

**Western Riverside County  
MULTIPLE SPECIES HABITAT  
CONSERVATION PLAN**

**ANNUAL REPORT**

*For the Period*

June 22, 2004 through December 31, 2004



*Submitted by the*

Western Riverside County Regional Conservation Authority  
September 2005

# TABLE OF CONTENTS

<b>Section</b>	<b>Page No.</b>
Executive Summary .....	ES-1
1.0 Introduction .....	1-1
1.1 Overview Of The Plan .....	1-1
1.2 Reporting Requirements .....	1-1
1.3 Successes To Date.....	1-3
1.3.1 Establishment And Activities Of Western Riverside County Regional Conservation Authority (RCA).....	1-3
2.0 Description of Habitat Gains and Losses (Reserve Assembly Activities).....	2-1
2.1 Rough Step Acreage Summaries .....	2-3
2.2 Conservation By Area Plan.....	2-5
2.3 Target Acreage Summaries By Area Plan And Subunit.....	2-14
2.4 Conservation By Jurisdiction.....	2-20
3.0 Activities within Plan Area.....	3-1
3.1 Description of Grading/Building Permit Activity.....	3-1
3.2 Agricultural Lands .....	3-2
3.2.1 Background.....	3-2
3.2.2 Current Status.....	3-2
3.2.3 Work Program.....	3-2
3.3 Public Works Projects.....	3-3
4.0 Special Mechanisms Employed .....	4-1
4.1 Participating Special Entity Permits .....	4-1
4.2 Criteria Refinement.....	4-1
4.3 Memoranda of Understanding with U.S. Forest Service .....	4-1
5.0 Funding Summary .....	5-1
6.0 Management Activities .....	6-1
6.1 Management Goal.....	6-1
6.2 General Management Activities .....	6-1
6.3 Current Personnel.....	6-1
6.4 Properties Managed by the Parks and Open Space District.....	6-2
6.5 Results .....	6-2
6.5.1 Acquisition Scenario.....	6-2
6.5.2 Establishment of Habitat Management Units and Reserves.....	6-4
6.5.3 Habitat Protection .....	6-6
6.5.4 Baseline Management Assessments .....	6-7
6.5.5 Monitoring Coordination .....	6-9
6.6 Future Activities.....	6-9



# TABLE OF CONTENTS

<b>Section</b>	<b>Page No.</b>
7.0	Monitoring Activities ..... 7-1
7.1	Overview ..... 7-1
7.2	Biological goals and objectives of the MSHCP..... 7-1
7.3	Objectives of the Biological Monitoring Program..... 7-1
7.4	Monitoring activities..... 7-2
7.5	Vegetation Mapping and Habitat Assessment ..... 7-2
7.6	Covered Species Surveys..... 7-2
7.6.1	Mountain Yellow-Legged Frog ..... 7-3
7.6.2	Arroyo Toad..... 7-4
7.6.3	California Red-Legged Frog..... 7-4
7.6.4	Reptile Surveys ..... 7-7
7.6.5	Burrowing Owl ..... 7-7
7.6.6	Covered Plant Species..... 7-7
7.6.7	Raptor Surveys..... 7-10
7.6.8	Community Surveys..... 7-10
7.7	Evaluation of Progress Toward Achieving Measurable Objectives ..... 7-14
7.7.1	Covered Amphibian Species..... 7-14
7.7.2	Burrowing Owl ..... 7-14
7.7.3	Covered Plant Species..... 7-16
7.7.4	Community Surveys..... 7-16
8.0	Literature Cited ..... 8-1

## LIST OF FIGURES

Figure 1	Riverside County Location Map..... 1-2
Figure 2	Western Riverside County MSHCP Rough Step Analysis Units ..... 2-2
Figure 3	Rough Step Unit #1..... 2-6
Figure 4	Rough Step Unit #2..... 2-7
Figure 5	Rough Step Unit #3..... 2-8
Figure 6	Rough Step Unit #4..... 2-9
Figure 7	Rough Step Unit #5..... 2-10
Figure 8	Rough Step Unit #6..... 2-11
Figure 9	Rough Step Unit #7..... 2-12
Figure 10	Rough Step Unit #8..... 2-13
Figure 11	Western Riverside County MSHCP Area Plan Boundaries and SubUnits..... 2-15
Figure 12	Habitat Management Units ..... 6-5
Figure 13	Locations of Amphibian Surveys Conducted in 2003 and 2004 ..... 7-5
Figure 14	Locations of Lizard Species Detected During Reptile Surveys in 2003 and 2004..... 7-8



# TABLE OF CONTENTS

<b>Section</b>	<b>Page No.</b>
Figure 15	Locations of Burrowing Owls Detected During Surveys in 2003 and 2004 ..... 7-9
Figure 16	Locations of Covered Plant Species Detected During Surveys in 2003 and 2004 ..... 7-11
Figure 17	Locations of Covered Raptor Species Detected During Surveys in 2003 and 2004 ..... 7-12
Figure 18	Locations of Coastal Sage Scrub Community Sampling Grids Used in 2004 Surveys ..... 7-13
Figure 19	Locations of Riparian Community Sampling Transects Used in 2004 Surveys.... 7-15

## LIST OF TABLES

Table 1	Rough Step Acreage Summary ..... 2-3
Table 2	Conservation By Area Plan..... 2-14
Table 3.	Target Acreage Summary – By Area Plan And Subunit ..... 2-16
Table 4	Conservation By Jurisdiction..... 2-20
Table 5	Grading/Building Permits By Member Agency Issued ..... 3-1
Table 6	Public Works Projects Approved Between June 22 And December 31, 2004 .... 3-3
Table 7	Financial Information For RCA Program Operation ..... 5-1
Table 8	Income By City Within MSHCP Plan Area June 2004 - December 2004 ..... 5-3
Table 9	MSHCP Sites Currently Managed By The Riverside County Parks District ..... 6-3
Table 10	Interim Management Evaluation And Recommendation (Imer) Contents ..... 6-8
Table 11	Mountain Yellow-Legged Frog, <i>Rana Muscosa</i> (Ramu), Survey Locations And Detections In 2003 And 2004. .... 7-3
Table 12	Arroyo Toad, <i>Bufo Californicus</i> (Buca), Survey Locations And Detections In 2004. .... 7-6
Table 13	California Red-Legged Frog, <i>Rana Aurora Draytonii</i> (Raau), Survey Locations And Detections In 2004 ..... 7-6



## EXECUTIVE SUMMARY

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional plan that conserves species and associated habitats to address biological and ecological diversity conservation needs in western Riverside County. The permits were issued on June 22, 2004 by the U.S. Fish and Wildlife Service and California Department of Fish and Game. The MSHCP Planning Area encompasses approximately 1.26 million acres (approximately 1,966.7 square miles) in Western Riverside County. The Western Riverside County Regional Conservation Authority (RCA) assumed administration responsibility for the MSHCP in March, 2004.

The MSHCP requires that the RCA prepare and submit a report of its activities annually. **This report provides a summary of activities for the initial six month reporting period from the date State and Federal permits for the MSHCP were issued, June 22, 2004 through December 31, 2004.** This date was chosen and approved (as directed in the MSHCP) by the Reserve Management Oversight Committee (RMOC) to provide a synopsis of the initial permit implementation period, while also providing a means for future annual reports to occur on a calendar-year basis.

The results presented in this report reflect challenges encountered by the RCA in its first six months of existence. Most of the activities reported herein occurred during the initial stages of RCA operations which affected the standardization of data tracking and reporting. The first permanent RCA staff was not in place until August, 2004 and a new General Manager did not begin until October 14, 2004. The Agency is still in the process of adopting policies and procedures to meet operational requirements of the plan. Several data reporting/tracking anomalies were noted during preparation of this annual report. First, “loss” calculations likely report “losses” that occurred prior to the June 22, 2004 reporting date. For example, the tracking mechanism utilized in this report data gathering exercise could have included a final phase of a subdivision project which was actually graded prior to June 22, 2004. This reporting mechanism might have resulted in counting the entire subdivision as a loss when in actuality only the final phase of a project was graded during the 2004 reporting period. Second, this reporting exercise highlighted the fact that there is a lag between loss occurrence and counting of habitat “gains.” Losses occur when a jurisdiction issues its initial grading permit. If conservation land was set aside as part of that initial project, it would not be counted as a “gain” until an easement was actually recorded. In many cases, this may not occur for several months or longer after the grading permit is issued. This tracking anomaly will likely occur during each reporting year. In order to provide clarification related to this situation, it may be useful to also track gains that are known but not officially recorded in future reporting exercises. Third and finally, during the public hearing and review process of the MSHCP, the database of “developed,” “preserved,” and



“agricultural” lands were not updated or modified. This report reflects an update of development that occurred during the permit adoption period. When the RCA assumed acquisition responsibilities from the County in December, 2004, it began actively acquiring conservation lands that are not reflected during this reporting period.

## Reporting Requirements

This annual report provides information on habitats conserved and lost during the reporting period. The report must include, at a minimum:

- Documentation of Reserve Assembly activities in relationship to the Rough Step formulas presented in *Section 6.7* of the MSHCP.
- Documentation of the acres authorized for disturbance within the Plan Area during the reporting period.
- Documentation of single family and mobile home activity within the Criteria Area for the preceding year and cumulatively occurring under the expedited review process for these activities presented in *Section 6.1.1* of the MSHCP.
- Documentation of new or expanded agricultural operations within the Criteria Area for the preceding year and cumulatively occurring under the processes identified in *Section 6.2* of the MSHCP.
- Documentation of Minor/Administrative Amendments approved for the preceding year in accordance with the procedures described in *Section 6.10.2* of the MSHCP.
- Documentation of ongoing management and monitoring activities highlighting issues of concern and proposed remedies/actions.
- Documentation concerning funding/collection of mitigation fees.

## Methods

Throughout 2005, RCA staff conducted outreach and training for MSHCP permittees to track and summarize each jurisdiction’s development activity from 2004. RCA staff worked with each city and the County to build a database of relevant development activity (e.g., building and grading permits, acquisitions, etc.) which was used in a geographic information systems (GIS) model to determine “losses” and “gains.” During this initial start up period, there were many open space dedications, easements, or donations (“gains”) to be added as a result of various project approvals. These are not reflected within this report because they were recorded after the reporting period.



The MSHCP requires that the RCA use an existing GIS-based habitat tracking model (or equivalent) called *Habitrak*. The model developed for this report builds on *Habitrak*, but was modified to incorporate the concept of “Rough Step”. Rough step is a concept unique to the MSHCP and identifies a method of calculating rates of habitat conservation and losses over time. The MSHCP requires that conservation occur in “rough step” with development. Details of the methods developed and used in this report are in Appendix A.

## Reserve Assembly Activities

This report summarizes habitats conserved and lost for the reporting period (June 22, 2004 through December 31, 2004) broken down by various categories. These include calculations of habitat lost and conserved by:

- Rough step area and habitat type
- Area Plan and Subunit
- Jurisdiction

## Rough Step Acreage Summaries

The rough step formula is intended to demonstrate where, in the MSHCP area, the rate of development is out of “rough step” with conservation. The MSHCP provides a rough step formula that can be used to calculate (forecast) an allowable loss for each vegetation community during a given time period. For purposes of this report, RCA staff calculated allowable losses for each vegetation community for the six-month reporting period and compared these to actual losses as determined by grading/building permit information.

According to calculations based on the number of grading/building permits issued, several regions and vegetation communities in the MSHCP area are out of step. That is, the acres authorized for disturbance in any given vegetation community are higher than the calculated allowable development using the rough step formula. However, some are much lower than they could be. For example, in Rough Step area 4, the allowable loss of coastal sage scrub determined with the rough step formula should be approximately 105 acres, however, calculations show that 166 acres have already been developed. In Rough Step Area 7, 230 acres of coastal sage scrub could have been developed this year, however, only 74 acres were impacted. This illustrates the utility of the rough step concept in determining the limits of development in an area, while directing conservation efforts towards other areas. It also allows



the Cities within the plan area to monitor the rate of development within their jurisdictional boundaries.

## **Lands Conserved by Area Plan**

The MSHCP divides Western Riverside County into smaller “Area Plans” for management purposes. RCA staff calculated and summarized all lands conserved by Area Plan. This allows the Permittees to determine where the most conservation has occurred, assess target conservation goals, and prioritize areas where future conservation should occur. Calculations show that “The Pass” area is closest to its target acquisition range, due mainly to the Potrero Canyon acquisition.

## **Target Acreage Summaries by Area Plan and Subunit**

The MSHCP identifies target acreages by Area Plan and subunit and designates a low, mid, and high range or acreage for each subunit. This section allows the RCA to calculate a running total of all land conserved within the MSHCP area, but allows a more detailed accounting of the information provided in the previous section. This allows more targeted conservation efforts and could direct management and monitoring efforts to more specific areas, if necessary. Such detailed analyses can make evident the impact of large acquisitions, such as Potrero Canyon, on subunits in the plan.

## **Conservation by Jurisdiction**

The MSHCP also identifies conservation acreage targets by jurisdiction that must be reached over the life of the plan. Using acquisition data, RCA staff calculated the acreage of lands conserved within each jurisdiction and compared this to each target. Calculations show that, to date, conservation acreage goals have been satisfied (and actually exceeded) in only two cities, Beaumont, (due to the Potrero Canyon acquisition) and Moreno Valley. However, other specific conservation goals within the City of Beaumont must still be met, (e.g., assembly of Constrained Linkage 22.) Progress toward acreage goals has been made in other cities, including Murrieta, Lake Elsinore and Calimesa. No conservation gains were recorded during the reporting period for Temecula, San Jacinto, Riverside, Perris, Banning, Hemet, Corona, or Canyon Lake. Several acquisitions are in process in some of these jurisdictions. Conservation gains within these cities will most likely occur during the next reporting period.





## **Description of Grading and Building Permit Activity by Jurisdiction**

Urban expansion in Southern California is occurring at unprecedented rates. New building and development can be seen in all jurisdictions within the MSHCP area. By examining the number of building and grading permits issued, the RCA can also gauge where most new growth is occurring. The most rapid expansion is occurring in the Murrieta area, with the least occurring in unincorporated Riverside County and the City of Canyon Lake. Using this information in conjunction with the rough step calculations, allows MSHCP Permittees to closely monitor relative rates of growth and habitat loss.

## **Reserve Management**

The RCA has contracted with the Riverside County Regional Parks and Open Space District (District) to manage many of the MSHCP Reserve properties. The District employs two full-time employees and one half-time employee for the sole purpose of MSHCP Reserve management. The District currently manages 26 properties for the MSHCP, totaling approximately 6,246 acres. Other land management agencies/entities include the U.S. Forest Service, the U.S. Bureau of Land Management, the Center for Natural Lands Management, the University of California, Riverside, the California Department of Fish and Game, and the California Department of Parks and Recreation. The District coordinates with these other agencies/entities on behalf of the RCA to ensure consistent management across the MSHCP Conservation Area.

## **Monitoring Program**

The RCA has an agreement with the California Department of Fish and Game to serve as the Monitoring Program Coordinator for the first eight years of the MSHCP. The program is divided into two phases. The first phase, reported here, focuses on mapping vegetation communities, gathering existing species information, conducting field surveys for selected species, and testing a community-based approach. The long-term monitoring phase will occur after the initial phase and will utilize a multiple species sampling strategy (i.e. sampling design, sampling locations, and survey protocols) that is developed based on the information gathered during the initial phase.

The monitoring program is in its initial stages. DFG, working with others, has surveyed several species including the mountain yellow-legged frog, arroyo toad, California red-legged frog, and burrowing owl. DFG has also surveyed selected reptile, raptor, and plant species as well as several vegetation communities. Since the monitoring program is in its incipient stages of data



collection, data analyses or suggested changes for adaptive management are not included, but will be in future reports.

## Summary

This report provides a means of evaluating the effectiveness of the MSHCP and the success of the RCA during the initial start up period from **June 22, 2004 through December 31, 2004**. It also provides a way to measure changes on the landscape, assess rates of urban growth and habitats lost, direct future development, and prioritize future acquisitions and conservation. Additionally, this report lays the foundation for future reporting. As the RCA matures as an agency, each product and milestone provide learning opportunities. Several lessons learned in the making of this report include:

- The need for uniform record keeping of development activity by Local Permittees
- The timely reporting of development activity by Local Permittees
- The need for assistance to Local Permittees in their efforts to record development activity for purposes of the annual report.

In the coming year, RCA staff will continue to prepare materials and work with its member agencies to assist in all aspects of Plan implementation. RCA Staff also anticipate that subsequent annual reports will become more accurate as the agency matures, operations stabilize, and data standards are developed.

Finally, many reporting areas appear to be “out of rough step” with “losses” exceeding “gains” for the reporting period. This can mainly be attributed to the reasons outlined in the “Methods” section, but is also partly skewed by the lack of funds for acquisitions early in the reporting period. The revenue stream of MSHCP fees collected in 2004 did not begin to flow into the acquisition fund until very late in the year. Only small acquisitions were recorded during this reporting period. Within the next 12 month reporting period (calendar year 2005), many of the easements, donations, and dedications will have been recorded and count towards “gains” as well as several other substantial acquisitions.



## 1.0 INTRODUCTION

### 1.1 Overview of the Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is a comprehensive, multi-jurisdictional plan that conserves species and associated habitats to address biological and ecological diversity conservation needs in western Riverside County. The plan was approved and permits issued on June 22, 2004 by the U.S. Fish and Wildlife Service and California Department of Fish and Game. The MSHCP Planning Area encompasses approximately 1.26 million acres (approximately 1,966.7 square miles) in Western Riverside County (*Figure 1*). This plan includes all the unincorporated County land west of the crest of the San Jacinto Mountains to the Orange County line as well as the jurisdictional areas of the Cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning, Beaumont, Calimesa, Perris, Hemet and San Jacinto. The plan is the largest HCP ever attempted and covers multiple species and multiple habitats within multiple jurisdictions. The plan covers a diverse landscape from urban cities to undeveloped foothills and montane forests. Bioregions include the Santa Ana Mountains, Riverside Lowlands, San Jacinto Foothills, San Jacinto Mountains, Agua Tibia Mountains, Desert Transition and San Bernardino Mountains.

The Western Riverside County Regional Conservation Authority (RCA), formed in February 2004, assumed administration and implementation responsibility for the MSHCP in March, 2004. The MSHCP, located in western Riverside County, calls for the acquisition and management of 500,000 acres of open space. This plan was developed in conjunction with the California Department of Fish and Game, US Fish and Wildlife Service, multiple local jurisdictions, and public interest groups. The plan authorizes the RCA to manage multiple state and federally listed and other sensitive species according to designated permit rules.

### 1.2 Reporting Requirements

The MSHCP requires that the RCA prepare and submit a report of its activities annually. **This report provides a summary of the RCA's activities for the initial reporting period for six months from the date State and Federal permits for the MSHCP were issued, June 22, 2004 through December 31, 2004.** This date was chosen and approved (as directed in the MSHCP) by the Reserve Management Oversight Committee (see following section for a description of the RMOC) to provide a synopsis of the initial permit implementation period, while also providing a means for future annual reports to occur on a calendar-year basis. Annual reports need to include, at a minimum:



Figure 1 Riverside County Location Map



- Documentation of Reserve Assembly activities in relationship to the Rough Step formulas presented in *Section 6.7* of the MSHCP, including documentation in accordance with species-specific Objectives 1A and 1B for the Delhi Sands flower-loving fly.
- Documentation of the acres authorized for disturbance within the Plan Area during the reporting period.
- Documentation of single family and mobile home activity within the Criteria Area for the preceding year and cumulatively occurring under the expedited review process for these activities presented in *Section 6.1.1* of the MSHCP.
- Documentation of new or expanded agricultural operations within the Criteria Area for the preceding year and cumulatively occurring under the processes identified in *Section 6.2* of the MSHCP.
- Documentation of Minor/Administrative Amendments approved for the preceding year in accordance with the procedures described in *Section 6.10.2* of the MSHCP.
- Documentation of ongoing management and monitoring activities highlighting issues of concern and proposed remedies/actions.
- Documentation concerning funding/collection of mitigation fees.

## **1.3 Successes to date**

### **1.3.1 Establishment and Activities of Western Riverside County Regional Conservation Authority (RCA)**

The MSHCP Local Permittees established the Western Riverside County Regional Conservation Authority to assist Local Permittees in implementing the MSHCP (Plan) with its primary roles being: providing assistance to the Local Permittees regarding Plan implementation including performing the required Joint Project Review; assembly of the MSHCP Conservation Area; and management and monitoring of the lands within the MSHCP Conservation Area. The RCA was established on January 27, 2004 initially using contracted support staff from the County and implementation of the MSHCP began June 22, 2004. Much of the RCA's activities during the reporting period have been focused on **(1)** developing the organizational structure to implement the Plan including hiring full time staff in August and a General Manager in October, 2004, simultaneously developing standard operating procedures; **(2)** providing training to Local Permittees regarding Plan implementation including assistance in developing a Habitat Acquisition Negotiation Strategy (HANS) or similar-process; **(3)** implementing Joint Project Review (JPR) for projects within the Criteria Area; **(4)** establishing the committees required by



the Plan; (5) establishing annual calendars for Board and committee meetings; (6) implementing fee collection procedures; (7) acquiring Additional Reserve Lands and (8) implementing the initial phases of the Monitoring Program.

The RCA established two committees to focus on certain aspects of Plan implementation. These are the Reserve Management Oversight Committee and the Funding Coordination Committee. Each of these committees has assigned membership and hold meetings according to Plan requirements. Membership rosters for these required committees are posted on the RCA web site ([www.wrc-rca.org](http://www.wrc-rca.org))



## 2.0 DESCRIPTION OF HABITAT GAINS AND LOSSES (RESERVE ASSEMBLY ACTIVITIES)

The MSHCP and coverage for the 146 species identified in the Plan is based on the establishment of a 500,000 acre Conservation Area of which approximately 347,000 acres are currently in public or quasi-public ownership. The additional 153,000 acres of Additional Reserve Lands will be assembled from a combination of private land acquisitions, donations, and through the land development entitlement process. As of December 31, 2004, approximately 20,000 acres of Additional Reserve Lands had been acquired by local Permittees, state and federal agencies.

As the reserve is assembled, habitat is also lost to development, construction of infrastructure and other activities. The Plan requires conservation occur in “rough step” with habitat losses according to a formula identified in Section 6.7 of the MSHCP (*Figure 2*). This calculation provides a means to assess the loss of various habitat types in identified geographic areas at any given point in time. The calculations provided in this report are for the period June 1, 2004 through December 31, 2004. Habitat losses were determined using grading and building permits issued between June and December 2004, and, where data were limited, augmented through the review of approved development projects and aerial photos (for more details see APPENDIX A). Habitat gains are the Additional Reserve Lands acquired or otherwise permanently protected for conservation pursuant to the Plan. Habitat gained (or conserved) is reported from the period February, 2000 through December 31, 2004. This is because the County, California Departments of Fish and Game and Parks and Recreation and the U.S. Fish and Wildlife Service, in anticipation of MSHCP permit issuance, began an early, aggressive campaign to assemble the reserve prior to Plan permit issuance. Since the Plan’s state and federal permits were not issued until June 22, 2004, habitat losses are only tracked starting from June 2004. Following is a summary of the habitat gains and losses for the reporting period, broken down by various categories. These include calculations of Habitat Lost and Conserved by:

- Rough Step and Habitat Type
- Area Plan/Subunit
- Jurisdiction



Figure 2 Western Riverside County MSHCP Rough Step Analysis Units





## 2.1 Rough Step Acreage Summaries

As outlined in *MSHCP Section 6.7, Reserve Assembly Accounting*, the rough step analysis was conducted utilizing the Rough Step formula in Section 6.7 of the MSHCP. *Table 1, Rough Step Acreage Summary – Progress To-Date* below compares the available private lands and additional Reserve Land goals by vegetation type within each Rough Step to the total acres by vegetation type within the Criteria Area conserved through acquisition, easement or fee-title transfer as of December 31, 2004, and acres developed between June 1, 2004 and December 31, 2004. The sixth column includes the allowable development acreage targets by vegetation type for each rough step to-date, based on the data in the previous columns. The final column includes the total acres that were authorized for development between June 1, 2004 and December 31, 2004 by the Plan’s Permittees by Rough Step vegetation type. Development data utilized for this analysis were derived from grading or building permits (which ever applied during the time period) issued within the Criteria Area in the annual reporting period of June 1, 2004 through December 31, 2004.

**TABLE 1**  
**Rough Step Acreage Summary**

Rough Step Analysis Unit	Key Vegetation Communities within Analysis Unit	From Table 6-3 in MSHCP		Total Acres Conserved (between February 2000 and December 31, 2004)	Allowable Development Acreage through December 31, 2004 (Utilizing Rough Step Forecasting Formula)	Total Acres Authorized for Development by Cities and the County (between June 1, 2004 and December 31, 2004)
		Private Land Acres within the Criteria Area in the Analysis Unit	Additional Reserve Land Acreage Goal for the Key Vegetation Community			
1	Coastal Sage Scrub	1,080	800	165	58	38
	Grasslands	820	180	0	0	20
	Riparian Scrub, Woodland, Forest	680	550	0	0	4
2	Coastal Sage Scrub	14,950	10,340	1626	725	53
	Grasslands	8,570	4,780	5	4	57
	Riparian Scrub, Woodland, Forest	590	460	0	0	2
	Riversidean Alluvial Fan Sage Scrub	1,190	1,110	141	10	1
	Woodlands and Forests	290	170	15	10	0
3	Coastal Sage Scrub	3,670	2,050	0	0	34
	Grasslands	4,690	900	0	0	190
	Playas and Vernal Pools	4,340	3,830	38	5	0
	Riparian Scrub, Woodland, Forest	220	110	598	598	0
	Riversidean Alluvial Fan Sage Scrub	190	100	3	2	2



2.0 DESCRIPTION OF HABITAT GAINS AND LOSSES  
(RESERVE ASSEMBLY ACTIVITIES)

**TABLE 1**  
**Rough Step Acreage Summary**

Rough Step Analysis Unit	Key Vegetation Communities within Analysis Unit	From Table 6-3 in MSHCP		Total Acres Conserved (between February 2000 and December 31, 2004)	Allowable Development Acreage through December 31, 2004 (Utilizing Rough Step Forecasting Formula)	Total Acres Authorized for Development by Cities and the County (between June 1, 2004 and December 31, 2004)
		Private Land Acres within the Criteria Area in the Analysis Unit	Additional Reserve Land Acreage Goal for the Key Vegetation Community			
4	Coastal Sage Scrub	21,340	17,460	471	105	166
	Desert Scrubs	4,340	3,680	66	12	16
	Grasslands	10,990	5,960	0	0	86
	Riparian Scrub, Woodland and Forest	1,420	1,320	0	0	0
	Riversidean Alluvial Fan Sage Scrub	1,160	1,090	0	0	1
	Woodlands and Forests	1,560	870	0	0	14
5	Coastal Sage Scrub	1,540	370	0	0	46
	Grasslands	3,880	1,010	0	0	146
	Riparian Scrub, Woodland, Forest	550	460	0	0	19
	Riversidean Alluvial Fan Sage Scrub	370	260	0	0	12
	Woodlands and Forests	2,080	1,000	0	0	44
6	Coastal Sage Scrub	4,980	4,060	321	73	142
	Grasslands	6,190	3,690	0	0	205
	Riparian Scrub, Woodland, Forest	270	210	0	0	6
	Woodlands and Forests	140	110	12	3	3
7	Coastal Sage Scrub	9,210	7,090	770	230	74
	Grasslands	3,620	1,550	2	2	11
	Woodlands and Forests	490	330	16	8	0
	Riparian Scrub, Woodland, Forest	570	460	0	0	5
	Riversidean Alluvial Fan Sage Scrub	400	350	29	4	0
8	Coastal Sage Scrub	6,400	4,940	916	271	228
	Grasslands	3,690	1,840	348	349	55
	Riparian Scrub, Woodland, Forest	280	250	0	0	8
	Riversidean Alluvial Fan Sage Scrub	190	130	53	24	0
9	No Vegetation Communities in Analysis Unit 9 were identified for Rough Step Analyses					



The rough step formula is intended to demonstrate where, in the Plan area, the rate of development is out of “rough step” with conservation acres. Where acres authorized for development (column 7) are higher than the allowable development calculated using the rough step formula (column 6) the vegetation community could be considered out of “rough step.” The data below indicate that many of the Plan’s vegetation communities are out of “rough step.” These figures are not surprising considering the Permittees were getting MSHCP processes and procedures established before December 31, 2004, and that since acquisitions are legal transfers of property, there are often delays between when a property is targeted, an agreement is reached, and the transfer is finalized. A summary of the lands conserved and lost by Rough Step are shown in *Figure 3 through Figure 10*.

## 2.2 Conservation By Area Plan

*Table 2, Conservation by Area Plan*, provides a summary of all conservation achieved to date within each Area Plan. Target conservation acreages were identified for each Area Plan in *MSHCP Section 3.3, Area Plans*. Target conservation acreages included an overall target conservation acreage (Public/Quasi-Public Lands plus “Additional Reserve Lands”). The low and high range targets included in *Table 3* below reflect only the “additional reserve lands” targets rather than the overall Area Plan targets which include lands conserved previously, such as the Public/Quasi-Public lands. This distinction in the data below should, for annual reporting purposes, allow for a better measure of progress towards meeting conservation targets. The fourth column in the table reports the total acreage conserved via conservation easement or fee title transfer during the reporting period (June 22, 2004 – December 31, 2004). The fifth and final column includes a running total of all land conserved from the time when land was first determined to apply to MSHCP conservation targets to the end of the current reporting period. This final column provides a context within which to compare the conservation achieved during the reporting period with conservation achieved to-date.

Of all of the Area Plans above, only one, “The Pass” is significantly closer to its target acquisition range. This is due to several acquisitions within the Pass Area Plan, including the 9,000 acre acquisition contributing to the Potrero Wildlife Area in August of 2004.



Figure 3      Rough Step Unit #1



Figure 4      Rough Step Unit #2



Figure 5      Rough Step Unit #3



Figure 6      Rough Step Unit #4



Figure 7      Rough Step Unit #5





Figure 8      Rough Step Unit #6



Figure 9      Rough Step Unit #7



Figure 10      Rough Step Unit #8



**TABLE 2**  
**Conservation By Area Plan**

Area Plan	Low End of Target Range	High End of Target Range	Conservation Achieved from June 1, 2004 – December 31, 2004	Total Acres Conserved (between February 2000 and December 31, 2004)
Eastvale	145	290	0	0
Elsinore	11,200	18,515	877	2,193
Harvest Valley/Winchester Area Plan	430	605	0	0
Highgrove Area Plan	345	675	0	0
Jurupa	890	1,870	0	181
Lake Mathews/Woodcrest	3,215	5,470	0	438
Lakeview/Nuevo	6,650	10,235	0	0
Mead Valley	1,885	3,635	0	0
The Pass	8,540	13,925	312	8,368
Reche Canyon/Badlands	10,520	15,610	7	2,191
REMAP	41,400	58,470	163	1,697
San Jacinto Valley	11,540	19,465	0	1,284
Sun City/Menifee	1,120	1,585	0	302
Southwest	22,500	36,360	10	940
Temescal Canyon	3,485	5,800	0	0
Riverside/Norco	90	240	0	0
<b>TOTAL</b>	<b>123,955</b>	<b>192,750</b>	<b>1,369</b>	<b>17,596</b>

## 2.3 Target Acreage Summaries by Area Plan and Subunit

Table 3, *Target Acreage Summary*, provides a summary of target acreages within each Area Plan's subunit compared to the number of acres developed and conserved to-date within each subunit and associated Area Plan. Target acreages by Area Plan and Subunit are from Table 3-2 of MSHCP Section 3.3 Area Plans. Figure 11, *Western Riverside County MSHCP Area Plan Boundaries and SubUnits* shows the location of each area plan. The Plan designates a low, mid and high range of acreage within each Subunit. Table 1, *Target Acreage Summary*, provides a quick synopsis of the progress within the first plan implementation year. Column five in the table below includes the total acres lost, or authorized for development, between June and December 2004. Column six includes the total acres conserved within that time frame. The final column includes a running total of all land conserved from the time when land was first determined to apply to MSHCP conservation targets to the end of the current reporting period.



Figure 11 Western Riverside County MSHCP Area Plan Boundaries and SubUnits



2.0 DESCRIPTION OF HABITAT GAINS AND LOSSES  
(RESERVE ASSEMBLY ACTIVITIES)

**TABLE 3**  
**Target Acreage Summary – By Area Plan and Subunit**

Subunit	Range of Acres within Additional Reserve Lands			June 1, 2004 – December 31, 2004		Total Acres Conserved (between February 2000 and December 31, 2004)
	Low	Midpoint	High	Total Acres Authorized for Development at Grading Permit Stage	Total Acres Conserved	
<i>Eastvale Area Plan</i>						
SU1 – Santa Ana River Central	145	220	290	47	0	0
Subtotal within Area Plan	145	220	290	47	0	0
<i>Elsinore Area Plan</i>						
SU1 – Estelle Mountain/Indian Canyon	4,100	5,065	6,030	9	9	9
SU2 – Alberhill	1,760	2,385	3,010	102	582	582
SU3 – Elsinore	925	1,370	1,815	125	0	0
SU4 – Sedco Hills	2,415	3,130	3,845	636	0	0
SU5 – Ramsgate	1,645	2,090	2,535	85	121	706
SU6 – Steele Peak	855	1,070	1,280	0	166	897
Subtotal within Area Plan	11,700	15,110	18,515	957	877	2,193
<i>Harvest Valley/Winchester</i>						
SU1 – French Valley/Diamond Valley Lake Connection	130	135	145	0	0	0
SU2 – Hemet Vernal Pool West	300	380	460	0	0	0
Subtotal within Area Plan	430	515	605	0	0	0
<i>Highgrove Area Plan</i>						
SU1 – Sycamore Canyon/Box Springs Central	95	140	180	0	0	0
SU2 – Springbrook Wash North	250	370	495	0	0	0
Subtotal within Area Plan	345	510	675	0	0	0
<i>Jurupa Area Plan</i>						
SU1 – Santa Ana River North	135	190	245	0	0	
SU2 – Jurupa Mountains	445	750	1,055	23	0	181
SU3 – Delhi Sands Area	310	440	570	15	0	0
Subtotal within Area Plan	890	1,380	1,870	38	0	181



2.0 DESCRIPTION OF HABITAT GAINS AND LOSSES  
(RESERVE ASSEMBLY ACTIVITIES)

**TABLE 3**  
**Target Acreage Summary – By Area Plan and Subunit**

Subunit	Range of Acres within Additional Reserve Lands			June 1, 2004 – December 31, 2004		Total Acres Conserved (between February 2000 and December 31, 2004)
	Low	Midpoint	High	Total Acres Authorized for Development at Grading Permit Stage	Total Acres Conserved	
<i>Lake Mathews/Woodcrest Area Plan</i>						
SU1 – Lake Mathews East	1,140	1,410	1,680	0	0	0
SU2 - Dawson Canyon (Temescal Wash East)	815	950	1,090	0	0	438
SU3 – Gavilan Hills West	1,175	1,825	2,475	20	0	0
SU4 – Good Hope West	85	155	225	0	0	0
Subtotal within Area Plan	3,215	4,340	5,470	20	0	438
<i>Lakeview/Nuevo Area Plan</i>						
SU1 – San Jacinto River, Middle Reach	2,605	3,315	4,025	3	0	0
SU2 – Lakeview Mountains West	4,045	5,130	6,210	136	0	0
Subtotal within Area Plan	6,650	8,445	10,235	139	0	0
<i>Mead Valley Area Plan</i>						
SU1 – Motte/Rimrock	315	455	590	8	0	0
SU2 – Gavilan Hills East	485	750	1,015	122	0	0
SU3 – Good Hope East	290	390	495	0	0	0
SU4 – San Jacinto River Lower	795	1,165	1,535	70	0	0
Subtotal within Area Plan	1,885	2,760	3,635	200	0	0
<i>The Pass Area Plan</i>						
SU1 – Potrero/Badlands	5,570	7,420	9,275	0	312	8,119
SU2 – Badlands/San Bernardino National Forest	1,105	1,650	2,195	83	0	0
SU3 – San Timoteo Creek	1,865	2,160	2,455	0	0	249
Subtotal within Area Plan	8,540	11,230	13,925	83	312	8,368
<i>Reche Canyon/Badlands Area Plan</i>						
SU1 – Box Springs East	175	265	350	0	0	0
SU2 – Reche Canyon	1,215	1,915	2,615	24	0	38
SU3 – Badlands North	8,270	9,580	10,895	4	7	368
SU4 – San Jacinto Wildlife Area/Mystic Lake	860	1,305	1,750	0	0	1,784
Subtotal within Area Plan	10,520	13,065	15,610	28	7	2,191



2.0 DESCRIPTION OF HABITAT GAINS AND LOSSES  
(RESERVE ASSEMBLY ACTIVITIES)

**TABLE 3**  
**Target Acreage Summary – By Area Plan and Subunit**

Subunit	Range of Acres within Additional Reserve Lands			June 1, 2004 – December 31, 2004		Total Acres Conserved (between February 2000 and December 31, 2004)
	Low	Midpoint	High	Total Acres Authorized for Development at Grading Permit Stage	Total Acres Conserved	
<i>REMAP (Riverside Extended Mountain Area Plan)</i>						
SU1 – Cactus Valley	6,020	6,805	7,590	48	0	0
SU2 – Wilson Valley/Sage	26,205	30,815	35,425	239	163	656
SU3 – Temecula and Cottonwood Creeks	1,480	2,115	2,745	3	0	0
SU4 – Tule Creek/Anza Valley	6,415	8,515	10,615	200	0	1,041
SU5 – Upper San Jacinto River	750	985	1,220	0	0	0
SU6 – Tripp Flats	520	680	840	0	0	0
SU7 – Southern Badlands East	10	20	35	0	0	0
Subtotal within Area Plan	41,400	49,935	58,470	490	163	1,697
<i>San Jacinto Valley Area Plan</i>						
SU1 – Gilman Springs	3,540	5,030	6,520	73	0	1,284
SU2 – Lakeview Mountains East	1,305	1,730	2,150	0	0	0
SU3 – Upper San Jacinto River/Bautista Creek	2,085	2,980	3,875	0	0	0
SU4 – Hemet Vernal Pool Areas East	940	1,190	1,445	117	0	0
SU5 – Mica Butte	3,670	4,570	5,475	11	0	0
Subtotal within Area Plan	11,540	15,500	19,465	201	0	1,284
<i>Sun City/Menifee Valley Area Plan</i>						
SU1 – Warm Springs Creek/French Valley Area	395	480	565	20	0	302
SU2 – Lower Sedco Hills	725	875	1,020	0	0	0
Subtotal within Area Plan	1,120	1,355	1,585	20	0	302
<i>Southwest Area Plan</i>						
SU1 – Murrieta Creek	640	1,055	1,465	101	10	10
SU2 – Temecula and Pechanga Creeks	365	600	840	66	0	0
SU3 – Vail Lake	10,065	11,500	12,930	50	0	0
SU4 – Cactus Valley/SWRC-MSR/Johnson Ranch	4,395	6,180	7,970	168	0	664
SU5 – French Valley/Lower Sedco Hills	4,360	5,880	7,395	698	0	267





**TABLE 3**  
**Target Acreage Summary – By Area Plan and Subunit**

Subunit	Range of Acres within Additional Reserve Lands			June 1, 2004 – December 31, 2004		Total Acres Conserved (between February 2000 and December 31, 2004)
	Low	Midpoint	High	Total Acres Authorized for Development at Grading Permit Stage	Total Acres Conserved	
SU6 – Santa Rosa Plateau	1,285	2,100	2,915	167	0	0
SU7 – Tenaja Corridor	1,390	2,115	2,845	180	0	0
Subtotal within Area Plan	22,500	29,430	36,360	1,430	10	940
<i>Temescal Canyon Area Plan</i>						
SU1 – Santa Ana River/Santa Ana Mountains	250	400	550	96	0	0
SU2 – Prado Basin	200	300	395	0	0	0
SU3 – Temescal Wash West	2,790	3,600	4,415	60	0	0
SU4 – La Sierra Hills/Lake Mathews West	210	285	355	0	0	0
SU5 – Temescal/Santa Ana Mountains	35	60	85	2	0	0
Subtotal within Area Plan	3,485	4,645	5,800	158	0	0
<i>Cities of Riverside and Norco</i>						
SU1 – Santa Ana River South	75	140	200	0	0	0
SU2 – Sycamore Canyon West	15	25	40	19	0	0
Subtotal within Area Plan	90	165	240	19	0	0
<b>GRAND TOTALS</b>	<b>124,455</b>	<b>158,605</b>	<b>192,750</b>	<b>3,831</b>	<b>1,369</b>	<b>17,596</b>

\* Totals do not include acreage adjustments for planned roadways.

† See also species-specific conservation objectives 1A, 1B and 1C for Delhi Sands flower-loving fly in Table 9-2 of this document for target acreages.

The table above includes more details than the previous table. The Pass Area Plan is shown as having conserved the most significant amount of acres towards meeting the target range. The table further indicates that, of the 8,368 acres conserved within The Pass Area Plan, 8,119 acres are within Potrero/Badlands subunit 1. The other two subunits within The Pass Area Plan have only 249 acres conserved, and those acres are only within subunit 3, San Timoteo Creek. The table also indicates in which Area Plans and subunits more development has taken place than in others between June and December 2004. For example, within the Southwest Area Plan 1,430



acres were approved for development between June and December 2004. These figures may indicate areas where conservation efforts should be focused in the near term.

## 2.4 Conservation by Jurisdiction

*Table 4, Conservation By Jurisdiction* provides a summary of conservation within each jurisdiction both during the annual reporting period and to-date. Target conservation acreages within each jurisdiction were identified for each Jurisdiction in the *MSHCP Section 3.3, Area Plans*. The fourth column in the table reports the total acreage conserved within the Criteria Area via conservation easement or fee title transfer during the reporting period (June 1, 2005 – December 31, 2005). The fifth column includes a running total of all land conserved from the time when land was first determined to apply to MSHCP conservation targets to the end of the current reporting period that contributes to the Plan’s Reserve Assembly target. This column provides a context within which to compare the conservation achieved during the reporting period with conservation achieved to-date. The sixth and final column shows the percentage of total acres conserved of the average target range within each jurisdiction.

Jurisdiction	Low End of Target Range	High End of Target Range	Conservation Achieved from June 1, 2004 – December 31, 2004	Total Acres Conserved (between February 2000 and December 31, 2004)	Percent of Middle Range of Target Reached as of Dec 31 <sup>st</sup> 2004
Banning, City of	50	90	0	0	0%
Beaumont, City of	5,440	9,060	312	8,123	112%
Calimesa, City of	1,240	2,240	0	483	28%
Canyon Lake, City of	30	50	0	0	0%
Corona, City of	330	610	0	0	0%
Hemet, City of	620	1,000	0	0	0%
Lake Elsinore, City of	4,830	7,870	868	2,190	34%
Moreno Valley, City of	80	130	0	861	820%
Murrieta, City of	1,580	3,200	0	230	10%
Norco, City of	60	140	0	0	0%
Perris, City of	720	1,400	0	0	0%
Riverside, City of	55	125	0	0	0%
San Jacinto, City of	1,580	2,680	0	0	0%



**TABLE 4**  
**Conservation By Jurisdiction**

Jurisdiction	Low End of Target Range	High End of Target Range	Conservation Achieved from June 1, 2004 – December 31, 2004	Total Acres Conserved (between February 2000 and December 31, 2004)	Percent of Middle Range of Target Reached as of Dec 31 <sup>st</sup> 2004
Temecula, City of	600	1,380	0	0	0%
Unincorporated County	107,265	159,800	189	9,922	7%
<b>TOTAL</b>	<b>124,480</b>	<b>189,775</b>	<b>1,369</b>	<b>21,809</b>	

The data above indicate that Conservation within two of the cities, Beaumont, and Moreno Valley, have surpassed average target conservation acreages. However, Reserve Assembly goals within the MSHCP, are still applicable. For example, within the City of Beaumont, one major acquisition in August of 2004, the Potrero Wildlife Area, constitutes the majority of the over 8,000 acres of lands conserved in Beaumont. This is a significant contribution to the Plan's Reserve Assembly goals in The Pass Area Plan, subunit 1-Potrero Badlands, and to Proposed Core 3. However, additional requirements still remain in other parts of the City of Beaumont. In the northwestern portion of Beaumont, additional Reserve Assembly targets associated with constrained linkage 22, and within The Pass Area Plan, subunit 2 – Badlands/San Bernardino must be achieved.



### 3.0 ACTIVITIES WITHIN PLAN AREA

#### 3.1 Description of Grading/Building Permit Activity

Table 5, *Grading/Building Permits by Member Agency Issued Between June 1st and December 31, 2004* lists Grading/Building Permits issued by Permittees between June 1<sup>st</sup> and December 31<sup>st</sup>, 2004. Multiple permits were counted as one per parcel. For example, where a parcel received both a grading and building permit within the seven month period only one permit was counted for that property (see Appendix A for more information on methods). The table below includes the total grading and building permits within each jurisdiction, the total number of permits within criteria area and the total acreage affected by permits within criteria area. Riverside County approved the largest number of grading permits (2,068) which is to be expected given its large geographic area (988,000 acres). Overall, the cities in aggregate approved more development with 505 total permits within a smaller total area (Cities comprise a total area of 270,645 acres), than did the County.

**TABLE 5**  
**Grading/Building Permits by Member Agency Issued**  
**Between June 1 and December 31, 2004**

Permittee	Grading Permits and Building Permits	Permits within Criteria Area	Acreage Affected by Permits within Criteria Area
Banning	33	0	0
Beaumont	11	1	66.5
Calimesa	16	2	0.1
Canyon Lake	0	0	0
Corona	43	7	100.7
Hemet	27	1	116.9
Lake Elsinore	63	22	802.1
Moreno Valley	44	0	0
Murrieta	92	34	497.8
Norco	19	0	0
Perris	40	2	69.6
Riverside, City of	53	2	19.0
San Jacinto	20	0	0
Temecula	44	10	36.0
Unincorporated, County of Riverside	2,068	430	2,126.7
<b>Totals</b>	<b>2,573</b>	<b>511</b>	<b>3,835.5</b>



## **3.2 Agricultural Lands**

### **3.2.1 Background**

Between August 2001 and August 2002 County GIS and the Agricultural Commissioners Office, to complete the Riverside County Integrated Project (RCIP), worked on a joint effort to develop a database of GIS layers representing lands that had existing agriculture operations . Both the Agricultural Commissioner and GIS staff had a difficult time in acquiring and working with the records representing these activities. Some of the records representing agriculture operations could not be tied to a location within the Plan Area. Addresses and other critical information were not in the records. Further complicating the issue was that multiple agricultural activities could occur on one parcel. The information from records from 2001 and to March 2002 was transferred to GIS in August of 2002. The information was deemed sufficient for analysis with the Riverside County Integrated Project (RCIP), the multi-faceted planning endeavor of which the MSHCP was a part, but it was recognized that a program would need to be developed to complete, verify and establish procedures and methods to add and remove agricultural activities from the GIS agriculture operations database.

### **3.2.2 Current Status**

GIS data developed as of August 2002 have not been updated to add additional agricultural lands or remove lands from the agricultural database that have been developed since the original information was assembled. Currently the RCA, County Executive Office, and Agricultural Commissioner are working to update the existing database and establish the Existing Agricultural Operations Database as required in the Plan and associated documents.

### **3.2.3 Work Program**

During the 2005 calendar year the County and Agricultural Commissioner with assistance from the RCA will:

1. Review and validate the existing GIS data to determine lands supporting Agriculture Operations.
2. Verify Existing Agricultural Operations and acquire the additional information needed to establish the Existing Agricultural Lands Database
3. Finalize the Certificate of Inclusion process.



### 3.3 Public Works Projects

MSHCP Permittees include the Riverside County Flood Control and Water Conservation District (County Flood), Riverside County Parks and Open Space District (County Parks), Riverside County Waste Management Department, Riverside County Transportation Commission (RCTC), the 14 cities in western Riverside County, Riverside County, California Department of Transportation (Caltrans), and California Department of Parks and Recreation (State Parks). These agencies' projects are also covered by the Plan and in some instances subject to JPR review. JPR for State Parks and Caltrans is the responsibility of the Wildlife Agencies while JPR for projects by the other Permittees are the responsibility of the RCA.

**TABLE 6**  
**Public Works Projects Approved**  
**Between June 22 and December 31, 2004**

Public Works Permittee	Activities Approved between June 22 and December 31, 2004
County of Riverside Public Works Department	Newport Road (Menifee to SR79)
Riverside County Parks and Open Space District	None
RCTC	None
County of Riverside Waste Department	None
County of Riverside Flood Control	Perris Valley Channel, Lateral B, Stage 2 Gavilan Hills/Smith Road Channel Debris Basin Southwest Riverside Drainage Basin, Line C, Stage 5
State Parks	None
Caltrans	None

Sources/Notes:

Riverside County Public Works Department. Source: Lori Dobson-Corea MSHCP Covered Activities Tracking Spreadsheet (emailed to RCA on June 9, 2005). Project definition = commencement of construction within annual reporting time period.

County of Riverside Parks and Recreation Department. Source: Ron Baxter, personal communication.

RCTC. Source: Cathy Bechtel, personal communication, July 7, 2005 and August 30, 2005. Project definition = commencement of construction within annual reporting time period.

County of Riverside Waste Department. Source: Leslie Likins, personal communication (via email), June 21, 2005. Project definition = Upon Board approval.

County of Riverside Flood Control. Source: Teresa Tung, personal communication, July 13, 2005. Project definition = construction contract award by Flood Control Board.

State Parks. Source: Larynn Carver, personal communication, August 30, 2005. Project definition = commencement of construction within annual reporting time period.



## **4.0 SPECIAL MECHANISMS EMPLOYED**

### **4.1 Participating Special Entity Permits**

Participating Special Entities are defined in the Plan as any regional public facility provider, such as a utility company or a public district or other agency, that operates and/or owns land within the MSHCP Plan Area and that applies for Take Authorization pursuant to Section 11.8 of the IA. No participating special entities were granted take authorization between June 22 and December 31, 2004.

### **4.2 Criteria Refinement**

There were no RCA noticed or approved Criteria Refinements between June 22 and December 2004.

### **4.3 Memoranda of Understanding with U.S. Forest Service**

The MSHCP identifies 146 species to be covered under the Plan's permit authority. Of those, 118 are considered to be currently adequately conserved under the Plan. The remaining 28 species will be considered to be adequately conserved upon completion of species-specific conservation objectives identified in Section 5.9 of the MSHCP (Volume 1.) These 28 species occur primarily on lands managed by the U.S. Forest Service. The Plan requires that the RCA execute memoranda of understanding (MOUs) with San Bernardino National Forest and Cleveland National Forest to implement the species specific management objectives. In October and November, 2004, RCA's General Manager met with the Forest Supervisors from both forests to begin development of the MOU. The General Manager provided information to the Supervisors on roles, obligations, and timeframes for development of the MOUs. The MOUs are expected to be completed during the first half of calendar year in 2006.



## 5.0 FUNDING SUMMARY

The Plan requires that the RCA provide an accounting of relevant financial information for each reporting period. *Table 7* reflects the specific categories required in APPENDIX B of the Plan. *Table 8* lists income by city for the reporting period.

<b>TABLE 7</b>			
<b>Financial Information for RCA Program Operation</b>			
		Prior to Plan Approval	Jun – Dec '04
Program Costs			
Projection of Conservation using HANS	Projection of % Conserved annually	2%	3.5%
	41,000 acres	820	1,435
Projection of Local acquisitions	Projection of % Acquired annually	2%	4%
	56,000 acres	1,120	2,240
Conservation using HANS/ERP	Acres Conserved during period	N.A.	0
	Acquisition Cost	\$124,655,343	\$10,098,919
Conservation through Acquisitions	Acres Acquired/Conserved during period	20,469	1,370
Total Acres Conservation	153,000 Cumulative Total		21,839
Total Acres Existing Conservation	Subject to local enhanced management	55,000	55,000
Management Costs New Conservation			
Management	\$55 per acre	\$100,233	\$73,500
Adaptive Management	\$30 per acre	N.A.	\$0
Monitoring	Based on budget	N.A.	\$0
Administration	Based on budget	N.A.	\$626,275
Management Existing Lands	\$17 (30% of management cost)	N.A.	\$0
	<i>Sub-total Management and Administration Costs</i>	\$100,233	\$699,775
	<b>Total Reporting Period Costs</b>	<b>\$124,755,576</b>	<b>\$10,798,694</b>
Program Revenue			
Development Fees			
Per unit Residential	\$1,651	N/A	
Per acre C&I	\$5,160	N/A	
	<i>Sub-Total Development Fee Revenue</i>	N/A	\$5,825,581
Density Bonus Fees	Program Still in Development	0	0





**TABLE 7**  
**Financial Information for RCA Program Operation**

		Prior to Plan Approval	Jun – Dec '04
Units using density bonus	Program Still in Development	0	0
Per Unit Fee	\$ 4,000	N/A	N/A
	Density Bonus Fees	N/A	N/A
	<i>Sub-Total Density Bonus Revenue</i>	<i>N/A</i>	<i>N/A</i>
Landfill Revenue			
	El Sobrante Revenue	(See Below)	\$1,022,854
	Other Landfill Fees	(See Below)	\$200,000
	Sub-Total Landfill Revenue	\$ 6,000,000	\$1,222,854
Infrastructure Mitigation			
	Measure "A" Revenue	N/A	0
	Other Infrastructure	N/A	0
	Sub-Total Infrastructure Revenue	N/A	0
	<b>Total Revenue in Reporting Period</b>	<b>N/A</b>	<b>\$7,048,435</b>



**TABLE 8**  
**Income By City Within MSHCP Plan Area June 2004-December 2004**

	Jul-04	Aug-04	Sep-04	Oct-04	Nov-04	Dec-04	TOTALS	PERCENT of TOTAL
CITY OF BANNING	\$0.00	\$0.00	\$0.00	\$0.00	\$13,208.00	\$0.00	\$13,208.00	0.23%
CITY OF BEAUMONT	\$0.00	\$0.00	\$0.00	\$0.00	\$36,322.00	\$0.00	\$36,322.00	0.62%
CITY OF CALIMESA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%
CITY OF CANYON LAKE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%
CITY OF CORONA	\$0.00	\$0.00	\$0.00	\$0.00	\$129,020.99	\$16,452.80	\$145,473.79	2.50%
CITY OF HEMET	\$0.00	\$0.00	\$0.00	\$75,773.40	\$0.00	\$52,326.65	\$128,100.05	2.20%
CITY OF LAKE ELSINORE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%
CITY OF MORENO VALLEY	\$0.00	\$0.00	\$0.00	\$0.00	\$983,996.00	\$0.00	\$983,996.00	16.89%
CITY OF MURRIETA	\$0.00	\$0.00	\$0.00	\$230,850.00	\$0.00	\$0.00	\$230,850.00	3.96%
CITY OF NORCO	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	0.00%
CITY OF PERRIS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$224,536.00	\$224,536.00	3.85%
CITY OF RIVERSIDE	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$480,489.28	\$480,489.28	8.25%
CITY OF SAN JACINTO	\$0.00	\$0.00	\$0.00	\$0.00	\$196,667.60	\$565,031.00	\$761,698.60	13.08%
CITY OF TEMECULA	\$0.00	\$0.00	\$0.00	\$0.00	\$17,177.00	\$4,953.00	\$22,130.00	0.38%
COUNTY OF RIVERSIDE	\$437,619.00	\$320,725.00	\$477,917.00	\$492,295.00	\$484,058.00	\$586,163.00	\$2,798,777.00	48.04%
RIV. CO. FLOOD CONTROL							\$0.00	0.00%
RCA SPECIAL PART. ENTITIES							\$0.00	0.00%
<b>TOTALS</b>	<b>\$437,619.00</b>	<b>\$320,725.00</b>	<b>\$477,917.00</b>	<b>\$798,918.40</b>	<b>\$1,860,449.59</b>	<b>\$1,929,951.73</b>	<b>\$5,825,580.72</b>	<b>100.00%</b>



## **6.0 MANAGEMENT ACTIVITIES**

### **6.1 Management Goal**

The MSHCP indicates (§ 5.2) that management’s goal is to “...establish and maintain a self-sustaining MSHCP Conservation Area, that focuses on conserving habitats and species and is consistent with the conservation objectives for the covered species.”

### **6.2 General Management Activities**

According to the MSHCP (§ 5.2.1), the following are general management activities:

- A. Control unauthorized public access through fencing, gates, signage, trash removal, etc.
- B. Perform initial baseline assessments of new acquired properties within the first four years of conveyance to the MSHCP.
- C. Maintain upland habitats in conditions similar to or better than when it was acquired.
- D. Maintain wetland habitats in conditions similar to or better than when it was acquired.
- E. Conserve raptor nests

Other management [and monitoring] activities are referenced in the MSHCP; however, many of these are dependent upon longer-term knowledge of the properties, especially the results of monitoring surveys for target species.

### **6.3 Current Personnel**

The Riverside County Regional Park and Open Space District (hereafter the “District”) has been selected to manage many of the MSHCP properties. Other land management agencies include the U.S. Forest Service, the U.S. Bureau of Land Management, the Center for Natural Lands Management, the University of California, Riverside, the California Department of Fish and Game (CDFG), and the California Department of Parks and Recreation. Monitoring activities will be carried out by the Plans Monitoring Program Administrator. The Monitoring Program includes personnel from the California Department of Fish and Game, the U.S. Fish and Wildlife Service, and the RCA.

Currently the District supports two full-time and one half-time personnel directly involved with the management of MSHCP lands acquired by the local permittees. These are:



- A. **Natural Resources Manager (1/2 time):** The Natural Resources Manager (NRM) provides planning and administrative oversight for the other District MSHCP personnel, and performs field evaluations of newly acquired properties. Additionally, the NRM represents District MSHCP management in other MSHCP activities (e.g., MSHCP Team meetings).
- B. **Park Ranger II (full time):** The Ranger patrols the MSHCP properties, and identifies maintenance issues. Typically the Ranger will patrol a property in search of cut fences and vandalism, new dumping sites and hazmat issues, OHV trespass, poaching, other maintenance issues such as road conditions. The Ranger also handles public inquiries, and is responsible for maintaining the MSHCP field office and records. The Ranger supervises the Park Maintenance Worker.
- C. **Park Maintenance Worker (full time):** The Park Maintenance Worker primarily responds to maintenance issues passed on from the Ranger and NRM. Typical duties include the mending of fences, replacement of signs, road and gate maintenance, suggestions for additional protective measures, trash removal, and responding to issues brought to the attention of the Ranger or NRM by the public. The Park Maintenance Worker also maintains data on all locks and keys, and vehicle maintenance schedules.

## 6.4 Properties Managed by the Parks and Open Space District

Table 9 lists the properties currently managed by the District for the MSHCP program. Several of the sites that were originally surveyed by the District for inclusion in District management have been eliminated, are still pending acquisition, or have been given back to the District to manage because State Parks will not accept them at this time.

Currently, the District manages twenty-six (26) properties acquired for the MSHCP, totaling approximately 6,246 acres.

## 6.5 Results

### 6.5.1 Acquisition Scenario

Approximately 20,000 acres have been acquired for Reserve Assembly. The acquisition process includes several steps, including: appraisal; purchase agreement, negotiations; a “walk over” inspection of the site to ensure there are no significant issues which would prevent the RCA from taking title); Phase I and in some instances a Phase II Report. Such issues include significant trash dumps, and hazmat or other health and safety sites. Along with this, a Permittee representative inspects the property to ensure that the property corners have been clearly staked and marked. If all standards are met, approval of the acquisition by one of



**Table 9. MSHCP Sites Currently Managed by the Riverside County Parks District**

HMU	ASSIGNED TO RESERVE	OLD NAME	EDA / FACILITIES MGT. NAME	ACQUIS. STATUS	ACRES	MAP STATUS	IMER DONE	NOTES
SAM	SAM1	ALBERHILL1	TRI-VALLEY	Acquired	598.00	Need final map	N	
SAG	SAG2	ANZA1	ROTH	Acquired	80.00	OK	Y	
SAG	SAG3	ANZA2	J.P.R.	Acquired	884.46	OK	N	
SAG		ANZA3	Unknown	Pending		Need final map	Y	Pending acquisition
SAG	SAG2	ANZA4	GAMBELL GELLER HACKENBERGER	Acquired	166.43	OK	Y	
SAG		ANZA5	WON YOO	Pending	40.00	OK	N	Pending acquisition
BAD	BAD1	BADLANDS1	SCHMELLING	Acquired	308.88	OK	Y	
RIV		FLY	TELEDYNE	Pending	181.49	Need final map	N	Pending acquisition
GAV	GAV2	GAVILAN1	BUTCHART	Acquired	40.00	OK	Y	
GAV	GAV3	GAVILAN2	NORTH PEAK 2	Acquired	336.21	OK	Y	
GAV	GAV3	GAVILAN3	NORTH PEAK 1	Acquired	79.86	OK	N	
GAV	GAV3	GAVILAN4	GRITTON	Acquired	149.16	OK	N	
GAV	GAV3	GAVILAN5	NORTH PEAK 3, 4	Acquired	359.60	OK	N	
GAV	GAV2	GAVILAN6	PAUL	Acquired	443.73	OK	N	
GAV	GAV2	GAVILAN7	LONG BEACH	Acquired	299.76	OK	N	
MEN	MEN1	KABIAN1	WHITE ROCK 1,2,3	Acquired	680.06	OK	N	
MEN	MEN2	MENIFEE1	MCELHINNEY-STIMMEL	Acquired	368.00	OK	Y	
MEN	MEN2	MENIFEE3	GENTRY	Acquired	30.00	OK	N	
MEN		NUEVO1	HIGGINS	Pending	151.69	Need final map	N	Pending acquisition
TIM	TIM2	RECHE1	RECHE DONATION	Acquired	40.00	OK	N	
MEN		SAN TIM 3	CLARK	Acquired	781.04	OK	N	
MEN	MEN3	SKINNER1	LK. SKINNER INVESTORS	Acquired	295.56	OK	Y	
MEN	MEN3	SKINNER2	LEDBETTER/MILHOLLAND	Acquired	40.00	Need final map	N	
MEN	MEN3	WINCHESTER 1	DUTCH	Acquired	28.47	Need final map	Y	Site to be split
TIM	TIM3	SAN TIM 1	RIVERSIDE LAND CONSERVANCY	Acquired	118.13	OK	N	State Parks Refused title
TIM	TIM3	SAN TIM 2	RIVERSIDE LAND CONSERVCY. (EL CASCO)	Acquired	6.90	Need final map	N	
GAV	GAV4	TAX1	TAX SALE 1	Acquired	10.00	OK	N	
SAM	SAM3	TAX2	TAX SALE 1	Acquired	81.83	OK	N	
MEN	MEN1	TAX3	TAX SALE 2	Acquired	10.00	OK	N	
SAM	SAM3	TAX4	TAX SALE 2	Acquired	10.00	OK	N	



the Local Permitees (historically by the County and now primarily the RCA) is consummated. When the acquisition is completed, the RCA delegates management to the District (or other entity).

In most cases, properties acquired follow existing parcel lines. In a few cases, only parts of parcels are acquired. If this is the case the legal description is provided to RCA GIS for mapping. RCAGIS, in turn, forwards the final GIS map files to the District for management. Property deeds, conservation easements and other instruments are stored by RCA GIS and linked to the specific properties in the GIS database.

### **6.5.2 Establishment of Habitat Management Units and Reserves**

The MSHCP states (§5.2.2), “Preliminary management unit boundaries may be refined, changed or consolidated based on information gathered during this [long-term] period.” Initially, the MSHCP divided the project area into five (5) Preliminary or Conceptual Management Units. However, as properties have been acquired in a non-uniform fashion, and great distances exist between them, it has become necessary to re-define these preliminary management units as described in the MSHCP. Based on the need for efficient defining of patrol and maintenance areas, the boundaries associated with the rough-step units, the pattern of criteria cells, local habitat affinities, and the need for clearly defined, manageable boundaries, the MSHCP project area has been divided into nine (9) Habitat Management Units (HMU) (*Figure 12, Habitat Management Units*). Each HMU, more or less, defines a geographic area which is disjunct from other HMUs by a significant barrier access and/or wildlife movement, a rough-step boundary, or other manageable boundary. Most often these boundaries are highways. For instance, all properties southwest of Interstate 15 are associated with the Santa Ana Mountains HMU; all properties associated with the Gavilan Plateau are included in the Gavilan HMU. This has the added advantage of associating a spatial component name with the HMU name for quick recognition.

Continuing the selection process to a finer scale, reserves have been established within each HMU. Currently the number of reserves in a given HMU ranges from one to five. The reserves break down the HMU lands into manageable pieces, and are defined primarily by the presence (or lack thereof) of criteria cells, habitat affinities, and manageable boundaries. For instance, GAV1 (Gavilan HMU Reserve #1) is centered on Eagle Valley and Arlington Mountain, and is separated from GAV2 by Cajalco Road. In turn, GAV2 includes all the southwest-facing criteria areas northeast of Interstate 15 and west of El Toro Road (i.e., the boundary with GAV3). In this way, the HMUs are broken into biologically meaningful pieces which may or may not have distinctly different management scenarios. It should be noted that these reserve boundaries are flexible, and can be changed depending upon the final configuration of property acquisition.



Figure 12     Habitat Management Units



### 6.5.3 Habitat Protection

A clearly stated goal of management is the protection of lands within the MSHCP Conservation Area lands from human activities that can degrade or even destroy the habitat. During the year, the majority of management's efforts have been spent in these endeavors.

A regular series of ranger patrols have been established. Initially, The Ranger and Park Maintenance Worker acted as independent units. However, the need to respond to observed violations and the corresponding safety need for back-up, re-defined how field work is accomplished. Now, the Ranger and Park Maintenance Worker work each day within the same HMU, facilitating rapid response should problems be encountered.

As mentioned above, regular patrols seek to intercept and discourage public entry into the reserves, identify and correct any maintenance issues, and respond to public inquiries and concerns.

Patrols have observed several general patterns with regard to anthropocentric problems encountered by the reserve system. First, it appears that the closer the properties are to residential areas, the more likely that Off-Highway Vehicle (OHV) trespass will be a significant problem. Second, areas lying just beyond the edge of development are most likely to have illegal dumping as a significant problem. Third, where development abuts a reserve with brick walls, trash and green waste are often thrown over the wall onto the reserve. Forth, sites located near new developments often receive construction debris dumping (e.g., drywall, concrete waste). Fifth, information the public receives about hunting from various agencies (e.g., CDFG, police departments, Sheriff's Department, County Parks) are inconsistent and often erroneous.

A brief regression analysis was performed during the budgetary process to attempt to understand management costs. This analysis looked at the difference in costs (overall, for Rangers, and for Park Maintenance Workers) in relation to the size of the property. The analysis indicated that overall management costs are highly unpredictable for properties under about 500 acres in size. For larger sites, it appears as though the relationship between cost and size becomes more linear and predictable. Ranger costs decreased slightly at about the 500-acre size, while Park Maintenance Worker costs, more or less, leveled out or increase slightly. Hypothesized variables explaining the large variance in smaller site costs include greater edge effects, historical use of the site, and proximity to development.

During 2004, maintenance activities have included the posting of either "No Trespassing" or "No Motorized Vehicle" boundary signs at strategic points. Other signs posted, where necessary, include individual "Closed Trail", "No ATVs", "No Motorcycle", "No 4x4s", "No Paintball",





and “No Dumping” signs. These signs are most often placed at points along the perimeter of the properties where experience has shown public access is most common. Signs are commonly vandalized (i.e., shot) or stolen, and need frequent replacement.

Fencing efforts, to date, have been minimal, and often consist of building barriers across points of common entry. Typically, 133 T-posts are used, strung with smooth wire, and signed. As with the signs themselves, constructed fences and gates are frequently vandalized, and repair is an ongoing task.

Patrols have also sought to introduce the MSHCP program and personnel to neighbors of the reserves. Reception appears to be mixed, and highly polarized. Either citizens are in great favor of the MSHCP reserves, or they are dead-set against them. Nevertheless, the District’s MSHCP staff has made significant headway in soliciting and obtaining citizen help by, at a minimum, providing information about an adjacent reserve, and maximally, actively serving as extras eyes and ears by reporting incidents to the Ranger and Park Maintenance Worker.

During 2004, Staff has completed daily patrol log sheets specifying travel and patrol times and mileages for each of the sites. In this way, future budget estimates for time and mileage will be more accurate than previous estimates. These data have been partially analyzed, and completion is expected within the next month or so.

#### **6.5.4 Baseline Management Assessments**

Baseline assessment of current properties began in 2004 with the formulation of the Initial Management Evaluation and Recommendation (IMER) report format. A total of 10 IMERs have been completed so far. Of these, seven IMERs have been completed on currently managed properties, and one completed for a property currently being acquired. An additional IMER was completed on the Lockheed-Laborde site which California Department of Parks and Recreation will manage as an OHV park, and one for a site which was not acquired (Beeler/Leland).

During the field evaluation, a field form has been created and used for note taking. This information is used to complete the IMER. IMERs consist of a moderate-level evaluation of the site in terms of both its biological assets, its physical local and attributes, and its overall position with regard to the reserve design. *Table 10* contains the typical contents of an IMER.



**TABLE 10. INTERIM MANAGEMENT EVALUATION AND RECOMMENDATION (IMER) CONTENTS**

SECTION	SUB-SECTION	DESCRIPTION
Site Physical Description	Site Physical Location & Access	Describes the location of the site, including T/R/S, UTM and State Plane coordinates; how access is obtained.
	APNs & Acreage	A listing of assessor parcel numbers and acreages
	Topography	A description of the physical lay of the land
	Surrounding Land Use	What currently surrounds the property on all sides
Biological Assessment	Plant Communities	A brief description of the dominate plant communities and species
	Likely Animal Species	A brief description of what animals will commonly be found onsite
	Other Habitat or Wildlife Features	Describes other features which may be important to wildlife such as rock outcrops, roosting trees
	Target Species	Qualitative checklists are supplied in Appendices A and B for target plants and animals, respectively
Impacts & Current Conditions	Current Use	What happens on the property now
	Fencing and Access Controls	Are there any existing fencing and gates? Which sides of the property of open of ingress?
	Off-Highway Vehicle Use/Damage	How prevalent is OHV use on the site. Have habitats been degraded as a result?
	Illegal Dumping	Describes how much dumping occurs on the site. Are there any major clean-up sites we will have to deal with?
	Target Shooting & Hunting	A description of the prevalent of target shooting, and the accompanying impacts to habitats. Includes a description of trash associated with target shooting. Also a brief description of any hunting likely to occur onsite, if appropriate.
	Weed Abatement	Is there any weed abatement currently going on onsite? If not, will any be necessary for management? Where should it be done?
	Other Recreational Opportunities and Constraints	Does the site lend itself to any recreation that is compatible with the overall purpose of the reserve? Are there any other current recreational pursuits that should be curtailed?
	Special Conditions of Purchase	Describes any special conditions negotiated during the acquisition of the parcel. Such conditions might include continued equestrian use, grazing
Restoration Opportunities	Target Species	Are there degraded habitats for target species onsite that need to be restored or enhanced? Are there any exotics which need to be controlled or eliminated?
	Multi-Species Aspects	Are there completing habitat requirements which restoration needs to address? For instance, should a burn sage scrub habitat be allowed to return to sage scrub, or be maintained as is to support a population of sensitive kangaroo rats there?
Reserve Design & Connectivity	Boundary, Edge and Community Location	What's happening around the site that could affect the overall reserve design? Is development occurring next door that could preclude movement into other distant criteria cells or areas of the reserve?
	Connectivity	How does the site fit into the overall general MSHCP build out plan? Is it part of a core area? A corridor?
	Nearby Existing Reserves	What, if any, reserves currently are found nearby? Is the site adjacent to a PQP site/
	Priority for Future Purchases	This section describes what other parcels in the immediate vicinity should receive attention because of their connectedness, or linkage value with the subject site.
Initial Management	Public Issues	How will management begin to deal with the people issues found on the site, such as OHV use and weed abatement?
	Biological Issues	How will management deal with pressing biological issues such as invasive exotics?
	Recommended Initial Management Scenario	This section is a list that describes specific management steps that should be taken within the first year following acquisition to provide for the protection and enhancement of the resources.
	Management Scenario Costs	Itemizes the costs associated with the recommended initial management scenario as Appendix C
Maps		Site maps (generally a vicinity and aerial photograph map) supplied as Appendix D
Site Photographs		A few photos to show typical habitat and/or significant impacts



### 6.5.5 Monitoring Coordination

Realizing the important future interactions between management and monitoring, the NRM and Monitoring Program Administrator began a monthly meeting schedule to discuss issues of common interest, and to begin to work out details of how management and monitoring will act together on such issues as monitoring staff access, future habitat enhancement activities, and reporting of observed violations.

## 6.6 Future Activities

During 2005, Management will receive its first official budget. With this, Management will begin to increase staff with the additional hiring of another Ranger and Park Maintenance Worker, a Natural Resources Specialist, and a professional law enforcement person (e.g., Sheriff, Fish & Game Warden).

Major goals and tasks for 2005 include:

- A. Continued IMER evaluations for existing properties and newly acquired lands
- B. Increase patrol and maintenance efforts
- C. Purchase and install much needed fencing and other access controls such as k-rails or boulder fences
- D. Perform necessary infrastructure improvements on existing properties. Such improvements could include road maintenance and grading of El Toro Cutoff
- E. Continue coordination with Monitoring staff
- F. Begin to analyze habitat restoration and/or enhancement needs, and if possible, carry out some of these activities. Investigate the formulation of a Vegetation Management Plan (VMP) with California Department of Forestry and Fire Protection
- G. Continue and increase cooperation and coordination with local law enforcement entities
- H. Finalize an outline for, and begin completing when possible, Management Plans for reserves within which properties have been obtained.



## 7.0 MONITORING ACTIVITIES

### 7.1 Overview

This annual report describes activities conducted by the Western Riverside County MSHCP Biological Monitoring Program. The first year of the Program (2004) was largely supported by the California Department of Fish and Game (CDFG), which is the designated Monitoring Program Administrator for at least the first 8 years of the permit. Sections 5.3 and 6.6.6 of the MSHCP planning document (MSHCP 2003) describe the framework for the Biological Monitoring Program and the responsibilities of the Monitoring Program Administrator, including annual reporting requirements. This report includes descriptions of the goals and objectives of the MSHCP and the Biological Monitoring Program, monitoring activities conducted through December 31, 2004, and evaluation of progress toward achieving measurable biological goals and objectives. Since the Monitoring Program is still in its early stages of data collection, no evaluation of cause-and-effect relationships, effects on Covered Species and vegetation communities, data analysis, or suggested changes for adaptive management are included.

### 7.2 Biological goals and objectives of the MSHCP

The overall goal of the MSHCP is to enhance and maintain biological diversity and ecosystem processes while allowing future economic growth. The biological goal of the MSHCP is to conserve 146 Covered Species and their habitats within a 500,000 acre Conservation Area. The number of species covered by the MSHCP is the largest of any conservation plan permitted to-date and includes species from each major taxonomic group (i.e. invertebrates, fish, mammals, birds, reptiles, amphibians, and plants). Specific conservation objectives for each Covered Species were included in the MSHCP to ensure their persistence in the Conservation Area. The specific objectives can be found in the Species Accounts provided in Volume 2 of the planning document (MSHCP 2003).

### 7.3 Objectives of the Biological Monitoring Program

The goal of the Biological Monitoring Program is to provide multiple species monitoring that targets the 146 Covered Species and associated plant and animal communities, provides data on whether species objectives are being met, and provides data to the Adaptive Management Program on the presence or absence of unfavorable environmental factors, species, and/or ecosystem processes that might trigger management actions. The Monitoring Program is being carried out in two phases. The initial inventory and assessment phase, carried out during the first five years of the permit, focuses on mapping vegetation communities, gathering and synthesizing existing species information, conducting field surveys for selected Covered Species, and testing a



community-based approach. The long-term monitoring phase will occur after the initial phase and will utilize a multiple species sampling strategy (i.e. sampling design, sampling locations, and survey protocols) that is developed based on the information gathered during the initial phase. Section 5.3 of the MSHCP further describes the goals and objectives of the Monitoring Program and the implementation sequence for monitoring activities.

## **7.4 Monitoring activities**

Although 2004 was the first year of the MSHCP, preliminary monitoring activities began in 2002 and 2003. In 2002, CDFG initiated a contract with the University of California Riverside, Center for Conservation Biology (UCR) for the purpose of developing a long-term monitoring strategy for the MSHCP. UCR began by querying databases and museums for information on Covered Species, constructing preliminary predictive (“niche”) models to focus survey efforts, and surveying for selected Covered Species. In 2003 and 2004, CDFG purchased the majority of field supplies and computer equipment used by the Biological Monitoring Program, and hired six seasonal biologists to conduct amphibian monitoring.

Below is a brief summary of monitoring activities conducted through December 31, 2004. Relevant information from efforts conducted prior to permit issuance is included. Monitoring Program activities were carried out by CDFG and UCR. Unless otherwise stated, details of the methodology for surveys can be found in the Final Report to CDFG (UCR 2005) and in the draft protocols submitted with the electronic data to the CDFG Statewide database (BIOS).

## **7.5 Vegetation Mapping and Habitat Assessment**

In 2002, CDFG began efforts to update the vegetation map of the entire 1.26 million acre MSHCP planning area for use in tracking and assessing changes in vegetation and wildlife habitats. The new vegetation map is being generated through a quantitative mapping effort that identifies polygons of vegetation using aerial photographs and satellite images. The vegetative attributes of the polygons are determined using the California Native Plant Society (CNPS) “Vegetation Rapid Assessment Protocol” (CNPS 2002) and “Releve Protocol” (CNPS 1998). A draft of the map was released in May 2005 and an assessment of vegetation and habitats will be reported in the next Annual Report.

## **7.6 Covered Species Surveys**

Focused surveys for selected Covered Species are being conducted during the initial inventory and assessment phase to (1) meet species objective requirements, (2) collect additional information needed to determine sampling strategies, (3) verify the historic records for all



Covered Plant Species, and (4) find new populations of Covered Species based on niche models. The species objectives for all 146 Covered Species require, at a minimum, tracking of each species' distribution within the Conservation Area at least once every eight years. Additionally, there are 28 Covered Species that require some level of surveys during the first five years of the permit to verify presence at known locations, document successful reproduction, or determine distribution and/or density (see Appendix B), and there are 16 Covered Species that have specific population levels that must be demonstrated to exist within the Conservation Area to be considered adequately conserved. The schedule for species surveys was provided in the 2004-05 Annual Work Plan (CDFG 2003).

### 7.6.1 Mountain Yellow-Legged Frog

Surveys for mountain yellow-legged frog were conducted by CDFG in 2003 and 2004 in 12 streams across the San Jacinto Mountains in an effort to find new populations. The survey dates, starting locations of surveys, and streams where the target species was found are shown in *Table 11* and *Figure 13, Locations of Amphibian Surveys Conducted in 2003 and 2004*. Mountain yellow-legged frogs were not found in any new streams, although they were found in a new location in Dark Canyon. Surveys followed, with modifications, the USGS "Survey Protocol for Detecting the Mountain Yellow-Legged Frog (*Rana muscosa*) in Southern California" (USGS 2003a). Pit-tagging and scanning for pit-tags in adults was not carried out because it was not within the scope of the MSHCP. Information collected included, but was not limited to: weather, substrate, vegetation, presence of water, and morphological and life-history characters of any target species found. Water quality was not assessed.

**Table 11**  
**Mountain Yellow-Legged Frog, *Rana Muscosa* (Ramu),**  
**Survey Locations And Detections In 2003 And 2004**

Date	Stream Name	Survey Start Latitude	Survey Start Longitude	RAMU Detected?
03-Jul-03	Azalea Creek	33.854N	-116.805W	No
10-Jul-03	Azalea Creek	33.836N	-116.782W	No
11-Jul-03	Twin Pines Creek	33.846N	-116.770W	No
15-Jul-03	Dutch Creek	33.840N	-116.755W	No
22-Jul-03	Fuller Mill Creek	33.800N	-116.750W	No
24-Jul-03	Brown Creek	33.842N	-116.743W	No
24-Jul-03	Brown Creek Trib	33.847N	-116.749W	No
05-Aug-03	Mellor Creek	33.847N	-116.749W	No
13-Aug-03	Dark Canyon	33.799N	-116.732W	No
19-Aug-03	Dark Canyon	33.812N	-116.715W	No
11-Sep-03	Black Mtn Creek	33.800N	-116.763W	No



**Table 11**  
**Mountain Yellow-Legged Frog, *Rana Muscosa* (Ramu),**  
**Survey Locations And Detections In 2003 And 2004**

Date	Stream Name	Survey Start Latitude	Survey Start Longitude	RAMU Detected?
12-Sep-03	Black Mtn Creek	33.809N	-116.761W	No
19-Sep-03	Spillway Canyon	33.647N	-116.691W	No
19-Sep-03	San Jacinto Trib03	33.794N	-116.737W	No
23-Sep-03	Stone Creek01	33.776N	-116.736W	No
25-Sep-03	Stone Creek02	33.782N	-116.748W	No
07-Oct-03	Herkey Creek01	33.731N	-116.673W	No
16-Jun-04	Black Mtn Creek01	33.800N	-116.764W	No
17-Jun-04	Black Mtn Creek02	33.808N	-116.759W	No
23-Jun-04	Dark Canyon01	33.796N	-116.741W	No
24-Jun-04	Dark Canyon02	33.802N	-116.732W	4 Adults
29-Jun-04	Stone Creek01	33.776N	-116.735W	No
09-Jul-04	Stone Creek02	33.775N	-116.732W	No
19-Jul-04	Dark Canyon03	33.809N	-116.725W	No
22-Jul-04	Stone Creek03	33.781N	-116.720W	No
02-Aug-04	Stone Creek04	33.781N	-116.719W	No

### 7.6.2 Arroyo Toad

Surveys for arroyo toad were conducted by CDFG in 2004 in five streams in the Cleveland and San Bernardino National Forests. The survey dates, starting locations of surveys, and streams where the target species was found are shown in *Table 12* and *Figure 13, Locations of Amphibian Surveys Conducted in 2003 and 2004*. No new populations were found. The survey protocol was modeled after the USGS “Daytime Habitat Assessment Survey Protocol for the Arroyo Toad (*Bufo californicus*) (USGS 2003b). Information collected included, but was not limited to: weather, substrate, vegetation, presence of water, water temperature, and morphological and life-history characters of any target species found.

### 7.6.3 California Red-Legged Frog

Surveys for California red-legged frog were conducted by CDFG in 2004 in four streams in the Cleveland National Forest. The survey dates, starting locations of surveys, and streams where the target species was found are shown in *Table 13* and *Figure 13, Locations of Amphibian Surveys Conducted in 2003 and 2004*. Although no red-legged frogs were found, breeding adult coast range newts were found at several locations in the Santa Ana Mountains. Surveys followed, with modifications, the USGS “Survey Protocol for Red-legged Frog (*Rana aurora draytonii*) Egg



Figure 13      Locations of Amphibian Surveys Conducted in 2003 and 2004





Masses in San Francisquito Canyon (USGS 2003c). Ad-hoc visual encounter surveys for adults were conducted at night in August and September 2004. Information collected included, but was not limited to: weather, substrate, vegetation, presence of water, water temperature, and morphological and life-history characters of any target species found.

**TABLE 12**  
**Arroyo toad, *Bufo californicus* (BUCA) Survey Locations and Detections in 2004**

Date	Stream Name	Survey Start Latitude	Survey Start Longitude	BUCA Detected?
13-Apr-04	Arroyo Seco01	33.4650N	-116.9723W	No
15-Apr-04	Bautista Creek01	33.6732N	-116.8345W	No
20-Apr-04	Arroyo Seco02	33.4671N	-116.9735W	No
22-Apr-04	Bautista Creek02	33.6361N	-116.8008W	No
27-Apr-04	Bautista Creek03	33.6572N	-116.8197W	No
28-Apr-04	Bautista Creek04	33.6499N	-116.8168W	No
03-May-04	Bautista Creek05	33.6327N	-116.7856W	No
04-May-04	Bautista Creek03b	33.6544N	-116.8178W	No
05-May-04	Bautista Creek06	33.6247N	-116.7732W	No
06-May-04	Bautista Creek03c	33.6536N	-116.8166W	9 juvs.
07-May-04	Horse Creek01	33.6451N	-116.8085W	No
10-May-04	Bautista Creek	33.6178N	-116.7577W	No
13-May-04	San Juan Creek01	33.6069N	-117.4454W	No
18-May-04	San Juan Creek02	33.5994N	-117.4614W	No
20-May-04	LosAlamosCyn02	33.5507N	-117.3840W	No
20-May-04	LosAlamosCyn02	33.5512N	-117.3938W	No

**TABLE 13**  
**California red-legged frog, *Rana aurora draytonii* (RAAU) Survey Locations and Detections in 2004**

Date	Stream Name	Survey Start Latitude	Survey Start Longitude	RAAU Detected?
08-Mar-04	San Mateo Cyn01	33.5230N	-117.4269W	No
10-Mar-04	Los Alamos Cyn01	33.5499N	-117.3955W	No
11-Mar-04	Los Alamos Cyn02	33.5481N	-117.3786W	No
12-Mar-04	Cole Canyon 01	33.5288N	-117.2728W	No
16-Mar-04	San Mateo Cyn02	33.5371N	-117.4014W	No
19-Mar-04	Cole Canyon 02	33.5396N	-117.2644W	No
22-Mar-04	Cole Canyon 03	33.5441N	-117.2642W	No
30-Mar-04	Cole Canyon04	33.5287N	-117.2730W	No
01-Apr-04	Cole Canyon05	33.5579N	-117.2543W	No
06-Apr-04	Cole Canyon06	33.5603N	-117.2363W	No
08-Apr-04	Adobe Creek 01	33.5095N	-117.2571W	No
18-Aug-04	Cole CynD1	33.5458N	-117.2637W	No



**TABLE 13**  
**California red-legged frog, *Rana aurora draytonii* (RAAU)**  
**Survey Locations and Detections in 2004**

Date	Stream Name	Survey Start Latitude	Survey Start Longitude	RAAU Detected?
14-Sep-04	Cole CynD1	33.5288N	-117.2728W	No
14-Sep-04	Cole CynN2	33.5288N	-117.2732W	No

#### 7.6.4 Reptile Surveys

Surveys for reptiles were conducted throughout the Conservation Area by UCR in 2003 and 2004 for the purpose of constructing niche models for five Covered Lizard Species: Belding's orange-throated whiptail, coastal western whiptail, granite spiny lizard, San Diego horned lizard, and southern sagebrush lizard. This was a two-year project carried out by a graduate student at UCR (Adam Malisch). Results can be found in the Final Report to CDFG (UCR 2005). Surveys were conducted by walking time-constrained transects within cells selected from the niche model. Information collected included, but was not limited to: weather, temperature, elevation, microhabitat, species, life-history characters of target species found, and total distance walked. Locations of target species found are shown in *Figure 14, Locations of Lizard Species Detected During Reptile Surveys in 2003 and 2004*.

#### 7.6.5 Burrowing Owl

Surveys for burrowing owl were conducted by UCR in 2003 and 2004 as part of a project carried out by a graduate student at UCR (Ginny Short). Surveys were conducted at historic record locations and at three locations identified in the MSHCP as Cores for the burrowing owl: Santa Ana River, San Jacinto Wildlife Area/Mystic Lake, Lake Skinner/Diamond Valley/Johnson Ranch area. Suitable habitat was identified at each area and then surveyed using 20-minute point counts at one mile intervals along roads and trails. Information collected included: UTM coordinates of owls and notation of presence or absence at historic locations. Locations of burrowing owls found are shown in *Figure 15, Locations of Burrowing Owls Detected During Surveys in 2003 and 2004*.

#### 7.6.6 Covered Plant Species

Surveys for 23 Covered Plant Species were conducted throughout the Conservation Area by UCR in 2003 and 2004. Surveys were conducted to determine the status of Covered Plants at historic record locations. Historic record locations were queried from numerous sources,



Figure 14      Locations of Lizard Species Detected During Reptile Surveys in 2003 and 2004



Figure 15 Locations of Burrowing Owls Detected During Surveys in 2003 and 2004



including herbaria, museums, and the database used in planning the MSHCP. Field biologists searched areas on foot and recorded whether the target species were found. CNPS Relevé (CNPS 1998) plots were used to take measurements of the vegetation at the sites, including the number of individuals of the target species. Locations of Covered Plant Species found during the surveys are shown in *Figure 16, Locations of Covered Plant Species Detected During Surveys in 2003 and 2004*. Of the 23 Covered Plant Species surveyed, 21 were detected. Details on the results can be found in the Final Report to CDFG (UCR 2005).

### **7.6.7 Raptor Surveys**

Surveys for raptors were conducted in 2003 and 2004 as part of a project carried out by a graduate student at UCR (Allison Rudalevige). Surveys were conducted using 20-minute point counts during the four seasons of the year at 250 points established throughout the planning area. Information collected included: species, bird activity, substrate, distance and direction from observer, and inclination. Locations of Covered Raptor Species found during the surveys are shown in *Figure 17, Locations of Raptors Detected During Surveys in 2003 and 2004*. Results can be found in the Final Report to CDFG (UCR 2005).

### **7.6.8 Community Surveys**

One of the goals of the monitoring program is to monitor Covered Species within the context of their relevant species assemblages (i.e., communities) because threats are likely to be similar and management actions will affect all species within the community. A multiple species, community-based approach is being tested during the initial inventory and assessment phase. This approach will result in greater monitoring efficiency in that data on several species can be collected simultaneously or at least at the same sampling station. By implementing the monitoring program in this manner, the requirements for surveying individual Covered Species are met, but the actual surveying is done at the community level, which is more practical.

#### **7.6.8.1 Coastal Sage Scrub Community**

Community sampling in coastal sage scrub habitat was conducted by UCR between April and August 2004. Sampling grids were established at eight sites that represent the wide variation in sage scrub found in the Conservation Area (*Figure 18, Locations of Coastal Sage Scrub Communities Sampling Grids Used in 2004 Surveys*). Within each grid, the following information was collected: vegetation, native versus non-native plants, soil arthropods, reptile species, bird species, mammal sign, and anthropogenic disturbance. Protocols used to sample the coastal sage scrub community were submitted to CDFG along with the electronic data. Results can be found in the Final Report to CDFG (UCR 2005).



Figure 16      Locations of Covered Plant Species Detected During Surveys in 2003 and 2004



Figure 17      Locations of Covered Raptor Species Detected During Surveys in 2003 and 2004



Figure 18      Locations of Coastal Sage Scrub Community Sampling Grids Used in 2004 Surveys





### 7.6.8.2 Riparian Community

Community sampling in riparian habitat was conducted by UCR between April and November 2004. Fifteen riparian corridors containing cottonwood-willow riparian forest and southern willow scrub habitat were selected within the Conservation Area (*Figure 19, Locations of Riparian Communities Sampling Transects Used in 2004 Surveys*). Transects spaced 200 m apart were placed within each corridor. The following information was collected at each transect: vegetation composition, soil arthropods, and bird species. Protocols used to sample the riparian community were submitted to CDFG along with the electronic data. Results can be found in the Final Report to CDFG (UCR 2005).

## 7.7 Evaluation of Progress Toward Achieving Measurable Objectives

Specific and measurable conservation objectives for each Covered Species were included in the Species Account in the MSHCP, volume 2 (MSHCP 2003). Only the species objectives that require biological surveys to evaluate are addressed by the Biological Monitoring Program; these objectives are listed in the Appendix with the Covered Species that were detected in 2003 and 2004. Because the Monitoring Program is in an early stage of data collection, evaluation of objectives for Covered Species is premature. A total of 63 of the 146 Covered Species were detected during surveys conducted in 2003 and 2004. Noteworthy observations are presented below.

### 7.7.1 Covered Amphibian Species

The objectives for the five amphibian species covered by the MSHCP require the monitoring of breeding activity and maintenance of these species within the Conservation Area. Surveys conducted for amphibians by the Monitoring Program and partner agencies with land within the MSHCP (i.e., USGS, USFS) have shown that mountain yellow-legged frog, arroyo toad, and coast range newt occur in the Conservation Area and are successfully breeding, as evidenced by eggs, larvae, and/or tadpoles. Surveys for western spadefoot have not been conducted. The California red-legged frog was not detected during surveys conducted by the Monitoring Program in 2004.

### 7.7.2 Burrowing Owl

The species objectives for burrowing owl require a total of 120 pairs of owls to be conserved within five Core Areas, with no Core containing less than five pairs of owls. Based on surveys conducted by UCR in 2003 and 2004, two of the Core Areas contained at least 5 pairs of owls



Figure 19      Locations of Riparian Community Sampling Transects Used in 2004 Surveys



(San Jacinto Wildlife Area/Mystic Lake – 8 pairs; and Lake Skinner/Diamond Valley/Johnson – 7 pairs), and 1 Core Area contained 1 pair of owls (Santa Ana River). Surveys were not conducted at the other two Core Areas.

### **7.7.3 Covered Plant Species**

The species objectives for 13 Covered Plant Species have certain conservation requirements that need to be met before the species are considered adequately conserved by the MSHCP (see Appendix). The first step in surveying for these species is revisiting historic record locations. In 2003 and 2004, UCR conducted surveys at historic record locations for 12 of the 13 species (note: not small-flowered microseris). Only California muhly (no records on public lands) was not found during the surveys.

### **7.7.4 Community Surveys**

The MSHCP has a general management objective for all 146 Covered Species to maintain their presence and continued use at 75% of the locations identified for each species (unless otherwise stated), measured at a minimum of once every eight years (MSHCP 2003, volume 1). The Biological Monitoring Program proposes using community surveys to detect the majority of Covered Species in the Conservation Area. Community surveys will reduce the number of individual surveys that need to be conducted and will facilitate the monitoring of other species (e.g., common and threat species) and ecosystem processes that might affect the Covered Species. The sampling techniques used to conduct community surveys are being developed during the initial phase of the Monitoring Program. The initial protocols used in 2004 for the community surveys in Coastal Sage Scrub and Riparian habitats resulted in the detection of 25 of 45 Covered Bird Species, 6 of 12 Covered Reptile Species, and 4 of 14 Covered Mammal Species (see Appendix). Analysis and development of the sampling strategies for the community surveys will be an on-going effort.



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## **APPENDIX A**

### ***Methods Employed to Account for Habitat Lost and Conserved***



## Data Collection and Analysis Methodology for the 2004 MSHCP Annual Report

This appendix describes the process and procedures that were used to collect loss data and develop GIS data layers in preparation for the 2004 Annual Report covering the period of 6/23/2004 to 12/31/2004.

### Data from Riverside County Covering Unincorporated areas within the County

#### *County Development Project Information*

The GIS Land Management System Activities Layer was used as the source of information to develop the County's GIS data layer of losses. This information is developed as part of case processing within the Transportation Land Management Agency. The GIS LMS Activities Layer contains LMS information linked to parcel and project boundaries when developers or owners of parcels apply to build or develop their properties. It was assumed that this database is updated on a weekly basis. Though RCA staff were unable to confirm how often the database is updated, this should have no impact in the data analysis since the data queried and analyzed were from the time period approximately six months prior. It is not likely that the information would change by the time the query/analysis was conducted. A precise set of queries were developed in GIS to select a set of activities from the layer. The criteria represented were for specific Case Types of 'BGR, BMR, BRS and BGR" that represent grading, mobile home, residential, and commercial/industrial building permits. The other limitation in the query was an approval date between the period of 06/23/2004 and 12/31/2004.

Since the County Information might include multiple permit activities during the reporting period on a single parcel depending on the parcel, only one permit was reported per parcel. For example: A commercial development may have 5 or 6 commercial building permits, 3 or 4 precise grading permits but only one rough grade permit (BGR) issued on a particular parcel. All permits were collapsed into an ArcInfo Coverage with multiple region files for the reporting of acreages under development during this period.

Below is a breakdown of the number of permits within each Case Type within the reporting period within the un-incorporated areas of the County.

BGR – Grading Permits	700 total
GCOM Commercial or Industrial bldg grading	51
GOTH Various types, remedial, single family, renewal	16
GPRE Precise grading	197
GRUF Rough grade	49



GSFR Single Family – one parcel/lot grading	365
GSMI Surface Mine Annual Inspection	18
PILE Stockpile – storage permits	4
BMR – Mobile Home Permits	1,696 total
LP Low profile	21
NACC Carports, Awnings, Fees, Porch, Storage Bld	54
NFB Install of Mobile Home	4
NMH Install Mobile Home	358
PF Permanent Foundation	665
RACC Recording Fees	1
REPL Replacement Mobile Home Install	124
SP Site Preparation	469
BRS – Single Family Residence Building Permits	3,000 total
MODL New Residence-Model	182
NGST Guest House – Casita	38
NMRF New Multi-Family Residential	38
NSFA New single family attached garage	6
NSFD New single family + garage	382
RPET New Residence – Tract – Production	2,354
BNR – Commercial / Industrial Building Permits.	95 total
ACOM Addition to existing building	2
NCOM New Commercial Building	82
NIND New Industrial Building	10
RCOM Office Remodel	1

***Construction Types to be initially exempted from Report.***

Some subcategories of these four major permit types were not reported. For example; the SMI subtype (Surface Mine Inspection) within BGR (Grading Permits) is not reported since it is a yearly activity on an already approved project. Based on a review of the data, existing conditions and other information the following items will be exempted for reporting on the annual report due to the criteria as noted:



BGR	SMI	Surface Mine Inspections Occurs on an existing permitted activity
	PILE	Stockpile – storage permits Temporary in nature and uses ground that is either already disturbed or graded. Also usually issued with other grading permits for tracts.
BMR		
	NACC	Carports, Awnings, Fees, Porch, Storage Bld
	RACC	Recording Fees N/A
	REPL	Replacement Mobile Home Install in areas already developed.
BRS		
	NGST	Guest House – Casita, parcels or land already developed.
BNR		
	ACOM	Addition to existing building no impacts to MSHCP
	RCOM	Office Remodel no impacts to MSHCP.

Additional construction subtypes are being considered for removal primarily the PF - Permanent Foundation category since it appears that in most cases this involves existing mobile homes.

Below is a breakdown of the number of permits within the unincorporated County area both total, and within the MSHCP Criteria Area:

County Projects/Permits	2068	10,694.40 acres
County Projects/Permits in Criteria Cells	430	2,126.69 acres

**Data from the Cities within Western Riverside County**

The Cities presented information to the RCA in a variety of formats and media on development projects within their jurisdictions. For this first reporting period the RCA asked the Cities to provide and actively worked on acquiring both Building and Grading permits from the Cities. The information received represents the RCA’s best attempt to compile this information from the 14 Cities within Western Riverside County. Both grading and building permits were acquired to obtain information on location, date and project. Since each City submitted information in different media, formats, and for different permit and project categories, a uniform methodology evolved on how to assemble the information for the reporting period. Approved development projects, when available, were used to locate and verify both grading and/or building permits. Grading and building permits were first linked to parcels utilizing an APN (Assessors Parcel





Number). If APNs were not available or provided, RCA staff attempted to determine locations using either addresses or recorded Tract Maps. Finally, photo interpretation was utilized in some cases by comparing Aerial Photos from the Spring of 2003 as a baseline with Aerial Photos acquired by the County that were flown in November of 2004 to determine development impacts and assist in finding locations for development. As with the County permits, it is important to note that multiple permits can also occur or be issued on parcels or projects within the Cities. For each parcel having multiple permits, only one was counted. Below is a list of the methodologies used to produce a GIS data layer of each City's development within the Annual Report reporting period of June through December 2004.

<b>City</b>	<b>Project/Permit Categories and Submissions</b>
Banning	Building Permits, Photo Interpretation
Beaumont	Development Projects, Photo Interpretation.
Calimesa	Grading and Building Permits
Canyon Lake	No projects within City, Photo Interpretation
Corona	Grading Permits, Photo Interpretation
Hemet	Building Permits, Photo Interpretation
Lake Elsinore	Grading Permits, ½ of Building Permits, Photo Interpretation
Moreno Valley	Grading Permits, Photo Interpretation
Murrieta	Grading Permits, Building Permits, Photo Interpretation
Norco	Grading Permits
Perris	Development Projects, Building Permits and Grading Permits
Riverside	Building Permits, Photo Interpretation
San Jacinto	Development Projects, Some Building Permits, Photo Interpretation
Temecula	Grading Permits, Photo Interpretation

Below is a list of the total project or permits approved within each City within the Annual Report reporting period of June through December 2004.

<b>City</b>	<b>Project/Permits</b>	<b>Acres</b>	<b>Criteria Cells</b>	<b>Acres</b>
Banning	33	65.43	None	0.00
Beaumont	11	865.28	1	66.52
Calimesa	16	26.31	2	0.11
Canyon Lake	0	0.00	None	0.00
Corona	43	829.55	7	100.68
Hemet	27	597.16	1	116.93



<b>City</b>	<b>Project/Permits</b>	<b>Acres</b>	<b>Criteria Cells</b>	<b>Acres</b>
Lake Elsinore	63	1,245.69	22	802.13
Moreno Valley	44	439.32	None	0.00
Murrieta	92	1,278.29	34	497.78
Norco	19	111.41	None	0.00
Perris	40	489.44	2	69.62
Riverside	53	207.93	2	18.95
San Jacinto	20	657.48	None	0.00
Temecula	44	558.10	10	36.04
<b>Totals (cities)</b>	<b>505</b>	<b>7,371.39</b>	<b>81</b>	<b>1,708.76</b>

It is significant to note that four cities with projects/permits; Banning, Moreno Valley, Norco and San Jacinto had no impacts on criteria cell areas. Finally it is important to note as part of this first annual report that many of these project/permits and the resulting activities on the parcels were approved prior to the issuance of the permits for the MSCHP.

### **Data from the Cities within Western Riverside County and the Unincorporated Areas within the County**

Below is a combined list of the total number of permits within both the Cities and the unincorporated County within Western Riverside County:

#### **Combined Totals (Cities & County) 2004**

Projects/Permits	2,573	18,065.79 acres
Projects/Permits in Criteria Cells	511	3,835.45 acres

### **GIS Analysis Methodology**

The project/permit GIS data layer was used to determine the impact on the criteria cells, Area Plans, sub units, and losses on the various vegetation communities within Rough Step in the MSHCP.



The RCA is required, on a yearly basis, to account for the amount of habitat lost and gained within its jurisdiction. Due to a variety of monitoring and management requirements, numerous geographic data files were created to summarize vegetation acreage according to rough step, area plan subunit and individual jurisdictions.

Data Layers were created by geoprocessing using ESRI Arc/Info software (version 9) for the analysis.

Objective: Calculate the Vegetation Community Acreage for Acquisition Properties that count towards the MSHCP.

Documentation and accumulation of required information for each property acquired by the County of Riverside, State of California and the Federal Government for conservation purposes, was maintained by County staff beginning February 2000 to present. The first annual report specifically targets the time period between June 01, 2004 and December 31, 2004. Because the accumulation of conserved lands began in early 2000, and these acquisitions count towards the MSHCP 153,000 acreage goal, the data was split into two groups identified as **period 1**, June 2004 through December 2004 and **period -1**, February 2000 through May 2004. The following procedure was duplicated for each time period.

Note: For time period -1, some of the acquisitions fall outside of the criteria area and are calculated separately to ensure consistent Rough Step reporting.

1. To the *S:/integratedplan/mshcp/acquisitions\_post2000/fund\_info\_update\_ac* file, a field was added to denote which projects were reported in which time periods. The field 'Report' denotes these reporting timelines. New acquisitions will remain as '0' until assigned to a report period.
2. Using the date (acquired) field in the PQP layer, (Public/Quasi-Public Lands) *S:/integratedplan/mshcp/acquisitions\_post2000/datasets/PQP\_lands*, two shapefiles were made denoting these two time periods. *S:/rca/reportinfo/GainStatsReportPeriod\_1/acq6\_04thru12\_04.shp* (Report Period 1)  
*S:/RCA/Reportinfo/GainStatsReportPeriod\_1/Acqpost2000thru5\_04Period-1/acqpost2000thru5\_04.shp* (Report Period -1)
3. The MSHCP Vegetation file was Clipped by the Criteria Area ( Collapse = 'IN' ) , *S:/RCA/reportinfo/criteriaArea\_In.shp* to equal *S:/RCA/reportinfo/Veg\_CA\_Clip*



4. The acquisition file was Unioned with *S:/RCA/Reportinfo/Veg\_CA\_clip* = *../newacqvegclip*
5. Union *../newvegclip* with Rough Step Units = *../newacqveg\_rs\_all*
6. Select for VEGDESC = ' ', then Delete (This gets rid of additional rough step polygons)
7. Recalculate area and acreage.
8. . Sel Step number = X , convert to shape, *../rsXvegsum.shp*
9. Continue with each step number and summarize vegetation and acreage per Rough Step.

This same methodology was used for period -1 and incorporated 'period-1' naming conventions for shapefiles and summary files.

See FINALacqSum.xls for spreadsheet denoting acquisition vegetation acreage counts for Period 1

See FINALacqSum\_post2000 for spreadsheet denoting vegetation acreage counts for Period -1

Period 1 = 6/01/2004 thru 12/31/2004 -First annual report exercise.

Period -1 = Post 2/2000 thru 5/31/2004 \*\*\* Not necessary to run stats prior to adoption date.

RCA Staff, has prepared County files denoting all unincorporated losses, downloaded from LMS using criteria defined in his report dated 7/7/2005 and entitled, Annual Report File. RE:Methodology , Process and Procedures for developing Annual Report GIS Activities Layer, Habitrak Reports , Data and Maps. Acquisition of City building permit data and processing is also described in this document.

1. The MSHCP Vegetation file was clipped by Criteria Area ( Collapse = 'IN') *S:/RCA/reportinfo/criteriaArea\_In.shp* to equal *S:/RCA/reportinfo/Veg\_CA\_Clip*
2. The *S:/habitrak2004/cty\_permits.shp* (County loss file) was Unioned with *S:/RCA/Reportinfo/Veg\_CA\_clip* = *../lossfile\_veg\_ca*
3. Union *lossfile\_veg\_ca* with RoughStep Units = *../vegloss\_rs.shp*



4. Select for VEGDESC = ' ', then Delete (This gets rid of additional rough step polygons)
5. Recalculate area and acreage.
6. Select Stepnumber = X , convert to shape, *../rsXveglosssum.shp*
7. Continue with each stepnumber and summarize vegetation and acreage per Rough Step.

**For City Data:**

1. Clip each city building permit file by *../criteriaArea\_in = XX\_BP\_inCA*  
(Final file of permits within criteria area for each city) \*XX denotes City name.
2. Clip these files with *../Veg\_CA\_clip* (Vegetation clipped by Criteria Area) = *../XXBPVegIn*
3. Union *XXvegIn* shapefiles with Rough Step Units
4. Delete records that do not have vegetation data.
5. Recalculate Area and Acreage
6. Select for each Stepnumber and convert to shape = *../rsXcityvegloss*
7. Summarize on First\_Cate = *../RSXcityvegsum*
8. Continue with each city file and summarize accordingly.

**No Building Permits within Criteria Area for :**

Banning  
Moreno Valley  
Norco  
San Jacinto

**Statistics generated for the Cities of:**

Calimesa  
Corona



Riverside  
Temecula  
Hemet  
Lake Elsinore  
Murrieta  
Beaumont  
Perris

**No submittal from the City of Canyon Lake**



## APPENDIX B

*Species Objectives Monitored by the  
Biological Monitoring Program and  
Covered Species Detected in 2003 and 2004*





APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
COVERED SPECIES DETECTED IN 2003 AND 2004

Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Arroyo toad	<i>Bufo californicus</i>	Focused / I	Maintain breeding populations at a min. of 80% of the conserved breeding locations as measured by the presence/absence of juveniles toads (roughly 10 to 30 mm [Sweet 1993]), tadpoles, or egg masses across any 5 consecutive yrs.	Yes / 2004	TBD
California red-legged frog	<i>Rana aurora draytonii</i>	Focused / I	Determine if successful reproduction is occurring as measured by the presence/absence of tadpoles, egg masses, or juvenile frogs once a year for the first five yrs. after permit issuance and then as determined by the RMOc (but not less frequently than every 8 yrs.).	No	TBD
Coast range newt	<i>Taricha tarosa tarosa</i>	I	Maintain occupancy of at least 75% of the occupied habitat and determine if successful reproduction is occurring within the MSHCP Conservation Area as measured by the presence/ absence of larvae or egg masses once a year for the first five yrs. after permit issuance and then as determined by the RMOc (but not less frequently than every 8 yrs.).	Yes / 2004	TBD
Mountain yellow-legged frog	<i>Rana mucosa</i>	Focused / I	Maintain successful reproduction as measured by the presence/absence of tadpoles, egg masses, or juvenile frogs once a year for the first five yrs. after permit issuance and then as determined by the RMOc (but not less frequently than every 8 yrs.).	Yes / 2004	TBD
Western spadefoot	<i>Scaphiopus hammondi</i>	I	Maintain successful reproduction at a min. of 75% of the conserved breeding locations as measured by the presence/absence of tadpoles, egg masses, or juvenile toads once every 8 yrs.	No	TBD
American bittern	<i>Botaurus lentiginosus</i>	I	Maintain (once every 8 yrs) the continued use of 50% of the Core Areas.	No	TBD
Bald Eagle	<i>Haliaeetus leucocephalus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Bells' sage sparrow	<i>Amphispiza belli belli</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Black swift	<i>Cypseloides niger</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD



APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
COVERED SPECIES DETECTED IN 2003 AND 2004

Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Burrowing owl	<i>Athene cunicularia hypugaea</i>	Focused / I	Include within the MSHCP Conservation Area at least 5 Core Areas and interconnecting linkages. Core areas may include the following: (1) Lake Skinner/Diamond Valley Lake area (Existing Core C plus Proposed Extension of Existing Cores 5, 6, 7; 29,060 ac.); (2) playa west of Hemet (Proposed Noncontiguous Habitat Block 7; 1,250 ac.); (3) San Jacinto Wildlife Area/Mystic Lake area including Lake Perris area (Existing Core H; 17,470 ac.); (4) Lake Mathews (Existing Core C plus Proposed Extension of Existing Cores 2; 23,710 ac.); and (5) along the Santa Ana River (9,670 ac.). The Core Areas should support a combined total breeding population of approximately 120 burrowing owls with no fewer than five pairs in any one Core area.	Yes / 2003 & 2004	TBD
Cactus wren	<i>Campylorhynchus brunneicapillus</i>	RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
California horned lark	<i>Eremophila alpestris actia</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
California spotted owl	<i>Strix occidentalis occidentalis</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Coastal California gnatcatcher	<i>Poliptila californica californica</i>	CC/RC/I	Maintain (once every three yrs) continued use of and successful reproduction at 75% of the Core Areas.	Yes / 2004	TBD
Cooper's hawk	<i>Accipiter cooperii</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Double-crested cormorant	<i>Phalacrocorax auritus</i>	RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Downy woodpecker	<i>Picoides pubescens</i>	RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Ferruginous hawk	<i>Buteo regalis</i>	Raptors/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Golden eagle	<i>Aquila chrysaetos</i>	CC/RC/I	Maintain (once every 8 yrs) the continued use of, and successful reproduction at 75% of the known nesting localities (including any nesting locations identified in the MSHCP Conservation Area in the future).	Yes / 2004	TBD



APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
COVERED SPECIES DETECTED IN 2003 AND 2004

Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Grasshopper sparrow	<i>Ammodramus savannarum</i>	CC/I	Maintain occup. within 3 large Core Areas (100%) and at least 3 of the 4 smaller Core Areas (75%) in at least 1 yr. out of any 5 consec. yr. period In order for this sp. to become a Covered Species Adequately Conserved, the following conserv. must be demonstr.: Include within the Conservation Area at least 8,000 ac. in 7 Core Areas. Core areas may include the following: 1) Prado Basin, 2) Lake Skinner/Diamond Valley Lake/Johnson Ranch area, 3) Lake Mathews-Estelle Mountain, 4) Badlands, 5) Box Springs, 6) Santa Rosa Plateau/Tenaja, 7) Kabian Park, 8) Steele Peak, 9) Sycamore Canyon, 10) Potrero, and 11) Mystic Lake/San Jacinto Wildlife Area. Three of the 7 Core Areas will be large, consisting of a min. of 2,000 ac. of grassland habitat or grassland domin. habitat (<20% shrub cover). The other 4 Core Areas may be smaller but will consist of at least 500 ac. of contiguous grassland habitat or grassland-domin. habitat (<20% shrub cover). Five of the 7 Core Areas will be demonstr. to support at least 20 grasshopper sparrow prs. with evidence of successful reprod. within the first 5 yrs. after permit.	Yes / 2004	TBD
Great blue heron	<i>Ardea herodias</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Least Bell's vireo	<i>Vireo bellii pusillus</i>	RC/I	Maintain (once every 3 yrs) the continued use of, and successful reproduction at 75% of the known vireo occupied habitat (including any nesting locations identified in the MSHCP Conservation Area in the future).	Yes /2004	TBD
Lincoln sparrow	<i>Melospiza lincolni</i>	I	Maintain occupancy within 3 large Core Areas (100%) in at least 1 year out of any 5 consecutive-year period. In order for this species to become a Covered Species Adequately Conserved, the following conservation must be demonstrated: Include within the MSHCP Conservation Area at least 100 ac. in 3 Core Areas. Core Areas may include the following: (1) Tahquitz Valley; (2) Round Valley; (3) Garner Valley. The three Core Areas will be large, consisting of a min. of 50 ac. of montane meadow, wet montane meadow, and edges of montane riparian or riparian scrub. The Core Areas will be demonstrated to support at least 20 Lincoln's sparrow pairs with evidence of successful reproduction within the first 5 yrs. after permit issuance.	No	TBD



APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
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Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Loggerhead shrike	<i>Lanius ludovicianus</i>	CC/RC/I	Maintain (once every 8 yrs) the continued use of, and successful reproduction within, 75% of the Core Areas.	Yes / 2004	TBD
MacGillivray's warbler	<i>Oporornis tolmiei</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Merlin	<i>Falco columbarius</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Mountain plover	<i>Charadrius montanus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Mountain quail	<i>Oreortyx pictus</i>	RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Nashville warbler	<i>Vermivora ruficapilla</i>	RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Northern goshawk	<i>Accipiter gentilis</i>	I	Maintain (once every three yrs), the continued use of, and successful reproduction at a min. of 75% of the known nesting localities.	No	TBD
Northern harrier	<i>Circus cyaneus</i>	CC/RC/Raptors/I	Maintain (once every 5 yrs) the continued use of, and successful reproduction at 75% of the known nesting areas (including any nesting locations identified in the MSHCP Conservation Area in the future).	Yes / 2003 & 2004	TBD
Osprey	<i>Pandion haliaetus</i>	RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Peregrine falcon	<i>Falco peregrinus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Prairie falcon	<i>Falco mexicanus</i>	CC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Purple martin	<i>Progne subis</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Sharp-shinned hawk	<i>Accipiter striatus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Southern California rufous-crowned sparrow	<i>Aimophila ruficeps canescens</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	RC/I	Maintain (once every 3 yrs) the continued use of, and successful reproduction at 75% of the known southwestern willow flycatcher occupied Core Areas (including any nesting locations identified in the MSHCP Conservation Area in the future).	Yes / 2004	TBD
Swainson's hawk	<i>Buteo swainsoni</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Tree swallow	<i>Tachycineta bicolor</i>	RC/I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Tricolored blackbird	<i>Agelaius tricolor</i>	I	Maintain (once every 5 yrs) the continued use of, and successful reproduction within at least one of the identified Core Areas. Successful reproduction is defined as a nest which fledged at least one known young.	No	TBD



*APPENDIX B*  
*SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND*  
*COVERED SPECIES DETECTED IN 2003 AND 2004*

Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Turkey vulture	<i>Cathartes aura</i>	CC/RC/Raptors/I	Maintain (once every 3 yrs) the continued use of, and successful reproduction at the two known nesting locations, and at nesting locations identified in the MSHCP Conservation Area in the future.	Yes / 2003 & 2004	TBD
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	RC/I	Maintain (once every 3 yrs) the continued use of, and successful reproduction at 75% of the known western yellow-billed cuckoo occupied Core Areas (including any nesting locations identified in the MSHCP Conservation Area in the future).	No	TBD
White-faced ibis	<i>Plegadis chihi</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
White-tailed kite	<i>Elanus leucurus</i>	CC/RC/Raptors/I	Maintain (once every 3 yrs) the continued use of, and successful reproduction at 75% of the Core breeding Areas (including any Core breeding Areas identified in the MSHCP Conservation Area in the future).	Yes / 2003 & 2004	TBD
Williamson's sapsucker	<i>Sphyrapicus thyroideus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Wilson's warbler	<i>Wilsonia pusilla</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes/ 2004	TBD
Yellow warbler	<i>Dendroica petechia brewsteri</i>	RC/I	Maintain (once every 5 yrs.) the continued use of, and successful reproduction at 75% of the Core Areas (including any Core Areas identified in the MSHCP Conservation Area in the future).	Yes / 2004	TBD
Yellow-breasted chat	<i>Icteria virens</i>	RC/I	Maintain (once every 5 yrs) the continued use of, and successful reproduction at 75% of the Core Areas (including any Core Areas identified in the MSHCP Conservation Area in the future).	Yes / 2004	TBD
Riverside fairy shrimp	<i>Streptocephalus woottoni</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Santa Rosa Plateau fairy shrimp	<i>Linderiella santarosae</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Arroyo chub	<i>Gila orcutti</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Santa Ana sucker	<i>Catostomus santaanae</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD



APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
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Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Delhi Sands flower-loving fly	<i>Rhaphiomidas terminatus abdominalis</i>	I	Reserve Managers shall document successful reproduction at all three Core Areas or other areas to be conserved in accordance with Objective 1, as measured by the presence/absence of pupae cases or newly emerged (teneral) individuals once a year for the first 5 yrs. after permit issuance and then as determined to be appropriate (but not less frequently than every 8 yrs.).	No	TBD
Quino checkerspot	<i>Euphydryas editha quino</i>	I	Reserve Managers will document the distrib. of Quino checkerspot on an annual basis.	No	TBD
Aquanga kangaroo rat	<i>Dipodomys merriami collinus</i>	I	Within the 5,484 acres of occupied and suitable habitat in the MSHCP Conservation Area, ensure that at least 75% (4,113 acres) of the total is occupied and that at least 20% of the occupied habitat (approximately 823 acres) supports a medium or higher population density ( $\geq 5$ to 15 individuals per hectare; based on McKernan 1997 studies of the San Bernardino kangaroo rat) of the species as measured across any 8-year period (i.e., the approximate length of the weather cycle).	No	TBD
Bobcat	<i>Lynx rufus</i>	I	Maintain or improve functionality of dispersal routes. Existing undercrossings in key areas will be evaluated for their adequacy and improved as necessary to convey bobcats.	Yes / 2004	TBD
Brush rabbit	<i>Sylvilagus bachmani</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Coyote	<i>Canis latrans</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Dulzura kangaroo rat	<i>Dipodomys simulans</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Long-tailed weasel	<i>Mustela frenata</i>	I	Maintain (once every 8 yrs) the continued use of long-tailed weasel at a min. of 75% of the localities where the species has been known to occur.	Yes / 2004	TBD
Los Angeles pocket mouse	<i>Perognathus longimembris brevinasus</i>	I	Reserve Managers shall demonstrate that each of the seven Core Areas supports a stable or increasing population that occupies at least 30% of the suitable habitat (at least 4,200 acres) as measured over any 8-consecutive year period (i.e., the approximate length of the weather cycle).	No	TBD
Mountain lion	<i>Puma concolor</i>	CC/I	Maintain or improve functionality of dispersal routes. Existing undercrossings in key areas will be evaluated for their adequacy to convey mountain lions.	Yes / 2004	TBD
Northwestern San Diego pocket mouse	<i>Chaetodipus fallax fallax</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD



APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
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Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
San Bernardino flying squirrel	<i>Glaucomys sabrinus californicus</i>	I	Confirm occupation of 1000 ha (2470 acres) with a mean density of at least 2 individuals per hectare (2 individuals per 2.47 acres) in the San Jacinto mountains; and in the San Bernardino Mountains confirm occupation of 100 ha.	No	TBD
San Bernardino kangaroo rat	<i>Dipodomys merriami parvus</i>	I	Within the 4,440 acres of suitable habitat in the MSHCP Conservation Area, ensure that at least 75% of the total (3,330 acres) is occupied and that at least 20% of the occupied habitat (approximately 666 acres) supports a medium or higher population density ( $\geq 5$ to 15 individuals per hectare; McKernan 1997) of the species as measured across any 8-year period (i.e., the approximate length of the weather cycle).	No	TBD
San Diego black-tailed jackrabbit	<i>Lepus californicus bennettii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
San Diego desert woodrat	<i>Neotoma lepida intermedia</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Stephens' kangaroo rat	<i>Dipodomys stephensi</i>	I	Within the min. 15,000 acres of occupied habitat in the MSHCP Conservation Area, maintain at least 30% of the occupied habitat (approximately 4,500 acres) at a population density of medium or higher (i.e., at least 5-10 individuals per hectare; O'Farrell and Uptain 1989) across all Core Areas. No single core area will account for more than 30% of the total medium (or higher) population density area.	No	TBD
Beautiful hulsea	<i>Hulsea vestita ssp. callicarpa</i>	Focused/I	Confirm 16 localities (locality in this sense is not smaller than one quarter section) with no fewer than 50 individuals each (unless a smaller population has been demonstrated to be self-sustaining).	Yes / 2003 & 2004	TBD
Brand's phacelia	<i>Phacelia stellaris</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
California beardtongue	<i>Penstemon californicus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
California bedstraw	<i>Galium californicum ssp. primum</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
California black walnut	<i>Juglans californica var. californica</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
California muhly	<i>Muhlenbergia californica</i>	I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) containing at least 50 clumps (unless a smaller population has been demonstrated to be self-sustaining).	No	TBD



APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
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Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
California Orcutt grass	<i>Orcuttia californica</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Chickweed oxytheca	<i>Oxytheca caryophylloides</i>	Focused/I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) managed with 1,000 individuals each (unless a smaller population has been demonstrated to be self-sustaining).	Yes / 2003 & 2004	TBD
Cleveland's bush monkeyflower	<i>Mimulus clevelandii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Cliff cinquefoil	<i>Potentilla rimicola</i>	Focused/I	Confirm five localities (locality in this sense is not smaller than one quarter section).	Yes / 2004	TBD
Coulter's goldfields	<i>Lasthenia glabrata ssp. coulteri</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Coulter's matilija poppy	<i>Romneya coulteri</i>	Focused/I	Confirm 30 localities (locality in this sense is not smaller than one quarter section).	Yes / 2003 & 2004	TBD
Davidson's saltscale	<i>Atriplex serenana var. davidsonii</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003	TBD
Engelmann oak	<i>Quercus engelmannii</i>	I	Maintain recruitment at a min. of 80% of the conserved populations as measured by the presence/absence of seedlings and/or saplings across any consecutive five yrs.	No	TBD
Fish's milkwort	<i>Polygala cornuta var. fishiae</i>	Focused/I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) with at least 50 individuals (ramets or genets) each (unless a smaller population has been demonstrated to be self-sustaining).	Yes / 2004	TBD
Graceful tarplant	<i>Holocarpha virgata ssp. elongata</i>	Focused/I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) with 1,000 individuals each (unless a smaller population has been demonstrated to be self-sustaining).	Yes / 2003 & 2004	TBD
Hall's monardella	<i>Monardella macrantha ssp. hallii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Hammitt's clay-cress	<i>Sibaropsis hammittii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Heart-leaved pitcher sage	<i>Lepechinia cardiophylla</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD





*APPENDIX B*  
*SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND*  
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Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Intermediate mariposa lily	<i>Calochortus weedii</i> var. <i>intermedius</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Jaeger's milk-vetch	<i>Astragalus pachypus</i> var. <i>jaegeri</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Johnston's rock cress	<i>Arabis johnstonii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Lemon lily	<i>Lilium parryi</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Little mouseltail	<i>Myosurus minimus</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003	TBD
Long-spined spine flower	<i>Chorizanthe polygonoides</i> var. <i>longispina</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Many-stemmed dudleya	<i>Dudleya multicaulis</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Mojave tarplant	<i>Deinandra mohavensis</i>	Focused/I	Include within the MSHCP Conservation Area at least four localities (locality in this sense is not smaller than one quarter section) occupying at least 100 acres.	Yes / 2003 & 2004	TBD
Mud nama	<i>Nama stenocarpum</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Munz's mariposa lily	<i>Calochortus palmeri</i> var. <i>munzii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Munz's onion	<i>Allium munzii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Nevin's barberry	<i>Berberis nevinii</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Ocellated Humboldt lily	<i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Orcutt's brodiaea	<i>Brodiaea orcuttii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Palmer's grapplinghook	<i>Harpagonella palmeri</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Palomar monkeyflower	<i>Mimulus diffusus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Parish's brittlescale	<i>Atriplex parishii</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.		TBD
Parish's meadowfoam	<i>Limnanthes gracilis</i> var. <i>parishii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD



APPENDIX B  
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Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Parry's spine flower	<i>Chorizanthe parryi</i> var. <i>parryi</i>	Focused/I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) with at least 1,000 individuals (unless a smaller population has been demonstrated to be self-sustaining).	No	TBD
Payson's jewelflower	<i>Caulanthus simulans</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Peninsular spine flower	<i>Chorizanthe leptotheca</i>	Focused/I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) with at least 1,000 individuals (unless a smaller population has been demonstrated to be self-sustaining).	Yes / 2003 & 2004	TBD
Plummer's mariposa lily	<i>Calochortus plummerae</i>	Focused/I	Confirm six localities (locality in this sense is not smaller than one quarter section) of at least 500 individuals each (unless a smaller population has been demonstrated to be self-sustaining).	Yes / 2003	TBD
Prostrate navarretia	<i>Navarretia prostrata</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Prostrate spine flower	<i>Chorizanthe procumbens</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Rainbow manzanita	<i>Arctostaphylos rainbowensis</i>	Focused/I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) with more than 50 individuals each (unless a smaller population has been demonstrated to be self-sustaining).	Yes / 2003 & 2004	TBD
Round-leaved filaree	<i>Erodium macrophyllum</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
San Diego ambrosia	<i>Ambrosia pumila</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
San Diego button-celery	<i>Eryngium aristulatum</i> var. <i>parishii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
San Jacinto Mountains bedstraw	<i>Galium angustifolium</i> ssp. <i>jacinticum</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
San Jacinto Valley crownscale	<i>Atriplex coronata</i> var. <i>notatior</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
San Miguel savory	<i>Satureja chandleri</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Santa Ana River woollystar	<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Shaggy-haired alumroot	<i>Heuchera hirsutissima</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Slender-horned spine flower	<i>Dodecahema leptoceras</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD



APPENDIX B  
SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND  
COVERED SPECIES DETECTED IN 2003 AND 2004

Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/ Year	Obj. Met?
Small-flowered microseris	<i>Microseris douglasii</i> var. <i>platycarpa</i>	I	Confirm 10 localities (locality in this sense is not smaller than one quarter section) with at least 1,000 individuals (unless a smaller population has been demonstrated to be self-sustaining).	No	TBD
Small-flowered morning-glory	<i>Convolvulus simulans</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Smooth tarplant	<i>Centromadia pungens</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Spreading navarretia	<i>Navarretia fossalis</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Sticky-leaved dudleya	<i>Dudleya viscida</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Thread-leaved brodiaea	<i>Brodiaea filifolia</i>	Focused/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Vail Lake ceanothus	<i>Ceanothus ophiochilus</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Vernal barley	<i>Hordeum intercedens</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Wright's trichocoronis	<i>Trichocoronis wrightii</i> var. <i>wrightii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Belding's orange-throated whiptail	<i>Cnemidophorus hyperythrus beldingi</i>	Lizard/ CC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Coastal western whiptail	<i>Cnemidophorus tigris multiscutatus</i>	Lizard/ CC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Granite night lizard	<i>Xantusia henshawi henshawi</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
Granite spiny lizard	<i>Sceloporus orcutti</i>	Lizard/CC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Northern red-diamond rattlesnake	<i>Crotalus ruber ruber</i>	CC/RC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2004	TBD
San Bernardino Mountain kingsnake	<i>Lampropeltis zonata parvirubra</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
San Diego banded gecko	<i>Coleonyx variegatus abbottii</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
San Diego horned lizard	<i>Phrynosoma coronatum blainvillei</i>	Lizard/ CC/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD



*APPENDIX B*  
*SPECIES OBJECTIVES MONITORED BY THE BIOLOGICAL MONITORING PROGRAM AND*  
*COVERED SPECIES DETECTED IN 2003 AND 2004*

Common Name	Latin Name	Survey Type†	Species Objective Monitored*	Detected?/Year	Obj. Met?
San Diego Mountain kingsnake	<i>Lampropeltis zonata pulchra</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Southern rubber boa	<i>Charina bottae umbratica</i>	I	Monitor the distrib. of this species at least once every 8 yrs.	No	TBD
Southern sagebrush lizard	<i>Sceloporus graciosus vandenburgianus</i>	Lizard/I	Monitor the distrib. of this species at least once every 8 yrs.	Yes / 2003 & 2004	TBD
Western pond turtle	<i>Clemmys marmorata pallida</i>	I	Maintain continued use at a min. of 75% of the conserved Core Areas as measured once every 3 yrs.	Yes / 2004	TBD

\* Only objectives monitored by the Biological Monitoring Program are included. Objectives have been shortened to fit in the table; for full text, see the Species Accounts in Volume 2 of the MSHCP (MSHCP 2003). † Survey Types: I = Covered Species are recorded if incidentally observed during other surveys; Focused = Specific survey for target species; CC = Coastal Sage Scrub community surveys; RC = Riparian community surveys; Raptors = Raptor surveys; Lizard = Reptile surveys

