**WESTERN RIVERSIDE COUNTY MSHCP**

**BIOLOGICAL MONITORING PROGRAM**

**FY 2025-26 WORK PLAN AND COST ESTIMATE**

# INTRODUCTION

The overall goal of the Biological Monitoring Program is to collect data on the 146 Covered Species and associated habitats for the purpose of assessing the Western Riverside County Multiple Species Habitat Conservation Plan’s (MSHCP) effectiveness at meeting conservation objectives and to provide information for adaptive management. The activities described in this work plan for Fiscal Year (FY) 2025-26 continue the activities commenced in the previous fiscal year and follow the framework outlined in Section 5.3 of the MSHCP.

# RESPONSIBILITIES

Biological 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 Biological 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 Biological 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.

# IMPLEMENTATION STRATEGY

The Biological 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 Biological 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% 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 Biological 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 habitats (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.

# STAFF COMPOSITION

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

* Monitoring Program Manager (Administrator)
* Biologist Supervisor
* Data Manager
* GIS Analyst (part-time)
* Administrative Assistant (part-time)
* Taxa Leads
* Field Biologists

Currently, the majority of staff are funded by the RCA through a contract with SAWA, a local non-profit organization. In FY 2025-26, one Taxa Lead is currently provided by the CDFW, with endowment funding from Caltrans.

# SPECIFIC TASKS OF THE BIOLOGICAL MONITORING PROGRAM

## Administration & Coordination

Administering and coordinating the Biological Monitoring Program requires a significant amount of effort. Sufficient staff and resources must be acquired, fieldwork must be scheduled, land access must be coordinated with other agencies, and survey activities must take place. The Monitoring Program Manager, 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
* 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 Monitoring Program operations manual
* Oversee writing of annual survey reports
* Distribute Monitoring Program data as appropriate

## Biological Surveys

Conducting biological surveys is the most visible part of the Biological Monitoring Program. It is also the component that requires the most staff. Prior to collecting data, all aspects of a survey 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

## Training

The Biological 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 (MSHCP, 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 field staff:

* Endangered species identification and handling if necessary
* Species or habitat-specific protocol training
* Local flora and fauna identification
* Wilderness first aid and CPR training
* Defensive driver training
* Sexual harassment training

## Data Management & Reports

All the data collected by the Biological Monitoring Program must be carefully managed. Prior to field work, data forms are developed, and survey locations are mapped. Field data is collected both on paper datasheets and on digital data collection devices. As data returns from the field, they are entered into a database, checked for accuracy, and certified by the Data Manager. After data are certified, they are proofed by the taxa leads, 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 where appropriate
* Annual survey report writing
* Maintaining computer equipment and digital data collection devices

The Biological 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.

# MONITORING EFFORTS IN FY 2025-26

Biological Monitoring Program activities planned for FY 2025-26 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 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 Biological 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 and staff availability and the extent of effort required is also considered when determining monitoring activity priorities. Biological 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 2054-26, along with a brief rationale for surveys, is provided below. Some surveys (e.g. Vernal Pool) are dependent on current weather conditions and may not be performed if optimal conditions do not exist. Detailed survey methods can be found in the survey protocols available at the Biological Monitoring Program office in Riverside, CA and on the RCA website at https://www.wrc-rca.org/survey\_protocols/. 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.

## Birds

Burrowing Owl Burrow Artificial Burrow Monitoring and Pair Counts

The species objectives for Burrowing Owl require the conservation of five Core Areas plus interconnecting linkages, containing a total breeding population of approximately 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. In FY 2025-26, continued monitoring of artificial burrows installed across the Conservation Area will be conducted three times per year as specified by 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 2025-26 to document distribution and reproduction of Burrowing Owl at artificial or natural burrow locations. Biological Monitoring Program biologists will coordinate with Reserve Managers to avoid duplication of effort.

Golden Eagle Survey and Nest Searching

The species objective for Golden Eagle requires the continued use of and successful reproduction at known nesting locations every eight years. Biological Monitoring Program biologists conducted Golden Eagle surveys in 2017 as part of a regional USGS Golden Eagle survey effort in southern California. However, the objective was not met. In the first part of FY 2025-26, biologists will regularly visit known nest locations during the nesting season pending staff availability, or if funding is secured to hire a contracted biologist.

Riparian Bird Surveys and Nest Monitoring

The species objectives for Least Bell’s Vireo, Southwestern Willow Flycatcher, and Western Yellow-billed Cuckoo require continued use and successful reproduction within Core Areas once every three years. Surveys to target the above species in accessible riparian habitat within designated Core Areas began in FY 2022-23 and continued into FY 2023-24. The next monitoring period, then, is due to begin in FY 2025-26. Nest searching to demonstrate successful reproduction will occur in conjunction with the detection survey. Distribution and reproduction data for all other covered riparian bird species with longer reporting requirement intervals will also be recorded as observed during the focused effort to detect the three aforementioned species.

Lincoln’s Sparrow

The species objectives for Lincoln’s Sparrow require the species to maintain occupancy within three Core Areas at least every five years. The Core Areas may include Tahquitz Valley (outside of the Plan Area), Round Valley (outside of the Plan Area), and Garner Valley. Biologists in 2025 will survey for the species in July and August (FY 2025-26) within suitable habitat in the Garner Valley Core Area. We will conduct repeat-visit point-count surveys that will include conspecific playbacks.

Loggerhead Shrike

The species objectives for Loggerhead Shrike require surveys every eight years to demonstrate continued use and successful reproduction within 75% of designated Core Areas. Loggerhead Shrikes were last surveyed in 2018 and surveyors detected shrikes in seven (87.5%) and successful reproduction was detected in four (50%) of their Core Areas. Biological Monitoring Program biologists will conduct repeat-visit line-transect surveys in suitable Core Area habitat beginning in FY 2025-26 and continuing into FY 2026-27 and will monitor any detected nests to confirm successful fledging.

Northern Harrier Surveys

The species objectives for Northern Harrier require the conservation of seven Core Areas plus two additional areas and maintain the continued use of and successful reproduction in 75 percent of the known nesting areas every five years. Targeted surveys for Northern Harrier were last conducted in FY 2019-20. Because the species nests near the ground in dense, shrubby vegetation, nests are unlikely to be incidentally observed. Additionally, because of the relatively high number of listed Core Areas, Northern Harrier is ill-suited to opportunistic monitoring in conjunction with surveys for other Covered Species, thus making a targeted survey necessary. In FY 2025-26 and pending staff availability, surveys will be conducted along line transects within appropriate habitat in the Conservation early in the breeding season. Observers will return later in the season to confirm the presence of fledged Northern Harriers. These surveys will begin in FY 2024-25 and continue into FY 2025-26.

Turkey Vulture Survey and Nest Monitoring

The species objective for Turkey Vulture requires the continued use of and successful reproduction at two known nesting locations, and any subsequently documented nesting locations, every three years. Targeted surveys for Turkey Vulture were last conducted in 2022. In FY 2025-26 and pending staff availability, biologists will regularly visit known nest locations during the nesting season.

White-tailed Kite

The species objectives for White-tailed Kite require surveys every three years to demonstrate continued use and successful reproduction within 75% of designated Core Areas. White-tailed Kites were last surveyed in 2023 and surveyors detected kites in four (40%) and successful reproduction was detected in none (0%) of their Core Areas. Monitoring Program biologists will conduct repeat-visit line-transect surveys in suitable Core Area habitat beginning in FY 2025-26 and continuing into FY 2026-27, and will monitor any detected nests to confirm successful fledging.

* 1. **Mammals**

San Bernardino Kangaroo Rat Trapping and Habitat Surveys

San Bernardino kangaroo rat is narrowly distributed within the Plan Area. The species-specific objectives require that at least 75% of the assumed 4,440 acres of suitable habitat in the Conservation Area be occupied and that at least 20% of the occupied area have a density of at least five animals per hectare. Biological Monitoring Program targeted surveys, to determine the current distribution and density of San Bernardino kangaroo rat within the historic flood plains of the San Jacinto River and Bautista Creek and their tributaries, began in late FY 2014-15 and continued to FY 2015-16. The FY 2024-25 and FY 2025-26 effort will focus on documenting SBKR distribution, via live-trapping surveys in conjunction with agency designated region-wide surveys. Habitat surveys will be conducted concurrently.

Aguanga Kangaroo Rat Trapping and Habitat Surveys

Aguanga kangaroo rat is narrowly distributed within the Plan Area. The species-specific objectives require that at least 75% of the assumed 5,484 acres of suitable habitat in the Conservation Area be occupied and that at least 20% of the occupied area have a density of at least five animals per hectare. Biological Monitoring Program targeted surveys, to determine the current distribution and density of Aguanga kangaroo rat within the historic flood plains of Temecula Creek and Wilson Creek and their tributaries, began in late FY 2010-11 and continued to FY 2016-17. The FY 2025-26 effort will focus on documenting AKR distribution, via live-trapping surveys. Habitat surveys will be conducted concurrently.

Carnivore Surveys (Moreno Valley Wildlife Undercrossings and Anza Knolls)

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 but have not taken place in recent years, with the exception of camera monitoring at the Moreno Valley Wildlife Crossings. Surveys will recommence in FY 2025-26, primarily using motion-triggered cameras to record images of target species. In addition to, or in place of, motion-triggered cameras, we will visit habitat blocks, linkages, and corridors and conduct area search surveys focusing on documenting use through signs (discernible tracks and scat) of these Covered carnivore species.

## Amphibians and Reptiles

Amphibian Stream Surveys (Arroyo Toad)

Species objectives for Arroyo Toad, Mountain Yellow-legged Frog, California Red-legged Frog, and Coast Range Newt require documentation of successful breeding populations within their respective Core Areas at least every five or eight years. California Red-legged Frog were extirpated from the Plan Area with no individuals observed by Biological Monitoring Program biologists or reliably reported to the Monitoring Program since 2004. U.S. Geological Survey is currently conducting a translocation study of this species to re-introduce them to the Plan Area at Santa Rosa Plateau. Ongoing efforts carried out by the U.S. Forest Service and U.S. Geological Survey largely account for Mountain Yellow-legged Frog survey needs. Therefore, recent survey priority has been given to streams within Core Areas with appropriate habitat for Arroyo Toad (species objective was not met during Inventory Phase) and Coast Range Newt (objective met in 2020). Biological Monitoring Program surveys for Arroyo Toads began in FY 2023-24 and are expected to continue in FY 2025-26, if conditions (i.e., adequate rainfall) allow. Surveys for stream-dependent amphibians are ongoing when the conditions are appropriate, and may be in conjunction with efforts carried out by the U.S. Forest Service and U.S. Geological Survey.

Drift-fence Camera Trap Surveys

Traditional drift fence surveys for amphibians and reptiles use pitfall traps, funnel traps, and box traps to capture live animals. Instead of using live trapping methods, we will use commercial trail cameras with adjusted focal lengths to capture images of reptiles, amphibians, and mammals. Using drift fence surveys with camera traps instead of traditional traps decreases the chances of mortality of animals from exposure, drowning, or predation while in the trap. Additionally, surveying with drift fence camera traps reduces survey effort as cameras only need to be checked once a month while pitfall, funnel, and box traps need to be checked daily. We plan to use drift fence camera traps in locations within the Plan Area that receive minimal survey effort and for Covered Species that are difficult to observe with traditional survey efforts. For FY 2025-26, we will have two drift fence camera trap arrays. Covered Species of interest include San Diego Mountain Kingsnake, San Bernardino Mountain Kingsnake, Northern Red Diamond Rattlesnake, Rubber Boa, Belding’s Orange Throated Whiptail, and San Diego Banded Gecko.

Artificial Cover Surveys

Many reptile species use microhabitats under natural objects such as rocks and logs to regulate body temperature and prevent desiccation. Placing artificial cover objects in the vicinity of areas with high quality habitat allows surveyors an increased opportunity for species detection without disturbing the natural habitat by providing the artificial cover objects to be used in place of natural objects. San Diego Mountain Kingsnake, San Bernardino Mountain Kingsnake, Northern Red Diamond Rattlesnake, and San Diego Banded Gecko have proven difficult to detect. We plan on using artificial cover surveys to help bolster the number of species occurrences in Core Areas. The species objectives for these species require documentation of the continued use of 75% of their respective Core Areas at least once every eight years. Survey efforts will continue using artificial cover for these covered species in FY 2025-26. Incidental observations from Biological Monitoring Program biologists and partnering agencies will continue to be essential. Incidental observations can be particularly helpful at documenting Covered Species in Core Areas where they have not been historically documented to occur. Biological Monitoring Program biologists will opportunistically search suitable habitat within Core Areas for these species during artificial cover surveys and when personnel are available. These visual encounter surveys may result in detections of other Covered Species, such as Belding’s Orange-Throated Whiptail, Coastal Western Whiptail, Granite Spiny Lizard, Granite Night Lizard, and San Diego Horned Lizard.

Western Pond Turtle Surveys

The species-specific Monitoring Objective for Western Pond Turtles within the MSHCP requires maintaining occupancy within at least 75% of the eight listed Core Areas as measured once every three years. The eight Core Areas for Western Pond Turtles listed in the MSHCP include Cajalco Creek, Chino Creek, Murrieta Creek, San Jacinto River, San Mateo Creek, Santa Ana River, Santa Rosa Plateau, and Temecula Creek. The Core Areas include a two-kilometer (km) buffer of upland habitat and tributaries around the water bodies. In FY 2024-25, the Monitoring Program detected Western Pond Turtles in three Core Areas (San Mateo Creek, Murrieta Creek, and Temecula Creek). We plan to continue surveys in FY 2025-2026 to detect Western Pond Turtles in additional Core Areas and locations.

## Western Spadefoot Surveys (Vernal Pool)

## The species objectives for Western Spadefoot require maintaining successful reproduction at 75% of conserved breeding locations as measured once every eight years. Biological Monitoring Program surveys for Western Spadefoot are conducted as part of the Vernal Pool monitoring program in conjunction with covered Fairy Shrimp surveys. Surveys targeting Western Spadefoot in FY 2025-26 will be augmented to better address the species objectives. To help meet species objectives in FY 2025-26, additional surveys for Western Spadefoot will occur outside of vernal pool areas in Core Areas and conserved breeding locations to determine presence and breeding activity for this species. With adequate rainfall, isolated pools, road ruts, and creeks that do not strictly follow the definition of vernal pools will be surveyed to capture additional potential habitat.

## Plants

### Rare Plant Surveys

### 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 2025-26 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 2025-26 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. Additionally, annual monitoring of Brand’s Phacelia, a narrowly endemic Covered Species, will continue in FY 2025-26 in an area along the Santa Ana River near Rancho Jurupa. Population and phenology checks will occur a few times throughout the growing season to ensure population stability and monitor for threats from invasive species (namely stinknet). Biological Monitoring Program biologists will continue to coordinate with Riverside County Parks and Open Space District staff to ensure that the management plan, based on recommendations in the 2022 habitat enhancement study, is successfully implemented.

Engelmann Oak Surveys

Engelmann Oak is one of 63 rare plant species covered by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). Within Riverside County, Engelmann Oak largely occurs in the vicinity of the Santa Rosa Plateau Ecological Reserve (SRP). Additional populations are present within the San Mateo Canyon Wilderness (Cleveland National Forest), Southwestern Riverside County Multi-Species Reserve (Multi-Species Reserve, MSR), the Santa Margarita Ecological Reserve (SMER), Bautista Canyon and Wilson Valley. Engelmann Oak monitoring in FY 2025-26 will continue long-term monitoring efforts as per the requirements outlined in Objective 3 and Table 5.8 of the MSHCP document. Objective 3 requires the maintenance of recruitment at a minimum of 80% of the conserved populations as measured by the presence/absence of seedlings and/or saplings across any consecutive five years (Dudek & Associates 2003). Additionally, Table 5.8 - Summary of Survey Requirements for Covered Species, requires a minimum level of 80% occupancy of 33 historic locations (Dudek & Associates 2003). In addition to measuring the presence/absence of seedlings and saplings at long-term established plots, we will continue to learn about the successful regeneration of Engelmann oak populations by quantifying change in abundance of oaks in different age classes and by tracking the growth of seedlings and saplings into adult trees through time. This methodology provides a fuller picture of population health and long-term populations trends

## Invertebrates

### Quino Checkerspot Butterfly Surveys

### The species objectives for Quino Checkerspot Butterfly (Quino) require annual documentation of its distribution. The Monitoring Program has surveyed for Quino in the Conservation Area during the last 20 biological years. In FY 2025-26, survey efforts will focus on monitoring locations in designated Core Areas and Satellite Occurrence Complex Areas throughout the Conservation Area, in addition to other areas of potential occupancy that have not been surveyed in the past. Biological Monitoring Program biologists will coordinate with Reserve Managers conducting surveys for Quino to avoid duplication of effort.

Delhi Sands Flower-Loving Fly Surveys

The species objectives for Delhi Sands Flower-Loving Fly (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 of 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, Biological Monitoring Program biologists have surveyed for Delhi Fly within the lone accessible Core Area annually during the last 20 years.

Surveys designed to collect data that could be used to calculate density estimates of Delhi Fly were conducted from 2005-2010. In 2011, these efforts were reduced to simply documenting successful reproduction, greatly reducing necessary resources. However, the Land Management Program has been conducting ongoing management actions to control the spread of non-native vegetation within occupied habitat and to create suitable 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 and will continue in FY 2025-26.

### Fairy Shrimp Survey (Vernal Pool)

The species objectives for the three species of fairy shrimp (i.e., Santa Rosa Plateau, Riverside, and Vernal Pool) require the continued use of listed Core Areas at least once every eight years. Ongoing fairy shrimp surveys may be conducted in vernal pools within Core Areas if there is adequate rainfall in FY 2025-26.

# SCHEDULE OF MONITORING EFFORTS FOR FY 2025-26

Below is a tentative calendar of when surveys are planned for FY 2025-26. Some surveys (e.g. Vernal Pool) are dependent on current weather conditions and may not be performed if optimal conditions do not exist. 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 2024-25.



# BIOLOGICAL MONITORING PROGRAM COST ESTIMATE FOR FY 2025-26

The RCA has primary responsibility for funding the MSHCP Biological Monitoring Program. However, the CDFW funds a small portion of the MSHCP Biological Monitoring Program based on the availability of the State’s budget. The proposed FY 2025-26 Biological Monitoring Program budget is similar to the previous budget 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.

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| **ALLOCATION** | **COST** |
| **CDFW Funded Labor & Supplies** |  |
| Biologist | $203,160 |
| Vehicle Usage (Fuel & Maintenance) | $3,500 |
| Subtotal CDFW Funded Labor & Vehicles | $206,660 |
| **SAWA Labor & Supplies** |  |
| Routine Biological Monitoring Tasks |  $2,215,715 |
| Total Program Cost | $2,422,375 |
| Minus Total CDFW Cost |  $206,660 |
| **Total RCA Cost** | **$** **2,215,715** |

# Contact Info

The FY 2025-26 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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