--	--	--	--
	Subtotal – mitigated habitats	6.8	12.9	33.0	47.6
	Total	118.9	71.4	182.8	704.4

¹ Estimated permanent and temporary impacts from potential alignment change to Pipeline 6, an Existing Project.

² Estimated permanent and temporary impacts from Planned CIP Projects

³ Estimated impacts to individual vegetation communities from Future Projects and O&M Activities projected from Planned Projects' impacts.

The Water Authority commits to implement this obligation by using the following approach, and as further explained in subsequent subsections. Each Covered Activity will be assessed for its potential impacts to vegetation communities (habitats) and Covered Species. As described in Table 6-5, each affected vegetation community will be assigned to a “tier” denoting its relative sensitivity. Tables 6-6 and 6-7 identify the mitigation ratios required to effectively mitigate impacts to each tier. Furthermore, mitigation must occur within the same vegetation type or, where justified on a biological basis, with a higher value or comparable vegetation type. As Covered Activities occur that require habitat mitigation, the mitigation process assures that conservation and loss of each vegetation community remains in rough step. As noted above, the Water Authority has already assembled an initial Preserve Area, which includes unused mitigation credits in the HMAs, so the only rough step issue arises from assuring that mitigation obligations are met. As described in Section 6.12, Plan Monitoring and Adaptive Management, the Plan requires reporting of all impacts and mitigation/credit use. The reporting would use the CDFG “Habitrak” or a GIS-based approach to track and report impacts and mitigation.

The Water Authority commits to assure that during the 55-year Permit term period, the available upland or wetland habitat credits will be sufficient to satisfy the projected mitigation obligation requirements for the next two years, based on the estimated impacts from Covered Activities for that period.

If the available credits would be reduced to below that estimated credit/acres need, the Water Authority would either obtain credits from an independent, approved conservation/wetland bank, acquire additional habitat acreage to add to the Preserve Area to meet that commitment, or provide a biologically superior alternative that is acceptable to the wildlife agencies. This information would be updated and reported annually. Credits from the appropriate HMA or HMAs will be secured (withdrawn from the credit ledger) to mitigate the projected obligations. If temporary impacts are to be restored on-site, the Water Authority will ensure sufficient credits remain in one or more HMA’s until the performance criteria are met; any unmet obligation will require permanent withdrawal or purchase of the necessary credits from an existing bank. For certain vegetation communities, such as Coastal Sage Scrub II and Chaparral III, the HMAs appear to have sufficient credits to meet the projected need during the 55-year Permit term. If the HMAs cannot provide the expected credit acres, then the Water Authority would identify which option it would implement and provide a commitment to obtain the necessary credits or additional habitat to satisfy the vegetation community (and Covered Species) obligations.

6.5.1.3 Tiering

As described in Section 4.2, the Plan Area supports a wide range of upland and wetland vegetation communities and land cover types. The vegetation and land cover categories

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and tiers into which vegetation communities are assigned are comparable to those used in other conservation plans within San Diego County (see Tables 4-2 and 6-5). Generally, impacts to a vegetation community will be mitigated by conserving additional acreage in the same vegetation community. This is most important for those vegetation communities that represent limited geographical extent, unique geology and soils, or are specifically associated with one or more Covered Species.

Alternative Habitat Mitigation. In the event that there is no in-kind HMA habitat credit available for mitigation of impacts, the Water Authority may obtain habitat credits from conservation banks within the Plan Area or acquire additional appropriate habitat lands to add to the Preserve Area. Alternatively, the Water Authority may submit a proposal to the Wildlife Agencies for a biologically equivalent or superior mitigation approach (“alternative mitigation approach”) that may include substituting other vegetation communities. Any deviation from the vegetation types/habitats and ratios in Tables 6-6 and 6-7 would require case-by-case Wildlife Agencies approval. The following information must be included in the alternative mitigation approach proposal:

1. Definition of the project area.
2. A written description of the project.
3. A written description of biological information available for the project site, including the results of all focused surveys for Covered Species.
4. Written finding of infeasibility of mitigating in accordance with the mitigation requirements, including Tables 6-6 and 6-7.
5. Quantification of impacts to Covered Species associated with the project, including direct and indirect effects.
6. A written description of project design features that reduce indirect effects, such as edge treatments and landscaping, minimization, and/or compensation through restoration or enhancement.
7. Description of measures proposed to compensate for identified impacts in a manner that demonstrates that the proposed design, including compensation, would result in a long-term benefits to the Preserve Area for the species of concern that is functionally equivalent to or better than what would occur by conforming to the standard mitigation approach. The equivalency analysis will be based on the particular requirements of the species of concern.
8. A summary conclusion, including implementation findings to verify conformance with the Plan’s objectives (Section 6.1.2).

6.5.1.4 Mitigation Ratios and Geographic Considerations

To calculate the final mitigation ratio, the project activity must identify the vegetation community/habitat tier as well as the impact and mitigation site locations. Geographic considerations that may affect the final mitigation obligation include: the activity (impact) is within a biologically significant resource area (see below), the mitigation is within a biologically significant resource area, and whether the activity is within an existing right-of-way (Section 6.5.1.4.3). Whether the impact is permanent or temporary also affects the mitigation obligation (Section 6.5.1.4.2).

6.5.1.4.1 Biologically Significant Resource Area

Habitat areas do not support equivalent biological resources. Some habitat areas support rare vegetation types and species; support greater species diversity; are part of core areas of habitat; or function as key linkages or corridors for species. These types of habitat areas are generally the focus for conservation by this Plan and other conservation plans. This Plan uses the term “Biologically Significant Resource Area”, or BSRA, to include the following types of habitat areas within the Plan Area:

- an upland or wetland HMA (e.g., all Water Authority-committed lands in this Plan);
- areas that have been designated in approved (or in-approval stage) conservation plans as biological resource core areas, pre-approved mitigation areas, focused planning areas, corridors/linkages or equivalent designated/defined terms. The approval stage includes jurisdictions/entities formally committed to preparing a conservation plan that have produced a draft, publicly-released map of priority areas for conservation and areas proposed for development.

Existing rights-of-way are excluded from the BSRA because they have and continue to be impacted by O&M Activities. Based on the above conditions, each project will identify the impact area and mitigation area and determine whether the sites are within BSRA. That determination will affect the final mitigation ratio requirement.

6.5.1.4.2 Permanent and Temporary Impacts

Permanent Impacts. Permanent impacts result from Covered Activities that cause the removal of habitat (e.g., sensitive vegetation community or Covered Species) that cannot be mitigated on-site through revegetation and other restoration efforts. Mitigation for permanent impacts requires the acquisition of credits at a Water Authority upland or wetland HMA, other Wildlife Agency-approved bank, or through the acquisition/protection of a qualifying habitat area that augments the Plan’s Preserve Areas or reserves in another approved conservation plan, at the ratios specified in this Plan (Tables 6-6 and 6-7).

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If the mitigation ratio is greater than 1:1, the Water Authority may choose to provide the portion of the mitigation that is over the 1:1 component by restoring disturbed lands within this Plan's Preserve Areas or other protected habitat areas if those areas have no required restoration requirement imposed by this Plan or another plan, and no other legal/regulatory obligation or other requirement for habitat enhancement and/or restoration. If the Water Authority determines, based on project monitoring and performance criteria, that enhancement or restoration efforts are not likely to be successful, equivalent credits of the appropriate habitat type will be deducted from the appropriate Water Authority HMA or purchased from an existing bank. Project monitoring methods and performance criteria will be developed in consultation with the Wildlife Agencies, who will also review and provide concurrence that the criteria have been met or are not likely to be met. See Section 6.6 for a discussion of restoration approaches and specifics.

Temporary Impacts. Temporary impacts to sensitive (mitigation-requiring) vegetation communities are impacts resulting from Covered Activities that do not disturb or remove vegetation root stock or that can be mitigated on-site through revegetation and other restoration efforts. Revegetation and restoration of temporary impacts will occur on-site in the area of initial disturbance. Effective implementation and monitoring of the mitigation and invasive species control ensures that habitat and plant species are reestablished or recover to the original condition or a biologically superior condition. See Section 6.5 for a discussion of restoration approaches and specifics.

The Water Authority identifies two types of temporary impacts: (1) the impacts are considered to be a one-time disturbance, or (2) the impacts are considered to be repeated (known or expected to occur more frequently than the time period in which the restored area is scheduled to return to fully-restored status) within the duration of the Plan's permit. The Water Authority will use different approaches when dealing with these two types of temporary impacts, as described below.

For projects or portions of projects with one-time temporary impacts, restoration and revegetation of the impacted area will be implemented at a 1:1 ratio. The specific habitat enhancement (restoration and revegetation) measures will be selected to address site-specific needs. Performance (success) criteria will be defined for each project and will generally conform to the Water Authority's revegetation guidelines (Section 02940 in the General Conditions and Standard Specifications, 2005 edition, Appendix D). Success criteria will be reviewed and concurred with by the Wildlife Agencies before restoration projects may commence. Restoration measures will be developed to restore the site's previous biological resources and minimize establishment of invasive nonnative plant species. Habitat enhancement and restoration activities will occur under the supervision and direction of an Environmental Surveyor who has experience developing and implementing native restoration plans in southern California. Within a project site, any disturbed areas that do not require regular maintenance or future disturbance, whether

inside or outside of preserves, will be improved either through enhancement, restoration, or a combination of the two. No off-site mitigation will be required for one-time temporary impacts unless the restoration is determined unsuccessful by the Wildlife Agencies. The Water Authority must receive concurrence from the Wildlife Agencies that each restoration effort is successful, as discussed in Section 6.6.

For project or portions of projects for which the Water Authority believes there will be a need for repeated temporary impacts to an area, the Water Authority will treat the initial disturbance as permanent and mitigate off-site at the appropriate mitigation ratio prior to initiating work at the site. Mitigation for initial disturbance will be performed off-site using the same approach as described above for permanent impacts (e.g., using credit from a Water Authority HMA or other Wildlife Agency-approved bank, acquiring/protecting habitat that augments the Plan's Preserve Areas or other reserve lands). Also, the disturbed area would be reseeded with a native seed mixture appropriate to the site. No performance criteria will be associated with the restoration efforts in this case. Subsequent disturbances in the same area would only require that the affected area be revegetated to its original condition, and no additional off-site mitigation would be required.

The Water Authority will be responsible for ensuring that the temporary disturbance areas are properly reseeded/revegetated. During the construction warranty period (varies with projects, but is generally 24 months), the project contractor(s) will be responsible for reseeding/revegetating. The Water Authority, through the requirements of this Plan and using the Environmental Surveyor, will ensure that these areas will be monitored and managed for a three-to-five year period, based on the site-specific performance conditions.

If the restoration has not met the restoration plan's success criteria within two years of reseeding, the Water Authority may initiate a second round of reseeding efforts to meet the mitigation requirements. The Water Authority may install container plants and irrigation to aid revegetation efforts. This decision would be based on weather, site conditions, and the value of the habitat in the area. If success criteria have not been met during the restoration process, and the Water Authority determines that subsequent effort will not achieve the success standards, the Water Authority will consider impacts to be permanent and mitigate off-site at one of the HMAs or a Wildlife-Agency approved bank.

Restoration techniques utilized by the Water Authority are described in more detail in Section 6.6 below. For activities affecting riparian/wetland areas, enhancement and mitigation measures are outlined in the Wetlands Protection and Mitigation Program (see Section 6.7). Habitat restoration guidelines are set forth in Section 02940 of the Water Authority General Conditions and Standard Specifications, which were updated in 2005 (see Appendix D). Updates to the guidelines (e.g., site-specific seed mixes) will be submitted for Wildlife Agency review and comment as part of the annual reporting

process. Additional project-specific design features and mitigation measures implemented through the environmental process would be reviewed during the CEQA process. If other revegetation techniques not presented in this Plan are considered, they will be submitted to the Wildlife Agencies for concurrence.

6.5.1.4.3 Existing Rights-of Ways and Facilities

Water Authority rights-of-ways and facilities which were in place before a preserve, reserve, or BSRA designation was applied to the area, will be treated as being outside of those designations. Impacts to habitats by Covered Activities within these areas will be treated as “outside” a BSRA. In these instances, Covered Activities within existing ROWs are considered to have “pre-existing” status, and the preserve, reserve or other resource overlay/designation should have factored the pre-existing status into the areas’ expected conservation values. Similar to the approaches noted above, temporary impacts to sensitive habitat areas within rights-of-way will be revegetated on-site and any new, permanent impacts to sensitive habitats will be mitigated off-site. An existing right-of-way or facility within property that is proposed as a conservation or mitigation bank would not be included as part of the bank’s potential mitigation credit acreage because that portion of the property could not be assured of supporting appropriate habitat over the long-term. For the same reasoning, impacts to vegetation communities within those existing rights-of-way/facilities will be treated as “outside” of a biologically significant resource area even if it is physically within the resource area’s boundaries. The Covered Activities will comply with the preserve adjacency guidelines described in Section 6.11 of this Plan.

6.5.1.5 Mitigation Tables

Separate mitigation ratio tables for impacts by Covered Activities are provided for upland and wetland vegetation communities (Tables 6-6 and 6-7). The mitigation ratios reflect the impacted vegetation community’s tier and the biological status of the impact and mitigation sites. All permanent impacts will adhere to these ratios, but as noted in Section 6.5.1.3, this Plan allows the Water Authority to consider proposing alternative biological mitigation to meet the requirement; or, to fulfill part of the mitigation, using restoration after at least a 1:1 replacement has been identified (see Section 6.5.1.4.2). As described previously, temporary impacts that are determined to be permanent will be mitigated off-site, and all subsequent disturbance at that location will be mitigated solely by on-site restoration. Temporary impacts that are not determined to be permanent may be mitigated by restoring or revegetating the impact site at a 1:1 ratio.

The Plan has estimated habitat impacts from planned Covered Activities (Section 5.0) and the identified existing/proposed mitigation credits in the upland and wetland HMAs (Table 6-8). Because the specific locations of planned Covered Activities will only be known when the projects are ready for implementation, these estimated impacts may

change. The determination of whether a Covered Activity is within a BSRA (and assignment of the final mitigation ratios) will be made once the location of the activity is finalized. However, as shown in Table 6-8, the Plan has or proposes to create sufficient acres of habitat credits to address most of the estimated impacts from planned Covered Activities over the 55-year Permit term. Several habitats – coastal sage scrub, chaparral and certain wetland/riparian types – have more credits than are expected to be needed to meet Plan obligations.

6.5.1.6 Narrow Endemic Policy

Narrow endemic species are species that are considered to have highly restrictive habitat requirements, localized soil requirements, or other ecological factors. Narrow endemic species may have limited but important populations within the Plan Area, such that substantial loss of these populations or their habitat would jeopardize the continued existence or recovery of that species within the Plan Area. A population is based upon the number of individuals present for perennial species and contiguously occupied habitat acreage for annual species and bulb or corm species. The extent of the population will be defined by the Environmental Surveyor.

Unavoidable impacts to a narrow endemic population and occupied acreage will be minimized to the maximum extent practicable, and associated mitigation will be designed to meet a minimum 1:1 conservation ratio (e.g., by restoring/creating/expanding suitable habitat or reintroducing the species into unoccupied, suitable habitat) within the Preserve Area or other Wildlife Agency-approved mitigation sites.

The Narrow Endemic Policy applies to those species identified in Table 6-3 of the Plan as narrow endemic species. Species listed in Table 6-3 of the Plan are included due to their rarity and limited distribution within the Plan Area; some may not be considered a narrow endemic species from a purely ecological standpoint. The policy will apply to all portions of the Plan Area, regardless of preserve status.

6.5.1.6.1 Narrow Endemic Mitigation Measures

1. Narrow endemic species populations will always be avoided to the maximum extent practicable.
2. For new projects, an 80 percent avoidance policy will apply, excluding existing Water Authority rights-of-way (including easements and fee-owned parcels). For plant species, 80 percent of the species' mapped distribution area will be avoided; for animal species, 80 percent of the occupied habitat and suitable habitat will be avoided. Covered Projects that cannot meet the 80 percent avoidance policy due to additional site and planning constraints will implement a Wildlife Agency-approved biologically equivalent or superior alternative.

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3. Pre-activity surveys will be used to identify the location of narrow endemic populations to ensure that they are avoided and protected in accordance with this policy (see Appendix F of the Plan).
4. Mitigation for unavoidable impacts will be designed to minimize adverse effects to species viability and to contribute to the biological objectives of the Plan.

6.5.1.7 Critical Habitat

Covered Activities may affect proposed and designated critical habitat that has been identified for 14 of the Covered Species and vernal pool fairy shrimp, which is a Major Amendment Species. Of the Planned Projects, only the wetland creation projects at Tijuana River Valley HMA and the San Luis Rey River Valley HMA would impact critical habitat. However, areas of critical habitat at the Tijuana River Valley HMA and the San Luis Rey River Valley HMA include disturbed habitat and former agricultural lands, and restoration is expected to improve the areas of critical habitat. All other proposed locations of the Planned Projects are not expected to impact critical habitat for any Covered Species.

Implementation of the Covered Activities will attempt to avoid and minimize impacts to all critical habitat, but this may not always be possible. When impacts to critical habitat cannot be avoided, the Plan will attempt to limit impacts to temporary effects. If permanent impacts cannot be avoided, then the Water Authority will first attempt to mitigate with credits in the HMAs that have critical habitat or acquire other lands that are designated as critical habitat. Only if no critical habitat is available from the Preserve Area or as an acquisition of new habitat lands, the Water Authority will provide a justification for acquiring suitable habitat land that will benefit the species, with the concurrence of the Wildlife Agencies.

6.6 Habitat Restoration Program

As described in Section 6.5, habitat restoration may occur as a partial mitigation response to address permanent impacts, recurring temporary impacts (in conjunction with providing off-site qualifying habitat), and one-time temporary impacts. Where the restoration is providing partial mitigation for permanent impacts and mitigating one-time temporary impacts, the restoration effort will emulate surrounding vegetation characteristics. As described below, restoration of recurring-impact sites will ensure that the restored site does not revert to a disturbed or invasive, non-native species-dominated condition. Restoration site performance criteria and monitoring methods will be developed in consultation and concurred with by the Wildlife Agencies.

6.6.1 Restoration Areas Not Subject to Future Disturbance

Restoration is the reestablishment of natural/native species and processes. Active restoration expedites natural regeneration through the use of planting, seeding, transplanting, and salvaging techniques. To maintain the genetic integrity of sensitive sites, the source of seeds and plant material may be important and necessitate that propagules be harvested from sources close to the restoration site.

Under Water Authority supervision, a qualified restoration specialist (e.g., Environmental Surveyor) will prepare and submit to the Wildlife Agencies for their review and concurrence a restoration plan for each restoration project exceeding one-quarter acre and all wetland/vernal pool restoration sites. The plans will include the following components:

- An assessment of existing physical factors, including topography, slope, aspect, drainage, elevation, hydrologic regime, soils, and climate.
- An assessment of existing biological conditions, applicable management practices, and sources of potential disturbance.
- Collection of reference data from adjacent or nearby representative habitat as a planning guide and for use in developing success criteria for the subsequent monitoring of the restoration site.
- Specification of seed and plant palette, source locations, topsoil and plant salvaging techniques, and restoration design (including site preparation) and schedule.
- When identified as necessary in the restoration plan, plants will be propagated in containers from locally-collected seed or cuttings, particularly for sites with species that do not readily germinate from seed mixes or for some rare species.
- If propagated plants are specified, container plant production can begin as locally collected seed or cuttings become available. Container plants should be inoculated with mycorrhizae (mutualistic fungi) by using native soil that contains the fungi and other microorganisms.
- Exotic plant control and removal program.
- Specification of irrigation needs, as necessary.
- A maintenance program that generally includes irrigation (as necessary), weed control and removal, debris removal, replanting, reseeding, pest control, erosion control, and site protection. The maintenance program will typically last for a period of three to five years, depending upon the extent and the type of habitat to

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be restored, the achievement of success criteria, and other project specific conditions. The Water Authority's experience has been that upland habitats can be self-sustaining after three years of maintenance, and wetland habitats within five years of maintenance.

- A monitoring program that will evaluate the growth and success of the restoration site against specified success criteria (e.g., area to be restored, percent plant cover, plant species' percentages or relative frequency/abundance, species survivorship). The monitoring program may include qualitative and quantitative evaluations depending upon the extent of the restoration site. With the exception of vernal pool restoration projects, small restoration efforts typically may only require qualitative evaluations; however, this determination will be made based on site-specific conditions. A monitoring schedule will be specified that will last throughout the length of the maintenance program. The monitoring program will include the preparation of status reports documenting the findings of the monitoring evaluations. These reports will be submitted to the Wildlife Agencies on an annual basis, or more regularly, if required in the restoration plan. Should the monitoring evaluations reveal that the restoration effort does not meet the specified success criteria, recommended remedial measures will be included in the report.
- Success criteria will be developed that specifies goals and measurable objectives to be achieved for each stage of the restoration effort. Depending upon the type of habitat to be restored, success criteria may include goals for plant survival, vegetation cover, species diversity, plant density, and plant height. A set of success criteria will be specified for each year of the maintenance and monitoring period for each objective. At a minimum, these criteria will identify the desired dominant native species and percent native species' cover (monthly, quarterly and/or annually, as appropriate for the project). Monitoring will be for up to a five-year period unless the final performance criteria are met sooner and the Water Authority and Wildlife Agencies agree that the monitoring can be ended prior to the specified final monitoring date.
- Complex restoration plans will include adaptive management measures (see Section 6.6.2 below) to be implemented if the final success criteria are not completely met at the end of the maintenance and monitoring program. Under this circumstance, the Water Authority, in conjunction with the Wildlife Agencies, shall review and may nonetheless approve the restoration project or may decide that the maintenance and monitoring period shall be extended until success criteria are achieved, or alternatively, mitigation credits may be deducted from the Water Authority's HMAs.

The Wildlife Agencies will make their best efforts to provide their concurrence or objection within 60 days of submittal. If objection is provided, the Wildlife Agencies will

provide a detailed description of the restoration plan deficiencies and recommendations to make the plan acceptable.

Upon completion of the maintenance and monitoring period, the Water Authority will present justification to the Wildlife Agencies for whether the project does or does not meet stated success criteria. The Wildlife Agencies must then provide concurrence within 60 days that the project is a success or meet with the Water Authority to determine appropriate remediation measures that will adequately offset impacts.

6.6.2 Restoration Areas Potentially Subject to Future Disturbance

Restoration for temporarily impacted areas subject to future, repeat disturbance will conform to the following protocols for seeding/planting, weed control, erosion control, species relocation, and soil and plant salvage. For individual restoration/enhancement areas larger than five acres, a restoration plan (described in previous Section 6.6.1) will be required and must be approved by the Wildlife Agencies, who will make their best efforts to review and provide concurrence (or objection, with recommendations to make the plan acceptable) to the Water Authority within 60 days of receipt of the plan, or the plan will be considered acceptable.

6.6.2.1 Seeding/Planting

1. Seeding will generally be performed within 30 days after topsoil replacement (see Section 6.6.4), but each project will specify the topsoil replacement timing to correspond with the appropriate season for application. The seed mix to be used will consist of local native vegetation species that are suitable for restoration as dictated by the terrain, soils, and surrounding native habitat. As conditions allow, native plant species that are a typical component of the pre-existing or surrounding vegetation community will be used in the seed mix. If justified and feasible, plant materials will be derived from local seed and/or cutting sources to maintain genetic integrity. Species lists and sources and quantities of seeds to be applied will be based on local conditions, as determined by the Water Authority. The Wildlife Agencies will be notified of seeding efforts within the regular annual reports (see Section 6.12).
2. Hydroseeding will consist of a slurry mix of native seed, soil stabilizer (100 pounds per acre), fiber mulch (2,000 pounds per acre), water, and other additives to be hydraulically sprayed on the ground as specified in the PSF or restoration plan. The slurry (but not the seed mix) may be altered by the project engineer to meet any site-specific needs. After application, this will allow absorption of moisture and rainfall to percolate to the underlying soil.

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3. Hand-seeding may be used to spread seed by hand and rake it into the topsoil.
4. Drill-seeding may be used in restoration efforts to reduce soil disturbance.
5. Established preserves within the Plan Area will be reseeded only with appropriate native species for the site and surrounding area.
6. Areas requiring erosion control will be reseeded with an erosion control native seed mix as determined in Section 02940 of the Water Authority standards (see Appendix G). Such seed mixes may include a selection of native grasses, low-growing forbs, and shrubs, consistent with the surrounding area and the ultimate disposition of the reseeded site.
7. Hydroseeded areas will be periodically inspected by the Environmental Surveyor. Inspections generally will be conducted on a quarterly basis but could be more or less frequent depending on site specific conditions. Areas failing to show acceptable germination and growth of native species, as determined by the Environmental Surveyor, will be scheduled for reseeded. Acceptability will be determined by uniformity of germination and native plant growth. Any supplemental seeding should take place from September through November, prior to winter rains. The need for supplemental seeding will be evaluated upon whether seedling establishment provides a reasonable expectation that it will develop into self-sustaining native habitat over time with consideration for annual rainfall and other underlying abiotic factors (e.g., slope, aspect, soils).
8. Areas of approximately 4,360 square feet (0.1 acre) or larger that have not achieved 20-percent cover of native plants at the end of the first summer following seeding may require reseeded. Factors such as overall percent cover, health, and vigor will be considered in determination of satisfactory establishment. If supplemental seeding is required, seed mixes may be altered upon direction of the Water Authority to achieve more successful germination based on habitat conditions; however, seed mixes must contain only native species. Exceptions to use non-native, non-invasive species may be made by the Environmental Surveyor in disturbed areas that have been landscaped with non-native species, or elsewhere with concurrence from the Wildlife Areas.

6.6.3 Weed Control

1. Weeds will be controlled in all areas planted and/or seeded throughout the plant establishment and maintenance period. Weed eradication will be performed within 10 days prior to initiating seeding and planting operations.
2. All planted areas will be weeded prior to the weeds reaching 12 inches in height and/or before ripening of seed, unless otherwise directed by the Environmental Surveyor. Weed control methods may include herbicide application, hand

weeding, or mechanical removal as approved for the site by the Environmental Surveyor. Herbicides will be applied in conformance with all applicable laws and regulations.

3. All high-rated invasive weeds on the most current California Invasive Plant Council (Cal-IPC) list (Appendix H) will be prioritized and targeted for control at restoration sites, although additional weeds may be controlled based on recommendations by the Environmental Surveyor.

6.6.4 Soil and Plant Salvage

As a means of enhancing revegetation success, the Water Authority will salvage soil, seed, and plant material on a project-by-project basis, where appropriate and feasible. Project review and CEQA analysis will identify appropriate salvage opportunities. Mitigation measures and conditions of project approval will specify the soils, seed, and plant material to be salvaged, identify the procedures for salvage, and specify locations and time frames for use of material, as appropriate.

1. Where feasible, the project will reuse topsoil that supported native plant species for revegetation and restoration purposes.
2. Where feasible, the project will collect representative cactus joints and/or other rooted materials within impact areas for subsequent planting in restoration sites or areas that will not be impacted.
3. During construction in areas of native habitat, topsoil consisting of the top four to six inches of earthen material will be salvaged and stockpiled separately from other excavated materials. Topsoil piles will be stored within a fenced or a flagged and posted enclosure. These piles will be kept relatively weed free without the use of a pre-emergent herbicide. Weeds will be removed and disposed of off-site before weeds produce mature seed heads. Prior to topsoil salvage, existing native vegetation will be salvaged, removed and mulched, or crushed into the topsoil. If mulched, vegetative material will be no larger than six inches long by one inch wide. Mulched native vegetation may be incorporated and stored with salvaged topsoil at the discretion of the Water Authority. If stockpiles are projected to remain for more than one year, then the Water Authority will provide a maintenance plan.
4. Once construction has been completed, the stockpiled topsoil/mulched plant material will be applied in a layer over all portions of the construction corridor that previously contained native habitat. Both the topsoil and the mulched material contain native propagules beneficial to the growth of native plant species. Additionally, the mulch will reduce erosion potential for the area. This method is

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suited for temporary roads and staging areas (once ripped), as well as for other areas of prior intensive activities.

5. Topsoil compaction during placement will be avoided. The topsoil will be tilled prior to seeding to increase water infiltration and root growth. Disking or ripping to a depth of 12 inches will also reduce topsoil slippage on steep slopes. Tilling after initial seed germination may promote weed growth and will only be utilized when an influx of pest species would not adversely damage or diminish adjacent native plant populations as determined by the Environmental Surveyor.
6. When available and determined acceptable by the Environmental Surveyor, salvaged species may be used in restoration areas to allow the introduction of mature and diversely-aged plants that have developed root systems with symbiotic fungal associations. Plant salvage will begin at least one month prior to clearing and grubbing of the site to allow sufficient salvage time. Salvageable individual plants will be removed from the ground using hand tools or mechanized equipment to remove the root ball and surrounding soil. Plants will then be transplanted and stored in soil per standard horticultural practices for native species until the restoration areas are prepared for planting (e.g., cool season weather arrives or water is available) and until all signs of transplant shock have subsided. When possible, individuals will be removed from a designated grading area and replanted without delay in a prepared revegetation site.

6.7 Wetland Protection and Mitigation Program

The Wetland Protection and Mitigation Program (Wetland Program) will protect and achieve no-net-loss of wetlands. The Wetland Program requires the evaluation of wetland avoidance options and specification of minimization measures prior to compensatory mitigation. The Wetland Program will ensure adequate mitigation based upon habitat type (see Table 6-7) to address federal or state regulatory obligations. If the wetland mitigation creation/restoration site is already fully functional prior to impacts, then a ratio of 1:1 may be substituted by the Water Authority for those specified in Table 6-7. A functional wetland mitigation site means that the site meets performance criteria established in the approved wetland mitigation site plan. Using credits/acres from a fully functional wetland mitigation site avoids the temporal loss associated with creating wetlands concurrent with incurring the wetland impacts and meet the no-net loss requirement for wetlands. To offset unavoidable impacts to wetlands, thereby achieving an overall no-net-loss of wetland functions and values, compensatory mitigation will be provided within the wetland HMAs or, if not yet installed, a site approved by the Wildlife Agencies, and USACE (if warranted).

Wetlands and jurisdictional waters are regulated at the state and/or federal level. Activities that may impact jurisdictional wetlands and/or waters of the U.S. will continue to be regulated under Sections 401 and 404 of the Clean Water Act by the SWRCB and USACE. Under Sections 1600–1616 of the Fish and Game Code, CDFG regulates activities that would alter streams, rivers, or lakes. CDFG jurisdiction includes adjacent riparian habitats affected by watercourse alterations. The California Coastal Commission regulates activities occurring within the coastal zone under the California Coastal Act. The RWQCB regulates activities involving waters of the state and all waters of the U.S., as mandated by both the federal Clean Water Act and the California Porter-Cologne Water Quality Control Act.

The Wetland Program will be implemented within the Plan Area through individual project review and the associated CEQA process. Where development projects are proposed in or near wetlands, the Water Authority, pursuant to the CEQA review, must show that impacts to waters and wetland habitats have been avoided and minimized to the greatest extent feasible. For unavoidable permanent impacts to wetland habitat types, the Water Authority will compensate in accordance with the ratios identified in Table 6-7 to achieve the no-net loss standards. For USFWS section 7 consultations with the USACE and CDFG 1600 agreements, the USFWS and CDFG mitigation requirements for impacts to wetlands/Covered Species from Covered Activities to the maximum extent appropriate will be consistent with the commitments in this Plan. The Water Authority has developed or contemplates developing wetland mitigation HMAs at three wetland creation sites: Tijuana River Valley, San Luis Rey River, and Manchester. Also, San Miguel HMA has three acres of dry marsh/riparian scrub habitat and one acre of freshwater pond (see Section 6.8 below). The Manchester HMA has established created wetland habitat and retains un-allocated wetland mitigation credits. The Tijuana River Valley and San Luis Rey River HMAs are proposed for future construction (i.e., rehabilitation to wetland conditions), and wetland habitat credits are expected to be available to the Water Authority to mitigate any future wetland impacts.

6.7.1 Avoidance and Minimization within Existing Wetland Preserve Areas and Water Authority Easements

The avoidance and minimization measures described in Section 6.3 apply to all Covered Activities, but the Water Authority will also implement specific measures to retain wetlands in designated preserve, reserve and fee/easement areas within the Plan Area. Impacts to waters and wetlands mainly occur when the Water Authority conducts activities on linear facilities that pass through wetlands. Avoidance and minimization of impacts to wetlands within designated preserve/reserve areas will be assured through the implementation of measures outlined in Sections 6.4 and 6.5. Uses within easements inside a wetland preserve area are generally limited to O&M Activities at

existing facilities. All projects are subject to specific siting criteria which will direct facilities away from sensitive resources, such as wetland habitats, to the extent feasible.

6.7.2 Compliance with Fish and Game Code Sections 1602 and 1603(a)

This section identifies streamlined procedures for CDFG and the Water Authority to process Covered Activities that are subject to Fish and Game Code Sections 1602 and 1603(a).

The purpose of code Sections 1600-1616 is to protect and conserve fish and wildlife resources that could be substantially adversely affected by a substantial diversion or obstruction of natural flow of, or substantial change or use of material from the bed, bank, or channel of any river, stream, or lake. When implementing the code sections, CDFG enters into a legally binding Lake or Streambed Alteration Agreement (LSAA) with the entity proposing the alteration, which typically includes conditions of work to avoid and minimize substantial adverse impacts to regulated resources, and compensatory mitigation for unavoidable temporary and permanent impacts to fish and wildlife resources.

Section 1602(a)(1) requires the entity to submit to CDFG written notification regarding the proposed activity, in the manner prescribed by CDFG. Item 12 of the CDFG Notification of Lake or Streambed Alteration form requires the applicant to identify measures to protect fish, wildlife, and plant resources under three categories: a) describe the techniques that will be used to prevent sediment from entering watercourses during and after construction; b) describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources; and c) describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

This Plan provides information responsive to item 12. The Plan adequately addresses item 12(a) in that it identifies requirements and references applicable Water Authority General Conditions and Standard Specifications that will be used to prevent sediment from entering watercourses during construction and after construction by implementing stormwater BMPs (Section 6.4.2.6) and a Habitat Restoration Program (Section 6.6). The Plan meets the requirement of items 12(b) and 12(c) by its inclusion of required avoidance and minimization of wetlands (Section 6.7.1) and minimization measures (Section 6.4); compensatory mitigation (Section 6.5) with specific habitat mitigation ratios (Tables 6-6 and 6-7); general biological conservation policies, including general Conditions of Coverage, avian breeding season restrictions, and biological buffers (Appendix B, Section 2.0); and species-specific management measures for covered plants (Appendix B, Section 3.0) and covered wildlife (Appendix B, Sections 4.0 through 8.0). By implementing the Plan sections listed above and the lake, stream, and river

work conditions listed in Appendix I, and by entering into a binding IA together with a standardized LSAA, described below, the Plan fulfills the purpose of a project specific LSAA for Covered Activities' impacts to covered habitat types, Covered Species, and other general fish, wildlife, and plant resources associated with the lakes, streams, and rivers. Covered Activities relying on this section will be identified in the annual report, and will include the applicable CDFG tracking number, identify the wetland vegetation communities and unvegetated channels impacted, including acreages and whether the impact is permanent or temporary, the wetland HMA utilized to offsite impacts together with the type and amount of credits debited, as well as restoration monitoring reporting for any temporary wetland impacts, and all other applicable reporting requirements identified in the Plan.

Code Section 1602 (Notification/Application)

To streamline completing the Notification of Lake or Streambed Alteration prepared for Covered Activities during the term of the IA, CDFG will consider the "Measures to Protect Fish, Wildlife and Plant Resources" fields complete when the information in the fields refers the reviewer to "San Diego County Water Authority NCCP/HCP sections 6.4.2 and 6.4.3." Also, CDFG will not require the entire Plan or the relevant Plan sections, the IA, or the associated Permits to be submitted with the Notification in order to consider it complete, since they will already be on file.

During the term of the IA, CDFG and the Water Authority may negotiate a written notification format other than as currently prescribed by CDFG if it is determined to be mutually beneficial to both CDFG and Water Authority.

Code Section 1603 (Agreement)

During the term of the IA, when a Covered Activity substantially adversely affects Covered Species or covered habitat types, the Plan and IA shall serve as the framework for the agreement identified in Fish and Game Code Section 1603(a), including the compensatory mitigation ratios in Tables 6-6 and 6-7, and Wetlands HMAs as off-site wetland mitigation areas.

If CDFG determines the Plan adequately protects (and, if necessary, adequately mitigates identified impacts to) existing fish and wildlife resources associated with the Covered Activity, CDFG will provide the Water Authority a standardized draft LSAA for the Covered Activity described in the notification no later than 30 days after deeming the notification complete. A standardized LSAA would contain those elements common to all LSAA's (e.g. unique notification number, recitals, term and effective date, language regarding extension, amendment, suspension and revocation, liability, and enforcement of the agreement, and concurrence), project location and description, amount and type of habitat impacted and amount, and type of mitigation (e.g. number of credits deducted from wetland HMA). Mitigation ratios will be taken from Tables 6-6 and 6-7. The LSAA

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will also incorporate, by reference, the protective measures contained in the Plan and Appendix I. Any measures proposed by CDFG in additions to those in the Plan and Appendix I will be subject to negotiation and the arbitration process pursuant to code Section 1603. As identified above, the annual report will include relevant information so that a Covered Activity is in compliance with the Plan and Abbreviated LSSA.

If CDFG finds that the Plan and IA does not provide adequate conservation and protection for existing fish and wildlife resources associated with the Covered Activity, and a project specific LSAA is necessary, CDFG will provide in writing a specific and detailed description of the affected resources and the information upon which its determination of substantial adverse effect is based no later than 30 days after deeming the notification complete. For example, a specific agreement may be prepared if the implementation of a Covered Activity has the potential to cause a substantial adverse impact to a non-covered but CDFG-recognized sensitive aquatic species where the CDFG finds, after considering the Plan, including the Covered Species Conservation Measures (Appendix B) that would be applied to the Covered Activity, that additional minimization and mitigation measures are necessary to ensure impacts to the non-covered sensitive species are less than significant.

During the Plan term, the habitat mitigation ratios identified in Section 6.5.1 and Tables 6-6 and 6-7 will be applied, and the wetland HMAs identified in the Plan will be the utilized to mitigate unavoidable permanent and temporal impacts to wetlands resources caused by Covered Activities implemented consistent with the Plan and IA, and that are subject to Fish and Game Code Sections 1600-1616. In addition, Covered Species general and specific conservation policies identified in Appendix B will apply to fish, wildlife, and plant resources avoidance, minimization, and mitigation measures for Covered Activities subject to Fish and Game Code Section 1600-1616.

Nothing in this Plan alters Fish and Game Code Section 1610. In those circumstances where Fish and Game Code Sections 1600-1616 do not apply, it shall continue not to apply. This section does not apply to projects or activities not covered by the Plan.

6.7.3 Vernal Pool Protection Policy

Vernal pools are naturally occurring seasonal wetlands, such as San Diego mesa hardpan vernal pools, San Diego mesa claypan vernal pools, vernal lakes, and alkali vernal pools, but also include road ruts (see Acronyms and Definitions). Vernal pools are supported by their surrounding watersheds, which comprise the adjacent lands whose runoff supports the seasonal water supplied to the pools. For some vernal pools, the watershed is clearly delineated by topographical features, but others do not have distinct watershed (topographical) boundary. If a vernal pool may be impacted by Covered Activities, a qualified Environmental Surveyor will establish the boundaries of the vernal pool and its watershed based on the best available survey and delineation methods.

This Plan anticipates that no permanent impacts to vernal pool complexes will occur under this Plan, which will ensure no net loss of vernal pool habitat. Temporary impacts or unavoidable permanent impacts will be mitigated in-kind, in accordance with Table 6-7 and the vernal pool policy measures below, in consultation with the Wildlife Agencies. If Covered Species are found to be present within the vernal pools, additional avoidance and minimization measures for Covered Species will be employed (see Appendix B).

As described in Section 5.1.1, jacking and boring are acceptable and proven techniques when open cut trenching is not desirable or feasible for pipeline construction. The Water Authority has used this method to avoid sensitive vernal pool resources and plant species on past projects, such as Second Aqueduct, Pipeline 5-E1. This construction method would be the preferred construction alternative for projects that may potentially impact vernal pool resources within the Plan Area. A site specific assessment of the hardpan or claypan conditions for the vernal pool will be conducted and a 100-foot or greater buffer will be established to ensure the hydrologic conditions of the watershed are not disturbed by jack and boring construction.

6.7.3.1 Vernal Pool Mitigation Measures

1. Identify watershed boundaries and hydrological characteristics for all vernal pools in the project area and ensure that project design features and mitigation measures protect the functionality of the watershed.
2. For unavoidable temporary impacts by a Covered Activity to vernal pools and watersheds, restore hydrological conditions and vegetation at the impacted location as directed by a restoration (including maintenance and monitoring) plan. The restoration plan will be prepared by a qualified Environmental Surveyor and address all vernal pool and watershed issues (a wetland-equivalent to the upland site restoration plans described in Section 6.6).
3. Post-construction weed control measures shall be implemented for a minimum of two years around the affected vernal pools to control non-native species and account for delayed non-native response due to disturbance.
4. In the event a ponded road rut occupied by a Covered Species may be affected by a Covered Activity, the Environmental Surveyor, project engineer, and construction manager will develop a plan to avoid the individual road ruts to the maximum extent feasible. In the event that avoidance is not possible, the Environmental Surveyor will provide recommendations for minimization and mitigation in accordance with this section, Appendix B, and the following measures implemented in accordance with a Wildlife Agency-concurred restoration plan:

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- a. Attempt to schedule activities that impact ponded road ruts by scheduling project activities outside the ponding period (e.g., when wetted soils are more liable to rut formation) to avoid excessive disturbance of substrate.
- b. Prior to disturbance of any road rut(s) containing Covered Species, the topsoil containing inoculum will be removed, packed, and stored until the contours of the ponded road rut can be replaced on-site. If possible, the ponded road ruts(s) will be re-contoured outside of road boundaries to prevent impacts from future activities.
- c. The inoculum will be re-spread in re-contoured ruts in accordance with the restoration plan.
- d. Each restoration plan will include success criteria that must be met within timeframes set in the plan. The project cannot be considered completed until the Water Authority receives concurrence by the Wildlife Agencies.

6.7.4 Quagga and Zebra Mussel Response and Control Action Plan

The Water Authority is participating in efforts to control the spread of quagga and zebra mussels within San Diego County. Together with CDFG, Member Water Agencies, and others, the Water Authority developed and released the San Diego Regional *Dreissena* Mussel Response and Control Plan, dated June 25, 2008. The Response and Control Plan is intended as a reference guide for Member Water Agencies and others considering available response and control options within a given system or body of water. The Water Authority supports all guidelines as published in the Response and Control Plan and has further evaluated and defined measures applicable to its infrastructure and operating characteristics in the preparations of a San Diego County Water Authority Quagga and Zebra Mussel Response and Control Action Plan

The Quagga and Zebra Mussel Response and Control Action Plan details management commitments of the Water Authority, and the action items are intended to meet the requirements of California State Assembly Bill 1683 (amendment to Fish and Game Code 2301) and other related state and federal regulations. The action plan will be reviewed annually, updated as required, and the Water Authority's implementation of quagga and zebra mussel responses will conform with the commitments of this Plan.

The Water Authority implements its Quagga and Zebra Mussel Response and Control Action Plan during draindowns (Section 5.2.2.1) to prevent mussel larva, if present in the water, from entering surface waters.

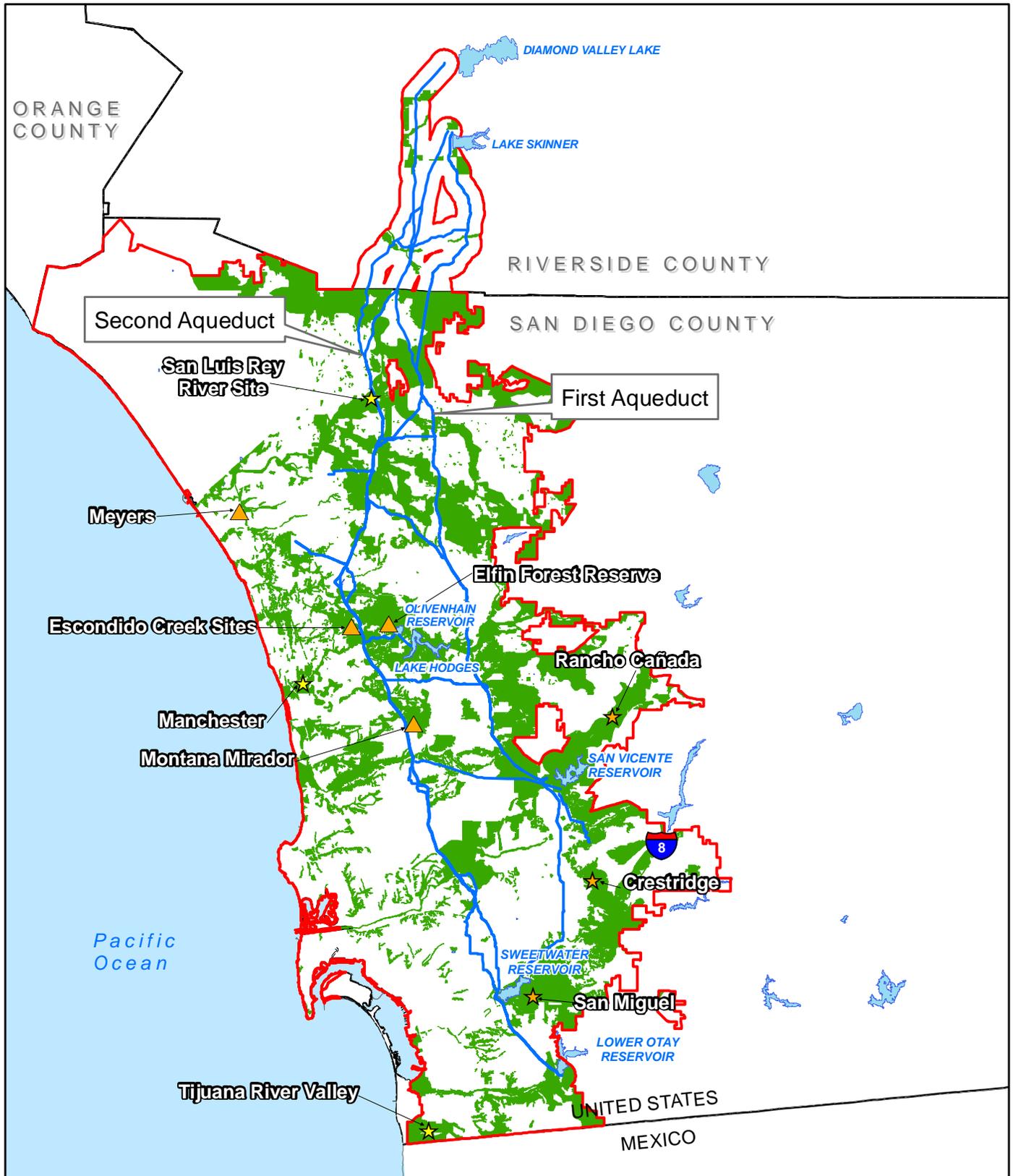
6.8 Preserve Area

Implementation of this Plan will contribute to the regional conservation of important habitat areas and Covered Species at the Water Authority's Preserve Area (the HMAs) and previously conserved properties (MMAs) within the Plan Area (Figure 6-1). The conservation approach will implement the goals and objectives identified in Section 6.1.

The overall conservation strategy for covered plant species focuses on establishing and ensuring the permanent management of a regionally significant Preserve Area that supports Covered Species by avoiding, minimizing and mitigating impacts to Covered Species and sensitive habitats at HMAs within the Plan Area. The Water Authority also will avoid, to the extent feasible, critical locations for Covered Species such as occupied habitat, distinctive clay soils in unoccupied habitat that may allow for population re-establishment, and adjacent native habitat that supports pollinators. Species-specific Conditions of Coverage will be implemented as necessary to enhance or protect habitat quality and increase population size. These may include mitigation measures such as enhancing declining populations, restoring damaged habitat, and establishing seed banks (see Appendix B).

The conservation strategy for covered wildlife focuses on establishing a regionally significant Preserve Area that supports Covered Species and potentially occupiable habitat. These sites are within BSRAs and often adjacent to, or managed as part of, other regionally significant conserved habitat areas. Avoidance and minimization of occupied habitat within rights-of-ways will also occur when feasible. Maintenance of existing habitats within rights-of-way and minimization of and mitigation for impacts within rights-of-way habitat will help maintain linkages between habitat blocks that consist of upland and riparian vegetation types suitable for breeding, foraging, and dispersal of covered wildlife species. As described in Appendix B, other measures will include, but are not limited to, avoidance and minimization of impacts to small seasonal ponds and vernal pools; avoidance and protection of riparian areas and lakes; retention of Covered Species nesting habitat adjacent to aquatic habitat; minimization of the width of linear impacts within substantial patches of oak woodland and riparian forest for nesting and foraging raptors; and maintenance of grasslands, pastures, and agricultural edge habitats within the Plan Area for raptor species.

The Plan's Preserve Area provides native habitat occupied by Covered Species, and the remaining upland and wetland habitat acres/credits in the Preserve Area provides/will provide appropriate habitat to compensate for unavoidable impacts from Covered Activities. Currently, the Water Authority has three upland HMAs: Crestridge HMA, San Miguel HMA, and Rancho Cañada HMA (also known as the Rancho Cañada de San Vicente y Mesa del Padre Barona). The Water Authority is also pursuing wetland habitat credit at two wetland creation sites, Tijuana River Valley HMA in the city of San Diego, and San Luis Rey River HMA within the unincorporated county, and has established the



- NCCP/HCP Plan Area
- ~ Existing/Planned Aqueducts and Pipelines
- Biologically Significant Resource Areas
- ★ Wetland HMA Sites
- ★ Upland HMA Sites
- ▲ Upland MMA Sites



FIGURE 6-1
Water Authority Preserve Area and
MMAs with Biologically Significant Resource Areas

Manchester HMA adjacent to Lux Creek in the city of Encinitas. In addition, the Water Authority previously acquired and transferred ownership/management of several properties (MMAs) as upland mitigation sites for the ESP that provide regional conservation value as well as satisfying species-specific mitigation requirements.

The locations of the Preserve Area properties in the Plan Area are shown in Figure 6-1. The recent acquisition of the Rancho Cañada HMA by the Water Authority provides unique conservation contributions: (1) Approximately 275 acres of sensitive habitats beyond the specific mitigation requirements were acquired and will provide regional conservation benefits for Covered Species, and will not be used to directly mitigate for impacts to Covered Species (see Table 6-11). The Rancho Cañada HMA is being conserved and managed with Water Authority funds; (2) This habitat purchase “frees-up” other agencies’ and organizations’ acquisition funds to acquire other properties in the Ramona area; (3) The Rancho Cañada HMA provides watershed protection for San Vicente Reservoir; and (4) The purchase by the Water Authority removed lands being actively marketed from probable future development. The Water Authority’s acquisition of the Rancho Cañada HMA also helped expedite CDFG’s acquisition of The Nature Conservancy (TNC) adjacent Monte Vista property (4,050 acres), completed in October 2008.

6.8.1 Upland Habitat Mitigation Areas

The sensitive habitats and documented/expected Covered Species at the three primary upland HMAs are described below (see Figure 6-1). Because this regional conservation plan covers a large and varied area, and the distributions of the Covered Species vary within the Plan Area, not all of the Covered Species are present at each preserve area property. However, the locations of the preserve lands throughout San Diego County support a diversity of conserved vegetation and Covered Species, and together they contain many of the diverse habitats and Covered Species that are expected to be impacted by the Covered Activities. As described in Section 8.3.2, Acquisition of Habitat Mitigation Credits or Preserve Area, additional habitat lands that support Covered Species may be acquired to provide/augment conservation for certain species, if needed, to address impacts from Covered Activities.

The HMA habitat acreages available for mitigating impacts from Covered Activities by the Water Authority’s use will be quantified as credits. Rancho Cañada HMA is limited to providing mitigation credits solely towards the CSP, with unallocated habitat acres providing general regional conservation benefits. Credits will be deducted from the appropriate upland HMA at the ratios established in Table 6-6, or as agreed upon by the Water Authority and Wildlife Agencies. The formal mitigation banking agreement for San Miguel HMA and the mitigation credit ledger sheets for San Miguel HMA and Crestridge HMA are included in Appendix J.

6.8.1.1 Crestridge HMA

Crestridge HMA provides as-needed pre-approved mitigation lands for CIP project impacts. The multiple-parcel site is located south of Interstate 8 (I-8) at the eastern edge of the city of El Cajon in San Diego County. Crestridge HMA is owned by CDFG, which it manages together with the adjacent Crestridge Ecological Reserve.

The Crestridge Ecological Reserve, including the Water Authority portion (i.e., Crestridge HMA), is managed under an existing draft management plan prepared by the Conservation Biology Institute in 2002. The management plan is currently being revised and updated by the Conservation Biology Institute under contract to CDFG, and should be completed and finalized in 2009. The management plan will be written to comply with MSCP guidelines for preserve management and includes an adaptive management component. The Crestridge HMA will be managed together with the larger ecological reserve pursuant to the final habitat management plan.

Diegan coastal sage scrub habitat comprises approximately 90 percent of the site, with southern mixed chaparral comprising approximately nine percent. The Diegan coastal sage scrub habitat is of high quality, and the southern mixed chaparral has connectivity to larger expanses of chaparral northeast of the site. Disturbed areas account for one percent of the site (PSBS 1994). Numerous sensitive plant species are known to occur within the scrub and chaparral habitats on-site. The large expanses of high-quality scrub and chaparral habitats also provide habitat for many sensitive wildlife species.

Table 6-9 provides details on the use and status of the mitigation credits as of December 31, 2008. Approximately 17.91 acres of coastal sage scrub credits and 24.8 acres of southern mixed chaparral credits are currently available within the Crestridge HMA. All off the available credits at Crestridge HMA are committed for use by Covered Activities. The Water Authority also reserves the rights to enter an agreement with the Wildlife Agencies to add 2.6 acres of additional coastal sage scrub credits based on habitat restoration work on-site.

**TABLE 6-9
SUMMARY OF CRESTRIDGE HMA MITIGATION CREDITS (acres)**

Bank/Conservation Area	Initial Credits	Deductions	Available Credits
Coastal Sage Scrub	233.65	215.74	17.91
Chaparral	24.80	0	24.80
Disturbed Land	2.60	0	2.60 [†]
Total Credits	261.05	215.74	45.31

[†] Proposed for restoration and credit (not presently available).

Lakeside ceanothus (*Ceanothus cyaneus*), covered plant species, is known to occur within Crestridge HMA. Covered amphibian and reptile species detected within or adjacent to the site include western spadefoot, Coronado skink (*Eumeces skiltonianus*

interparietalis), San Diego horned lizard, Belding's orange-throated whiptail, and northern red-diamond rattlesnake (*Crotalus ruber ruber*). Covered avian species detected within or adjacent to the site include coastal California gnatcatcher, southern California rufous-crowned sparrow, and Bell's sage sparrow. Covered mammal species detected within or adjacent to the site include mountain lion (*Felis concolor*) and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). Other Covered Species, such as coastal (western) whiptail (*Aspidoscelis tigris multiscutatus*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), and Dulzura California pocket mouse (*Chaetodipus californicus femoralis*), also have potential or are expected to occur within the site. For additional information on known Covered Species occurrences or potential for occurrence on Crestridge HMA, refer to the species-specific conservation analyses in Appendix B.

6.8.1.2 San Miguel HMA

The 1,186-acre San Miguel HMA is an existing conservation bank that is part of the larger 1,852-acre San Miguel Ranch conserved land, located in Chula Vista near Mother Miguel and San Miguel Mountains. The conservation bank is part of the San Diego National Wildlife Refuge Complex (Refuge) and is managed in accordance with the conservation banking agreement (see Appendix J). Credit use has been pre-determined by banking agreements established for the property in 1999, and assumed by the Water Authority (see Appendix J). Of the 1,186 credits at the San Miguel HMA, 600.94 credits currently are available for sale to private parties and public agencies with the concurrence of the Wildlife Agencies, or are reserved for Covered Activities as described by this Plan. The Water Authority initially acquired 820.85 credits of the San Miguel HMA in 2003 in anticipation of mitigation requirements under this Plan. The purchase price for credits at the bank includes a per-acre fee provided to an endowment dedicated to funding monitoring and management activities for species and habitats within the bank. With the purchase of credits, the Water Authority is entitled to rely on the monitoring and management assurances provided in the banking agreement.

The bank supports a number of upland habitats that provide very high habitat value for sensitive species. In addition to high quality coastal sage scrub, the site supports chamise and mixed chaparral, native grasslands, riparian scrub, freshwater marsh, and seasonal ponds. Diegan coastal sage scrub habitat comprises approximately 85 percent of the parcel. Non-native grassland, native grassland, southern mixed chaparral, chamise chaparral, and freshwater marsh comprise the remaining 15 percent. Several stock ponds and ephemeral drainages are also present (Merkel and Associates 1997).

The site supports a rich species biodiversity, including a number of sensitive Covered Species. Numerous sensitive bird, reptile, and mammal species are known to occur on the HMA lands. San Miguel Ranch supports a very high diversity of plant and wildlife species, which may be attributed to the large amount of undeveloped land within and

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adjacent to the site, highly variable topography, relatively low disturbance, and connectivity to the Otay Lakes, Sweetwater Reservoir, Sweetwater River, and Mother Miguel and San Miguel Mountains. Several wildlife corridors have been identified on-site that facilitate wildlife movement between areas of the San Miguel and Jamul mountains, as well as the wetlands surrounding the Sweetwater Reservoir and Sweetwater River corridors (Merkel and Associates 1997).

Table 6-10 provides a summary of the initial and available credits at the San Miguel HMA as of December 31, 2008. The deductions do not include 26 acres of Diegan Coastal Sage Scrub that have been reserved, but not used, to address Pipeline 6 impacts.

**TABLE 6-10
SUMMARY OF SAN MIGUEL HMA MITIGATION CREDITS (acres)**

Bank/Conservation Area	Initial Credits	Deductions	Available Credits
Diegan Coastal Sage Scrub	1,034.00	543.21	490.79
Southern Mixed Chaparral and Chamise Chaparral	132.00	34.10	97.90
Perennial Grasslands	16.00	7.75 ¹	8.25
Marsh/Riparian Scrub	3.00	0	3.00
Seasonal Stock Pond	1.00	0	1.00
		585.06	600.94
Total Acres	1,186.00		

¹ 7.70-ac Otay tarplant.

Prior to the October 2007 Harris Fire, habitats within the San Miguel HMA and adjoining San Miguel Ranch have been documented to support a number of covered plant species, including San Diego barrel cactus (*Ferocactus viridescens*), California adolphia (*Adolphia californica*), Munz's sage (*Salvia munzii*), Otay tarplant (*Hemizonia conjugens*), and San Diego marsh elder, occurring in common or abundant numbers. Other covered plant species observed include variegated dudleya (*Dudleya variegata*) and San Diego golden star (*Muilla clevelandii*).

Covered wildlife species are also well represented on-site including high numbers of western spadefoot toad and moderate numbers of San Diego horned lizard, Belding's orange-throated whiptail, and coastal western whiptail. Additional covered reptile and mammal species known to occur on-site include northern red-diamond rattlesnake, and coastal rosy boa (*Lichanura trivirgata roseofusca*), San Diego black-tailed jackrabbit, and mountain lion. In addition, an abundance of small mammal species provides adequate prey for predators, such as raptors, snakes, coyotes (*Canis latrans*), and bobcats (*Felis rufus*).

Over 120 avian species are known to occur on-site, utilizing the upland habitats for breeding, foraging, or wintering. Covered Species present include coastal California gnatcatcher, San Diego cactus wren, southern California rufous-crowned sparrow, Bell's sage sparrow, and grasshopper sparrow.

6.8.1.3 Rancho Cañada HMA

Rancho Cañada HMA, in conjunction with adjacent lands owned by CDFG, San Diego County Parks and Recreation, and Bureau of Land Management (BLM), is an important core habitat conservation area. The property is situated between the coastal mesas and the mountains of the Peninsular Ranges in west-central San Diego County and is part of a proposed network of open-space under the MSCP. County of San Diego Parks and Recreation lands (Ramona Serena) lie adjacent to the northern and northwestern boundaries, and CDFG's adjacent lands (Monte Vista Ranch) lie adjacent to the boundary from the northeastern side to the southwestern corner.

The property is also part of an identified wildlife corridor between larger non-contiguous areas of open space to the southwest that are managed by MCAS Miramar, CDFG, city of San Diego, and county of San Diego, and lands to the northeast that are managed by county of San Diego, BLM, and Cleveland National Forest (TNC 2006). San Vicente Creek is the dominant and central feature of the property, and the property contains the creek channel, floodplain, and a portion of the hills to the northwest of the creek, which provide for local movement of wildlife. Continued acquisitions by other MSCP participants will further secure the movement of key wildlife species (e.g., migrating birds, coyote, bobcat, mule deer [*Odocoileus hemionus*], and mountain lion) through this significant regional linkage.

The property has exceptional plant and wildlife habitat value due to the presence of San Vicente Creek and the diverse mosaic of vegetation communities, including non-native grassland, Diegan coastal sage scrub, chaparral, oak woodland, riparian forest, wetland, and intermittent stream habitats.

The Water Authority purchased this 390-acre property to provide a significant, important habitat contribution by the Plan. Part of the property (115.04 acres) has been allocated to mitigate biological impacts associated with the CSP. However, approximately 275 acres of sensitive vegetation communities that support Covered Species will be committed to the Preserve Area as an "additional contribution to conservation" by the Water Authority, and may not be used as credit for mitigating Plan impacts. To put this contribution in perspective, the additional habitat acreage is approximately 70 percent of the Plan's total anticipated impact acreage (373 acres) over the life of the Plan. The Water Authority has entered into an agreement with DFG that the 275 acres will be committed as conserved and managed habitat to the Plan (by DFG), in perpetuity, concurrent with Plan and Permit issuance. The agreement also includes a reserved right

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by the Water Authority to use all remaining acres (except disturbed lands) as credits to mitigate other Covered Activities if this Plan is not approved. This provision was included because the CSP is anticipated to commence construction before the Plan and IA are finalized. Mitigation credits are summarized in Table 6-11.

**TABLE 6-11
SUMMARY OF RANCHO CAÑADA MITIGATION CREDITS (acres)**

Bank/Conservation Area	Initial Acres	CSP Deductions	Contributed Conservation Acres
Coast Live Oak Woodland	29.60	16.97	12.63
Coastal Sage/Chaparral Scrub	80.56	--	80.56
Diegan Coastal Sage Scrub	81.82	--	81.82
Fresh Water Marsh	4.07	4.07	0
Southern Coast Live Oak Riparian Forest/Southern Cottonwood-Willow Riparian Forest	34.70	17.86	16.84
Southern Mixed Chaparral	83.74	76.14	7.60
Urban/Disturbed	8.27	--	8.27
Non Native Annual and Foothill Grassland	67.25	--	67.25
Total Credits (approximate)	390.01	115.04	274.97

CDFG took ownership of Rancho Cañada HMA in December 2007 and has not yet drafted a management plan for the site. The land purchase agreement between CDFG and the Water Authority (signed September 24, 2007) provides for a long-term endowment fund transfer to CDFG once the Water Authority Plan is approved and permitted. Those funds will initiate development of an adaptive management plan for Rancho Cañada HMA. The anticipated timeline for completion of the adaptive management plan is two years to collect baseline biological data (2008-2009) and two years to draft, finalize, and circulate the plan (completion estimated by 2011-2012). However, the Water Authority annually provides funds to CDFG to perform interim management until such time as the long-term endowment funds are made available.

Suitable conditions are present to support San Diego thorn-mint (*Acanthomintha ilicifolia*), a Covered Species, and the baseline biological surveys will confirm its status. A number of wildlife Covered Species are known, or reported, to occur on the property, including arroyo toad, San Diego horned lizard, Coronado skink, Belding's orange-throated whiptail, southern California rufous-crowned sparrow, and yellow warbler (*Dendroica petechia*). In addition, the following covered wildlife species have potential to occur within or adjacent to Rancho Cañada HMA: (northern) red-diamond rattlesnake, Southern Pacific (southwestern) pond turtle (*Clemmys marmorata pallida*), least Bell's vireo, San Diego desert woodrat (*Neotoma lepida intermedia*), and mountain lion (TNC 2006, K. Miner 2009). For additional information on known Covered Species occurrences or potential for occurrence on Rancho Cañada refer to the species-specific conservation analyses in Appendix B.

6.8.2 Wetland Habitat Mitigation Areas

The Water Authority is in the process of planning and/or creating three wetland HMAs to satisfy mitigation requirements for Existing and Planned Projects. These include the Tijuana River Valley and San Luis Rey River HMAs and the existing Manchester HMA (see Figure 6-1). Because the first two sites do not currently support viable wetland habitat, restoration and/or creation will be required to establish suitable wetland conditions. The Water Authority intends to be the exclusive user of any created credits, but reserves the right to pursue formal mitigation banking agreements for these locations. Covered Species that would benefit from these sites include, but are not limited to, arroyo toad, least Bell's vireo, yellow warbler, southwestern willow flycatcher, and yellow-breast chat (*Icteria virens auricollis*).

6.8.2.1 Tijuana River Valley HMA

The approximately 40-acre Tijuana River Valley HMA is a wetland creation project currently in the design phase, with construction expected to commence in 2011. The final Environmental Impact Report for the Water Authority's Tijuana River Valley Wetlands Mitigation Project, dated December 2008, provides project specific information, including identified impacts and mitigation measures. In summary, the Water Authority will create approximately 40 acres of wetland habitat made up of approximately 80 percent southern willow scrub, 10 percent mulefat scrub, 5 percent freshwater marsh, and 5 percent cottonwood willow woodland. The site is currently a relatively flat area of agricultural fields and does not support native habitat. Approximately 19 acres of created habitat will be allocated to mitigate impacts for CSP and ESP. Although located within a flood plain, a berm and constructed basin separate the northern portion of the site from the Tijuana River (Water Authority and Dudek 2007). The project requires removing the berms that separate the project site from the Tijuana River, constructing new berms to contain storm flow to the project site, grading to achieve the desired hydraulic gradient, installing a temporary irrigation system, and planting native wetland vegetation. To implement the project, approximately 3.41 acres of disturbed southern willow scrub, 0.023 acre of mulefat scrub, 0.3 acres of open channel, and 0.071 acre open water will be temporary impacted due to site grading. Approximately 0.003 acre of southern willow scrub, 0.082 acre of mulefat scrub, and 0.029 acre of open water will be permanently impacted by the project.

The wetland creation would result in permanent direct impacts to 30.40 acres and temporary direct impact to 3.44 acres of land designated as critical habitat for least Bell's vireo. Of this area, only 3.41 acres support "primary constituent elements" for the species. The affected 3.41 acres of disturbed southern willow scrub is considered occupied by the species. This wetland creation project is proposed as a Covered Activity. Approximately 23.25 acres of created habitat is identified as project specific mitigation for ESP, CSP, and construction associated with creation of this wetland HMA,

leaving approximately 16.75 acres of wetland habitat as future mitigation credits. The 3.44 acres of least Bell's vireo critical habitat to be impacted by this wetland restoration project will be replaced with higher quality least Bell's vireo habitat in the same location so that ultimately, the amount of critical habitat suitable for least Bell's vireos will not change. Table 6-12 identifies the proposed habitat creation.

**TABLE 6-12
SUMMARY OF TIJUANA RIVER VALLEY HMA MITIGATION CREDITS (acres)**

Habitat Type	Created Habitat Acres Proposed	Acres	
		reserved for Mitigation	Unallocated Acres
Freshwater Marsh	2.00	0.75	1.25
Cottonwood Willow Riparian Forest	2.00	0.21	1.79
Southern Willow Scrub	32.00	21.68	10.72
Mulefat Scrub	4.00	1.01	2.99
Total	40.00	23.25	16.75

6.8.2.2 San Luis Rey River HMA

The Water Authority proposes to create approximately 33 acres of riparian/wetland habitats along the San Luis Rey River. The San Luis Rey HMA is currently in the early planning process, and detailed habitat information on the existing conditions is not currently available. The San Luis Rey wetland creation project is expected to begin construction in 2015. Table 6-13 identifies the proposed habitat creation.

**TABLE 6-13
SUMMARY OF SAN LUIS REY HMA MITIGATION CREDITS (acres)**

Habitat Type	Acres Proposed
Riparian Coast Live Oak Woodland	7.60
Sycamore Riparian Woodland	17.77
Cottonwood Willow Riparian Forest	4.24
Cottonwood Willow Riparian Forest	1.77 (enhancement)
Mulefat Scrub	1.36
Total	32.98 (wetland/riparian)

6.8.2.3 Manchester HMA

The Manchester HMA on Lux Canyon Creek in the city of Encinitas is approximately 9.83 acres. The wetland mitigation project site originally consisted of disturbed non-wetlands habitat adjacent to Lux Canyon Creek. A final EIR was approved in July 2003, and construction occurred between October 2004 and March 2005. The design planned for the creation of 7.74 acres of riparian scrub and herbaceous wetlands, and 2.0 acres of upland revegetation. Monitoring conducted in April 2008 showed wetland container

plant survival was approximately 90 percent, native cover was 77.73 percent, and exotic non-native cover was less than 5 percent. Therefore, the performance of the site exceeded all of the year-three success standards. The uplands revegetated areas are also performing well with an average cover of approximately 70 percent. During 2002 through 2004, gnatcatcher was observed in the project area. During post-construction site visits, gnatcatcher has been heard calling in the upland habitat west and north of the site. Other wildlife detected during vegetation monitoring (based on scat and tracks) include mule deer, brush rabbit, coyote (*Canis latrans*), raccoon (*Procyon lotor*), and numerous bird species (Water Authority 2008). The year three monitoring report indicated that 50 native plant species were established on-site, with dominant species such as southwestern spiny rush (*Juncus acutus* ssp. *leopardii*), evening primrose (*Oenothera elata* ssp. *hookeri*), broad-leaf cattail (*Typha latifolia*), western ragweed (*Ambrosia psilostachya*), and arroyo willow (*Salix lasiolepis*) (Water Authority 2008). Continued plant and strata (i.e., understory and overstory) development will provide greater food, cover, and nesting resources in the future. The wetland creation and upland revegetation areas are expected to provide future suitable habitat for least Bell's vireo and gnatcatcher, respectively. Table 6-14 identifies the actual habitat creation.

**TABLE 6-14
SUMMARY OF MANCHESTER HMA MITIGATION CREDITS (acres)**

Habitat Type	Acres (Existing)	Acres debited for Mitigation	Unallocated Acres
Riparian (Mulefat and Willow)	7.83	6.1	1.73
Scrub/Herbaceous wetlands			

6.9 Managed Mitigation Areas

The upland mitigation lands described below are significant contributions to regional San Diego conservation planning efforts (see Figure 6-1), which the Water Authority obtained and conveyed to other NCCP/HCP participants as part of the ESP mitigation. Although the Water Authority cannot use these lands as mitigation for Covered Activities and they are not part of the Plan's Preserve Area, the lands contribute to the baseline of regional preserve lands and conservation of Covered Species by protecting contiguous blocks of suitable habitat on which Covered Species are known to occur or have the potential to occur. These lands were acquired by the Water Authority after extensive consultations with the Wildlife Agencies and local jurisdictions as a commitment to contribute properties (habitat lands) within core areas and linkages to augment regional conservation efforts by local cities and the county of San Diego. The cities (i.e., city of Oceanside and city of San Diego) and the county of San Diego agreed to manage these conservation lands as parts of their conservation reserves in perpetuity as one of the conditions of the Water Authority's funding of the acquisitions. This Plan will cover

impacts to Covered Species from management and monitoring activities on these properties, if not already covered by other approved conservation plans.

6.9.1 Myers Property

The 35-acre Myers Property Habitat Management Plan (HMP) area is located within and owned and managed by the city of Oceanside. The HMP area is located in the south-central portion of the city of Oceanside and serves as part of the last remaining western/coastal wildlife corridor link between northern Carlsbad and Camp Pendleton. Loma Alta Creek and one of its tributaries are located just outside the northern and western boundaries, respectively, of the HMP area (EDAW 2004).

The HMP area is dominated by two native vegetation communities, Diegan coastal sage scrub, and southern willow scrub (EDAW 2004). The coastal sage scrub and riparian habitat of the HMP area can support a large number of sensitive plant and animal species. Covered plant species that have been identified as having the potential to occur within the site include thread-leaved brodiaea, San Diego thornmint, and San Diego ambrosia (*Ambrosia pumila*) (EDAW 2004). One covered wildlife species, coastal California gnatcatcher, has been observed within the site, and the following covered wildlife species are likely to occur: least Bell's vireo, San Diego horned lizard, and northern red diamond rattlesnake (EDAW 2004). In addition, this site includes 21 acres of very high quality, core gnatcatcher habitat (Water Authority 2004c).

6.9.2 Montaña Mirador Property

The 538-acre Montaña Mirador Preserve Site is located within the southern portion of the 1,314-acre Black Mountain Open Space Park in the community of Rancho Los Peñasquitos, city of San Diego. The Black Mountain Open Space Park is owned and managed by the city of San Diego. A 325-acre portion of the Montaña Mirador parcel was purchased by the Water Authority for the city of San Diego and dedicated as open space, and the remaining 213 acres were purchased through a Wildlife Conservation Board grant for inclusion in the Black Mountain Open Space Park (City of San Diego 2004).

The Montaña Mirador Preserve Site is situated on the south-facing slope of Black Mountain Peak and supports two native vegetation communities, Diegan coastal sage scrub and coastal sage-chaparral scrub (City of San Diego 2004). The coastal sage scrub and coastal sage-chaparral scrub habitats support many sensitive plant and wildlife species. Covered plant species known within or adjacent to the site include California adolphia, variegated dudleya, and San Diego barrel cactus. Covered wildlife species known within the site include coastal California gnatcatcher, southern California rufous-crowned sparrow, orange-throated whiptail, and San Diego horned lizard. In

addition, approximately 185 acres of the sage scrub/sage-chaparral scrub habitats are coastal California gnatcatcher core habitat (City of San Diego 2004).

6.9.3 Escondido Creek Uplands

The Escondido Creek Uplands located in the vicinity of Escondido Creek in the northern part of San Diego County are made up of two properties: the 24-acre Meyerhoff property and 13-acre Rohan property. They are owned and managed by the county of San Diego. The Meyerhoff property contains 17 acres of very high quality native habitat, with 16 acres of coastal sage scrub. The Rohan property is comprised entirely of very high quality coastal sage scrub habitat (Water Authority 2004c).

The entire 16 acres of coastal sage scrub within the Meyerhoff property and the entire 13-acre Rohan property are considered to be core habitat for the coastal California gnatcatcher.

6.9.4 Elfin Forest Reserve

The Water Authority owns the 750-acre Elfin Forest Reserve located in San Marcos (Olivenhain Municipal Water District 2008). Olivenhain Municipal Water District, with funding provided by the Water Authority, operates and manages the property. Portions of the Elfin Forest Reserve encompass the area immediately surrounding the Olivenhain Reservoir.

The Elfin Forest Reserve supports southern coast live oak riparian forest, coast live oak woodland, coastal sage scrub and chaparral habitat. One covered plant species, Encinitas baccharis, is known to occur on the property, and species with potential to occur include Orcutt's brodiaea (*Brodiaea orcuttii*) and felt-leaved monardella (*Monardella hypoleuca* ssp. *lanata*).

Covered wildlife species known to occur include western spadefoot toad, Belding's orange throated whiptail, coastal (western) whiptail, coastal rosy boa, San Diego ring-neck snake (*Diadophis punctatus similes*), San Diego horned lizard, loggerhead shrike (*Lanius ludovicianus*), Bell's sage sparrow, and coastal California gnatcatcher. Covered species with the potential to occur include San Diego banded gecko (*Coleonyx variegatus abbotti*), northern red diamond rattlesnake, Coronado skink, southern California rufous-crowned sparrow, San Diego black-tailed jackrabbit, and northwestern San Diego pocket mouse (Ogden 1995).

6.10 Additional Mitigation Lands

Although this Plan provides the anticipated and required conservation (and management) to address the projected impacts from Covered Activities, the Water Authority may acquire additional habitat lands within the Plan Area to address mitigation needs for Future Projects, if necessary. Prior to committing to acquire additional mitigation lands, the Water Authority will submit the proposed acquisition as a minor amendment to the Plan to the Wildlife Agencies for their written concurrence (See Section 8.3). These lands would meet one or more of the following criteria:

- Make a significant contribution to regional natural open space design and benefit Covered Species and sensitive resources;
- Provide breeding, sheltering, and foraging habitat for Covered Species that will be impacted and for which impacts need to be mitigated;
- Provide comparable habitat values to those habitats impacted;
- Provide a key ecological function for adjacent areas of sensitive habitat; and
- Ensure long-term viability of the site as a sensitive resource preserve.

After establishment of a new mitigation area, the Water Authority may transfer ownership or arrange for an entity to permanently manage it. The Water Authority will retain all unused mitigation credits and will provide a one-time endowment to establish an annuity for land management purposes, if necessary. The amount of the endowment will be established by agreement with the receiving management entity, both of which will be developed in concurrence with the Wildlife Agencies. The specific terms of land transfer will be made a part of individual HMA land transfer agreement or conservation banking agreement entered into by the Water Authority and the Wildlife Agencies.

A PAMP would be developed in coordination and concurrence with the Wildlife Agencies for any additional lands acquired for mitigation credit purposes. The PAMP may include constructing necessary fences, gating appropriate access roads, blocking inappropriate access to the site, performing necessary repairs and clean-up of debris, conducting site patrols, removal of invasive weed species, periodic Covered Species surveys, and assessment of habitat quality. Any draft PAMP prepared for new lands must be submitted to the Wildlife Agencies for review and concurrence before it can be finalized (see Section 6.11).

6.11 Preserve Management and Adjacency Guidelines

This Plan establishes practices to manage the Preserve Area and avoid and minimize, and mitigate when necessary, impacts to preserve areas within the Plan Area. Unlike most other conservation plans, this Plan does not authorize major public recreational uses, agriculture, general development, mineral extractions, or other activities that could affect areas adjacent to or within its Preserve Areas or other plans' preserved areas. Funding to implement the identified actions will be derived from the existing management budgets or from endowments established for each preserve area.

Because the Water Authority has written agreements that transferred (and funded, if part of the transfer agreement) management and monitoring of these lands to other entities, those activities will be implemented by the Wildlife Agencies and other entities as the land managers. This Plan expects that the land managers will prepare a PAMP (with an adaptive management component) consistent with the requirements of this Plan, if a PAMP has not already been prepared, within two years of permit issuance (for existing Preserve Area properties, unless otherwise noted in Section 6.7), or within two years of acquisition and approval of new Preserve Areas or approvals of new habitat mitigation sites (e.g., wetland HMA/mitigation banks). PAMPs will be updated, if necessary, every five years. For the San Miguel HMA, the management plan will be prepared in accordance with the conservation banking agreement (see Appendix J).

In addition, the Water Authority and Preserve Area managers will review any existing PAMP to determine if additional management and monitoring efforts are required to meet the requirements of this Plan. If additional efforts are required, then the Preserve Area manager will revise the PAMP and the Water Authority and Preserve Area managers will determine the additional costs that will be provided to the Preserve Area endowment fund within one year of permit issuance. The PAMPs will identify and provide detailed descriptions of the land management actions, restrictions, and practices that will be undertaken to maintain effective habitat for the Covered Species. The guidelines below provide the framework that Preserve Area managers will use when preparing the management plans. In addition, Preserve Area managers will provide information to non-participant, adjacent landowners to avoid/minimize conflicts with preserve commitments. All draft and revised PAMPs must be submitted to the Wildlife Agencies for review and concurrence by the appropriate compliance staff. Concurrence (or non-concurrence with recommended changes) will be provided within 60 days of receiving the documents. If no comments are received, the plan will be considered acceptable.

6.11.1 Fire Management

1. Prepare site-specific fire management plans. Include local fire department contacts and guidelines for pre-fire prevention activities, fire suppression, and post-fire restoration.
2. Include sufficient setbacks to allow for fuel management zones to be established outside of conserved habitat areas (up to 100 feet from structures and 30 feet from roads) for new projects and facilities.
3. When available, fuel management zones should take advantage of existing roads and disturbed or developed habitats, thus avoiding sensitive habitats.
4. Establish fuel management zones pursuant to the Wildland/Urban Interface Development Standards (San Diego County Fire Chief's Association, revised 1997). If necessary, exceptions to avoid impacts to sensitive species and habitats will be identified by the preserve managers and concurrence sought from the local fire authority.
5. Clearing of vegetation shall be conducted outside of the avian breeding season (as described in Section 6.4.2.1 in this Plan) unless a pre-construction nesting survey (at least one survey to be conducted by a qualified Environmental Surveyor no more than five days prior to clearing activities) determines that no nesting birds will be impacted by clearing activities. If clearing must occur in such a time or manner as may affect nesting birds, the Preserve Area manager shall consult with the Wildlife Agencies to review any issues prior to the initiation of activities.
6. Impacts to narrow endemic plant populations will be avoided during firebreak maintenance operations. However, if high fuel load levels develop in a given year, mowing would have to occur in order to meet firebreak requirements.
7. If clearing must occur in such a time or manner as may adversely affect sensitive resources, the preserve manager will consult with the Wildlife Agencies and fire agency to minimize impacts prior to project initiation.
8. All post-fire actions, such as restoration, invasive species removal, erosion control, or trail stabilization, will be planned in consultation with the Wildlife Agencies prior to project initiation.

6.11.2 Public Use

1. Maintain effective access control through fencing and signage, regular enforcement patrols, and penalties.

2. Develop an educational/outreach program to inform the public and adjacent landowners about allowable uses and activities in and around the preserve. The program may include distributing brochures in surrounding neighborhoods, working with home owners associations in the vicinity, developing an informational website, installing educational kiosks, providing outdoor experiences, etc.
3. Encourage scientific research within the Preserve Area by allowing access to researchers and students. Scientific research projects are subject to approval by the Preserve Area manager, who shall informally discuss the merits of the proposed work with the Wildlife Agencies.
4. Coordinate with special interest groups and Wildlife Agencies to encourage volunteer opportunities, such as trash pick up and weed removal, that support the goals of this Plan.

6.11.3 Fencing

1. Eliminate unnecessary fencing from interior habitat areas that may impede the movement of native wildlife
2. Maintain or install fencing when necessary to:
 - a. limit road kills;
 - b. direct wildlife through wildlife movement corridors, including under-crossings
 - c. discourage off-trail use that may cause habitat degradation;
 - d. to control grazing;
 - e. protect erosion control or revegetation efforts;
 - f. protect native vegetation during construction;
 - g. protect particularly sensitive resources (e.g., vernal pools, small populations of sensitive plants, etc.); and
 - h. provide public safety or security.
3. Select fencing that best accomplishes access control with minimal wildlife interference. Fencing to control human use of an area will generally be a minimum of five to six feet high. Fences within or at the boundary of the conserved habitat will consist of three- or five-strand barbed wire, which does not

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significantly impede wildlife movement. Welded-wire, tall wooden fences, or stone walls are all potentially suitable at the perimeter of human use areas to restrict human and domestic pets from the Preserve Area. Fences that function to minimize road kills will be 10 feet tall in areas where mule deer are known or have the potential to occur. Six-foot fences should be sufficient in areas that do not support mule deer.

4. Maintain fence lines in a way that minimizes impacts to sensitive species and habitats.

6.11.4 Signage

1. Provide educational brochures, interpretive centers, and signs to educate the public about the preserve conservation goals, biological/physical resources, and appropriate uses on and adjacent to the preserve.
2. Install signage for access control and education at the periphery of conserved habitat that are open to human access. Post signs to prohibit firearms, unleashed pets, and all pets in highly sensitive areas.
3. Limit the use of signs to attract attention to sensitive species, since such designation may invite disturbance of their habitat.
4. Use temporary signs to indicate habitat restoration or erosion control areas.
5. Use barriers and informational signs to discourage shortcuts.

6.11.5 Removal of Trash and Debris

1. Loose trash and debris will be removed on an as-found or reported basis. Trash and debris can be an attractant and a hazard for wildlife and may support non-native ant species (e.g., Argentine ants).
2. Wildlife-proof trash receptacles will be located in or near all areas of public access. Public use areas will be patrolled to pick up any loose trash and debris, and the trash receptacles will be emptied regularly, based on the amount of use.

6.11.6 Lighting and Noise

1. Eliminate lighting in or adjacent to conserved habitat except where essential for roadway use, facility use, safety, or security purposes.

2. Use low-pressure sodium illumination sources. Do not use low voltage outdoor or trail lighting, spotlights, or bug lights. Shield light sources adjacent to conserved habitat so that the lighting is focused downward.
3. Incorporate a 100-foot buffer zone between the edges of lighted areas and conserved habitat. Fuel management zones that may be required could be considered part of the buffer zone. Buffer zone width could vary with lighting intensity, lighting type, use of shields, and topography.
4. Public access shall not be allowed during nighttime hours in the conserved habitat to eliminate the need for additional lighting in parking lots and other facilities.
5. Address potential indirect effects of noise at the nest location of least Bell's vireo by keeping noise levels at or below 60 dB(A) $L_{eq(1)}$ or an increase of three decibels above ambient noise levels, whichever is greater, during the breeding season. For other avian species, follow guidance for the Covered Species (Appendix B). Avoid the use of noise-generating equipment and noise-generating public activities.
6. Prepare and disseminate informational materials to adjacent neighbors and users of conserved habitat areas to educate the public on the importance of minimizing edge effects such as nighttime lighting and noise.

6.11.7 Feral and Domestic Animal Control

1. Document evidence of feral or domestic animal activity in Preserve Areas.
2. If a problem exists, establish a feral animal removal program for conserved habitat or refer the problem to the local animal control agency.
3. Prohibit Preserve Area management personnel from housing or allowing domestic pets in or near conserved habitat.
4. Fence areas between conserved habitat and adjacent housing to keep pets out of Preserve Areas, to the degree feasible.

6.11.8 Cowbird Trapping

1. Document and monitor the extent of cowbird parasitism on Covered Species nests in conserved habitat and near equestrian use areas where feed is given and stored, such as stables, feed lots, staging corrals, and equestrian trails.

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2. If necessary, establish a cowbird-trapping program to increase nesting success of Covered Species affected by cowbird parasitism.
3. Adaptively implement cowbird trapping as necessary in response to observed and/or documented parasitism. Place traps in select locations that maximize cowbird captures and reduce cowbird parasitism pressures. Traps shall be checked daily to minimize effects to non-target species during all periods of trap operation.

6.11.9 Invasive Exotic Species Control

1. Prioritize areas for exotic species control based on aggressiveness of invasive species and degree of threat to the native vegetation. The Preserve Area manager will monitor those species of high priority for eradication as determined by the *California Invasive Plant Inventory* (Cal-IPC 2006). Species with a Cal-IPC rating of “high” will be a priority for eradication, with the objective to control and remove it as soon as possible after discovery. Examples of high priority plant species include giant reed (*Arundo donax*), salt cedar (*Tamarix spp.*), castor bean (*Ricinus communis*), fennel (*Foeniculum vulgare*), tree tobacco (*Nicotiana glauca*), artichoke (*Cynara cardunculus*), and pampas grass (*Cortaderia spp.*). “Moderate” or “Limited” rated species may be allowed at low population levels following initial eradication efforts.
2. Where feasible, use an integrated pest management (IPM) approach to eradicate undesirable species; i.e., use the least biologically intrusive control methods, at the most appropriate period of the growth cycle, to achieve the desired goals.
3. Consider both mechanical and chemical methods of control. Only herbicides compatible with biological goals and consistent with reservoir management goals will be used. Licensed pest control advisors qualified under the Department of Pesticide Regulations will be used to make specific pest control recommendations.
4. Dispose of all exotic plant materials that are removed from Preserve Areas at a landfill or on-site at a secure, designated location to avoid the spread of non-native plant species through seeds or propagules. Exotic vegetation shall be chipped and staged in a designated mulch site. All exotic plant materials will be covered during transport and the compost pile will be periodically spot-treated with herbicide to kill any resprouting plants. Exotic plant material will be removed off-site to a green waste recycling facility, or otherwise legally disposed of, as necessary.
5. Revegetate invasive plant and exotic weed removal areas with native species appropriate to biological goals for the area and/or adjacent native habitat.

6. Control the spread of invasive ant species by following the guidelines below:
 - a. Ensure that all ornamental landscaping and native habitat restoration materials do not contain invasive ant or other species by inspecting all container stock before it enters Preserve Areas.
 - b. Control landscaping irrigation adjacent to Preserve Areas to avoid any overflow, which may attract non-native ants by increasing soil moisture.
 - c. Empty trash receptacles located along trails and/or associated with edges of the Preserve Area on a regular basis, as determined by the manager's monitoring of actual needs.

7. Manage exotic aquatic predators such as nonnative turtles, fish, bullfrogs, and crayfish by following the guidelines below:
 - a. Monitor and control exotic aquatic predators when in conflict with native species.
 - b. Coordinate with Wildlife Agencies to implement exotic animal trapping and eradication activities when necessary. Methods may include trapping, netting, electro fishing, or hand captures. Chemical control in aquatic areas is generally not compatible within drinking water reservoirs.

6.11.10 Guidelines for Species Introduction and Reintroduction

Some Covered Species may be appropriate for introduction or reintroduction to a Preserve Area as part of a mitigation project or as part of a recovery effort for listed and/or sensitive species. Species reintroduction may be appropriate where extirpations have occurred. Where suitable habitat conditions exist but no historic record of species occurrence is known, species introduction may also be considered provided the suitable habitat is available. Species introduction and/or reintroduction will be implemented after concurrence with the Wildlife Agencies and under the following conditions:

- Will occur within designated preserve lands (with concurrence of preserve manager);
- Will not damage the genetic integrity of neighboring species and/or populations;
- Preceded by a thorough investigation of the cause for the absence, decline, or extirpation of a species at a particular site, with appropriate remedies applied;
- Will not adversely alter existing ecology;
- Implemented under an adaptive management strategy;

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- Performed through consultation and concurrence by the Wildlife Agencies;
- Will not interfere with projects, actions or O&M Activities (Covered Activities) permitted by this Plan; and
- Subsequent incidental take of introduced individuals/populations by Covered Activities would conform to the requirements of the Plan.

6.12 Plan Monitoring and Adaptive Management

Monitoring and adaptive management of the HMAs will be implemented to ensure that the Water Authority is in compliance with Plan requirements (MMAs are managed with similar requirements by other entities in accordance with their own conservation plans), to measure the effectiveness of conservation actions, and to provide additional information that will help direct or redirect conservation actions to benefit the Covered Species. The progress on and status of all Preserve Area properties and management/monitoring plans will be reported in the Plan's annual report summary. Interim monitoring and management will be consistent with Sections 6.12.1 through 6.12.3. Adaptive management, a key component in conservation plans, provides a strategy to deal with the changes and variability of natural systems. This Plan requires that an individual PAMP for each of the HMAs include an adaptive management component. The adaptive management strategy used must be consistent with the guidelines described in Section 6.12.3. For the San Miguel HMA, which is managed as a National Wildlife Refuge and in accordance with the conservation banking agreement for this area, the purchase price for credits at the bank includes a per-acre fee provided to an endowment dedicated to funding monitoring and management activities for species and habitats within the bank. With the purchase of credits, the Water Authority is entitled to rely on the monitoring and management assurances provided in the banking agreement.

6.12.1 Monitoring and Reporting

Monitoring. To confirm that the anticipated impacts to Covered Species and their habitat are not exceeded, and the mitigation elements of this Plan are implemented, the Water Authority will implement a program to monitor projects and maintenance activities, conduct field personnel education training, and report annually to the Wildlife Agencies. Managers of the HMAs will provide information to the Water Authority for incorporation into the annual report. The Wildlife Agencies will review the annual monitoring report to confirm compliance with the terms of the permits and effectiveness of management of the Preserve Areas. An annual meeting will be held, potentially in conjunction with an annual public meeting for other conservation plans within the Plan Area.

There are three components to a monitoring program: Compliance Monitoring, Effectiveness Monitoring, and Validation Monitoring (see Section 6.12.2).

Compliance Monitoring will track Covered Activities' impacts, mitigation measures (including stay ahead and rough step commitments), and conditions of coverage to document that the habitat conservation strategies are being implemented in accordance with Permit conditions. The report would include documenting the types, amounts, and locations of impacts, the offsetting mitigation, and the significant conditions of coverage undertaken during the reporting period. Compliance Monitoring provides a record of activities implemented to address conservation strategies or components. This information allows the Wildlife Agencies to track Plan implementation, and the Water Authority expects that the land managing entities, in coordination with the Water Authority and Wildlife Agencies, will use this information to modify and improve monitoring and reporting methods.

Effectiveness Monitoring will evaluate the success of management activities to address specific habitat and Covered Species objectives in the Preserve Areas during the reporting period. Each Preserve Area's PAMP is/will be written to address the individual property's habitat conditions and Covered Species. The results of these annual monitoring efforts will be used by preserve managers to determine if the Conditions of Coverage are sufficient for conserving and managing the resources and if modifications or new management (and monitoring) efforts are warranted. Adaptive management recommendations will be provided, as necessary, to improve the effectiveness of the Plan.

Validation Monitoring will be used to help preserve managers (and the Wildlife Agencies) verify if the Plan's assumed causal linkages between management actions and predicted results or expected future conditions outlined in the conservation analysis are supported.

Reporting. Annual reporting will verify:

- Habitat losses and take of Covered Species by Covered Activities allowed under the Permits issued for this Plan are not exceeded;
- Avoidance and minimization measures are implemented in accordance with this Plan;
- Off-site and on-site mitigation measures are completed in accordance with this Plan;
- Consistent and complete documentation of all actions is provided pursuant to the Plan; and
- Provision of a consolidated record of any Plan, Permits, or IA amendments.

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Annual reporting will involve report submittal to the Wildlife Agencies by January 31 of each calendar year (or other date as agreed upon by the Water Authority and Wildlife Agencies). A public meeting on the report will be held within 60 days of the report submittal or in conjunction with the MSCP or MHCP annual meetings. The report will include:

- The incremental and aggregate habitat losses and incidental take of Covered Species (estimated or documented) that occurred under the Plan, based on pre- and post-construction surveys of new project work and an accounting of maintenance impacts (rough step/proportionality accounting), including:
 - Acres of impact to each habitat type by project;
 - Whether the habitat was permanently lost, or temporarily degraded and/or restored;
 - List and quantification of Covered Species potentially or known to be affected;
- The HMA credits/acres (used and remaining) in a ledger-type accounting format by habitat types, and any conservation/mitigation bank augmentations;
- Confirmation that specified treatments including, but not limited, to weed control and habitat restoration or enhancement, resulted in expected habitat characteristics;
- Documentation of field personnel training conducted at the start of each project;
- Analysis/discussion of any Changed Circumstance addressed;
- Analysis/discussion of any Unforeseen Circumstance identified and/or addressed;
- Description and location of Covered Activities (aggregated for each reporting year for O&M Activities);
- Date or period during which Covered Activities occurred and expected completion dates (if not within the reporting year);
- A description of approved, funded CIP projects and their anticipated impacts for the subsequent two years;
- A detailed account of funding used during the reporting year and funding committed for the following year;
- Any project review actions made to determine Plan consistency;

- Any revisions/amendments to the Plan, Permits, or IA;
- Issues that needed adaptive management;
- Discuss all three types of monitoring activities;
- Identify challenges and constraints to implementing the Plan;
- Summarize the status of PAMP development for each of the HMAs;
- Report on compliance with pre-existing BOs (the requirements of which are incorporated herein by reference);
- Preserve management tasks completed or in progress; and
- Evaluation of Covered Species management.

The Water Authority is obligated to submit an annual report covering similar requirements under BO 1-6-93-F-28, as well as under other BOs. This Plan's reporting program, along with that to be implemented under the BOs, will be submitted concurrently, either as a single document or with the BOs as supplemental reports.

All PSF activities will be summarized in the annual report, and individual PSFs will be made available for review by the Wildlife Agencies upon request.

6.12.2 Guidelines for Biological (Effectiveness/Validation) Monitoring

The biological monitoring goals and accompanying guidelines presented in this section will help Preserve Area managers determine if the conservation targets in the Preserve Areas are being met, management strategies are having the desired effect, and underlying biological assumptions are supported by field-tested data.

- Track the distribution and condition of natural communities and habitats throughout the Preserve Area.
- Regularly monitor Covered Species and other sensitive species to determine abundance, and distribution over time.
- Conduct effectiveness and validation monitoring.
- Identify and monitor threats to habitat condition, including introduction or spread of invasive species and other edge effects.
- Monitor the effects of public use.

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Biological monitoring will serve to measure the effectiveness of the overall conservation approach, support informed adaptive management decisions, assist in defining and modifying biological goals, and provide the Wildlife Agencies with information to conduct range-wide assessments of baseline conditions and species status (USFWS 2000). To ensure proper implementation of the Plan, the Water Authority also will be responsible for habitat tracking and reporting and coordination of an annual meeting with the Wildlife Agencies and public. The Preserve Area managers will be responsible for Preserve Area monitoring and management.

It is important to prioritize the components of monitoring in a way that can be efficiently conducted within a reasonable budget and schedule. The following framework guidelines have been developed to assist the Preserve Area managers in prioritizing monitoring tasks. Biological monitoring goals specific to each HMA will be incorporated into the respective monitoring plans and adaptive management components (Section 6.12.3) as appropriate.

1. Conduct annual qualitative surveys to identify the major threats to conserved habitat and Covered Species, impacts from public use, management needs, and issues requiring focused research.
2. Coordinate regularly with Wildlife Agencies, preserve managers in other NCCP areas (e.g., MSCP and MHCP monitoring meetings) and other relevant efforts about monitoring issues to ensure that the most current, established protocols are being used and monitoring data are compatible with regional monitoring efforts.
3. Conduct compliance monitoring using a simple management action tracking system (e.g., a spreadsheet or similar table to track planned actions and phases of implementation).
4. Conduct effectiveness monitoring (the frequency of which will be identified in the individual Preserve Area monitoring and adaptive management plans):
 - a. For all conserved habitat types (including vernal pools) evaluate the effectiveness of habitat conservation as measured by the condition of the habitat over time. Identify a set of habitat indicators such as the extent of nonnative species invasion, diversity of habitat structure, hydrology, or presence of key indicator species.
 - b. Conduct focused species monitoring for high priority species (state or federally listed, narrow endemic, or wetland obligate species) to monitor the effectiveness of the conservation actions (e.g., habitat set aside or specific habitat enhancement actions) over time. As conservation actions and conditions of coverage are shown to be effective for sensitive

habitats and Covered Species, effectiveness monitoring priorities can be shifted to more precisely evaluate other species and habitats.

- c. Conduct presence-absence and/or relative abundance surveys for less sensitive species and wildlife corridor use.
5. Monitor the success of restoration projects annually for at least three to five years or until the habitat is considered to be self-sustaining and meets all success criteria. All restoration projects should include a restoration monitoring plan that describes specific success criteria.
 6. Conduct validation monitoring prior to conducting any major conservation or management activity to test the underlying biological assumptions.
 - d. Review the scientific literature and consult with species and habitat experts.
 - e. Identify the presumed causal mechanism(s) linking cause and effect and develop the research design to test the linkage relationships. Ensure that the research testing will not significantly affect a conserved vegetation community or Covered Species (if biological manipulation is involved, limit the geographic extent of the test and number of any Covered Species involved).

6.12.3 Adaptive Management Strategy and Framework Guidelines

While the Water Authority believes that the conservation in this Plan will be effective to conserve Covered Species and their habitats, it is anticipated that conditions within the Plan Area, the status of habitats, and the overall conditions of individual species may change over time. In addition, it is expected that as the monitoring data and management activities are evaluated, additional and different management/conservation measures will be identified and implemented by the Preserve Area managers during the term of the Permits. In the event that changes to management/conservation measures are warranted for the long-term protection and conservation of Covered Species or their habitats, the Water Authority, with the cooperation of the Wildlife Agencies and other land managers who are responsible for management and monitoring of the Preserve Areas, supports adaptive management.

As described in Section 6.11, existing PAMPs will be revised as appropriate to address (adaptive) management and monitoring relevant to the Covered Species, if not already addressed in those plans. All new PAMPs will be developed to address management and monitoring relevant to the Covered Species. The Water Authority will provide funding to the Preserve Area endowments to support those activities.

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As described in Sections 8.5.1 and 8.5.2, if the extent of changes to the condition of the resources is substantial, the processes for addressing Changed Circumstances and Unforeseen Circumstances may be initiated by the Water Authority and Preserve Area managers.

Section 2805 (a) of the Fish and Game Code defines adaptive management as the use of the results of new information gathered through the monitoring program and from other sources to adjust management strategies and practices to assist in providing for the conservation of Covered Species.

The USFWS and the National Oceanic and Atmospheric Administration (NOAA) “five-point policy” provides a general definition of adaptive management as an integrated method for addressing uncertainty in natural resource management that incorporates a structured process for learning by doing.

Adaptive management provides the framework and methods for developing and evaluating alternative strategies for meeting measurable biological goals and objectives, and, when warranted, modifying management actions in accordance with new findings or insights. It serves as the basis for incorporating flexibility in the long-term planning and management of species and their habitats. In the case of this Plan, adaptive management may be required as new, reliable scientific information on Covered Species becomes available after the Plan is approved. Because the management responsibility for the Preserve Areas falls to the Wildlife Agencies and other management entities, any adaptive management deemed necessary within a Preserve Area property shall be initiated and carried out by the individual Preserve Area managers.

Biological monitoring and management are mandatory elements of all NCCPs and HCPs, and interdependent components of any adaptive management program. The framework guidelines below will be used by Preserve Area managers as the basis for developing new or modify existing management actions for each of the Preserve Areas. The guidelines below focus on the protection and improvement of habitat and the Covered Species, as well as avoiding or minimizing the primary threats to the Preserve Areas. Habitat/adaptive management-related guidelines are presented in order to ensure that adaptive management is a component of the conservation strategy for the Covered Species. Adaptive management components of the management/monitoring plans that are developed for each Preserve Area property will outline specific goals, measurable objectives, timelines, and thresholds/triggers for initiating actions to benefit habitats and Covered Species.

Actions that are undertaken to implement adaptive management will be those that are expected to maintain or improve habitat conditions that will benefit the Covered Species. The actions will developed and monitored to ensure maintenance and/or improved habitat quality or Covered Species populations and with the intent of providing a net benefit to the Covered Species.

The adaptive management/monitoring approach for each Preserve Area will follow the guidance in Atkinson, et al. (2004) *Designing Monitoring Programs in an Adaptive Management Context for Regional Multiple Species Conservation Plans*. The basic approach involves:

- Identify specific goals and objectives;
- Identify the scope of the monitoring program;
- Compile information relevant to the monitoring program;
- Strategically divide the system and prioritize the monitoring elements;
- Develop simple management-oriented conceptual models;
- Identify monitoring approaches (what, where, how to monitor) and critical uncertainties;
- Determine the strategy for implementing monitoring;
- Develop data collection, analysis, reporting and quality assurance processes; and
- Complete the adaptive management feedback loop for use by managers.

To the extent practicable, PAMP approaches developed under this Plan will complement and utilize existing and developing approaches from the MSCP and MHCP efforts.

6.12.3.1 Adaptive Management Guidelines – Goals and Objectives

The adaptive management program goals and objectives developed for the Plan's Preserve Areas will address, as appropriate, landscape features/processes, vegetation communities/assemblages, and Covered Species supported on those lands. This Plan establishes a Preserve Area to be managed by several different management entities and located within several other, larger habitat reserve systems. The Preserve Area will be affected by many of the same landscape-level issues (e.g., fire, hydrology, habitat connectivity, edge effects, non-native species) and support many of the same natural community assemblages and species, so the goals and objectives will be similar among the upland preserves and among the wetland preserves. These goals and objectives also would be expected to complement those developed by other plans for their reserve areas.

Each of the Preserve Area properties will have its particular specific adaptive management needs, concerns and opportunities. However, the following list identifies

the basic elements from which individual Preserve Area managers would select to develop their adaptive management plans (adapted from the Southern Orange County Draft NCCP, 2006):

1. Fire

Goal: Manage fire to maintain a healthy ecosystem in the Plan Area such that the Preserve Area supports a mosaic of multi-aged stands of upland habitats.

Objectives:

- Develop fire management plans for the Preserve Area;
- Identify appropriate temporal and spatial scales/patterns for fires that will support/enhance conserved vegetation communities and Covered Species;
- Develop prescribed fire management standards for woodlands, shrublands (coastal sage scrub and chaparral), and grasslands focused on increasing abundance and diversity of native plants and promoting structure and composition favored by focal wildlife species;
- Quantify the effects of varying fire regimes on selected wildlife species; and
- Develop fuel management standards (within and adjacent to the Preserve Area) to reduce the risk of unplanned fire events.

2. Hydrology

Goal: Maintain natural hydrologic process to the extent possible to preserve natural ecosystem structure and function. Successfully addressing many of these processes will involve solutions by adjacent landowners/jurisdictions.

Objectives:

- Identify and address potential effects of future (adjacent/upstream) land use changes on hydrology;
- Minimize alterations of the timing of peak flows in watersheds/creeks;
- Maintain and/or restore stream banks/beds and floodplains;
- Identify/monitor water quality problems and protect/manage water quality using in-stream and watershed habitat improvements; and
- Measure soil moisture status and trends (in conjunction with habitat and species status monitoring).

3. Habitat Connectivity

Goal: Maximize the value of habitat linkages and wildlife corridors connecting Preserve Area properties to larger blocks of habitat in the Plan Area.

Objectives:

- Identify key habitat linkages and wildlife corridors;
- Determine key functions as “live-in” and/or dispersal habitat;
- Monitor the use of key identified habitat linkages and wildlife corridors by key Covered Species;
- Identify and measure stressors on wildlife such as lighting, noise, public use at key linkages and corridors; and
- Identify and implement feasible remedial actions to improve the function of the habitat linkage/wildlife corridor to an acceptable level.

4. Edge Effects and Encroachment

Goal: Control human-caused effects along the Preserve Area wildland/urban interface.

Objectives:

- Identify, monitor and control invasion of the Preserve Area by exotic plants and animals;
- Minimize establishment/continued presence of potential edge impacts such as lighting, noise, non-natural stream flow and soil moisture increases, pollutants and pesticides; and
- Protect sensitive resource areas from unauthorized public access and associated impacts such as vehicles (motorized vehicles and mountain bikes), encampments and disturbance and collection of native species.

5. Conserved Vegetation Communities

Goal: Maintain the persistence of a native-dominated mosaic of vegetation communities and seral stages in the Preserve Area.

Objectives:

- Maintain the acres of conserved vegetation communities (by tiers or individual subtypes) and associated species/assemblages, while allowing natural

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fluctuations/seral stage development of communities and fluctuations in species populations in response to natural events (e.g., flood, fire, precipitation);

- Maintain the ability of the Preserve Area to support sustainable populations of Covered Species;
- Maintain and, where feasible, enhance long-term net habitat value in order to mitigate for proposed impacts and to further recovery of listed Covered Species;
- Restore or enhance the quality of degraded vegetation communities and other habitat types; and
- Use restoration to increase long-term net habitat value in the Preserve Area.

6. Covered Species

Goal: Maintain conditions that will allow for normal evolutionary processes and genetic integrity and exchange through management of a functional Preserve Area, including functioning vegetation communities, habitat linkages and wildlife corridors. Manage habitat and populations of Covered Species ensure that they persist and in doing so, provide for recovery of Covered Species within the Plan Area.

Objectives:

- Identify, as appropriate, key indicator (biodiversity, umbrella, early warning) species/species assemblages for prioritizing monitoring;
- Maintain populations of selected Covered Species within acceptable/historical levels; and
- Implement appropriate management actions in response to environmental stressors and management issues, as necessary, to stabilize or enhance populations of Covered Species.