

**WESTERN RIVERSIDE COUNTY MSHCP  
BIOLOGICAL MONITORING PROGRAM  
FY 2018-19 WORK PLAN AND COST ESTIMATE**

## **1 INTRODUCTION**

The overall goal of the Biological Monitoring Program (Monitoring Program) is to collect data on the 146 Covered Species and associated habitats for the purpose of assessing the MSHCP's effectiveness at meeting conservation objectives and to provide information for adaptive management. The activities described in this work plan for Fiscal Year 2018-19 continue the activities commenced in the previous fiscal year and follow the framework outlined in Section 5.3 of the MSHCP. Fiscal Year 2018-19 continues a significant transition period for the Monitoring Program as it shifts into the Long-term Monitoring Phase.

## **2 RESPONSIBILITIES**

Monitoring Program activities are implemented within the MSHCP Conservation Area on lands that are owned and managed by the various MSHCP participants. The Western Riverside County Regional Conservation Authority (RCA) has primary responsibility for funding the Biological Monitoring Program. To ensure consistency in monitoring efforts throughout the Conservation Area, the Monitoring Program is overseen and implemented by a Monitoring Program Administrator. The duties and responsibilities of the Monitoring Program Administrator are described in Volume 1, (Part 2) Section 6.6.6 of the MSHCP.

As per the MSHCP, the California Department of Fish and Wildlife (CDFW, formerly Department of Fish and Game) was to be the Monitoring Program Administrator for the first eight years of the permit (June 2004 – June 2012). In 2007 the CDFW received a federal State Wildlife Grant to support its role as the Monitoring Program Administrator and develop a long-term monitoring strategy. The grant expired in June 2012 with the primary deliverable being the long-term monitoring strategy document briefly described below. CDFW continues to provide resources to support the Monitoring Program in the form of one dedicated Monitoring staff member and vehicle. These resources are expected to continue moving forward.

The Monitoring Program Administrator works closely with the RCA to develop and implement the annual work plan and budget. The annual work plan is carried out by the Santa Ana Watershed Association (SAWA) under contract to the RCA and CDFW staff.

## **3 IMPLEMENTATION STRATEGY**

The Monitoring Program is responsible for monitoring the status and trend of the 146 Covered Species and associated vegetation communities and wildlife habitats over a 500,000 acre Conservation Area. Because there was little existing scientifically-based data for the majority of Covered Species, the first eight years of the Monitoring Program were devoted to an Initial Inventory and Assessment Phase. The purpose of the Inventory Phase was to determine where Covered Species occur within the Conservation Area, to

gather more information on their activity patterns, and to develop efficient protocols for detecting them. The development of protocols was necessary to standardize data collection, to test the reliability of survey methods, to determine feasible and useful monitoring metrics, and to provide a confidence level that unobserved species are truly absent at the survey location, rather than overlooked.

The gradual transition from Inventory Phase to Long-term Monitoring Phase has been underway since 2012. For species with short reporting requirements such as Quino checkerspot butterfly (annual) or coastal California gnatcatcher (every three years) long-term monitoring is already in place. Multiple surveys for species with short reporting requirements have been conducted, providing the initial data points for population trend assessment. For species with longer reporting requirements such as Los Angeles pocket mouse (every eight years) and with species-specific monitoring objectives requiring significant development and testing, the transition from Inventory Phase to Long-term Monitoring Phase is ongoing.

The transition into long-term monitoring involves developing monitoring metrics that are efficient to collect and robust measures of species status and population trend. The baseline monitoring objective for all Covered Species requires at least 75 percent of listed Core Areas or known locations to be documented as occupied at least once every eight years. As described in the Long-term Monitoring Strategy document developed by the Monitoring Program, monitoring protocols that provide additional information such as relative abundance of populations at occupied locations, reproductive success, or health of observed individuals will be employed whenever possible, to provide the most useful representations of species status.

One of the explicit goals of the Monitoring Program is to develop efficient long-term monitoring protocols that reduce redundancies by collecting information on multiple species where possible. For example, bird species co-occurring in similar habitat (e.g., riparian vegetation) during the breeding season can be detected using the same survey protocols. There will always be some Covered Species that occur in isolated pockets within the Conservation Area or that are difficult to detect using standard survey protocols; for these species a focused survey effort will be required.

The Long-term Monitoring Strategy describes a two-level design that gives priority to assessing the status of Covered Species as stated in the species-specific conservation objectives of the Plan which emphasize the continued occupancy of MSHCP-defined Core Areas or other areas of known occurrence. For some species, the objectives require that reproduction and/or minimum densities of individuals within species Core Areas be verified. The second level extends sampling for terrestrial vertebrates to the entire Conservation Area in a cost-efficient manner. The Long-term Monitoring Strategy document also includes chapters describing monitoring goals and objectives, sample design considerations, proper protocol development, data and information management strategies, collaboration and communication with other organizations, and describes the organizational framework of the Monitoring Program.

#### **4 STAFF COMPOSITION**

Monitoring Program staff work as a team to coordinate, develop, and implement required monitoring activities for the MSHCP. The Monitoring Program is composed of the following staff positions, which are filled based on availability of funding:

- Monitoring Program Administrator
- Biologist Supervisor
- Data Manager
- GIS Analyst
- Office Assistant
- Taxa Leads
- Field Biologists

Currently, the majority of staff are funded by the RCA through a contract with SAWA, a local non-profit agency. One Taxa Lead is currently provided by the CDFW, with endowment funding from Caltrans. The GIS Analyst is a contracted position.

## **5 SPECIFIC TASKS OF THE MONITORING PROGRAM**

### **5.1 Administration & Coordination**

Administering and coordinating the Monitoring Program requires a significant amount of effort. Sufficient staff and resources must be acquired, field work must be scheduled, land access must be coordinated with other agencies, and survey activities must take place. The Monitoring Program Administrator, Biologist Supervisor, and Office Assistant carry out the following tasks:

- Develop annual work plans and budgets
- Identify contract needs, write scopes of work, manage contracts
- Advertise, interview, and hire Monitoring Program staff; conduct performance reviews
- Develop and maintain training manuals and training programs for staff
- Direct and schedule staff activities
- Identify field supply and equipment needs; maintain inventory of RCA owned equipment
- Identify land access needs and coordinate with the RCA or agencies on access agreements
- Facilitate monthly reserve management/monitoring coordination meeting
- Attend monthly RCA team meetings and other agency meetings
- Give requested presentations to the RCA Board
- Coordinate with Wildlife Agencies (CDFW and U.S. Fish and Wildlife Service) on survey methodology and monitoring activities
- Develop and maintain Program operations manual
- Oversee writing of annual survey reports
- Distribute Monitoring Program data as appropriate

## **5.2 Biological Surveys**

Conducting biological surveys is the most visible part of the Monitoring Program. It is also the component that requires the most staff. Prior to collecting data, all aspects of a project must be developed. This includes identifying the purpose of the survey, choosing the data collection methods and sampling locations, selecting data analysis methods, and determining what answers the data are expected to provide. The following tasks are carried out by the Monitoring Program Administrator, Biologist Supervisor, GIS Analyst, Data Manager, Taxa Leads, and Field Biologists:

- Develop field survey protocols and sampling designs
- Conduct field surveys using multi-species protocols when possible, and specific species protocols when necessary
- Conduct vegetation condition analyses

## **5.3 Training**

The Monitoring Program is required to have a training program approved by the Wildlife Agencies to ensure consistent data collection, uniform implementation of protocols, animal handling procedures, plant specimen collection, and appropriate experience with Covered Species (Vol. 1, Sec. 7.0). The type of species training needed in any given year is dependent on the types of survey activities planned. Training is provided both by experienced Monitoring Program staff and by qualified outside entities (e.g., U.S. Geological Survey, U.S. Fish and Wildlife Service). Safety training (e.g., wilderness first aid, CPR) is provided to all incoming staff, and as often as needed to existing staff to keep American Red Cross certifications up-to-date. The following training is required of Monitoring Program staff:

- Endangered species identification and handling
- Local flora and fauna identification
- Wilderness first aid and CPR training
- Defensive driver training

## **5.4 Data Management & Reports**

All of the data collected by the Monitoring Program must be carefully managed. Prior to field work, data forms are developed and survey locations are mapped. Field data are collected both on paper datasheets and on digital data collection devices. As data return from the field, they are entered into a database, checked for accuracy, and certified by the Data Manager. After data are certified, they are analyzed and interpreted and a report is written describing survey results. The results of each year's monitoring efforts are provided in the Annual Report submitted to the RCA. The Monitoring Program Administrator, Biologist Supervisor, Data Manager, and GIS Analyst support and oversee the Taxa Leads and Monitoring Program staff in the completion of the following tasks:

- Field form and protocol development

- GIS mapping to support surveys, analysis, and reports
- Database development and maintenance
- Data entry and quality control
- Data analysis using statistics
- Annual survey report writing
- Maintaining computer equipment and digital data collection devices

The Monitoring Program has an internal database, developed and managed by the Data Manager. Monitoring Program datasets that have been thoroughly proofed and certified complete by the Data Manager are submitted to CDFW's Biogeographic Information and Observation System (BIOS), as well as to local partnering agencies and Reserve Managers at least once per year.

## **6 MONITORING EFFORTS IN FY 2018-19**

Monitoring Program activities planned for FY 2018-19 are largely based on the requirements of the MSHCP species objectives found in Volume 2 of the MSHCP. Most species objectives specify time intervals for detecting and reporting on each of the Covered Species in the Conservation Area. When the species objectives do not specify a time interval, the status of the Covered Species must be reported on at least once every eight years as per General Management Measure 7 (Vol. 1 Sec. 5.0). In addition to the species objectives, survey priorities are influenced by the quantity and quality of information available for each species (little or poor information means more survey effort sooner), whether another agency is already conducting surveys (less effort required by the Monitoring Program), relative ease of gathering information (e.g., yellow warbler surveys during least Bell's vireo surveys), and priority of the species to the RCA and Wildlife Agencies (e.g., burrowing owl is a high priority species). Funding availability and extent of effort required is also considered when determining monitoring activity priorities. Monitoring Program biologists help with ongoing MSHCP Management Program activities that benefit Covered Species (e.g., aquatic invasive species removal/control) to the fullest extent possible.

An overview of the monitoring efforts planned for FY 2018-19, along with a brief rationale for surveys, is provided below. Detailed survey methods can be found in the survey protocols available at the Biological Monitoring Program office in Riverside, CA. The Monitoring Program's ability to complete these tasks will be dependent upon continued funding from the RCA and the amount of support provided by the CDFW.

### **6.1 Invertebrates**

#### **6.1.1 Quino Checkerspot Butterfly Survey**

The species objectives for Quino checkerspot butterfly require annual documentation of its distribution. The Monitoring Program has surveyed for Quino checkerspot butterfly in the Conservation Area during the last 14 biological years. In FY 2018-19 survey efforts will focus on monitoring locations in designated Core Areas and satellite Core Areas throughout the Conservation Area. Monitoring

Program biologists will coordinate with Reserve Managers conducting surveys for Quino checkerspot butterfly to avoid duplication of effort.

#### 6.1.2 Delhi Sands Flower-Loving Fly (Delhi Fly) Survey

The species objectives for Delhi fly require documenting successful reproduction at all three Core Areas identified in the MSHCP annually for the first five years of the permit and then as determined to be appropriate. There is currently just one Core Area with conserved land within the Plan Area containing suitable habitat for the species. Because Delhi fly is an endangered species with an extremely limited distribution within the Plan Area, Monitoring Program biologists have surveyed for Delhi fly within the lone accessible Core Area during the last 13 biological years.

Surveys allowing calculation of density estimates of Delhi fly within its accessible Core Area were conducted from 2005-2010. In 2011 these efforts were reduced to simply documenting successful reproduction, greatly reducing necessary resources. However, the Management Program has recently been conducting management actions to control the spread of non-native vegetation within occupied habitat, and to potentially open up more habitat at the edges of the recently occupied area. In order to properly assess the effectiveness of these actions, the more intensive study design allowing a density estimate of Delhi fly to be calculated was reestablished in FY 2014-15 through FY 2017-18, and will continue in FY 2018-2019.

For the first time, arthropod surveys may be added to document the community composition of co-existing terrestrial arthropod species as an indication of habitat health. Arthropod surveys would involve several rounds of live-capture pitfall trapping during the months leading up to Delhi Fly surveys. The protocol is still being developed and will probably evolve during this first survey season.

#### 6.1.3 Fairy Shrimp Survey

The species objectives for Santa Rosa Plateau, Riverside, and vernal pool fairy shrimp require the continued use of listed Core Areas at least once every eight years. Surveys on accessible lands within listed Core Areas for covered fairy shrimp were conducted by Monitoring Program biologists in several years during the Inventory Phase when precipitation was adequate to fill pools with water. The species-specific monitoring objective has been met for Santa Rosa Plateau fairy shrimp but Riverside fairy shrimp and vernal pool fairy shrimp need to be found in additional Core Areas in order for their respective species objectives to be met. Ongoing fairy shrimp surveys may be conducted in vernal pools within necessary Core Areas if there is adequate rainfall in FY 2018-19 to create new pools in areas already surveyed, or if additional lands are acquired.

## 6.2 Birds

#### 6.2.1 Northern Goshawk Survey and Nest Searching

The species objectives for northern goshawk require the MSHCP to maintain the continued use and successful reproduction in high elevation habitat for this species in the San Jacinto Mountains every three years. This species was last surveyed in FY 2012-13. The survey effort for northern goshawk is physically challenging, but not biologically complex or difficult. These surveys will only be conducted if funding is available to hire a contracted biologist. Using regular Monitoring Program Staff would be too labor intensive and preclude much of the other bird work that is planned for FY 2018-19.

#### 6.2.4 Burrowing Owl Monitoring

The species objectives for burrowing owl require the conservation of five Core Areas plus interconnecting linkages, containing a total breeding population of at least 120 owls with no fewer than five pairs in any one Core Area. Several land managers within the Conservation Area have installed artificial burrows and are managing vegetation for burrowing owl. Monitoring Program biologists will coordinate with Reserve Managers to ensure that breeding pair counts are conducted at locations known to recently support owls, or where owls have been recently actively translocated.

In FY 2018-19 continued monitoring of artificial burrows installed across the Conservation Area will be conducted three times per year as according to the Western Riverside County MSHCP Burrowing Owl Management Plan. Additional surveys to obtain an accurate count of breeding pairs of burrowing owls within Core Areas will be conducted as needed by Monitoring Program biologists and with the use of trail cameras in FY 2018-19 to document distribution and reproduction of burrowing owl whether at artificial or natural burrow locations. Monitoring Program biologists will coordinate with Reserve Managers to avoid duplication of effort. Program biologists may also continue a Burrowing Owl habitat assessment project to collect habitat data at burrows used by breeding Burrowing Owls.

#### 6.2.2 Tricolored Blackbird Survey

Due to a precipitous population decline and widespread habitat loss, the Tricolored Blackbird was listed as a Candidate for inclusion on the California Endangered Species List by the California Fish and Game Commission in November 2015. The species objectives for Tricolored Blackbird require documenting the continued use and successful reproduction in at least one of five Core Areas every five years. Targeted surveys in 2015 confirmed that the objective as written is currently minimally achieved. However, populations in Riverside County, southern California and state-wide remain near historic lows. Management actions and public outreach activities are underway to enhance breeding and foraging habitat on conserved land and to avoid take of the species on private land. Tricolored Blackbirds concentrate their breeding effort at only a few sites in any given year, making each colony critical and relatively easy to monitor. Surveys to document population and reproduction status at sites with Tricolored Blackbird in FY 2018-19 will be

conducted pending staff availability in order to continue providing updated information for adaptive management.

Additional survey work may be conducted in Tricolored Blackbird habitat on the San Jacinto Wildlife Area, including bird point counts, vegetation surveys, and insect surveys. Additional effort may include the collection of fecal or other samples for DNA analysis, and the deployment of sound meters to monitor colony development and success rates.

### 6.2.3 Western Yellow-billed Cuckoo Survey

The species objectives for yellow-billed cuckoo require the MSHCP to maintain continued use and successful reproduction within Core Areas once every five years. Surveys for three riparian bird species, including cuckoo, occurred in FY2016-17, but cuckoo was not detected. In the past, seven cuckoo territories were documented in western Riverside County, occurring in the Prado Basin or adjacent Riverside County reach of the Santa Ana River. In 2001, they were found in Mill Creek, Chino Creek, and the El Prado Golf Course. Prado Basin may represent the only breeding location in southern California apart from the Colorado River. Survey efforts targeting western yellow-billed cuckoo were initiated in FY 2017-18, and will continue until the end of the breeding season in FY 2018-19. Acoustic equipment may be used within Prado Basin to increase possible detection and maximize staff time. Nest searching to demonstrate successful reproduction of the above species will occur in conjunction with the detection survey.

### 6.2.4 Grasshopper Sparrow Survey and Nest Searching

The species objectives for grasshopper sparrow require occupancy within three large Core Areas, and at least three of four smaller Core Areas every five years. Additionally, five of the seven Core Areas must support at least 20 grasshopper sparrow pairs with evidence of successful reproduction. Grasshopper sparrows were documented in four Core Areas in 2015 (67% of large and 50% of small). Since this last effort, the San Jacinto Wildlife Area/Mystic Lake Core Area will be redefined as generally being the eastern portion of existing Core H. Surveys in FY 2018-19 may also involve a change from line transects to point-counts to determine the current status of the species within the Conservation Area. Nest searching will involve the use of a rope drag in suitable habitat to reveal nesting adults. Habitat data may also be collected as part of this effort.

### 6.2.5 Yellow Warbler and Yellow-breasted Chat Survey and Nest Searching

The species objectives for Yellow Warbler and Yellow-breasted Chat require the MSHCP to maintain continued use and successful reproduction within Core Areas once every five years. Surveys in FY 2018-19 specifically for Yellow Warbler and Yellow-breasted Chat will be conducted in accessible riparian habitat within designated Core Areas. Nest searching to demonstrate successful reproduction of the above species will occur in conjunction with the detection survey.

### 6.2.6 California Gnatcatcher Survey

The species objectives for California gnatcatcher require continued use and successful reproduction within Core Areas at least once every three years. The U.S. Fish and Wildlife Service organized a regional monitoring survey effort for California gnatcatcher in FY 2015-16 with the goals of conducting status and trend monitoring with habitat and species threat covariates, understanding post-fire population effects, and population responses to climate change. Participation in this larger-scope monitoring effort allowed the Monitoring Program to collect data needed to meet stated MSHCP objectives. The next regional survey is tentatively planned for FY2018-19.

## 6.3 Amphibians and Reptiles

### 6.3.1 Western Spadefoot Survey

The species objectives for western spadefoot require maintaining successful reproduction at 75 percent of conserved breeding locations as measured once every eight years. Early Monitoring Program surveys for western spadefoot were mostly conducted as part of vernal pool monitoring also targeting covered fairy shrimp species. If there is adequate rainfall in FY 2018-19, surveys targeting western spadefoot will be conducted to determine presence and breeding activity in suitable habitat on any newly required RCA properties and historically occupied areas where the species was not detected in FY 2016-2017. Isolated pools, road ruts, and creeks that do not strictly follow the definition of vernal pools will be surveyed in order to capture additional potential habitat for breeding spadefoot.

### 6.3.2 Western Pond Turtle Trapping

The species objectives for western pond turtle require the continued use of at least 75 percent of conserved Core Areas as measured once every three years. Surveys for western pond turtle in 2013-2015 confirmed that the objective was met in the last reporting period; pond turtles have been detected in 7 of 8 (87.5%) Core Areas.

Surveys in FY 2014-15, 2015-16, and 2016-17 have targeted large populations at the Santa Margarita Ecological Reserve and Santa Rosa Plateau Ecological Reserve. If land with potentially suitable habitat has been acquired or significant habitat management has occurred within previously unoccupied cores, these cores will also be resurveyed in FY 2018-19; however, the conserved areas within these cores were not appropriate for pond turtles during previous surveys so they will not be resurveyed without the above conditions. Surveys in FY 2018-19 will continue efforts begun in FY2017-18 with a focus on Murrieta Creek.

### 6.3.3 Terrestrial Herpetofauna Survey

San Bernardino mountain kingsnake, San Diego mountain kingsnake, southern rubber boa, and San Diego banded gecko have proven difficult to detect with current survey methods. The species objectives for all four reptiles require documentation of the continued use of Core Areas at least once every eight years. Survey efforts for covered species in FY 2018-19 will include employing herp

arrays, consisting of snake traps with drift fencing for the three mountain snake and one lizard species.

Ultimately, there may be no truly efficient means to reliably detect these species as they are highly secretive and not typically found in high numbers. Collection of incidental observations from Monitoring Program biologists and partnering agencies will continue to be essential. Because surveys conducted to date are insufficient to determine that target species are truly absent from Core Areas where they have not been documented to occur, Monitoring Program biologists will also opportunistically search suitable habitat within Core Areas for these species when personnel are available. These targeted area searches will be significantly less labor-intensive than previous survey methods, and may also result in detections of the following Covered Species: Belding's orange-throated whiptail, coastal western whiptail, granite spiny lizard, northern red-diamond rattlesnake, San Diego horned lizard and southern sagebrush lizard.

## **6.4 Mammals**

### **6.4.1 Carnivore Survey**

Species objectives for bobcat, coyote, long-tailed weasel, and mountain lion require the conservation of contiguous habitat blocks and the maintenance of corridors that provide an effective means for dispersal. Surveys to detect the above-listed mammals in contiguous habitat blocks, linkages, and movement corridors identified by the MSHCP have been ongoing since 2007. Surveys in the linkages will continue in FY 2018-19, primarily using motion-triggered cameras to record images of target species.

### **6.4.2 Long-tailed Weasel Survey**

Long-tailed weasel is a species with typically low densities, broad geographic distribution, and a life history pattern that makes it difficult for biologists to detect. While motion-triggered cameras and incidental observations provide regular data points for bobcat, coyote and mountain lion, previous analysis of survey techniques has shown that scent stations along transects following likely movement corridors is the most effective means to document long-tailed weasel occurrences. These surveys were last conducted in 2009 and can take more than one year to complete given the extent of the survey area. Monitoring Program biologists will conduct carnivore scent station and track surveys in habitat blocks and corridors particularly targeting long-tailed weasel in FY 2018-19. These surveys could result in significant detections of other carnivore species.

## **6.5 Fish**

### **6.5.1 Arroyo Chub Survey**

The species objectives for arroyo chub require documenting the presence of this fish in 75 percent of its identified Core Areas in the Santa Ana and Santa Margarita watersheds. The frequency of arroyo chub surveys to document presence are not

defined in the monitoring objectives; therefore, the Program defaults to conducting surveys every 8 years. The monitoring objective for arroyo chub is not currently met. The Monitoring Program will continue survey efforts in FY 2018-19 that were slated to begin in the previous fiscal year. The Monitoring Program will determine if surveys are being conducted by CDFW in the Santa Margarita River to reassess species status. We will also survey tributaries in both watersheds to assess species status. In the Santa Ana watershed, the Monitoring Program will continue to coordinate with other organizations conducting native fish surveys.

## **6.6 Plants**

### **6.6.1 Rare Plant Survey**

There are 63 covered plant species with species objectives that require conserving and monitoring known populations within the Conservation Area. Surveys for rare plants in FY 2018-19 will continue efforts to update the current status of Covered Species on conserved lands. The focal species in any given year are dependent on weather conditions and accessibility of survey sites. Nearly all historic locations of covered plant species within the Conservation Area have been visited in previous years. Thus, rare plant monitoring efforts in FY 2018-19 will focus on conducting surveys for covered plant species at recently acquired properties, documenting required localities for species not adequately conserved, and revisiting locations previously determined to be occupied by covered plant species in a long-term monitoring context.

#### **6.6.1.1 Brand's Phacelia Study**

A habitat management study of Brand's phacelia (*Phacelia stellaris*), a narrowly endemic Covered Species, will continue in FY 2018-19 in an area along the Santa Ana River near Rancho Jurupa.

### **6.6.2 Engelmann Oak Study**

The species objectives for Engelmann oak require maintaining recruitment of seedling and sapling oaks within conserved populations as measured across any consecutive five-year period. Targeted surveys for Engelmann oaks were initiated again in FY 2015-16 and replicated prior efforts to measure current recruitment within accessible lands in the Conservation Area. The large majority of Engelmann oaks within the Plan Area are found at the Santa Rosa Plateau Ecological Reserve which was thoroughly surveyed in FY 2015-16. However, smaller populations exist at the Southwestern Riverside County Multi-Species Reserve and the Santa Margarita Ecological Reserve. These smaller populations were visited in FY 2017-18, completing the survey effort for the current five-year period. Remnant populations at additional locations will be surveyed in FY 2018-19.

### **6.6.3 Vegetation Community Monitoring**

In addition to monitoring-focused conservation objectives for each Covered Species, the MSCHP requires the Monitoring Program to assess the condition of vegetation communities within the Conservation Area (Vol. 1, Sec. 5.3.2). A CDFW

grant-funded update to the existing GIS-based vegetation community map was delivered in March 2015. This product will be extremely useful in comparing acreage, distribution and broad-scale vegetation condition changes in communities throughout the Plan Area.

On-the-ground vegetation community monitoring efforts targeted coastal sage scrub (CSS) and CSS-grassland and CSS-chaparral transition areas from 2008 – 2012. Pending staff availability, FY 2018-19 vegetation community monitoring efforts will continue for a selected vegetation community within the Conservation Area.

#### 6.6.4 Habitat Surveys

Habitat surveys for targeted species are conducted by trained botanists in conjunction with wildlife survey efforts as practicable and appropriate. The purpose of these surveys is to describe the wildlife habitat within survey areas to gain a better understanding of potential drivers for observed species distributions.

## 7 SCHEDULE OF MONITORING EFFORTS FOR FY 2018-19

Below is a tentative calendar of when surveys are planned for FY 2018-19. The “biological year” or “survey season” does not match the fiscal year, thus the calendar represents two different survey seasons. The first half of the calendar continues many of the activities commenced in FY 2017-18.

Survey	Jul18	Aug18	Sep18	Oct18	Nov18	Dec18	Jan19	Feb19	Mar19	Apr19	May19	Jun19
Quino Checkerspot Survey												
Delhi Fly Detection and Arthropod Surveys												
Fairy Shrimp Survey												
Northern Goshawk Survey and Nest Searching												
Burrowing Owl Monitoring												
Tricolored Blackbird Survey												
Western Yellow-billed Cuckoo Survey												
Grasshopper Sparrow Survey and Nest Searching												
Yellow Warbler and Yellow-breasted Chat Survey and Nest Searching												
California Gnatcatcher Survey												
Western Spadefoot Survey												
Western Pond Turtle Trapping												
Terrestrial Herpetofauna Survey												
Carnivore Survey (Long-tailed Weasel)												
Arroyo Chub Survey												
Rare Plant Survey												
Brand's Phacelia Study												
Engelmann Oak Study												
Vegetation Community Monitoring												

## 8 BIOLOGICAL MONITORING PROGRAM COST ESTIMATE FOR FY 2018-19

The RCA has primary responsibility for funding the Monitoring Program. However, the CDFW funds a small portion of the Monitoring Program based on the availability of the State's budget. The proposed FY 2018-19 Biological Monitoring Program budget is similar to previous budgets submitted to and approved by the RCA Board of Directors. The majority of funding is allocated to a contract with the Santa Ana Watershed Association for staff.

<b>ALLOCATION</b>	<b>COST</b>
<b>CDFW Funded Labor &amp; Supplies</b>	
Biologist	\$112,048
Vehicle Usage (Fuel & Maintenance)	\$3,000
Office Support (Internet service)	\$1,000
Subtotal CDFW Funded Labor & Vehicles	\$116,048
<b>SAWA Labor &amp; Supplies</b>	\$1,217,006.00
Total Program Cost	\$1,333,054
Minus Total CDFW Cost	- \$116,048
<b>Grand Total RCA Cost</b>	<b>\$1,217,006.00</b>

## 9 CONTACT INFO

The FY 2018-19 Work Plan and Cost Estimate was prepared by the Monitoring Program Administrator and was submitted to the Regional Conservation Authority for approval. For more information, contact:

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