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**Western Riverside County
Multiple Species Habitat Conservation Plan (MSHCP)
Survey Guidelines and Protocols**

July 18, 2007

The following list of available survey guidelines and protocols are generally acceptable in the County of Riverside for proper implementation of the MSHCP. Contact the Environmental Programs Department (EPD) with any questions regarding the necessary survey protocols. Individual species accounts may be located in Volume II-B, The Reference Document; Species Accounts.

Specific hyperlinks to survey protocols existing online are included where available. The County of Riverside, Environmental Programs Department is not responsible for the information, content, or availability of the listed web site hyperlinks not maintained by the County. They are created by their organizations and we are only providing links to them as a service in relation to government, state, or local/regional County of Riverside issues.

Table 1. General Survey Guidelines & Resources

Activity	Survey Protocol/ Methodology	Date*
Conducting field work at amphibian breeding sites or in other aquatic habitats	The Declining Amphibian Task Force Fieldwork Code of Practice	--
Record searches	California Natural Diversity Database (CNDDB) – CDFG California Native Plant Society Electronic Inventory – CNPS	--
Reporting sensitive species identified in the California Natural Diversity Database (CNDDB)	California Native Species Field Survey Form – CDFG	--
Botanical surveys	Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants – USFWS	January 2000
	Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities – CDFG	December 9, 1983 Revised May 8, 2000
Soil surveys	NCSS Web Soil Survey - NRCS	--

Table 2. Species Specific Survey Protocols

Species	Source	Date*	Notes
Riparian/Riverine, Vernal Pools, and Fairy Shrimp, MSHCP Section 6.1.2			
Crustaceans			
Riverside fairy shrimp <i>Streptocephalus wootoni</i>	Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods – USFWS, MSHCP U.S. Fish and Wildlife Service Vernal Pool Data Sheet - Wet Season Survey or U.S. Fish and Wildlife Service Vernal Pool Data Sheet - Dry Season Survey	4/19/96	Only one (1) wet- or dry-season survey is required per the species account located in MSHCP Vol. II-B, C1-26
Santa Rosa Plateau fairy shrimp <i>Linderiella santarosae</i>			
vernal pool fairy shrimp <i>Branchinecta lynchi</i>			
Riparian Birds			
least Bell's vireo <i>Vireo bellii pusillus</i>	Least Bell's Vireo Survey Guidelines – USFWS	1/19/01	MSHCP Vol. II-B, B-255-277
southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher Protocol Revision 2000 – USFWS Willow Flycatcher Survey and Detection Form – USFWS	7/11/00 4/98	MSHCP Vol. II-B, B-473-493
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>			MSHCP Vol. II-B, B-554-571
Narrow Endemic Plant Species (NEPS), MSHCP Section 6.1.3			
The listed guidelines below may be applied to all NEPS.			
Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants – USFWS, January 2000 Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities – CDFG, May 8, 2000 MSHCP Sections 6.1.3 and 6.3.2 Blooming periods for both NEPS and CAPS are listed in MSHCP Vol. 1, Section 6.0; Table 6-1.			
Brand's phacelia <i>Phacelia stellaris</i>			MSHCP Vol. II-B, P8-13
California Orcutt grass <i>Orcuttia californica</i>			MSHCP Vol. II-B, P41-50
Hammitt's clay-cress <i>Sibaropsis hammittii</i>			MSHCP Vol. II-B, P-125-131
Johnston's rockcress <i>Arabis johnstonii</i>			MSHCP Vol. II-B, P-152-158
Many-stemmed dudleya			MSHCP Vol. II-B, P-183-192

Table 2. Species Specific Survey Protocols

Species	Source	Date*	Notes
<i>Dudleya multicaulis</i>			
Munz's mariposa lily <i>Calochortus palmeri</i> var. <i>munzii</i>			MSHCP Vol. II-B, P-213-223
Munz's onion <i>Allium munzii</i>			MSHCP Vol. II-B, P-213-223
San Diego ambrosia <i>Ambrosia pumila</i>			MSHCP Vol. II-B, P-326-336
San Jacinto Mountains bedstraw <i>Galium angustifolium</i> ssp. <i>jacinticum</i>			MSHCP Vol. II-B, P-342-349
San Miguel savory <i>Satureja chandleri</i>			MSHCP Vol. II-B, P-360-366
slender-horned spine flower <i>Dodecahema leptoceras</i>			MSHCP Vol. II-B, P-383-392
Spreading navarretia <i>Navarretia fossalis</i>			MSHCP Vol. II-B, P-402-408
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>			MSHCP Vol. II-B, P-460-468
Yucaipa onion <i>Allium marvinii</i>			MSHCP Vol. II-B, P-469-473
Additional Survey Needs and Procedures (Criteria Area Species), MSHCP Section 6.3.2			
Insects			
Delhi Sands flower-loving fly <i>Rhaphiomidas terminatus abdominalis</i>	Interim General Survey Guidelines for the Delhi Sands flower-loving fly – USFWS	12/30/96	MSHCP Vol. II-B, I-1-16
Amphibians			
arroyo toad <i>Bufo californicus</i>	Survey Protocol for the Arroyo Toad – USFWS	5/19/1999	MSHCP Vol. II-B, A-1-17
California red-legged frog <i>Rana aurora draytonii</i>	Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog – USFWS Appendix B. Recommended Equipment Decontamination Procedures – USFWS Appendix D. California Red-legged Frog Habitat Site Assessment Data Sheet – USFWS	8/2005	MSHCP Vol. II-B, A-18-33

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Species	Source	Date*	Notes
	Appendix E. Frog Survey Data Sheet – USFWS		
mountain yellow-legged frog <i>Rana mucosa</i>			MSHCP Vol. II-B, A-47-61
Birds			
burrowing owl <i>Athene cunicularia hypugaea</i>	Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area – County/CDFG	3/29/06	MSHCP Vol. II-B, B-63-82
	Burrowing Owl Survey Protocol Flowchart – County/CDFG	10/24/05	
	MSHCP 30-day Pre-Construction Burrowing Owl Survey – County	8/17/06	
coastal California gnatcatcher <i>Polioptila californica californica</i>	Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Guidelines – USFWS	2/28/97	MSHCP Vol. II-B, B-124-153
Mammals			
Aguanga kangaroo rat <i>Dipodomys merriami collinus</i>			MSHCP Vol. II-B, M-1-19
Los Angeles pocket mouse <i>Perognathus longimembris</i>			MSHCP Vol. II-B, M-86-103
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>			MSHCP Vol. II-B, M-151-170
Plants – Criteria Area Plant Species (CAPS)			
The listed guidelines below may be applied to all CAPS.			
Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants – USFWS, January 2000			
Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities – CDFG, May 8, 2000			
MSHCP Sections 6.1.3 and 6.3.2 Blooming periods for both NEPS and CAPS are listed in MSHCP Vol. 1, Section 6.0; Table 6-1.			
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>			MSHCP Vol. II-B, P-70-80
Davidson's saltscale <i>Atriplex serenana</i> var. <i> davidsonii</i>			MSHCP Vol. II-B, P-87-95
heart-leaved pitcher sage <i>Lepechinia cardiophylla</i>			MSHCP Vol. II-B, P-132-138
little mousetail <i>Myosurus minimus</i>			MSHCP Vol. II-B, P-166

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Species	Source	Date*	Notes
mud nama <i>Nama stenocarpum</i>			MSHCP Vol. II-B, P-200-205
Nevin's barberry <i>Berberis nevinii</i>			MSHCP Vol. II-B, P-224-230
Parish's brittlescale <i>Atriplex parishii</i>			MSHCP Vol. II-B, P-260-268
prostrate navarretia <i>Navarretia prostrate</i>			MSHCP Vol. II-B, P-301-305
round-leaved filaree <i>Erodium macrophyllum</i>			MSHCP Vol. II-B, P-320-325
San Jacinto Valley crownscale <i>Atriplex coronata</i> var. <i>notatior</i>			MSHCP Vol. II-B, P-350-359
Smooth tarplant <i>Centromadia pungens</i>			MSHCP Vol. II-B, P-409-416
Thread-leaved brodiaea <i>Brodiaea filifolia</i>			MSHCP Vol. II-B, P-435-446
Vail Lake ceanothus <i>Ceanothus ophiochilus</i>			MSHCP Vol. II-B, P-447-452

CDFG = California Department of Fish and Game

CNPS = California Native Plant Society

County = County of Riverside

NRCS = Natural Resources Conservation Service (USDA)

USDA = United States Department of Agriculture

USFWS = United States Fish and Wildlife Service

* Last known revision/published date