

**WESTERN RIVERSIDE COUNTY MSHCP
BIOLOGICAL MONITORING PROGRAM
FY 2010-11 WORK PLAN AND COST ESTIMATE**

1.0 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 2010-11 continue the activities commenced in the previous fiscal year and follow the framework outlined in section 5.3 of the MSHCP. Fiscal Year 2010-11 is the seventh fiscal year and the sixth biological year of a five to eight year inventory phase of the Biological Monitoring Program.

2.0 RESPONSIBILITIES

The Biological Monitoring Program is implemented within the MSHCP Conservation Area on lands that are owned and managed by the various MSHCP participants. To ensure consistency in monitoring efforts throughout the Conservation Area, the Biological Monitoring Program is overseen and implemented by a Monitoring Program Administrator selected by the Western Riverside County Regional Conservation Authority (RCA). The duties and responsibilities of the Monitoring Program Administrator are described in Volume 1, Section 6.6.6 of the MSHCP. As per the MSHCP, the California Department of Fish and Game (CDFG) is the Monitoring Program Administrator for the first eight years of the permit.

Due to State budget issues and hiring rules, the CDFG has been unable to fill the Monitoring Program Administrator position. In 2007 the CDFG received a federal State Wildlife Grant to support its role as the Monitoring Program Administrator and develop a Long-term Monitoring Strategy Document. The term of the grant ends in September 2011. The entire grant has not been expended. The RCA has primary responsibility for funding the Biological Monitoring Program. The DFG has contracted with the RCA to provide the remaining portion of the grant to administer the Monitoring Program and develop the Long-term Monitoring Strategy Document. The CDFG is continuing to provide staff and resources to support and contribute to the efforts of the Monitoring Program.

In the absence of a Department Monitoring Program Administrator, the RCA has contracted with the Santa Ana Watershed Association for a person to fill the role of the Monitoring Program Administrator. The RCA works closely with the Monitoring Program Administrator to develop and implement the annual work plan and budget. The annual work plan is carried out by the Monitoring Program Administrator using CDFG staff and staff contracted by the RCA.

3.0 IMPLEMENTATION STRATEGY

The Biological Monitoring Program is responsible for monitoring the status and trend of the 146 Covered Species and associated species and habitats over a 500,000 acre Conservation Area. Because there is little existing scientifically-based data for the majority of Covered Species, the first eight years of the Biological Monitoring Program are devoted to an inventory phase. The purpose of the inventory phase is to determine where Covered Species occur within the Conservation Area, gather more information on their activity patterns, and develop efficient protocols for detecting them. The development of protocols is necessary to test the reliability of survey methods, to determine whether a species is present in an area, and, if not detected, to provide a confidence level that the species is not present.

One of the 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 habitat (e.g., willow riparian) 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.

4.0 STAFF COMPOSITION

Biological 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
- Monitoring Program Coordinator
- Lead Biologists
- Taxa Program Leads
- General Field Crew, bird specialization
- General Field Crew, mammal specialization
- General Field Crew, amphibian & reptile specialization
- General Field Crew, invertebrate specialization
- General Field Crew, plant specialization
- Database Manager
- GIS Analyst
- Office Manager

Currently, the majority of staff is funded by the RCA through a contract with the Santa Ana Watershed Association (SAWA), a local non-profit agency. Additional staff will be hired through SAWA and funded by the State Wildlife Grant. One Program Lead and 12 field crew are funded by the Department of Fish and Game.

5.0 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, Lead Biologists, and Office Manager 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 training manuals and training programs for staff
- Direct and schedule staff activities
- Identify field supply and equipment needs; submit orders; maintain inventory, including vehicles
- Identify land access needs and coordinate with agencies on access agreements
- Facilitate monthly reserve management/monitoring coordination meeting
- Attend monthly RCA team meetings and other agency meetings
- Give occasional presentations to the RCA Board
- Coordinate with Wildlife Agencies on survey methodology and monitoring activities
- Develop the operations and implementation manuals
- Oversee production of annual survey reports
- Distribute Monitoring Program data as appropriate

5.2 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 project must be developed. This task 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, Lead Biologists, GIS Analyst, Database Manager, Taxa Program Leads, and Field Crew:

- Develop protocols and sampling designs
- Implement focused species surveys
- Conduct community surveys for multiple species
- Conduct vegetation 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, handling procedures, and appropriate experience with Covered Species (Vol. 1, Sec. 7.0). The types of species training needed in any given year is dependent on the types of survey activities planned; however, safety training (e.g., first aid, CPR) is provided every year. 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). The following training is required of monitoring 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. As data return from the field, they are entered into a database and checked for accuracy. After data collection is completed, the data are analyzed 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 Database Manager supports and oversees all 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
- Data entry and quality control
- Data analysis, statistics
- Project summary reports
- Annual report
- Maintain computer equipment and database

The Monitoring Program has an internal database, developed and managed by the Database Manager. Monitoring Program data are sent to the Biological Information and Observation System (BIOS), a state-wide database maintained by the CDFG, at least once a year.

6.0 MONITORING EFFORTS IN FY 2010-11

The Biological Monitoring Program activities planned for FY 2010-11 are largely based on the requirements of the MSHCP species objectives found in Volume 2 of the MSHCP. The 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 on our part), 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). Funding availability is also considered when deciding on monitoring activities.

An overview of the monitoring efforts planned for FY 2010-11 along with rationale for surveys is provided below. Details of survey methodology 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 dependant upon revenue flow at the RCA and the budget of the CDFG.

6.1 Invertebrates

6.1.1 Quino Checkerspot Survey

The species objectives for Quino checkerspot require the documentation of its distribution on an annual basis. The Monitoring Program has surveyed for Quino checkerspot in the Conservation Area during the last six biological years. In FY 2010-11 surveys efforts will focus on improving our understanding of patch occupancy and distribution.

6.1.2 Delhi Sands Flower-Loving Fly Survey

The species objectives for Delhi fly require documenting successful reproduction by this species at all three Core Areas identified in the MSHCP every year for the first five years of the permit. The Monitoring Program has surveyed for the Delhi fly within its accessible Core Area during the last six biological years. Surveys for the Delhi fly will continue in FY 2010-11.

6.2 Birds

6.2.1 Golden Eagle.

The species objectives for golden eagle require verification of reproduction in identified nesting or Core Areas. Surveys will be made to locate nesting pairs. Nests will be monitored to verify reproductive success. Monitoring Program staff will coordinate with the local raptor community to take advantage of existing information and maximize efficiency.

6.2.2 Riparian Bird Survey and Nest Searching

The species objectives for the following species require the MSHCP to maintain continued use and successful reproduction within Core Areas once every 3 or 5 years: least Bell's vireo, willow flycatcher, yellow warbler, yellow-breasted chat, yellow-billed cuckoo. There are eight other covered bird species that occur in riparian areas that can be detected using the same survey protocol. The FY 2010-11 surveys for all riparian covered bird species will be the second such effort. The first effort was completed in FY 2007-08. Surveys will be conducted in accessible riparian habitat and Core Areas within the Conservation Area. Nest searching to demonstrate successful reproduction of the above species will occur in conjunction with the riparian bird survey.

6.2.3 Coastal Sage Scrub Bird Survey and Nest Searching

The species objectives for California gnatcatcher require the MSHCP to maintain continued use and successful reproduction within Core Areas once every 3 years. There are 3 other covered bird species that occur in coastal sage scrub that can be detected using the same survey protocol. Surveys in FY 2010-11 for all coastal sage scrub covered bird species will continue efforts begun in FY 2007-08 and will be conducted in accessible sage coastal scrub habitat and Core Areas within the Conservation Area. Nest searching to demonstrate successful reproduction of the California gnatcatcher will occur in conjunction with the coastal sage scrub bird survey.

6.2.3 Burrowing Owl Survey

The species objectives for the burrowing owl require the MSHCP to conserve 5 Core Areas plus interconnecting linkages, all containing a breeding population of 120 owls with no fewer than 5 pairs in any one Core Area. Surveys for the burrowing owl were conducted by the Monitoring Program in FY 2006-07 and FY07-08. Since then several land managers have begun to manage vegetation for burrowing owl and additional lands have been acquired for conservation. Surveys will focus on areas that were not surveyed in previous efforts and areas being managed for burrowing owl. The surveys will be conducted using a protocol that can detect 5 other co-occurring covered bird species, including grasshopper sparrow.

6.3 Amphibians and Reptiles

6.3.1 Stream Surveys

The species objectives for arroyo toad require the maintenance of 80% of the breeding locations within the Conservation Area as measured across any consecutive five year period. Surveys for stream-dependent amphibians in FY 2010-11 will be conducted in accessible habitat within the Conservation Area in

conjunction with efforts carried out by the U.S. Forest Service and U.S. Geological Survey. Priority will be given to streams with appropriate habitat for arroyo toad.

6.4 Mammals

6.4.1 Los Angeles Pocket Mouse Trapping

The species objectives for Los Angeles pocket mouse require the Monitoring Program to demonstrate that Los Angeles pocket mouse populations are stable or increasing in seven Core Areas and that at least 4,200 acres are occupied every eight years. This species objective requires distribution and population trend information. It will take more than one year's survey effort to determine whether or not this objective is being met. The FY 2010-11 surveys are a continuation of survey work began in FY 2009-10 efforts will focus on getting distribution information. The distribution for the FY 2009-10 trapping effort will be compared to the distribution from the FY 2010-11 trapping effort to begin to address the 'stable or increasing' portion of the species objective.

6.4.2 San Bernardino Kangaroo Rat and Aguanga Kangaroo Rat

Both of these species are narrowly distributed in the Plan Area. It is expected that they will be detected during FY 2009-10 Los Angeles pocket mouse survey efforts. The species objectives for both kangaroo rats require that 75 percent of the suitable habitat in the conservation Area be occupied and that at least 20 percent of the occupied area have a density of 5 to 15 animals per hectare. FY 2010-11 survey efforts will build on the information gained in the 2009-10 effort to begin to address the species objectives for these kangaroo rats.

6.4.3 Carnivore Surveys

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. In 2007 and 2008, the Monitoring Program developed methodologies and began surveys to detect the above-listed mammals in the contiguous habitat blocks, linkages and movement corridors identified by the MSHCP. The work in the contiguous habitat block is finished. Work on the linkages will continue opportunistically in FY 2010-11.

6.5 Plants

6.5.1 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 2010-11 will continue efforts that began over three years ago to determine the status of each species at known recorded sites on

accessible lands within the Conservation Area. The focal species are dependent on weather conditions and accessibility of recorded sites.

6.5.2 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. Surveys for Engelmann oaks in FY 2010-11 will continue efforts that began in FY 2005-06 to measure recruitment within accessible lands in the Conservation Area.

6.5.3 Vegetation Surveys

Vegetation surveys are a part of every project conducted by the Monitoring Program. The purpose of vegetation surveys is to quantify the habitat within survey areas to gain a better understanding of where species do and do not occur.

6.5.4 Coastal Sage Scrub and Chaparral Surveys

The MSCHP requires the Monitoring Program to assess the condition of vegetation communities within the Conservation Area (Vol. 1, Sec. 5.2.3). In FY 2010-11 we will undertake the second year of a pilot effort to monitor coastal sage scrub and chaparral vegetation communities. The Monitoring program coastal sage and chaparral monitoring effort developed out of a pilot effort that began in 2008 to sample coastal sage scrub and chaparral communities done in cooperation with Dr. Deutschman of San Diego State University and the San Diego Multiple Species Conservation Plan and Central Orange County Natural Communities Conservation Plan.

6.6 Fish

6.6.1 Arroyo Chub and Santa Ana Sucker

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 FY 2010-11 is a continuation of the effort began in FY 2009-10 and will conclude early in the fiscal year. The Monitoring Program will conduct surveys in the Core Areas in the Santa Margarita watershed. In the Santa Ana watershed, the Monitoring Program will complement the work of other local groups conducting native fish surveys.

7.0 SCHEDULE OF MONITORING EFFORTS FOR FY 2010-11

Below is a tentative calendar of when surveys are planned for FY 2010-11. 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 2008-09 (e.g., Native fish surveys begin in May 2010).

Survey	Jul 10	Aug10	Sep10	Oct10	Nov10	Dec10	Jan11	Feb11	Mar11	Apr11	May11	Jun11
Quino Checkerspot Survey												
Delhi Fly Survey												
Golden Eagle Survey												
Coastal Sage Scrub Birds												
Riparian Birds												
Burrowing Owl												
Amphibian Stream Survey												
Los Angeles Pocket Mouse												
Carnivore Survey												
Rare Plant Survey												
Engelmann Oak Study												
Vegetation Survey												
CSS Monitoring Study												
Native Fish Survey												

8.0 BIOLOGICAL MONITORING PROGRAM COST ESTIMATE FOR FY 2010-11

The FY 2010-11 proposed Biological Monitoring Program Budget is similar to previous budgets submitted to and approved by the RCA Board of Directors. The CDFG funds a portion of the Biological Monitoring Program based on the availability of the State's budget. The DFG has provided a portion of the State Wildlife Grant it was awarded in 2007 to the RCA to fund monitoring program activities and the development of a long-term monitoring strategy. The RCA has primary responsibility for funding the Biological Monitoring Program. The majority of funding is allocated to contracts for monitoring staff.

ALLOCATION	COST
CDFG Funded Labor & Supplies	
Biologist	53,004
General Field Crew (Scientific Aides)	216,280
Vehicle Usage (Fuel & Maintenance)	68,000
Field Supplies & Equipment	62,000
Subtotal CDFG Funded Labor & Supplies	\$398,284
RCA Funded Contracts	
Santa Ana Watershed Association (staff)	680,110
Subtotal RCA Funded Contracts	\$680,110
State Wildlife Grant	
Santa Ana Watershed Association Contract (staff)	634,205
Subtotal State Wildlife Grant	\$634,205
RCA Funded Operating Expenses & Equipment	
Rent – Lease Buildings	83,761
Equipment (Fixed Assets)	8,000
Office Equipment & Misc. (Non-fixed Assets)	4,000
Office Supplies	2,000
Communications (Phones/DSL)	3,500
Maintenance – Computer Equipment	1,000
Training – Other	5,000
Subtotal RCA Funded O&E	\$107,261
Total Program Cost	\$1,819,860
Minus Total CDFG Cost	- \$398,284
Minus State Wildlife Grant	- \$634,205
Grand Total RCA Cost	\$787,371

9.0 Contact Info

The FY 2010-11 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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