

ES.1 Overview of the Habitat Conservation Plan

The Upper Santa Ana River (SAR) watershed is home to dozens of water districts, flood control districts, and other local water management agencies (collectively and generally referred to as *water agencies*) with an interest in the responsible management of water supply resources (e.g., storage, conveyance, treatment, flood protection, and recreation) and sustainable stewardship (e.g., water quality and biological resource protection) of the watershed. The challenges facing water districts and other local agencies in the Upper SAR include the effects of population growth that increase water demand and decrease natural hydrological processes and groundwater recharge, the reduction of imported water availability, and the effects of climate change. As a result of these pressures of urbanization, many of the species in the Upper SAR watershed are listed as threatened or endangered under the California and federal Endangered Species Acts (CESA and FESA, respectively). Therefore, many water agency activities potentially impacting these species, such as the Santa Ana sucker and San Bernardino kangaroo rat (see Section ES.3, *Covered Species*, below), may require permits from the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) (collectively referred to as the *Wildlife Agencies*).

The Upper SAR Habitat Conservation Plan (HCP) has been developed to address the potential effects of water agency activities on the sensitive species and habitats in the watershed in order to receive Incidental Take Permits (ITPs) under Section 10 of FESA.

ES.1.1 Purpose of the Habitat Conservation Plan

The Upper SAR HCP is a regional, comprehensive program that would provide a framework to protect, enhance, and restore the habitat for Covered Species (Chapter 3, *Planning Area and Existing Environment*), while streamlining permitting for Covered Activities (Chapter 2). Within this framework, the Upper SAR HCP would achieve conservation goals and objectives and comply with FESA while streamlining planning and permitting for anticipated water resource management projects needed to serve the water resource needs of the public. The HCP will achieve the conservation goals and objectives through the establishment of the HCP Preserve System and implementation of the conservation actions as described in Chapter 5, *Conservation Strategy*, of this HCP.

ES.1.2 Cost and Benefit of the Habitat Conservation Plan

The HCP is estimated to cost approximately \$185.3 million, paid incrementally over the 50-year permit term and excluding inflation, and shared among the water agencies receiving ITPs under this HCP (see Section ES.2, *Incidental Take Permits*, below).

Over 50 years, the \$187.5 million in HCP costs will allow Permittee Agencies to develop over 4 million acre-feet of water for local use, or approximately 87,000 acre-feet per year (afy) by year 15 of HCP implementation. These water resources will reduce reliance on costly imports from other parts of the State, increasing the area's resilience to drought and regulatory restrictions that hamper water deliveries from the State Water Project, while also keeping more of the project spending in the local economy.

While there is a high initial investment cost, the economic benefits of the plan to water users and the local economy as a whole are substantially greater than the costs. Without the HCP in place, Permittee Agencies would need to acquire this additional 87,000 afy of water supply from more costly alternative sources. Even if it was possible to purchase that volume of water either from wholesalers or elsewhere in the market, the HCP is projected to save the region approximately \$952 million over the life of the HCP on a net present value basis, and create secondary benefits from investment in the local economy.¹ This represents a benefit-cost ratio of over 7.3,² which illustrates the enormity and importance of this effort. See Chapter 7, *Funding*, for additional information.

ES.1.3 Evolution of the Habitat Conservation Plan

The current set of Covered Activities in the Upper SAR HCP was determined through the partnership and the collaborative efforts with the Permittee Agencies, Wildlife Agencies, and involved stakeholders. The complete HCP conservation strategy for all Covered Species was also developed through this collaborative partnership, and includes a comprehensive strategy for long-term protection, restoration, and conservation to manage the natural resources and species of the Upper SAR watershed in a way that ensures long-term ecological value to the region and species recovery. Through this collaborative partnership, many modifications were made to the HCP to further reduce impacts on the Santa Ana River and increase conservation values to species in a way that protects and enhances the ecological function of the system.

Previous HCP iterations included Covered Activities that resulted in greater impacts on species and the riverine system than were acceptable or likely to be permissible under FESA and CESA. Preliminary impact analyses, including substantial hydrology modeling, led to modifications of the Covered Activities to substantially reduce, and avoid where possible, the potential biological and hydrological impacts resulting from the implementation of those Covered Activities. Similarly, many iterations and additions to the conservation strategy led to substantial improvements in measures that provided additional avoidance and/or minimization of potential impacts on Covered Species with implementation of the HCP. These modifications resulted in reduced impacts on water supply to the Santa Ana River and increased conservation values to species in a way that further protects and enhances ecological functions of the River system.

ES.2 Incidental Take Permits

ES.2.1 Permittee Agencies

The HCP was collaboratively developed for 11 water agencies with planned water supply or other infrastructure projects needing incidental take permit coverage for endangered and threatened species in the Santa Ana River watershed. The Permittees under the Upper Santa Ana River HCP include the 11 water agencies, the Upper Santa Ana River Sustainable Resources Alliance (Alliance), and the San Bernardino Valley Conservation Trust or other appropriately qualified entity (referred

¹ Refer to Section 7.6, *HCP Benefits*, for a detailed accounting of this estimate. Net present value (NPV) calculations are made using an interest rate of 4.61% based on the rate used by the State Water Project in calculating water prices. A general inflation rate is assumed to be 2%. The net discount rate is 2.61%.

² The benefit-cost ratio is the net present value of the benefits divided by the net present value of the costs. In this case, the benefits are the avoided future costs of more expensive water sources. A ratio above 1.0 indicates net positive benefits over the life of a project or program.

to generally as the *Permittee Agencies*). Each Permittee Agency will receive incidental take authority to undertake their respective Covered Activities as described in Chapter 2. The 11 water agencies, the Alliance, and the Conservation Trust will operate under a single Joint ITP. A second ITP will be issued to Southern California Edison (SCE), to provide incidental take coverage for any Santa Ana suckers that may be translocated to waters upstream of SCE's hydroelectric facilities, including those that are covered by SCE's licenses from the Federal Energy Regulatory Commission (FERC). The water agencies are listed in alphabetical order below.

- East Valley Water District
- Inland Empire Utilities Agency
- Metropolitan Water District of Southern California
- Orange County Water District
- Rialto Utility Authority
- Riverside Public Utilities
- San Bernardino Municipal Water Department
- San Bernardino Valley Municipal Water District
- San Bernardino Valley Water Conservation District
- West Valley Water District
- Western Municipal Water District of Riverside County

Southern California Edison Incidental Take Permit

For any mountain tributary streams with SCE infrastructure the translocation of Santa Ana sucker into those streams presents an opportunity for incidental take to occur. A second ITP will be issued to SCE to provide incidental take coverage for Santa Ana sucker to waters upstream of their hydroelectric facilities, including those covered by licenses from the Federal Energy Regulatory Commission (FERC), and where translocation is proposed.

ES.2.2 Habitat Conservation Plan Planning Area and Permit Area

The Planning Area encompasses approximately 862,966 acres and was developed to ensure that the natural resources that might be affected by Covered Activities can be adequately assessed at a regional scale and that sufficient mitigation opportunities are available. The Permit Area is the geographic area where the impacts of the Covered Activities are expected to occur and is depicted as the ownership, easements, and areas of operation and maintenance where all Covered Activities are located within natural habitats. The Permit Area also includes the HCP Preserve System so that the ITPs cover the potential take associated with habitat mitigation, management, and monitoring. The Planning Area and Permit Area are shown on Figures 1-2 and 1-3 in Chapter 1, *Introduction and Background*.

ES.2.3 Permit Term

The Permittee Agencies are seeking a 50-year ITP, which would accommodate the expected schedule for construction of projects in the Permit Area and ongoing associated operations and maintenance. The permit term for the ITP for SCE will be independent of that of the Permittee Agencies' ITP.

ES.3 Covered Species

There are 20 species covered by the HCP, including 9 listed and 11 non-listed species. There are also two additional Fully Avoided species that are listed but are not Covered Species and will be fully avoided during Covered Activities (Table ES-1). The avoidance and minimization measures included in Chapter 5 are expected to reduce any adverse effects on these species so that they would not result in incidental take.

The incidental take authorization under Section 10 of FESA will apply to the wildlife species. Impacts on listed plant species are not prohibited under FESA or authorized under a Section 10(a)(1)(B) permit. However, the two plant species conserved by this HCP are listed in the 10(a)(1)(B) permit in recognition of the conservation measures and benefits provided for them under the HCP such that the Permittee Agencies will receive assurances pursuant to the USFWS "No Surprises" rule. Both plants are federally listed species. Similarly, non-listed sensitive wildlife species covered in the HCP will also receive assurances under the "No Surprises" rule should they become listed in the future. Federal authorization for incidental take of other species may be sought through the amendment process and in accordance with FESA Sections 10(a) and 7 (Table ES-1).

As noted above, this HCP establishes conservation strategies for a number of State-listed species. Although CDFW will not approve the HCP, the conservation strategies established for the HCP are intended to also support the issuance of State ITPs.

Table ES-1. Species Addressed in the Upper SAR HCP

Common Name	Scientific Name	Status	
		Federal	State
Covered Species			
Slender-horned spineflower	<i>Dodecahema leptoceras</i>	Endangered	Endangered
Santa Ana River woolly-star	<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Endangered	Endangered
Santa Ana sucker	<i>Catostomus santaanae</i>	Threatened	None
Arroyo chub	<i>Gila orcuttii</i>	None	SSC
Santa Ana speckled dace	<i>Rhinichthys osculus</i> ssp.	None	SSC
Mountain yellow-legged frog (Southern California DPS)	<i>Rana muscosa</i>	Endangered	Endangered
Western spadefoot	<i>Spea hammondi</i>	None	SSC
California glossy snake	<i>Arizona elegans occidentalis</i>	None	SSC
South coast garter snake	<i>Thamnophis sirtalis</i> sp.	None	SSC
Southwestern pond turtle	<i>Emys pallida</i>	None	SSC
Tricolored blackbird	<i>Agelaius tricolor</i>	None	Threatened
Burrowing owl	<i>Athene cunicularia</i>	None	SSC

Common Name	Scientific Name	Status	
		Federal	State
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	None	SSC
Yellow-breasted chat	<i>Icteria virens</i>	None	SSC
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Threatened	Endangered
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Endangered	Endangered
Coastal California gnatcatcher	<i>Polioptila californica</i>	Threatened	SSC
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	Endangered
Los Angeles pocket mouse	<i>Perognathus longimembris brevinasus</i>	None	SSC
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	Endangered	Candidate
Fully Avoided Species¹			
Delhi Sands flower-loving fly	<i>Rhaphiomidas terminatus abdominalis</i>	Endangered	None
Arroyo toad	<i>Anaxyrus californicus</i>	Endangered	None

¹ Implementation of avoidance measures as described in Chapter 5 of this HCP would avoid impacts on these species. DPS = Distinct Population Segment; SSC = CDFW Species of Special Concern.

ES.4 Covered Activities

The Upper SAR HCP must identify the activities that could result in impacts on Covered Species within the Planning Area. The types of activities covered by the HCP (Covered Activities) should include all actions that the Permittee Agencies want to have covered by FESA Section 10 and CESA 2081(b) permits. Covered Activities include both specific projects and ongoing activities (e.g., operations and maintenance).

- *Projects* are well-defined actions that occur **once** in a discrete location (e.g., construction of new facilities, infrastructure development, capital improvement projects).
- *Operations and maintenance activities* are actions that occur **repeatedly** in one area or over a wide area (e.g., bank stabilization, storm-damage repair, maintenance of facilities).

Covered Activity types are listed in Table ES-2, and include construction, infrastructure development, and operations and maintenance of water conservation, water infrastructure development, flood control, habitat restoration, and solar energy facility activities. The Covered Activities are described in detail in Chapter 2, *Covered Activities*, including the size of the impacted area, frequency of activity, and the type and intensity of impact. The potential effects of the Covered Activities on Covered Species are analyzed in Chapter 4, *Incidental Take Assessment and Impact Analysis*.

Table ES-2. Covered Activity Types Included in the Upper SAR HCP

Activity Type	Description
Water Reuse Projects (Figure 2-1)	Activities related to projects associated with water reuse, including construction of new water treatment plants and associated facilities, and operations and maintenance of existing and new water treatment plants and associated facilities.
Groundwater Recharge (Figure 2-4)	Activities related to construction of new structures associated with diversions, operations and maintenance of existing and new diversion structures for groundwater recharge, activities related to construction of new recharge basins, and operations and maintenance of existing and new recharge basins.
Wells and Water Conveyance Infrastructure (Figure 2-14)	Activities related to the creation of new wells and associated development (e.g., pipelines, access roads, reservoirs, bridges) and the operations and maintenance of this infrastructure and associated development.
Solar Energy Development (Figure 20-21)	Activities related to the construction and the operations and maintenance of new solar facilities.
Routine Operations and Maintenance (See other figures)	Activities that occur repeatedly in one location and/or in many locations over a wide area and include minor construction, earth-moving, or vegetation clearing activities to infrastructure.
Habitat Improvement, Management, and Monitoring (Figure 20-21)	Activities that support the restoration and/or rehabilitation, and management of habitat values in the Planning Area, including species surveys, monitoring, research, and adaptive management activities.

Covered Activities are also anticipated to occur in different phases during implementation of the HCP. These HCP phases are as follows:

- **Up-Front**—This initial phase of the HCP was started prior to the completion of the HCP and permit issuance to begin implementation of the Conservation Strategy so that conservation will stay ahead of Covered Activity impacts by a minimum of 10% according to the Stay-ahead provision.
- **Phase 1**—0 to 5 years from permit issuance
- **Phase 2**—6 to 10 years from permit issuance
- **Phase 3**—11 to 15 years from permit issuance
- **Phase 4**—16 years from permit issuance to end of permit term

Activities not covered by the HCP and the incidental take authorizations are described in Chapter 2, Section 2.3, *Projects and Activities Not Covered by the HCP*.

ES.5 Take Assessment and Impact Analysis

The Covered Activities will have effects on Covered Species through the alteration of hydrology in the Santa Ana River and its tributaries, which in turn may affect depth to groundwater for some

groundwater-dependent ecosystems. Alteration of hydrology may also affect sediment transport, a natural ecological process that shapes the ecology of the alluvial fan sage scrub community and the aquatic and riparian communities. Other Covered Activities will affect Covered Species by directly removing habitat (vegetation) or harming individuals through ground-disturbing impacts. Chapter 3 describes the current distribution of species and habitats in the Planning Area, and uses hydrology modeling to describe the sediment transport processes in the watershed. The hydrology model is integrated with a groundwater model to describe the existing surface water and groundwater conditions as they relate to aquatic habitats and groundwater-dependent ecosystems. These models are used in Chapter 4 to estimate the effects that Covered Activities have on sediment transport, surface water flows, and groundwater so that an estimate of potential incidental take of Covered Species can be made. The Covered Activities are also evaluated to determine the amount of Covered Species habitat directly lost due to ground-disturbing impacts.

These incidental take estimates are as accurate as possible using the methods described in Chapter 4 and given the available details of the Covered Activities at the time of HCP preparation. These estimates represent a maximum potential incidental take estimate for each species. With the implementation of avoidance and minimization measures and more precise project-specific design, the take is expected to be lower than estimated in most cases. In no case will the incidental take of any species be allowed to exceed the allotted estimate established by this HCP. Furthermore, these methods to estimate incidental take are based on habitat suitability models and the potential impacts on modeled habitat, not occupied habitat. The area of potentially suitable habitat predicted by the models is much larger than the area of occupied habitat at any given moment in time, such that the actual impacts on occupied habitat will be substantially less. Actual impacts will be further minimized through the implementation of general and species-specific avoidance and minimization measures.

ES.5.1 Summary of Effects on Species

Mitigation (offset to proposed impacts) provided by the proposed conservation actions (Chapter 5) will provide significant net benefits to Covered Species through the addition of permanent protections, restoration and enhancement, monitoring, and management. The potential impacts from Covered Activities should be considered in the context of the net benefit to species resulting from the implementation of the conservation strategy.

Table ES-3. Summary of Estimated Impacts and Expected Outcome of Actual Incidental Take

Common Name	Estimated Total Impacts in Acres on Modeled Habitat¹	Mitigation* (acres of Modeled Habitat in the HCP Preserve System)	Expected Outcome of Actual Incidental Take of Species
Covered Species			
Slender-horned spineflower	425 ² (31)	532	Pre-project surveys, refinements to project siting, and strict avoidance and minimization measures will ensure impacts on individual plants will be near zero. Modeled suitable habitat will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.
Santa Ana River woolly-star	464 (32)	433*	Pre-project surveys, refinements to project siting, and strict avoidance and minimization measures will ensure impacts on individual plants will be near zero. Modeled suitable habitat will be monitored and adaptively managed to enhance habitat conditions and achieve success criteria for this species and will be protected in perpetuity.
Santa Ana sucker	1.25 [preferred] [75 acres of designated critical habitat]	5.1 [1.5 acres will be enhanced in mainstem Santa Ana River and 3.6 acres of tributary restoration within 3.9 miles of restored aquatic stream habitat] [161 acres of designated critical habitat] Santa Ana sucker will also be translocated to a minimum of three montane streams and actively managed	Pre-project surveys and the implementation of avoidance and minimization measures will reduce potential for incidental take. A majority of Santa Ana River recovery actions in the U.S. Fish and Wildlife Service (USFWS) Recovery Plan for this species will be initiated within the HCP Preserve System through implementation of the HCP Conservation Strategy. Habitat restoration will increase the amount and quality of foraging, refugia, and spawning habitat in tributaries to the mainstem Santa Ana River. Tributary restoration sites will be supplied with a dedicated, permanent water supply. Prior to any base flow reductions at least two mainstem tributary restoration projects would need to be functional or 1 acre of mainstem river enhancement would need to occur. A minimum of two translocations of Santa Ana sucker into portions of its historic range within the Santa Ana River watershed will occur prior to reduction in discharge to the Santa Ana River associated with WD.1. Santa Ana sucker distribution will be expanded via successive translocations to mountain tributaries, and the HCP will successfully maintain Santa

Common Name	Estimated Total Impacts in Acres on Modeled Habitat ¹	Mitigation* (acres of Modeled Habitat in the HCP Preserve System)	Expected Outcome of Actual Incidental Take of Species
Arroyo chub	2.4	5.1 [1.5 acres will be enhanced in mainstem Santa Ana River and 3.6 acres of tributary restoration within 3.9 miles of restored aquatic stream habitat]	<p>Ana sucker populations in at least three mountain tributaries. Suitable habitat will be monitored and adaptively managed to enhance habitat conditions and achieve success criteria for this species and will be protected in perpetuity. Though suitable habitat in the mainstem of the Santa Ana River will be reduced as a result of implementation of Covered Activities, restoration of tributaries coupled with translocation of fish to upper watershed streams within the HCP Preserve System, and long-term adaptive management of these areas to achieve success criteria, will go beyond offsetting impacts, and will achieve major contributions to the recovery of the Santa Ana Sucker.</p> <p>Pre-project surveys and the implementation of avoidance and minimization measures will reduce potential for incidental take. Habitat restoration will increase the amount and quality of available habitat in tributaries to the mainstem Santa Ana River. Tributary restoration will commence prior to implementation of Covered Activities, and the tributaries will be supplied with a dedicated, permanent water supply. Suitable habitat in all occupied reaches of the Santa Ana River and tributaries will be monitored and adaptively managed to enhance habitat conditions and achieve success criteria for this species. Tributary restoration sites within the HCP Preserve System will be adaptively managed and protected in perpetuity.</p>
Santa Ana speckled dace	0.01	0.0	<p>Pre-project surveys and strict avoidance and minimization measures will ensure impacts on this species will be near zero. Active habitat management (e.g., nonnative species management) within occupied reaches where they co-occur with Santa Ana sucker translocation streams will benefit this species.</p>
Mountain yellow-legged frog	195 (157) [including 6 acres of aquatic habitat]	264	<p>3% of the impacted habitat is aquatic habitat. The remaining 189 acres are refugia, foraging, and dispersal upland habitats. Pre-project surveys and strict avoidance</p>

Common Name	Estimated Total Impacts in Acres on Modeled Habitat ¹	Mitigation* (acres of Modeled Habitat in the HCP Preserve System)	Expected Outcome of Actual Incidental Take of Species
	[0 acre of designated critical habitat]		and minimization measures will ensure impacts on this species will be near zero. The HCP will provide financial and logistical support to ongoing research and population re-establishment efforts within the Planning Area to further conservation actions for the species. Active habitat management (e.g., nonnative species management) within occupied reaches where they co-occur with Santa Ana sucker translocation streams will benefit this species.
Western spadefoot	816 (304)	588	Pre-project surveys and avoidance and minimization measures will ensure impacts on this species will be substantially lower than the estimated impact on modeled habitat. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.
California glossy snake	975 (145)	807	Pre-project surveys and avoidance and minimization measures will ensure impacts on this species will be substantially lower than the estimated impact on modeled habitat. Suitable habitat within the HCP Preserve System will be monitored and managed to enhance habitat conditions for this species and will be protected in perpetuity.
South coast garter snake	58	169	Pre-project surveys and avoidance and minimization measures will ensure impacts on this species will be substantially lower than the estimated impact on modeled habitat. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.
Southwestern pond turtle	78 [including 6 acres of aquatic habitat]	309	Pre-project surveys and avoidance and minimization measures will ensure impacts on this species is substantially lower than the estimated impact on modeled habitat. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance

Common Name	Estimated Total Impacts in Acres on Modeled Habitat¹	Mitigation* (acres of Modeled Habitat in the HCP Preserve System)	Expected Outcome of Actual Incidental Take of Species
Tricolored blackbird	437 (58) [including 66 acres of unoccupied but suitable colony habitat and 371 acres of foraging habitat]	122 [39 acres of wetland habitat and 208 acres of riparian habitat will be restored to benefit the species]	habitat conditions for this species and will be protected in perpetuity. Pre-project surveys and avoidance and minimization measures will ensure no occupied colonies are disturbed. Approximately 39 acres of wetland habitat and 208 acres of riparian habitat will be restored to benefit the species. Suitable habitat within the HCP Preserve System will be monitored and managed to enhance habitat conditions for this species and will be protected in perpetuity.
Burrowing owl	979 (182)	595	Pre-project surveys and avoidance and minimization measures will reduce the potential for occupied burrows to be disturbed. Suitable habitat within the HCP Preserve System will be monitored and managed to enhance habitat conditions for this species and will be protected in perpetuity.
Cactus wren	885 (186)	681	Pre-project surveys and avoidance and minimization measures will ensure active nests are not disturbed. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.
Yellow-breasted chat	171 (69)	242	Pre-project surveys and avoidance and minimization measures will ensure active nests are not disturbed. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.
Western yellow-billed cuckoo	18	118	Pre-project surveys and avoidance and minimization measures will ensure active nests and occupied habitat are not disturbed. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.

Common Name	Estimated Total Impacts in Acres on Modeled Habitat¹	Mitigation* (acres of Modeled Habitat in the HCP Preserve System)	Expected Outcome of Actual Incidental Take of Species
Southwestern willow flycatcher	171 (69) [109 acres of designated critical habitat]	242 [9 acres of designated critical habitat]	Pre-project surveys and avoidance and minimization measures will ensure active nests and occupied habitat are not disturbed. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.
Coastal California gnatcatcher	516 (137) [6 acres of designated critical habitat]	498 [0 acre of designated critical habitat] [509 acres of alluvial fan sage scrub will be enhanced and restored]	Pre-project surveys and avoidance and minimization measures will ensure active nests are not disturbed. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity. A total of 509 acres of sage scrub habitat will be enhanced and restored.
Least Bell's vireo	171 (69) [58 acres of designated critical habitat]	242 [128 acres of designated critical habitat]	Pre-project surveys and avoidance and minimization measures will ensure active nests are not disturbed. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity.
Los Angeles pocket mouse	801 (182)	625 [509 acres of alluvial fan sage scrub will be enhanced and restored]	Pre-project surveys, refinements to project siting, and avoidance and minimization measures will ensure impacts are reduced to the maximum extent practicable. Suitable habitat within the HCP Preserve System will be monitored and adaptively managed to enhance habitat conditions for this species and will be protected in perpetuity. A total of 509 acres of alluvial fan sage scrub habitat will be enhanced and restored.
San Bernardino kangaroo rat	754 (377) [196 acres of refugia habitat (119)] ³ [776 acres of areas assumed to be occupied by SBKR (58)] ⁴	586* [509 acres of alluvial fan sage scrub will be enhanced and restored] [305 acres of refugia habitat] ³ [458 acres of areas assumed to be occupied by SBKR] ⁴	Pre-project surveys, refinements to project siting, and avoidance and minimization measures will be implemented to ensure that impacts on individuals and occupied habitat is reduced to the greatest extent practicable. These measures include habitat assessments, exclusionary fencing, trapping surveys, relocation, topsoil sequestration, and timing and night-lighting limitations. Suitable habitat within the HCP Preserve System will be monitored and

Common Name	Estimated Total Impacts in Acres on Modeled Habitat ¹	Mitigation* (acres of Modeled Habitat in the HCP Preserve System)	Expected Outcome of Actual Incidental Take of Species
	[766 acres of designated critical habitat (109)]	[685 acres of designated critical habitat]	adaptively managed to enhance habitat conditions and achieve success criteria for this species and will be protected in perpetuity. A total of 509 acres of alluvial fan sage scrub habitat will be enhanced and restored to be suitable for this species. A minimum of 67 acres of SBKR occupied habitat restoration and/or rehabilitation, and preservation will occur ahead of any impacts on occupied habitat.
Fully Avoided Species ¹			
Delhi Sands flower-loving fly	103 ² (84) [no impact on occupied habitat]		Strict avoidance measures will ensure full avoidance of this species.
Arroyo toad	125 ² (110) [3 acres of designated critical habitat] [no impact on occupied habitat]		Strict avoidance measures will ensure full avoidance of this species.

*Mitigation acreages represent the *minimum* that will be incorporated into the HCP Preserve System, and consists of lands already acquired, or those owned by Permittees determined to have high potential for inclusion in the HCP. Additional mitigation lands will need to be acquired for Santa Ana River woolly-star and San Bernardino kangaroo rat (refer to individual species accounts later in this chapter).

¹ Impact acreages in parentheses are on existing water recharge/flood control basins subject to regular O&M activities and are a subset of total impacts. For example, for San Bernardino kangaroo rat, of the 754 acres of total impacts on modeled habitat, 377 acres occur within existing basins. Consequently, impacts outside of existing basins are: 754 - 377 = 377 acres.

² Implementation of avoidance measures as described in Chapter 5 would prevent impacts on these species.

³ San Bernardino kangaroo rat refugia habitat is composed of modeled habitat that occurs outside of the 100-year floodplain.

⁴ "Assumed Occupied" is not a modeled dataset; it is a separate data layer that was estimated to indicate all areas that are assumed to be currently occupied by San Bernardino kangaroo rat (SBKR). The layer was generated from review of available trapping data (positive and negative) and known extant occurrences, and estimates of likely occupied areas where data were absent. It provides a conservative estimate of all areas where SBKR has the potential to be found.

Habitat Conservation Plan Conservation Strategy

The Upper SAR HCP conservation strategy (Chapter 5) is designed to avoid, minimize, and mitigate impacts of the taking of the Covered Species to the maximum extent practicable. The strategy meets the regulatory requirements of FESA and CESA.

Implementation of the Conservation Strategy is the responsibility of the Alliance, which will be established as a Joint Powers Authority (JPA) of the HCP. The Alliance will be responsible for implementing the HCP and all conservation actions described in the Conservation Strategy and assisting the other Permittee Agencies in complying with the conditions of the HCP Incidental Take Permit in connection with their Covered Activities.

ES.5.2 Elements of the Conservation Strategy

The conservation strategy includes all conservation actions as mitigation to offset the impacts of take of Covered Species. The conservation actions are based on the biological needs of the Covered Species and, when fully implemented, will meet the biological goals and objectives of the HCP. The elements of the conservation strategy are listed below and are described in more detail in the sections that follow. The phasing of the implementation of these conservation actions in relationship to the implementation of Covered Activities is also described below.

Elements of the Upper Santa River HCP Conservation Strategy:

- *Biological Goals and Objectives*
- *HCP Preserve System*
- *Hydrologic Manipulation and Substrate Management*
- *Captive Headstarting and Translocation*
- *Species and Habitat Research*
- *Conservation Bank Credits*
- *Species-Specific Conservation Strategies*
- *Fully Avoided Species*
- *Measures to Avoid and Minimize Effects*
- *Comprehensive Adaptive Management and Monitoring Program*

ES.5.3 Habitat Conservation Plan Goals and Objectives

The Upper SAR HCP has four overarching goals and six HCP Objectives as listed below.

The HCP Goals will be accomplished within the HCP Preserve System and are as follows:

HCP Goal 1: Conserve Covered Species and manage their habitats to contribute to the recovery of listed species or those that may become listed under the Federal Endangered Species Act.

HCP Goal 2: Maintain or simulate natural ecological processes necessary to maintain the functionality of the natural communities and habitats upon which the Covered Species depend

within the HCP Preserve System and to the greatest extent possible outside the HCP Preserve System.

HCP Goal 3: Maintain or increase habitat connectivity in the HCP Preserve System and to adjacent protected habitat areas to reduce isolation between metapopulations of Covered Species.

HCP Goal 4: Actively manage lands within the HCP Preserve System for the benefit of Covered Species to maintain or increase the health of populations.

The following HCP Objectives will support the HCP Goals:

HCP Objective 1: Conserve, restore/rehabilitate, and manage a minimum of 1,348.8 acres of native habitat for Covered Species in the HCP Preserve System over the duration of the life of the permit.

HCP Objective 2: Reduce anthropogenic and environmental threats to Covered Species and their habitats within the HCP Preserve System.

HCP Objective 3: Maintain and successfully enhance existing and new Santa Ana sucker habitats.

HCP Objective 4: Maintain and successfully enhance existing San Bernardino kangaroo rat habitats.

HCP Objective 5: Implement successful conservation measures to promote the recovery of Covered Species.

HCP Objective 6: Conduct scientific research in order to improve our knowledge and fill existing and future data gaps.

Species-specific objectives and species-specific conservation actions are presented for each Covered Species in Section 5.9, *Species-Specific Conservation Strategies*, to achieve the HCP goals and objectives.

ES.5.4 Habitat Conservation Plan Preserve System

The Alliance—as the HCP Implementing Entity—will provide for the permanent conservation of a minimum of approximately 1,349 acres within the HCP Preserve System. The HCP Preserve System will be assembled through a combination of property acquisitions, and/or establishment of conservation easements. The HCP Preserve System will be managed and monitored through the Comprehensive Adaptive Management and Monitoring Program (CAMMP) that will be implemented by the Alliance. The HCP Preserve System is divided into five Preserve Units (Figure 5-1).

HCP conservation action implementation has been separated into four phases that align with the phases of Covered Activity implementation (Table ES-4) plus an Up-Front phase to begin implementation of the conservation actions ahead of the implementation of Covered Activity impacts. Table ES-5 shows the approximate phasing of Covered Activity implementation.

Conservation actions and associated mitigation will be provided before, and stay ahead of, the cumulative total impacts of Covered Activities as they are implemented (Table ES-6). The phasing is based on best estimates for approximate timing. The actual implementation of conservation and Covered Activities may vary. Regardless, the conservation actions as mitigation established by the HCP will stay ahead of the impacts by a minimum of 10%. The Alliance will ensure that HCP

implementation is in compliance with this Stay Ahead Provision by monitoring and tracking the establishment of the HCP Preserve System and conservation actions along with tracking of impacts using the impact and mitigation tracking of the Mitigation Reserve Program described below.

Table ES-4. Approximate Phasing of Conservation of Vegetation Communities in the HCP Preserve System (acres)

Conserved Vegetation Types	Up-Front ¹	Phase 1 (Years 0-5)	Phase 2 (Years 6-10)	Phase 3 (Years 11-15)	Phase 4 (Years >15)	HCP Preserve System Total
Riparian	11.1	103.4	93.8	--	--	208.3
Wetlands	1.2	12.5	25.4	--	--	39.1
Permanent Water	1.7	18.7	17.4	--	--	37.8
Water in Existing Basins	--	--	--	--	--	--
Alluvial Fan Sage Scrub	16.8	487.1	5.5	--	--	509.4
Dry Channel/Shrubland	0.1	7.5	43.8	--	--	51.4
Other Shrublands	0.8	81.3	232.1	--	--	314.3
Woodlands		21.0	--	--	--	21.0
Grasslands	49.2	79.5	23.9	--	--	152.5
Rock Outcrops	--	15.0	0.2	--	--	15.2
Total by Phase	80.9	825.9	442.1	--	--	1,348.8

¹ The Up-Front provision will ensure that progress towards assembly and management of the HCP Preserve System has been initiated prior to HCP implementation (i.e., prior to initiation of any Covered Activities).

Table ES-5. Approximate Phasing of Covered Activities and Associated Impacts in the Permit Area^{1,2}

Vegetation Types	Phase 1 (Years 0-5)	Phase 2 (Years 6-10)	Phase 3 (Years 11-15)	Phase 4 (Years >15)	Total Impacts
Riparian	55.9 (3.6)	22.7	11.8	0.6	91.0 (3.6)
Wetlands	44.2 (28.0)	45.7 (43.7)	2.9	--	92.8 (71.7)
Permanent Water	47.5 (22.6)	28.2	--	0.3	76.1 (27.2)
Water in Existing Basins	335.5 (335.4)	280.3 (280.3)	--	2.9 (2.7)	618.7 (618.4)
Alluvial Fan Sage Scrub	145.7 (62.8)	164.4 (133.4)	110.9	102.3	523.2 (196.2)
Dry Channel/Shrubland	76.2 (22.8)	19.2	5.7	1.4	102.5 (22.8)
Other Shrublands	139.4 (17.7)	96.0 (23.0)	61.1	33.7 (0.3)	330.4 (40.9)
Woodlands	5.6 (2.3)	1.7	--	--	7.3 (2.3)
Grasslands	210.9 (23.1)	127.1 (15.8)	4.9	10.7	353.6 (38.9)
Rock Outcrops	7.2 (3.1)	13.1 (4.0)	0.6	0.2	21.1 (7.1)
Agriculture	113.9 (14.0)	110.3	0.6	--	224.7
Total by Phase	1,182.0 (535.3)	908.7 (504.8)	198.6	152.2 (3.0)	2,441.5 (1,043.1)

¹ Acres of ground disturbance.

² Impact acreages in parentheses are to existing water recharge/flood control basins subject to regular operations and maintenance activities.

Table ES-6. Up-Front and Stay- Ahead Provision Tracking by HCP Phase

	Implementation Period (years)					Total
	Up-Front	Phase 1 (0-5)	Phase 2 (6-10)	Phase 3 (11-15)	Phase 4 (>15)	
Conservation HCP Preserve System	6%	61%	33%	--	--	100%
Covered Activity Impacts		46%	35%	10%	9%	100%

¹ Tracking is based on the acreage of conservation lands already acquired by the HCP, or owned by HCP Permittees with high potential for incorporation into the HCP Preserve System. Additional lands will be acquired for incorporation into the HCP Preserve System as they become available.

Mitigation Reserve Program (Mitigation Accounting)

The Alliance will establish a Mitigation Reserve Program to account for and track the development of conservation values (e.g., species, waters, or habitat values) as well as account for the use of these values to offset future permit requirements for HCP Covered Activities. The purpose of the Mitigation Reserve Program is to establish a common understanding and legal framework for the conservation values created by HCP conservation actions, and to establish a transparent mechanism for tracking those values (creation and use) over time. In this way the Mitigation Reserve Program will be used to inform and track regulatory compliance of the HCP Covered Activities, including species and aquatic resource mitigation.

ES.5.5 Comprehensive Adaptive Management and Monitoring Program Framework

The HCP includes an adaptive management and monitoring framework for the HCP, including guidelines, and specific recommendations that will help the Alliance develop the Upper Santa Ana River HCP CAMMP. The purposes of this CAMMP framework—and one of the primary purposes of the CAMMP itself—are to ensure compliance with the HCP, to assess the status of Covered Species within the HCP Preserve System, and to evaluate the effects of management actions such that the conservation strategy, including the biological goals and objectives of the HCP, are achieved. Adaptive management and monitoring are integrated processes in the CAMMP, and monitoring will inform and change management actions to continually improve outcomes for Covered Species.

ES.6 Funding Implementation of the Habitat Conservation Plan

Chapter 7 provides planning-level estimates of the costs to implement the HCP, identifies funding sources to pay for implementation, and describes the rationale for funding assurances. The HCP is estimated to cost approximately \$185.3 million in 2020 dollars, including costs over 50 years without discounting and inflation. Tables ES-7 through ES-9 summarize the total, capital, and operational costs estimated to be necessary to carry out the HCP.

The cost analysis is based on a number of assumptions regarding the timing of implementation of various components of the HCP and the estimated unit costs of land, labor, and materials. Unit cost estimates were based on the best available information and represent average unit costs. The costs of individual items will fluctuate above and below these averages. The total cost presented herein

should therefore be regarded as a planning-level estimate to aid in the determination of the approximate amount of funding needed to implement the HCP. Specific costs will be refined as they are ascertained during the first years of HCP implementation, and any adjustments to the overall costs, cost-sharing agreements among Permittee Agencies, and endowment requirements will be made as needed.

Table ES-7. Summary of Upper SAR HCP Total Implementation Costs (1,000s 2020 dollars)

Total Costs ¹	Implementation Period (Years)					Total Costs ³
	Initial	Phase 1	Phase 2	Phase 3	Phase 4	
	0 ²	1-5	6-10	11-15	16-50	
Land Acquisition & Easements	\$60	\$18,520	\$11,132	\$0	\$0	\$29,712
Habitat Improvement	\$24,350	\$6,003	\$4,647	\$973	\$1,561	\$37,534
Fish Translocation	\$255	\$381	\$122	\$72	\$504	\$1,334
Management and Maintenance	\$0	\$1,422	\$2,515	\$2,137	\$13,515	\$19,589
Monitoring and Reporting	\$722	\$722	\$722	\$722	\$4,798	\$7,686
Staffing and Program Administration	\$0	\$6,549	\$6,549	\$6,413	\$44,891	\$64,402
Endowment Fund	\$0	\$1,378	\$1,378	\$1,378	\$9,646	\$13,780
Changed Circumstance Reserve	\$0	\$6,725	\$2,115	\$402	\$2,017	\$11,259
Total	\$25,393	\$41,700	\$29,180	\$12,097	\$76,932	\$185,302
Total Per Year		\$8,340	\$5,836	\$2,419	\$2,198	\$3,706

¹ All costs rounded to the nearest \$1,000.

² Year 0 costs are costs that will have been incurred prior to the start of the HCP.

³ Total Costs sum across all years with no discounting

Table ES-8. Summary of Upper SAR HCP Capital Costs (1,000s 2020 dollars)

Capital Costs ¹	Implementation Period (Years)					Total Costs ³
	Initial	Phase 1	Phase 2	Phase 3	Phase 4	
	0 ²	1-5	6-10	11-15	16-50	
Land Acquisition & Easements	\$60	\$18,520	\$11,132	\$0	\$0	\$29,712
Habitat Improvement	\$24,350	\$3,711	\$800	\$750	\$0	\$29,611
Fish Translocation	\$255	\$0	\$0	\$0	\$0	\$255
Management and Maintenance	\$0	\$0	\$751	\$206	\$0	\$957
Monitoring and Reporting	\$0	\$0	\$0	\$0	\$0	\$0
Staffing and Program Administration	\$0	\$0	\$0	\$0	\$0	\$0
Endowment Fund	\$0	\$0	\$0	\$0	\$0	\$0

	Implementation Period (Years)					Total Costs ³
	Initial	Phase 1	Phase 2	Phase 3	Phase 4	
	0 ²	1-5	6-10	11-15	16-50	
Capital Costs¹						
Changed Circumstance Reserve	\$0	\$6,069	\$1,233	\$113	\$0	\$7,415
Total	\$24,671	\$28,300	\$13,916	\$1,069	\$0	\$67,956
Total Per Year		\$5,660	\$2,783	\$214	\$0	\$1,359

¹ All costs rounded to the nearest \$1,000.

² Year 0 costs are costs that will have been incurred prior to the start of the HCP.

³ Total Costs sum across all years with no discounting.

Table ES-9. Summary of Upper SAR HCP Operating Costs (1,000s 2020 dollars)

	Implementation Period (Years)					Total Costs ³
	Initial	Phase 1	Phase 2	Phase 3	Phase 4	
	0 ²	1-5	6-10	11-15	16-50	
Operating Costs¹						
Land Acquisition & Easements	\$0	\$0	\$0	\$0	\$0	\$0
Habitat Improvement	\$0	\$3,298	\$4,854	\$949	\$6,646	\$15,747
Fish Translocation	\$0	\$1,135	\$876	\$565	\$3,958	\$6,535
Management and Maintenance	\$0	\$2,693	\$3,035	\$3,513	\$24,589	\$33,830
Monitoring and Reporting	\$0	\$1,797	\$1,797	\$2,026	\$13,930	\$19,551
Staffing and Program Administration	\$0	\$2,442	\$2,442	\$2,307	\$16,148	\$23,339
Endowment Fund	\$0	\$1,378	\$1,378	\$1,378	\$9,645	\$13,779
Changed Circumstance Reserve	\$0	\$656	\$881	\$289	\$2,018	\$3,845
Total	\$0	\$13,399	\$15,263	\$11,028	\$76,934	\$116,626
Total Per Year		\$2,680	\$3,053	\$2,206	\$2,198	\$2,333

¹ All costs rounded to the nearest \$1,000.

² Year 0 costs are costs that will have been incurred prior to the start of the HCP.

³ Total Costs sum across all years with no discounting.

ES.6.1 Funding Sources and Assurances

The single joint ITP permit structure was determined to be the best arrangement to facilitate ongoing coordination among the Permittee Agencies. In particular, this structure will allow the Permittee Agencies to enter into enforceable arrangements to allocate operational and funding responsibilities and rectify any occurrence of non-compliance by a Permittee Agency. The costs of the HCP will be borne by the Permittee Agencies in accordance with the Joint Powers Authority Agreement, and a separate "Participation and Financing Agreement" (PFA) that fully accounts for and assigns financial responsibility of the Alliance among the Permittee Agencies. The PFA will describe the financial responsibilities of each of the Permittee Agencies with respect to the HCP and the Alliance. The cost of plan implementation will be shared among the Permittee Agencies, based

on a cost-sharing mechanism developed and approved by all agencies. The cost-sharing mechanism will account for impacts of the individual Covered Activity as well as both the financial and in-kind contributions by the Permittee Agencies.

Each of the Permittee Agencies will be fully responsible for any Covered Activity undertaken by that agency under the HCP and will be required to coordinate with the Alliance staff in order to ensure consistency of the Covered Activity with the Plan. Any cost resulting from non-compliance with the terms of the ITP by any Permittee Agency will be the responsibility of the non-complying Agency.

ES.6.2 Cost-Effectiveness of the Habitat Conservation Plan

Over the 50-year life of the HCP, the \$185.3 million investment will allow Permittee Agencies to develop over 4 million acre-feet of water cumulatively for local use, or approximately 87,000 afy by year 15. These water resources will reduce reliance on imported water from other parts of the State, increasing the area's resilience to drought and the increasing uncertainty and volatility that hamper water deliveries from the State Water Project and Colorado River Aqueduct.

The net benefits of this investment to water users and the local economy amount to an estimated \$955 million as a whole. This total net benefit illustrates the enormity and importance of this effort and represents a benefit-cost ratio over 1.4:1.³

Without the Covered Activities enabled by the HCP and associated incidental take permits, the Permittee Agencies would not be able to optimize the use of local water resources. Instead, their best options for obtaining such a large volume of water at the same level of reliability are to purchase additional imported water or develop new supplies through desalination. It is true that in some years, particularly wet hydrologic years, a fraction of the 87,000 acre-feet of water may be available for Permittee Agencies to purchase through San Bernardino Valley Municipal Water District's (Valley District's) State Water Project allotment. However, this water would not be available in other drier years, so it would not be reliable or predictable. This reliability benefit is part of the reason that Permittee Agencies are pursuing the HCP.

Based on the planned mix of Covered Activity water supply projects, Permittee Agencies will be able to develop the same amount of water at a net present value (NPV)⁴ cost of approximately \$2.2 billion. To estimate this cost, for conventional and groundwater supply Covered Activity projects, a value of \$829 per acre-foot is used, based on average costs for managed aquifer recharge projects in California State grant applications (Perrone and Rhode 2016). For recycled water and indirect potable reuse projects, an average cost of \$1,269 per acre-foot was used, based on the cost of the Water Replenishment District of Southern California's Groundwater Reliability Improvement Program Advanced Water Treatment Facility (Metropolitan 2016), Orange County Water District's Groundwater Replenishment System (Metropolitan 2016), and cost estimates developed by the Pacific Institute for Indirect Potable Reuse (Cooley and Phurisamban 2016).

³ The benefit-cost ratio is the net present value of the benefits divided by the net present value of the costs. In this case, the benefits are the avoided future costs of more expensive water sources. A ratio above 1:1 indicates net positive benefits over the life of a project or program.

⁴ NPV calculations are made using an interest rate of 4.61% based on the rate used by the State Water Project in calculating water prices. The general inflation rate is assumed to be 2%. The net discount rate is 2.61%.

The net present value (NPV) of water supply costs without the HCP is \$3.2 billion, compared to an NPV of \$2.2 billion in water supply costs with the HCP. This is an estimated savings of \$1.08 billion from water supply projects alone.

This potential savings puts the HCP total cost in perspective. The \$185.3 million undiscounted total HCP cost translates to an NPV of \$126.5 million. Based on the savings estimated from water supply projects and the cost of the HCP, pursuing the HCP over alternative water supply options could result in net savings of \$955 million or more in net present value. This cost saving will be passed on to commercial and residential water customers throughout the HCP area (Table ES-10).

Table ES-10. HCP Net Savings Estimate in Net Present Value (\$1,000s)

	Water Supply Cost	HCP Cost	Net Savings (cost)
Without HCP	\$3,243	\$0	
With HCP	\$2,162	\$126.5 ¹	
Total savings (cost)	\$1,081	-\$126.5	\$955

¹ Note that this total HCP cost is presented in net present value (NPV). It is equivalent to the \$185.3 million undiscounted total cost presented elsewhere in this chapter, but shown in NPV so that it can be compared to alternative scenarios on a comparable basis.

ES.7 From Conflict to Collaboration

Remarkably, this HCP was born from the depths of conflict and legal battles over the listing of the Santa Ana sucker as a federally threatened species and the subsequent designation of Critical Habitat. The growing human population of the Upper SAR watershed was in need of a reliable source of water, resilient to the extended droughts, effects of climate change, reduced State Water Project supplies, and increasing costs. The listings of the Santa Ana sucker and the other Federal and State listed species were standing in the way, pitting people against fish, water agencies against regulatory agencies, and human needs against the needs of the environment. It was a fight with no winners, and it became increasingly clear that the only path forward was a path of collaboration. Failure was not an option.

Through the acceptance that people need water and so do fish and what's good for the River is good for people too, a spirit of interagency collaboration emerged. The water agencies, regulatory agencies, and other stakeholders each took a seat at the table with a firm commitment to work together, understanding each other's needs and interests, finding common ground to craft a solution that was good for everyone—the people, the wildlife and plant species, the water.

The preparation of this HCP is *the* viable solution to balancing the competing demands on the limited availability of water. This HCP exists through the partnership and the collaborative efforts of the Permittee Agencies, Wildlife Agencies, and involved stakeholders. Through this collaboration, this regional, comprehensive program will provide the necessary framework to protect, enhance, and restore the habitat for Covered Species, while streamlining permitting of Covered Activities, providing a reliable source of water for people. This HCP will enable the water agencies to continue to provide and maintain a secure source of water for the residents and businesses in the watershed, and to conserve and maintain natural habitats that provide a home for the diversity of unique and rare species in the watershed.