

1.0 INTRODUCTION

The Multiple Species Conservation Program (MSCP) is a comprehensive habitat **conservation** planning program which addresses multiple species habitat needs and the preservation of natural communities in southwestern San Diego County. Jurisdictions and special districts participating in the MSCP have prepared or are preparing **subarea** plans which identify preserve areas and compatible land uses within and adjacent to preserves. It is important to maintain biological values of preserve areas over time by reducing human-related causes of species extirpations. Biological monitoring will evaluate whether the preserve system is meeting subarea plan conservation targets for covered plant and animal species and their habitats, identify threats to **covered** species and habitats, and help prioritize management needs. Habitat management plans prepared as part of subarea plans should coordinate with this biological monitoring plan to achieve maximum efficiency. In addition to this biological monitoring program, local jurisdictions and special districts will provide an annual accounting of the amount, type, and location of habitat conserved and destroyed (taken) by permitted land uses and other activities.

1.1 RESPONSIBILITIES AND COORDINATION OF EFFORTS

The MSCP participating jurisdictions and special districts have prepared or are preparing habitat management plans and are responsible for implementing these plans. The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) will oversee the biological monitoring program. A critical factor in the success of the biological monitoring program will be the coordination of monitoring efforts throughout the MSCP study area to ensure spatial and temporal consistency in data collection and analysis, and to allow compilation of data from different sources into comprehensive monitoring reports every three years. It also will be important to establish a centralized data storage repository, with data accessible to biological monitors, researchers, and reviewers, and to coordinate with monitoring programs in other **subregions**.

1.2 BIOLOGICAL MONITORING OBJECTIVES

Biological monitoring focuses on detecting changes in habitat quality and population trends in those habitats and plant and animal species considered covered by the MSCP. The successful maintenance of these resources will be measured against specific habitat acreages **and/or** species populations, as documented in the subarea plans and implementing

agreements of participating jurisdictions and special districts. Permit holders and the wildlife agencies will have detailed maps providing locations of habitats and covered species populations included in the preserve **and/or** targeted for conservation.

Specific biological monitoring objectives include the following:

1. Document the protection of habitats and covered species as specified in **subarea** plans and implementing agreements. This will be accomplished by tracking permanent habitat losses (Section 3.2) and covered species (Section 5.0).
2. Document changes in preserved habitats or preserved populations of covered species. This will be accomplished through monitoring temporary habitat changes (Section 3.3), habitat value (Section 3.4), and covered species (Section 5.0).
3. Describe new biological data **collected**, such as new **species** sightings and information on wildlife movements and corridors. Although not the focus of the monitoring program, collection of new biological data will occur during corridor monitoring (Section 4.0) and covered species monitoring (Section 5.0). This information will be disseminated through the **reporting program** (Section 6.0).
4. Evaluate impacts of land uses and construction activities in and adjacent to the preserve. Impact evaluation will occur on both a landscape level (tracking permanent habitat losses, Section 3.2) and a local level (monitoring habitat value, Section 3.4; corridor monitoring, Section 4.0; covered species monitoring, Section 5.0). Results of this evaluation will be presented in periodic reports (**reporting program**, Section 6.0) and correcting actions implemented through the remediation and adaptive management program (Section 7.0).
5. Evaluate management activities and enforcement difficulties. An assessment of the effectiveness of specific management and enforcement activities will occur through the habitat monitoring (Section 3.0), corridor monitoring (Section 4.0), and covered species monitoring (Section 5.0) components of this program. It should be noted that ongoing efforts of the preserve **manager(s)** will also assess these activities. Management and enforcement issues will be discussed in the reporting program (Section 6.0), along with remediation or adaptive management strategies, as necessary (Section 7.0).

6. Evaluate funding needs and the ability to accomplish resource management goals. An assessment of funding needs and management goals will be provided every three years, as specified in the reporting program (Section 6.0). Accomplishment of management goals will be measured against specific habitat and species conservation targets set forth in subarea plans and implementing agreements.

Because of budgetary limitations, the highest priority monitoring tasks will be those (1) that provide direct evidence of human-induced declines in key biological resources and (2) for which corrective or remedial management actions are possible. Refer to Section 7.0 for remediation and adaptive management in those cases where negative or declining trends are identified.

13 EXISTING MONITORING EFFORTS

Several existing monitoring programs are currently being conducted in the **MSCP** study area. The MSCP biological monitoring program attempts to complement existing monitoring efforts by (1) monitoring biological resources not already covered by these programs and (2) utilizing the same or similar study sites and methodologies, to ~~the~~ degree feasible. When existing monitoring efforts are terminated, the wildlife agencies will evaluate the need to incorporate these monitoring efforts into the MSCP monitoring program **and/or** re-prioritize monitoring efforts to continue assessing these resources over time. Existing programs include the following:

1. Autecological' Studies of Coastal Sage Scrub Birds and Small Mammals. This study is being conducted by U.C. Riverside, under contract to the CDFG. This study includes 30 sites in Riverside, Orange, and San Diego counties. Sampling sites within the proposed preserve include the San Diego Wild Animal Park (12 sampling points), Sweetwater River (15 sampling points), and possibly, **Marron** Valley (sampling points not yet determined). This study involves bird **censusing** and small mammal trapping.
2. Autecological Studies of Coastal Sage Scrub Herpetofauna. This study, which is restricted to San Diego County, is being conducted by U.C. San Diego, under contract to the CDFG. Sampling sites within (or near) the proposed preserve areas include **Torrey Pines** State Reserve, **Torrey Pines** Extension, the U.C. Elliott

Reserve, San Diego Wild Animal Park, Little Cedar Ridge (Otay Mountain), Rancho San Diego (same as Sweetwater site, above), and Chula Vista. Although this study is geared towards **herpetofauna**, it will **also** collect incidental data on small mammals.

3. Post-fire Recovery of Coastal Sage Scrub. This study is being conducted by the U.S. Forest Service Pacific Southwest Research Station and Pomona College, under contract to the CDFG. Although 4 sites are located within San Diego County, the only sampling location in the MSCP preserve is in the San Diego Wild Animal Park. This objective of this study is to collect data that can be applied towards adaptive management. Burned and **unburned** stands of coastal sage scrub will be compared over time to determine minimum burn frequencies needed to maintain the desirable composition, cover, and other attributes of the scrub vegetation.
4. Audubon Monthly Bird Surveys. The monthly bird surveys are censuses that provide an indication of long-term trends of bird populations. San Diego County survey locations in or near the MSCP **preserve** include Mission Bay, Los **Peñasquitos** Lagoon, and San **Dieguito** Lagoon.
5. Vernal Pool Studies. Biologists at San Diego State University (SDSU) are currently conducting short- and long-term monitoring of several vernal pools or vernal pool complexes (e.g., **Miramar** Road, Del Mar Mesa, Landmark pools, Otay Mesa (west of Cactus Road), and Murphy Canyon). The Environmental Trust (**TET**) has acquired the responsibilities for monitoring and managing (in perpetuity) some of the vernal pools on Otay Mesa (326 series). Additional pools in the City of San Diego and County of San Diego and selected pools in other jurisdictions will be monitored in conjunction with the proposed National Wildlife Refuge, when established.

Additional short- or long-term monitoring efforts that are proposed or currently in progress include the biota monitoring program for Phase 2 of the Otay Ranch Resource Management Plan, long-term monitoring studies associated with the San Diego County Water Authority, a 5-year monitoring program for the Rancho del Rey development, riparian bird surveys conducted by San Diego State University (San Diego River, Sweetwater River, Tijuana River Estuary), breeding bird surveys conducted by the USFWS (25-mile roadside

census), least tern and clapper rail surveys conducted by the **USFWS** and CDFG, and Christmas bird counts conducted by the **Audubon** Society.

1.4 LIMITATIONS OF MONITORING PROGRAM

The intensity and scale of any monitoring program is ultimately limited by the priorities and resources (funding and staff) made available and considered sufficient to accomplish the stated goals of the program. Since the proposed preserve network may encompass over **164,000** acres, a sampling design that monitors representative sites and focal species within the preserve network was deemed a practical approach to follow. Limitations of the proposed monitoring program include:

- Sampling plots may not be completely representative of the spatial variability found throughout the preserve, thus limiting extrapolation of monitoring data to the **unmonitored** portion of the preserve **network**.
- Focal species monitored at selected sites are assumed to act as indicators of preserve function and are assumed to act as surrogates for other covered species not monitored.
- The sampling interval of each plot ranges from 1 to 5 years. Ability to detect adverse human-caused change or downward trends in population size may require time-series **data** of **relatively-long** duration. For longer sampling intervals, some temporal variation **will** not be measured.
- Qualitative measures of habitat characterization are less precise/accurate than detailed (and time-consuming) quantitative measures.
- Temporal incorporation of sites into the preserve will complicate data collection and analysis.