



WILDLANDS

Final Formal Acquisition Proposal
for the
Genesis Solar Energy Project
CEC Docket Number 09-AFC-8



As Presented By



Colorado Desert Preserve Formal Acquisition Proposal

Executive Summary

The Genesis Solar Energy Project (CEC Docket No. 09-AFC-8) is a concentrated solar thermal electric generating facility located in the Colorado Desert approximately 15 miles west of the City of Blythe, just north of Interstate 10 in Riverside County.

In order to comply with the mitigation requirements of the Genesis Solar Energy Project, Wildlands has developed a portfolio of suitable habitats on private property within the Colorado Desert. Wildlands habitat acquisition specifically targeted areas and habitat types identified in the California Energy Commission's Final Commission Decision (Publication #CEC-800-2010-011-CMF), the United State Fish and Wildlife Service's Biological Opinion (FWS-ERIV-08B0060-10F0878), and the Bureau of Land Management's Record of Decision (Case File Number: CACA 048880). Properties were chosen that are appropriate to satisfy specific mitigation requirements including mitigation for impacts to: desert tortoise habitat, Mojave fringe-toed lizard habitat, western burrowing owl habitat, and waters of the state including microphyll woodland.

This document represents the Formal Acquisition Proposal for approximately 2,137 acres of suitable mitigation lands as required by the CEC's Final Commission Decision. The 2,137-acre Colorado Desert Preserve ("CDP" or "Preserve") is comprised of 5 groups of properties (CDP-1, 127.7 acres; CDP-2, 41.9 acres; CDP-3, 190.7 acres; CDP-4, 1,616.2 acres; CDP-5, 180.5 acres), grouped by geographic proximity, which are being submitted for certification as suitable mitigation lands for the Genesis Solar Energy Project (Executive Summary - **Figure 1**).

Included in this Formal Acquisition Proposal are the following documents required for approval as mitigation for fast-track solar projects within the Colorado and Mojave Deserts:

Exhibit A-1	Biological Analysis (Biological Resources Reports)
Exhibit A-2	Title Report (including Preliminary Property Assessment)
Exhibit A-3	Initial Hazardous Materials Survey Report (Phase 1 Site Environmental Assessment Report)
Exhibit B	Title/Conveyance (Conservation Easement)
Exhibit C	Initial Habitat Improvement Fund
Exhibit D	Property Analysis Record (including Long-Term Management Plan)

The lands presented in this Formal Acquisition Proposal and long-term management plan will fulfill mitigation measures for permitted impacts resulting from the Genesis Solar Energy Project as required in the Biological Conditions specifically referenced in the CEC's Final Commission Decision.

Table 1. Colorado Desert Preserve Mitigation Portfolio⁽¹⁾

Complex Number	APN	Desert Tortoise Only	Other State Waters/ Desert Tortoise ⁽²⁾	Microphyll Woodland/ Desert Tortoise ⁽³⁾	Mojave Fringe-toed Lizard	Total Acreage
CDP-1	860-040-001	70.1	46.9	10.7	0	
CDP-2	709-420-032	36.6	3.5	1.8	0	
CDP-3	709-440-052	5.1	4.9	0	0	
	709-600-010	5.6	3	1.4	0	
	709-600-012	7	2.1	0.9	0	
	719-280-003	137.3	10.5	12.9	0	
CDP-4	709-050-034	9	0.9	0	0	
	709-450-012	141.1	19.5	0	0	
	709-460-001	22.9	17.4	0	0	
	709-460-002	27.2	13.1	0	0	
	709-460-003	27.2	13.1	0	0	
	709-460-004	25.7	14.5	0	0	
	709-460-005	34.2	6	0	0	
	709-460-006	34.3	5.9	0	0	
	709-460-007	33.1	7.1	0	0	
	709-460-008	33.9	6.3	0	0	
	709-470-005	25.2	11.2	3.7	0	
	709-470-006	21.9	17.8	0.4	0	
	709-470-007	28.7	11.4	0	0	
	709-470-008	30.6	3	6.5	0	
	709-480-001	11.9	8.2	0	0	
	709-480-002	12	8	0	0	
	709-480-003	19	21.1	0	0	
	709-480-004	23.6	16.5	0	0	
	709-480-005	9	31.1	0	0	
	709-530-004	26.9	7.2	6.1	0	
709-530-013	16.5	0	3.6	0		
709-540-017	34.5	4.7	1.1	0		
715-300-005	35	25.2	0	0		
719-080-060	619.6	15.2	7.4	0		
CDP-5	810-100-001	0	0	0	80.2	
	810-100-003	0	0	0	80.3	
Total		1,564.7	355.3	56.5	160.5	2,137.0⁽⁵⁾

Comments

(1) Properties and acreages included in this table are current as of March 7th, 2010.

(2) Acreages in this column serve as suitable mitigation for other state waters and desert tortoise.

(3) Acreages in this column serve as suitable mitigation for microphyll woodland and desert tortoise.

(4) Total acreages and acreages for each property and habitat type subject to change.

(5) A total of 1,071 acres of habitat suitable to serve as western burrowing owl mitigation [within dispersal distance (<5 miles) of areas occupied by burrowing owls] is included in the total acreage. Executive Summary **Figure 2**

**Table 2. Environmental Resource Mitigation
for the Genesis Solar Energy Project⁽¹⁾**

CEC Condition	Impact (acres)	Mitigation Requirement (acres)	Mitigation Provided (acres)	Mitigation Need Remaining (acres)
Desert Tortoise (BIO-12)⁽²⁾	1,774	1,870	1,977	0
Western Burrowing Owl (BIO-18)	2 owls (assumed)	39	1,071	0
Mohave Fringe-toed Lizard (BIO-20)⁽³⁾	45.5	136	161	0
Microphyll Woodland (BIO-22)⁽⁴⁾	16	48	57	0
Other Waters of the State (BIO-22)⁽⁴⁾	74	63	355	0

(1) - Project Impacts Compensatory Mitigation Requirements as conditioned by the CEC Final Decision, October 12, 2010).

(2) - Condition Bio-12 mitigation also satisfies all or part of the required mitigation for the following biological resources as identified in the CEC Final Decision "Biological Resources Table 2 Summary of Impacts and Mitigation":

- Sonoran Creosote Bush Scrub & Associated Wildlife
- Golden Eagle
- Special-Status Birds & Migratory Birds
- Desert Kit Fox & American Badger
- Bats
- Special Wildlife Management Areas

(3) - Condition Bio-20 mitigation also satisfies all or part of the required mitigation for the following biological resources as identified in the CEC Final Decision "Biological Resources Table 2 Summary of Impacts and Mitigation":

- Special-status Plants

(4) - Condition Bio-22 mitigation also satisfies all or part of the required mitigation for the following biological resources as identified in the CEC Final Decision "Biological Resources Table 2 Summary of Impacts and Mitigation":

- Special-Status Birds & Migratory Birds
- Desert Kit Fox & American Badger
- Bats

Table 3. Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-12 Desert Tortoise Compensatory Mitigation</u>			
Bio-12 Total Mitigation Acreage	1,870 acres	<ul style="list-style-type: none"> Executive Summary of the Formal Acquisition Proposal, Table 1 (Colorado Desert Preserve Mitigation Portfolio), and Table 2 (Environmental Resource Mitigation for the Genesis Solar Energy Project) 	Yes
Bio-12 Selection Criteria #1	Within the Colorado Desert Recovery Unit	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 3 (Geographic Analysis to Identify Suitable Mitigation), first paragraph Exhibit D-2 (Long-Term Management Plan) section II.A, First Paragraph, Figure 2 (Desert Tortoise Colorado Desert Recovery Unit) 	Yes
	Contribute to desert tortoise habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve lands	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports), section 3 (Geographic Analysis to Identify Suitable Mitigation), section 4 (Biological Analysis), and section 5 (Conclusion Summary) 	Yes
Bio-12 Selection Criteria #2	Provide habitat for desert tortoise with capacity to regenerate naturally when disturbances are removed	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 4 (Biological Analysis) and section 5 (Conclusion Summary) 	Yes

Table 3. Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-12 Desert Tortoise Compensatory Mitigation</u>			
Bio-12 Selection Criteria #3	Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 3.5.1 (Adjacency to Protected Lands) 	Yes
Bio-12 Selection Criteria #4	Be connected to lands where desert tortoises can be reasonably expected to occur based on habitat or historic occurrences, ideally with populations that are stable, recovering, or likely to recover	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 3.3 (Desert Wildlife Management Area), section 3.4 (Area of Critical Environmental Concern), section 3.5.2 (Critical Habitat), section 4.4 (California Natural Diversity Database), and section 4.5 (Line Distance Sampling) 	Yes
Bio-12 Selection Criteria #5	Not have a history of intensive recreation use or other disturbance that does not have the capacity to regenerate naturally when disturbances are removed or might make habitat recovery and restoration infeasible	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 3.5 (Continuity Analysis/Adjacency) and section 4.6 (Threats Analysis) Exhibit A-3 (Initial Hazardous Materials Survey Report) Exhibit C-1 (Initial Habitat Improvement Fund Financial Report) Exhibit D-2 (Long-Term Management Plan) section IV.D (Initial Habitat Improvement Fund) 	Yes

Table 3. Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-12 Desert Tortoise Compensatory Mitigation</u>			
Bio-12 Selection Criteria #6	Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 4.2 (Biological Field Survey Results) and section 4.6 (Threats Analysis) 	Yes
Bio-12 Selection Criteria #7	Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat	<ul style="list-style-type: none"> Exhibit A-3 (Initial Hazardous Materials Survey Report) 	Yes
Bio-12 Selection Criteria #8	Have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of land without these rights	<ul style="list-style-type: none"> Exhibit A-2 (Title Report and Preliminary Property Assessment) 	Upon CEC Approval

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-18 Burrowing Owl Impact Avoidance, Minimization, and COMPENSATION</u>			
Bio-18 Total Mitigation Acreage	39 acres (based on the assumption of 2 owls impacted)	<ul style="list-style-type: none"> • Executive Summary of the Formal Acquisition Proposal Table 1 (Colorado Desert Preserve Mitigation Portfolio), Table 2 (Environmental Resource Mitigation for the Genesis Solar Energy Project), and Figure 2 (Colorado Desert Preserve Acreage within 5 miles of Documented Western Burrowing Owl Occurrence) • Exhibits A-1.1 (Figure 10), A-1.2 (Figure 10), A-1.3 (Figure 11), A-1.4 (Figure 11) 	Yes
Bio-18 Selection Criteria #1	The Terms and conditions of this acquisition or easement shall be as described in Paragraph 1 of BIO-12 [Desert Tortoise Compensatory Mitigation]	<ul style="list-style-type: none"> • See Bio-12 discussion above 	Yes
Bio-18 Selection Criteria #2	Must provide suitable habitat for burrowing owls	<ul style="list-style-type: none"> • Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 4.1.1.3, section 4.3 Table 1 (Habitat and Wetland Quality), and section 5 (Conclusion/Summary) 	Yes

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-18 Burrowing Owl Impact Avoidance, Minimization, and COMPENSATION</u>			
Bio-18 Selection Criteria #3	Must be currently supporting burrowing owl or be within dispersal distance from areas occupied by burrowing owls (generally less than 5 miles)	<ul style="list-style-type: none"> • Executive Summary of the Formal Acquisition Proposal Figure 2 (Colorado Desert Preserve Acreage within 5 miles of Documented Western Burrowing Owl Occurrence) • Exhibits A-1.1 (Figure 10), A-1.2 (Figure 10), A-1.3 (Figure 11), A-1.4 (Figure 11) 	Yes

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-20 Stabilized and Partially Stabilized Sand Dunes and other Mojave Fringe-Toed Lizard Habitat</u>			
Bio-20 Total Mitigation Acreage	136 acres	<ul style="list-style-type: none"> • Executive Summary of the Formal Acquisition Proposal Table 1 (Colorado Desert Preserve Mitigation Portfolio) and Table 2 (Environmental Resource Mitigation for the Genesis Solar Energy Project) • Exhibit A-1.5 (CDP-5 Biological Resources Report) 	Yes

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-20 Stabilized and Partially Stabilized Sand Dunes and other Mojave Fringe-Toed Lizard Habitat</u>			
Bio-20 Selection Criteria #1	Provide suitable habitat for MFTL that is equal to or better than that found in the Project disturbance area, and may include stabilized and partially stabilized desert dunes or sand drifts over playas or Sonoran creosote bush scrub	<ul style="list-style-type: none"> Exhibit A-1.5 (CDP-5 Biological Resources Report) section 4 (Biological Analysis) and section 5 (Conclusion/Summary) 	Yes
Bio-20 Selection Criteria #2	Be within the Chuckwalla Valley with potential to contribute to MFTL habitat connectivity and build linkages between known populations of MFTL and preserve lands with suitable habitat	<ul style="list-style-type: none"> Exhibit A-1.5 (CDP-5 Biological Resources Report) section 3 (Geographic Analysis to Identify Suitable Mitigation), section 4 (Biological Analysis), and section 5 (Conclusion/Summary) 	Yes
Bio-20 Selection Criteria #3	Be connected to lands that are currently occupied or have high potential to be occupied by MFTL based on patch size and habitat quality	<ul style="list-style-type: none"> Exhibit A-1.5 (CDP-5 Biological Resources Report) section 4.2 (Biological Field Survey Results) 	Yes

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-20 Stabilized and Partially Stabilized Sand Dunes and other Mojave Fringe-Toed Lizard Habitat</u>			
Bio-20 Selection Criteria #4	Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation	<ul style="list-style-type: none"> Exhibit A-1.5 (CDP-5 Biological Resources Report) section 3.3.1 (Adjacency to Protected Lands) 	Yes
Bio-20 Selection Criteria #5	Not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible	<ul style="list-style-type: none"> Exhibit A-1.5 (CDP-5 Biological Resources Report) section 3.3 (Continuity Analysis/Adjacency) and section 4.5 (Threats Analysis) Exhibit A-3 (Initial Hazardous Materials Survey Report) Exhibit C-1 (Initial Habitat Improvement Fund Financial Report) 	Yes
Bio-20 Selection Criteria #6	Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration	<ul style="list-style-type: none"> Exhibit A-1.5 (CDP-5 Biological Resources Report) section 4.2 (Biological Field Survey Results) and section 4.5 (Threats Analysis) 	Yes

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-20 Stabilized and Partially Stabilized Sand Dunes and other Mojave Fringe-Toed Lizard Habitat</u>			
Bio-20 Selection Criteria #7	Not contain hazardous wastes	<ul style="list-style-type: none"> • Exhibit A-3 (Initial Hazardous Materials Survey Report) 	Yes
Bio-20 Selection Criteria #8	Not be subject to property constraints (i.e. mineral leases, cultural resources)	<ul style="list-style-type: none"> • Exhibit A-2 (Title Report and Preliminary Property Assessment) 	Upon CEC Approval
Bio-20 Selection Criteria #9	Be on land for which long-term management is feasible	<ul style="list-style-type: none"> • Exhibit A-3 (Initial Hazardous Materials Survey Report) • Exhibit C-1 (Initial Habitat Improvement Fund Financial Report) • Exhibit D-2 (Long-Term Management Plan) 	Yes

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-22 Mitigation for Impacts to State Waters</u>			
Bio-22 Total Mitigation Acreage	111 acres	<ul style="list-style-type: none"> Executive Summary of the Formal Acquisition Proposal Table 1 (Colorado Desert Preserve Mitigation Portfolio) and Table 2 (Environmental Resource Mitigation for the Genesis Solar Energy Project) Exhibit A-1.1 through A-1.4 (Biological Resources Reports) 	Yes
Bio-22 Selection Criteria #1	Parcel or parcels comprising the 111 acres of ephemeral washes shall include at least 48 acres of microphyll woodland	<ul style="list-style-type: none"> Executive Summary of the Formal Acquisition Proposal Table 1 (Colorado Desert Preserve Mitigation Portfolio) and Table 2 (Environmental Resource Mitigation for the Genesis Solar Energy Project) Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 4.2 (Biological Field Survey Results), Figure 10 (CDP-1), Figure 12 (CDP-2), Figure 16a-d (CDP-3), Figure 20a-1 (CDP-4). 	Yes
Bio-22 Selection Criteria #2	The terms and conditions of this acquisition or easement shall be as described in Condition of Certification BIO-12 , #2 and #3	<ul style="list-style-type: none"> See Bio-12 discussion above 	Yes

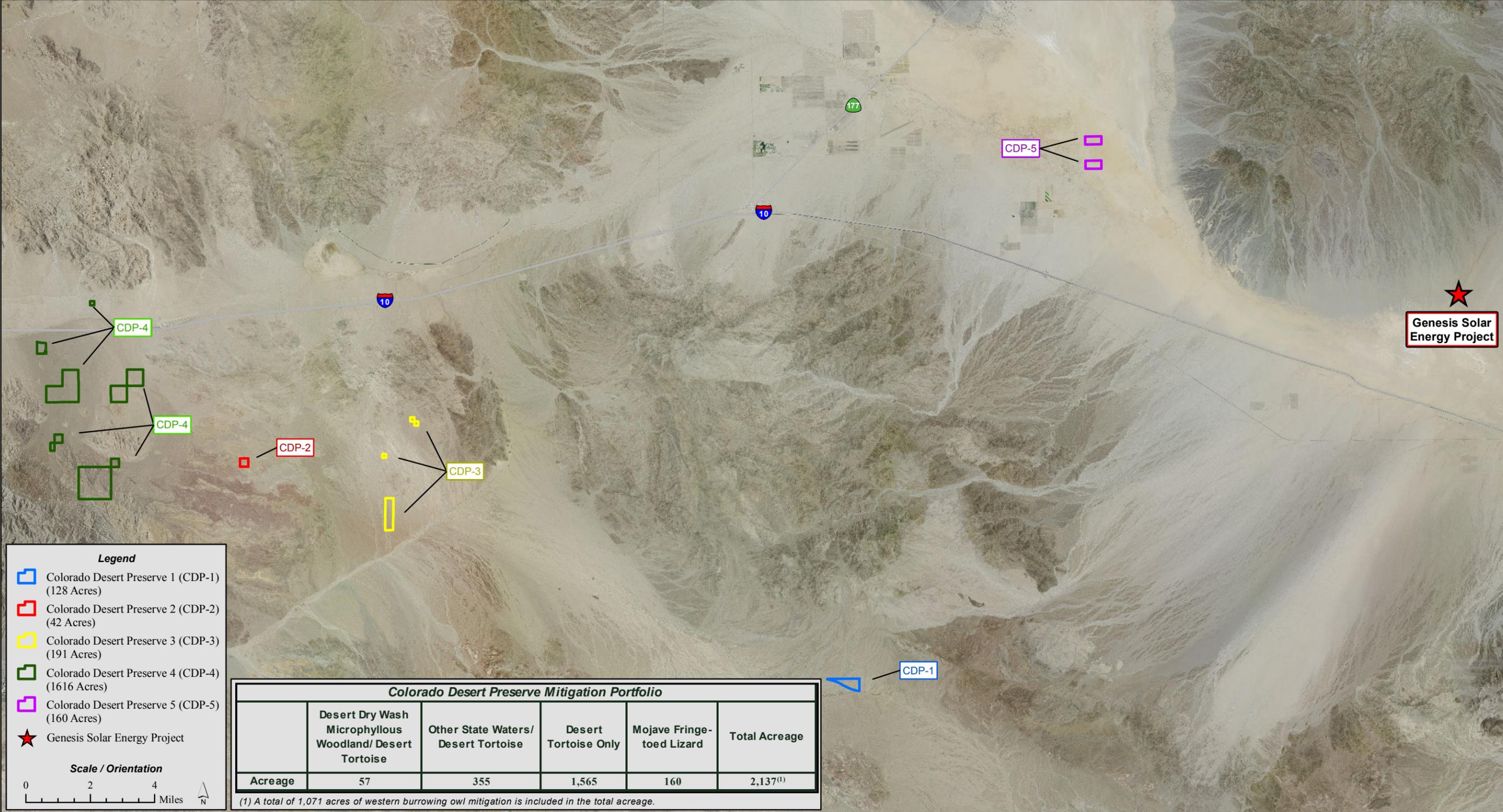
Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-22 Mitigation for Impacts to State Waters</u>			
Bio-22 Selection Criteria #3	Mitigation for impacts to state waters shall occur within the Chuckwalla-Ford Dry Lake or surrounding watersheds, as close to the Project site as possible.	<ul style="list-style-type: none"> Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 3.2 (Watershed), Figure 5 (CDP-1, CDP-2), and Figure 6 (CDP-3, CDP-4) 	Yes

Genesis Solar Energy Project, Biological Mitigation Conditions Checklist

<u>Selection Criteria</u>	<u>Condition Description</u>	<u>Document Location</u>	<u>Condition Satisfied</u>
<u>Bio-12 Desert Tortoise Compensatory Mitigation – USFWS Biological Opinion Clarification</u>			
Bio-12 Total Mitigation Acreage	To compensate for impacts to approximately 10 ha (24 ac) in the Chuckwalla Critical Habitat Unit, approximately 48 ha (120 ac) will be acquired in the Chuckwalla Critical Habitat Unit.	<ul style="list-style-type: none"> • Exhibit A-1.1 through A-1.4 (Biological Resources Reports) section 3.5.2 (Critical Habitat), A-1.1 and A-2.2 Figure 6 (Regional Conservation Analysis), A-1.3 and A-1.4 Figure 7 (Regional Conservation Analysis) • Exhibit D-2 (Long-Term Management Plan) section II.A Figure 5 (Regional Conservation Map) 	Yes

Colorado Desert Preserve



Executive Summary - Figure 1
Wildlands - Colorado Desert Preserve



**COLORADO DESERT PRESERVE
FORMAL ACQUISITION PROPOSAL**

FOR

GENESIS SOLAR ENERGY PROJECT

**BY
GENESIS SOLAR, LLC**

**CEC DOCKET No. 09-AFC-8
BLM CASE FILE No. CACA 048880**

RIVERSIDE COUNTY, CALIFORNIA

Preserve Sponsor:

Wildlands California Holdings I, LLC
3855 Atherton Road
Rocklin, CA 95765
Tel: (916) 435-3555
Fax: (916) 435-3556
Contact: Brian Monaghan
Email: bmonaghan@wildlandsinc.com
Website: www.wildlandsinc.com

MAY 2011

TABLE OF CONTENTS

Exhibit A.	Preliminary Report
	A-1 Biological Analysis
	A-2 Title Report and Preliminary Property Assessment
	A-3 Initial Hazardous Materials Survey Report
Exhibit B.	Title/Conveyance
	B-1 Conservation Easement
Exhibit C.	Initial Habitat Improvement Fund
	C-1 Initial Habitat Improvement Fund Financial Report
Exhibit D.	Property Analysis Record
	D-1 Long-Term Management Plan Property Analysis Record
	D-2 Long-Term Management Plan

Exhibit A

Preliminary Report

CONTENTS

- Exhibit A-1 Biological Analysis
 - A-1.1, CDP-1 Biological Resources Report
 - A-1.2, CDP-2 Biological Resources Report
 - A-1.3, CDP-3 Biological Resources Report
 - A-1.4, CDP-4 Biological Resources Report
 - A-1.5, CDP-5 Biological Resources Report
- Exhibit A-2 Title Report, Exceptions, and Preliminary Property Assessment
 - A-2.1, Colorado Desert Preserve Site 1
 - A-2.1.1 CDP-1 Preliminary Property Assessment
 - A-2.1.2 CDP-1 Title Report
 - A-2.1.3 CDP-1 Exceptions
 - A-2.2, Colorado Desert Preserve Site 2
 - A-2.2.1 CDP-2 Preliminary Property Assessment
 - A-2.2.2 CDP-2 Title Report
 - A-2.2.3 CDP-2 Exceptions
 - A-2.3, Colorado Desert Preserve Site 3
 - A-2.3.1 CDP-3 Preliminary Property Assessment
 - A-2.3.2 CDP-3 Title Report
 - A-2.3.3 CDP-3 Exceptions
 - A-2.4, Colorado Desert Preserve Site 4
 - A-2.4.1 CDP-4 Preliminary Property Assessment
 - A-2.4.2 CDP-4 Title Report
 - A-2.4.3 CDP-4 Exceptions
 - A-2.5, Colorado Desert Preserve Site 5
 - A-2.5.1 CDP-5 Preliminary Property Assessment
 - A-2.5.2 CDP-5 Title Report
 - A-2.5.3 CDP-5 Exceptions
- Exhibit A-3 Initial Hazardous Material Survey Report

Exhibit A-1
Biological Analysis

Exhibit A-1.1
CDP-1 Biological Resources Report



**COLORADO DESERT PRESERVE
CDP-1**

**BIOLOGICAL RESOURCES REPORT
APN: 860-040-001**

FOR THE

**GENESIS SOLAR ENERGY PROJECT
CEC DOCKET No. 9-AFC-8
BLM CASE FILE No. CACA 048880**

Prepared by:

Wildlands, Inc.

3855 Atherton Road

Rocklin, CA 95765

Tel: (916) 435-3555

Fax: (916) 435-3556

Website: www.wildlandsinc.com

May 2011

TABLE OF CONTENTS

Section 1	Introduction	1
1.1	Background.....	1
1.2	Regulatory Guidance	1
1.3	Colorado Desert Preserve	2
Section 2	Parcel Information	2
2.1	Acres	2
2.2	Location	2
2.3	APN	2
2.4	Hydrology and Topography	2
2.5	Soils	3
Section 3	Geographic Analysis to Identify Suitable Mitigation	4
3.1	Desert Renewable Energy Conservation Plan – Interim Mitigation Strategy.....	4
3.2	Watershed	5
3.3	Desert Wildlife management Area.....	5
3.4	Area of Critical Environmental Concern	5
3.5	Continuity Analysis/Adjacency	6
3.5.1	Adjacency to Protected Lands	6
3.5.1.1	Wilderness Areas	6
3.5.1.2	Bureau of Land Management	7
3.5.2	Critical Habitat.....	7
Section 4	Biological Analysis	8
4.1	Desktop Analysis and Biological Field Surveys.....	8
4.1.1	Methods and Procedures	8
4.1.1.1	Desert Tortoise Habitat Analysis.....	9
4.1.1.2	Desert Bighorn Sheep Habitat Analysis	9
4.1.1.3	Western Burrowing Owl Habitat Analysis	10
4.1.1.4	Wetland Landforms Analysis	11
4.1.1.5	Biological Field Surveys.....	11
4.2	Biological Field Survey Results.....	12
4.2.1	Landforms and Plant Communities	12
4.2.1.1	Desert Dry Wash Microphyllous Woodland.....	13
4.2.1.2	Sonoran Creosote Bush Scrub	14
4.2.1.3	Desert Wash Scrub	14
4.2.1.4	Vegetated Swales and Swale Networks.....	14
4.2.1.5	Desert Pavement	15
4.2.2	Botanical Inventory.....	15
4.3	Acres and Quality of Habitat and Wetland Type.....	16
4.4	California Natural Diversity Database.....	16
4.5	Line Distance Sampling Data	16
4.6	Threats Analysis	17

TABLE OF CONTENTS (CONTINUED)

Section 5	Conclusion/Summary	20
5.1	Mitigation Suitability	20
Section 6	References.....	22

TABLE OF CONTENTS (CONTINUED)

List of Tables

Table 1. Habitat And Wetland Quality	16
Table 2. Threats Analysis: Management Concerns Identified During Field Surveys	17
Table 3. CDP-1 ⁽¹⁾ Credit Summary	21

List of Appendices

Appendix A. Plant Species Observed on and in the Vicinity of CDP-1	
--	--

TABLE OF CONTENTS (CONTINUED)

List of Figures

- Figure 1. Location
- Figure 2. Topography
- Figure 3. Soils
- Figure 4. Desert Renewable Energy Conservation Plan Interim Mitigation Strategy – Mitigation Target Areas
- Figure 5. Watershed – State Hydrologic Unit
- Figure 6. Regional Conservation Analysis
- Figure 7. Regional Land Ownership and Protection Status
- Figure 8. Aerial Photograph
- Figure 9. Desert Bighorn Sheep Demes
- Figure 10. Acreage of Preserve within 5 Miles of Western Burrowing Owl Occurrence
- Figure 11a-g. Directional Photopoints
- Figure 12a-j. Representative Vegetation and Wildlife Photos and Data
- Figure 13. Wetlands and Microphyll Woodland
- Figure 14. CNDDDB Occurrences
- Figure 15. Desert Tortoise LDS Survey Points
- Figure 16. Proposed Renewable Energy Projects

TABLE OF CONTENTS (CONTINUED)

List of Acronyms

ACEC	Areas of Critical Environmental Concern
Agencies	BLM, CDFG, CEC, USFWS
BLM	Bureau of Land Management
BUOW	Western Burrowing Owl
CDFG	California Department of Fish and Game
CDP	Colorado Desert Preserve
CDP-1	Subject Property (APN: 860-040-001)
CEC	California Energy Commission
CNDDDB	California Natural Diversity Database
DDWW	Desert Dry Wash Microphyllous Woodland
DRECP-IMS	Desert Renewable Energy Conservation Plan – Interim Mitigation Strategy
DT	Desert Tortoise
DWMA	Desert Wildlife Management Area
DWS	Desert Wash Scrub
GSEP	Genesis Solar Energy Project
LDS	Line Distance Sampling
MSL	Mean Sea Level
Property	Subject Property (APN: 860-040-001)
SN	Swale Network
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VS	Vegetated Swale
WHMA	Wildlife Habitat Management Area
Wildlands	Wildlands California Holdings I, LLC

Section 1 Introduction

1.1 BACKGROUND

The State of California has mandated that 33% of its energy come from renewable sources by 2020 (Executive Orders S-21-09 and S-14-08). Much of this energy is expected to come from the development of utility scale solar projects in California's southeastern deserts. The Genesis Solar Energy Project (GSEP) (CEC Docket No. 09-AFC-8) is a concentrated solar thermal electric generating facility located in the Colorado Desert approximately 20 miles west of the City of Blythe, just north of Interstate 10.

1.2 REGULATORY GUIDANCE

In an attempt to comply with the mitigation requirements associated with the GSEP, Wildlands has assembled a portfolio of suitable habitats on private ground within the Colorado Desert. Wildlands utilized guidelines in the following documents to identify mitigation lands whose quality and function are of equal or better quality and function than the habitats impacted by the GSEP;

- BLM/CEC joint Staff Assessment and Environmental Impact Statement, Genesis Solar Energy Project (BLM and CEC 2010)
- BLM Plan Amendment/Final Environmental Impact Statement for the Genesis Solar Power Project (BLM 2010)
- CEC Genesis Solar Energy Project Revised Staff Assessment (CEC 2010a)
- CEC Genesis Solar Energy Project Revised Staff Assessment Supplement (CEC 2010b)
- CEC Genesis Solar Energy Project Commission Decision (CEC 2010c)
- Genesis Solar Energy Project Biological Assessment (Tetra Tech 2010)
- USFWS Biological Opinion (USFWS 2010)
- final and draft revised desert tortoise recovery plans (USFWS 1994, 2008)

Wildlands habitat acquisition specifically targeted areas and habitat types that are appropriate to fulfill mitigation measures for permitted impacts to: desert tortoise habitat (DT), Mojave fringe-toed lizard habitat, western burrowing owl (BUOW) habitat, as well as waters of the state including desert dry wash (microphyll) woodland (DDWW).

Additional mitigation values identified and analyzed on the targeted areas include habitat for desert bighorn sheep and Couch's spadefoot toad, although no impacts to these species occurred as a result of the Genesis Solar Energy Project. These habitat types and mitigation values are described below in order to more completely describe the biological significance of the identified properties.

1.3 COLORADO DESERT PRESERVE

The approximately 2,137-acre Colorado Desert Preserve (“Preserve”) is comprised of five groups of properties (CDP-1 through CDP-5), grouped by geographic proximity, which together are being submitted for certification as suitable mitigation lands for the Genesis Solar Energy Project. Five Biological Resources Reports (one for each group of properties or “Complex”) are being submitted as part of the Colorado Desert Preserve Formal Acquisition Proposal.

The following Biological Resources Report for the approximately 127.7-acre complex number 1 (“Complex” or “CDP-1”) will detail the biological resources contained onsite in order to prove their applicability as mitigation for the Genesis Solar Energy Project.

Section 2 Parcel Information

This biological resources report will demonstrate the suitability of Complex number one (1) of the Wildlands Colorado Desert Preserve (“CDP-1” or “Property”) to provide compensation for environmental impacts within the Colorado Desert resulting from the GSEP. The habitats on the Property, as well as the Property’s connectivity to other protected landscapes, make it appropriate to mitigate for impacts to species and their habitats including Mojave Desert tortoise (*Gopherus agassizii*) (DT), western burrowing owl (*Athene cunicularia hypugea*) (BUOW), desert bighorn sheep (*Ovis canadensis nelsoni*); and California jurisdictional waters including swale network (SN), vegetated swale (VS), and DDWW. Habitats on CDP-1 that will be utilized by GSEP to offset permitted impacts include 127.7 acres of DT, 127.7 acres of BUOW, 10.7 acres of DDWW, and 46.9 acres of other state waters (SN and VS).

2.1 ACRES

The Property consists of one contiguous parcel (860-040-001) totaling approximately 127.7 acres.

2.2 LOCATION

The Property is located in Riverside County approximately 14 miles south of Interstate 10, approximately 46 miles west of the city of Blythe, approximately 15 miles south of the town of Desert Center, and approximately 50 miles east of the city of Coachella (**Figure 1**). The coordinates for the northwestern most corner of the Property are 33°30’04.08”N, 115°21’46.91”W. The northern 42 acres of the Property are located in the United States Geological Survey (USGS) 7.5” Pilot Mountain Quadrangle (33115E3), and the southern 86 acres are located in the USGS 7.5” Augustine Pass Quadrangle (33115D3). The entire Property is located in portions of Township 08 South, Range 16 East, Section 07 of the San Bernardino Meridian (**Figure 2**).

2.3 APN

The Assessor’s Parcel Number for the Property is 860-040-001.

2.4 HYDROLOGY AND TOPOGRAPHY

The elevation of the Property ranges from approximately 2,485 feet above mean sea level (MSL) in the northeast to approximately 2,465 feet above MSL in the southeast to approximately 2,442 feet above MSL in the northwest. The topography is generally flat, gently sloping from the northeast to the southwest (**Figure 2**). Waters on the Property are ephemeral and rainfall driven, flowing generally in a northeast to southwest direction.

The annual average precipitation for the Property is 3.86 inches, estimated using the University of California Integrated Pest Management Weather Station System weather station located in Blythe, approximately 46 miles east (UCIPM 2010). According to the Department of Water Resources Water Data Library Website, the depth to groundwater in the region varies considerably and has been measured between 10 and 172 feet below the ground surface (DWR 2010).

2.5 SOILS

The Natural Resources Conservation Service's U.S. General Soil Map identified one soil series within the Property (**Figure 3**) (Soil Survey 2010):

- Rillito – Gunsight (s1140), 100% of Property

Rillito – Gunsight (s1140)

This soil series includes soils formed in mixed alluvium. These soils include calcareous gravelly loam, gravelly to gravelly sandy loam, and gravelly silt loam to silty clay loam. Local areas of desert pavement are found in this soil formation.

The Rillito series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Rillito soils are on fan terraces or stream terraces. This soil series is somewhat excessively drained; slow or medium runoff; moderate permeability. Vegetation is mainly creosote bush, desert sage, cacti, mesquite, palo verde, ironwood, and annual grasses and weeds.

The Gunsight series consists of very deep, somewhat excessively drained, strongly calcareous soils that formed in alluvium from mixed sources. Gunsight soils are on fan terraces or stream terraces, somewhat excessively drained; medium runoff; moderate or moderately rapid permeability. The vegetation is creosote bush, ocotillo, palo verde, saguaro, cholla and triangle bursage.

Section 3 Geographic Analysis to Identify Suitable Mitigation

Under the guidance of the California Energy Commission (CEC), California Department of Fish and Game (CDFG), Bureau of Land Management (BLM), and United States Fish and Wildlife Service (USFWS) (collectively “Agencies”) involved in development and mitigation in the Colorado Desert, Wildlands used various geographically based filters to identify potentially suitable mitigation lands. In order to mitigate for impacts to the DT, Wildlands attempted to find suitable habitat within the Colorado Desert Recovery Unit, the Chuckwalla Desert Wildlife Management Area (DWMA), and within BLM designated Areas of Critical Environmental Concern (ACEC). Wildlands used the California Natural Diversity Database (CNDDDB) to identify areas with known species occurrences, as well as DT critical habitat and a USGS model that determines the statistical probability of DT habitat that was used to map potential DT habitat (Nussear et al. 2009). In accordance with the CEC’s GSEP (CEC Docket Number: 09-AFC-8) Final Decision released October 12th, 2010 (publication #CEC-800-2010-011-CMF) (CEC 2010c), Wildlands identified properties within the Chuckwalla-Ford Dry Lake or surrounding watersheds as close to the GSEP as possible when looking for wetland resource values. Wildlands utilized all available geographic data, interviews with desert species and habitat experts, and guidance from regulatory agencies to specifically target high priority areas that would contribute to species connectivity, corridors, and continued and improved gene flow for the overall Colorado Desert ecosystem and its species.

3.1 DESERT RENEWABLE ENERGY CONSERVATION PLAN – INTERIM MITIGATION STRATEGY

The Property is located within Mitigation Target Area 8 – Imperial Valley (**Figure 4**), of the Desert Renewable Energy Conservation Plan Interim Mitigation Strategy (DRECP-IMS) (CDFG 2010). The DRECP-IMS used a multi agency/Non-Governmental Organization collaborative approach, coupled with GIS analysis to identify areas with high quality habitat and that may have parcels available for acquisition. Mitigation Target Area 8 – Imperial Valley is described by the DRECP-IMS as:

Area 8 spans southeastern Riverside County and northeastern Imperial County south of Highway 10 and connects with the southeastern end of Mitigation Target Area 4 (Mojave Corridor). It includes Desert Tortoise Critical Habitat, active bighorn sheep range, and a California Essential Connectivity Area. The area also supports Mojave fringe-toed lizard. Acquisition in this area would contribute to retaining habitat connectivity along the east side of the Chocolate Mountains, and would connect BLM protected areas including Dry Wash Woodlands and Bighorn Sheep Wildlife Habitat Management Area, Chuckwalla DWMA, and Corn Springs ACEC.

3.2 WATERSHED

The Property is located in the State's East Salton Hydrologic Unit (**Figure 5**) and in the federally recognized 15030104-Salton Sea eight-digit Hydrologic Unit Code. The GSEP is located within the State's Chuckwalla Hydrologic Unit, adjacent to the East Salton Hydrologic unit on the northeast and is approximately 1.5 miles from the Property (**Figure 5**).

3.3 DESERT WILDLIFE MANAGEMENT AREA

Following the federal listing of the DT as threatened in 1990, a Desert Tortoise Recovery Team (Recovery Team) was selected to develop a plan for recovery of the DT. Drawing from concepts in the federal Endangered Species Act, the Recovery Team identified six DT recovery units using published and unpublished data on genetic variability, morphology, and behavior patterns of populations as well as ecosystem types. The six DT recovery unit boundaries represent major ecosystem boundaries. Within the recovery units the Recovery Team recommended the establishment of 14 reserves or DWMA (Berry 1997). DWMA are general areas recommended by the 1994 Recovery Plan within which recovery efforts for the DT would be concentrated. DWMA had no specific legal boundaries in the 1994 Recovery Plan (USFWS 1994). The BLM formalized the general DWMA from the 1994 Recovery Plan through its planning process and administers them as Areas of Critical Environmental Concern (USFWS 2008), and feature a 1 percent surface disturbance limit (BLM 2002). Although the 1 percent surface disturbance limit is intended to incentivize projects being located outside of DWMA, it does specifically allow for development.

DWMA are an administrative area within the recovery unit, which is managed such that resource-level protection is afforded DT populations while maintaining and protecting other sensitive species and ecosystem functions (e.g., watersheds) (USFWS 1994). Establishment of recovery units and DWMA was intended, in part, to facilitate an ecosystem approach to land management and desert tortoise recovery, as stipulated by section 2(b) of the Endangered Species Act (USFWS 2008).

Because the threat of development within areas identified for protection is a real possibility, it is important that private potentially developable land within DWMA be placed under permanent protection. The Property is located within the Colorado Desert DT recovery unit and the Chuckwalla DWMA (**Figure 6**).

3.4 AREA OF CRITICAL ENVIRONMENTAL CONCERN

ACEC is an administrative designation made by the BLM through a land use plan. This designation is unique to BLM in that no other agency uses this form of designation. Private lands and lands administered by other agencies may be located within the boundaries of an ACEC, but are not subject to the prescribed management of the ACEC. As a result, it is of significant importance to protect privately-owned lands within an ACEC because conservation of these lands contributes towards a more comprehensive, regional natural resource management regime. Congress mandated the designation of ACEC through the Federal Land Policy and Management Act to manage areas containing unique and

significant resource values. An ACEC is a designation that highlights areas where special management attention is needed to protect and prevent irreparable damage to important historic, cultural and scenic values; fish, wildlife resources or other natural systems or processes; or to protect human life and safety from natural hazards. The designation is a record of significant values that must be accommodated when BLM considers future management actions and land use proposals. The Property is located in the BLM designated Chuckwalla ACEC (**Figure 6**).

3.5 CONTINUITY ANALYSIS/ADJACENCY

In addition to the location criteria specified above, lands having connectivity to larger blocks of lands that are already protected or planned for protection were prioritized. Lands adjacent to BLM properties or other federally protected lands were specifically targeted. This connectivity is essential due to the fractured nature of private land ownership in the area. The conservation value of a site is enhanced by its connectivity to other high quality habitats and its contributory value as a linkage corridor to similarly protected sites.

3.5.1 Adjacency to Protected Lands

The Property is located in a remote area and is contiguous with a broad expanse of similar habitat known as the Chuckwalla Bench. The Property is completely surrounded by either BLM owned and managed land or the Chocolate Mountain Aerial Gunnery Range, a large expanse of mostly undeveloped habitat with prohibited public access (**Figure 7**). Permanent protection of the Property will contribute towards;

- connectivity to protected Wilderness Areas,
- consolidation of protected habitat within the Chuckwalla DWMA,
- consolidation of protected habitat within the Chuckwalla Bench,
- consolidation of protected habitat within the Chuckwalla critical habitat unit for DT, and
- consolidation of protected habitat within ACEC.

3.5.1.1 Wilderness Areas

In 1964 congress enacted The Wilderness Act, which identified individual Wilderness Areas that make up a nationwide Wilderness System. Wilderness Areas serve multiple uses, but the Wilderness Act mandates that each Wilderness Area be administered to preserve the “wilderness character of the area.” Wilderness Areas protect watersheds and clean-water supplies vital to downstream municipalities and agriculture, as well as habitats supporting diverse wildlife, including endangered species. Activities such as logging and oil and gas drilling are prohibited in designated Wilderness Areas. Within the Northern and Eastern Colorado Desert Planning Area there are twenty-three BLM designated Wilderness Areas totaling 1,621,109 acres (BLM 2002).

This Property is not directly adjacent to protected Wilderness Areas, but it does contribute to connectivity within the Chuckwalla Bench and between the Chuckwalla Mountains Wilderness Area and the Chocolate Mountain Gunnery Range. The Property is located approximately 1.5 mile south of the Chuckwalla Mountains Wilderness Area. The protection of this Property will add to the protected corridor

of undeveloped habitat that connects the Chuckwalla Mountain Wilderness Area and the Chocolate Mountain Gunnery Range (**Figure 7**).

3.5.1.2 Bureau of Land Management

The Property is completely surrounded by BLM owned and managed land and the Chocolate Mountain Gunnery Range. Adjacent to the north and east is BLM owned and managed land (**Figure 7**). The Property is also located within the BLM designated Chuckwalla DWMA and ACEC (**Figure 6**).

3.5.2 Critical Habitat

On February 8th, 1994, the USFWS designated 6.4 million acres of critical habitat in California, Nevada, Utah, and Arizona for the Mojave population of DT (USFWS 1994, 2008). Critical habitat consists of legally defined areas that are essential for the conservation of the DT that support physical and biological features essential for DT survival, and that may require special management considerations or protection (USFWS 2008).

Properties that could provide habitat connectivity and build linkages between DT critical habitat and known populations of DT were targeted. The Property is located within the Chuckwalla critical habitat unit for DT (**Figure 6**), and is located within the Chuckwalla Bench, an area with high population densities of DT.

Section 4 Biological Analysis

4.1 DESKTOP ANALYSIS AND BIOLOGICAL FIELD SURVEYS

After identifying properties that fit the identified geographical criteria, a thorough aerial photography/satellite imagery analysis was conducted to preliminarily identify landforms, plant communities, and habitats on the Property, and potential existing or future threats to the quality and long-term sustainability of the Property. Landforms are geographic features of the earth defined by topographic relief, geology, and hydrologic connectivity. A plant community is a recognizable and complex assemblage of plant species which interact with each other as well as with the elements of their environment and is distinct from adjacent plant communities. A habitat is an ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism. **Figure 8** shows an aerial photograph of the Property. Following this desktop analysis, Wildlands conducted biological field surveys. The goals of the surveys were to:

- assess habitat quality for species of interest including DT, bighorn sheep, BUOW, Couch's spadefoot toad,
- delineate and ground truth desktop delineated landforms (including jurisdictional and non-jurisdictional wetlands) and plant communities, and
- identify potential threats onsite and in the vicinity.

Surveys were conducted on foot, by truck, and via helicopter on August 3rd, 4th, 31st, September 1st, 2nd, November 2nd, 2010, and January 11th-14th, 17th-20th, 2011. Surveys conducted on August 3rd and 4th utilized a helicopter as transportation so the surveying biologists could quickly and efficiently travel to and throughout the area as well as evaluate and identify potential threats and management issues from an aerial vantage point. All other surveys were conducted using a four-wheel-drive vehicle on approved roads and trails to get as close to the Property as possible before hiking on foot.

4.1.1 Methods and Procedures

Wildlands conducted thorough DT, desert bighorn sheep, BUOW, and wetland specific analyses of the Property prior to conducting biological field surveys. These analyses were conducted with input and guidance from experts in the fields of DT ecology, desert wetland delineations, and general desert ecology. Habitat quality for each species of interest as well as for the wetlands and plant communities was preliminarily assessed using a general qualitative value (low, moderate or high), which was then verified and modified as necessary during biological field visits. For the wildlife species of interest, a general qualitative value of "low" indicates that the Property is not likely to support the species. A general qualitative value of "medium" indicates that the Property has the potential to support the species. A general qualitative value of "high" indicates that species use of the Property was verified, or that based on observed habitat characteristics it is highly likely that the Property supports the species. For the wetlands and plant communities, the criteria used to assign a general qualitative value is described in section 4.1.1.4.

4.1.1.1 Desert Tortoise Habitat Analysis

An analysis of DT habitat extent and quality was conducted by layering existing geographic data sets on to aerial photography/satellite imagery in order to assess the suitability of the habitats within the Property as DT habitat. The preliminary desktop general qualitative values (low, moderate, high) for DT were based in part on:

- ability to provide connectivity corridors for species movement and gene flow,
- location within the Chuckwalla DWMA,
- proximity and similarity to known areas that support existing DT populations,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

Based on the preliminary desktop habitat analysis, the results of the biological field surveys that documented one 2-3 year old DT carcass (see section 4.2), the CNDDDB (see section 4.4), and USFWS Line Distance Sampling (see section 4.5), the Property was assigned the general qualitative value of “High” for DT habitat.

4.1.1.2 Desert Bighorn Sheep Habitat Analysis

The analysis of the Property’s suitability as habitat for desert bighorn sheep used aerial photography/satellite imagery. Nelson bighorns (also called desert bighorn sheep) occur in desert mountain ranges from the White Mountains of Mono and Inyo Counties, south to the San Bernardino Mountains, southeastward to the Mexican border. Habitats used include alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian (Monson and Sumner 1980).

The Property is located within the bighorn sheep Sonoran metapopulation. The majority of the Property is located within one mile of the boundary of the Chuckwalla Mountains bighorn sheep deme. The Property contains important spring foraging ground for the Chuckwalla Mountains bighorn sheep deme (small, isolated subpopulations) (**Figure 9**). The spring green-up that occurs less than one mile from the toe slope of desert bighorn sheep habitat supplies important nutrients during the lambing season.

Telemetry studies in desert habitats have recorded more intermountain movement by desert bighorn sheep than was previously thought to occur. As a result, nontraditional habitat connecting mountain habitats are considered important dispersal corridors for male desert bighorn sheep as they leave occupied mountainous territories in search of unoccupied mountainous territories. Bighorn sheep move between demes, resulting in gene flow, and provide opportunities for recolonization of vacant or formerly occupied areas. These movements between demes are considered vital to the maintenance of genetic variability necessary to sustain a metapopulation (Bleich et al. 1990, Schwartz et al. 1986) and facilitate the recolonization of extirpated demes. The property is located in the Chuckwalla Bench, an important corridor between the Chuckwalla Mountains bighorn sheep deme and the Chocolate Mountains bighorn sheep deme (**Figure 9**). The entire Property supplies this important corridor habitat whose protection is essential for the long-term survival of the desert bighorn sheep so that they do not become “mountain islands within desert seas” (Bleich et al. 1990).

The desert bighorn sheep preliminary desktop general qualitative value of high was based predominantly on:

- ability to provide connectivity corridors for species movement and gene flow,
- adjacency to DEME,
- proximity and similarity to known areas that support existing desert bighorn sheep populations,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

While the Property does protect important bighorn sheep spring foraging habitat and connectivity corridors, the GSEP does not have impacts or mitigation requirements associated with desert bighorn sheep. Therefore these habitat values are not being used to serve as mitigation, cannot and will not be reserved or transferred to a different project and are being described only for informational purposes.

4.1.1.3 Western Burrowing Owl Habitat Analysis

The western burrowing owl (*Athene cunicularia*) (BUOW) is a wide ranging California Species of Special Concern that can be found throughout the majority of the State (Shuford et al 2008). Burrowing Owls occur across most of the Mojave and Colorado deserts of Inyo, eastern Kern, northern Los Angeles, San Bernardino, eastern Riverside, eastern San Diego, and Imperial counties (Miller 2003). In desert systems such as the Colorado Desert, regional numbers are low and occupied areas are widely scattered. Higher densities of BUOW are found on private lands where they benefit from anthropogenic changes in the landscape including farmland, ditches, canal banks, road crossings, and other altered landscapes (DeSante et al. 2004). The main indicator of suitable BUOW habitat is the presence of burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs and taller vegetation (Green and Anthony 1989, Haug et al. 1993). Nest and roost burrows of the Burrowing Owl in California are most commonly dug by ground squirrels (e.g., *Spermophilus beecheyi*; Trulio 1997), but they may use badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (e.g., San Joaquin Kit Fox, *Vulpes macrotis mutica*) dens or holes (Ronan 2002). The diet of Burrowing Owls in California includes a broad array of arthropods (centipedes, spiders, beetles, crickets, and grasshoppers), small rodents, birds, amphibians, reptiles, and carrion (Thompson and Anderson 1988, Green et al. 1993, Plumpton and Lutz 1993, Gervais et al. 2000, York et al. 2002). Although insects dominate the diet numerically, vertebrates account for the majority of biomass in some regions (Green et al. 1993).

Properties were characterized as containing suitable BUOW habitat that contained the elements necessary to support populations of BUOW including:

- Soils suitable to contains burrows
- The existence of burrows suitable to support burrowing owls
- The observation of fossorial animals
- The observation of typical prey species (i.e. arthropods, mammals, reptiles)
- Appropriate vegetation (i.e. short vegetation with sparse shrubs and trees)

As indicated in section 4.1.1.3, one western burrowing owl actively using a burrow complex was positively identified approximately 3 miles east by southeast of the southeastern corner of the Property.

The general qualitative value of “high” was based on the fact that the entire Property is located within 5 miles (estimated dispersal distance) of this documented occurrence (**Figure 10**).

4.1.1.4 Wetland Landforms Analysis

The analysis of waters of the State used aerial photography/satellite imagery to assess the presence and extent of wetland landforms on the Property. The analysis of waters of the State used aerial photography/satellite imagery to assess the presence and extent of the wetland habitat types on the Property. Three wetland types were identified on the property including swale network (SN), vegetated swales (VS), and desert washes.

The preliminary desktop general qualitative values (low, moderate, high) for wetlands were based in part on:

- species composition and structure including the presence of desert dry wash microphyllous woodland (DDWW) (Holland Code 62200) (Holland 1986),
- hydrologic connectivity,
- ability to provide habitat for Colorado Desert flora and fauna,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

A description of the wetlands and landforms found on the Property, including the general qualitative value and the results of the biological field surveys, can be found in section 4.2.1.

4.1.1.5 Biological Field Surveys

Biological field surveys were conducted to ground truth the extensive photo-interpretation. Field surveys utilized the expertise of numerous experts in Colorado Desert ecology including consultants with expertise in DT ecology, desert wetland delineations, and desert botanical inventories.

During biological field surveys, the Property was evaluated based on its vegetative diversity and density, location and topography. The results from the biological field survey evaluation, in conjunction with the preliminary desktop analyses, were used to determine a final ranking of species habitat, plant community, and wetland as high, moderate, or low. Proximity to known occurrences of sensitive species was taken into consideration in the ranking of the Property for habitat suitability (see section 3.4 CNDDDB and section 3.5 Line Distance Sampling). Plant community, species composition and structure, and wash-dependent vegetation density were taken into consideration in the ranking of the Property for wetlands. The vegetation, soils, and topography on the Property was photographed and directional photo points (one at each cardinal direction) were taken to document the species occurrences and habitats found onsite (**Figures 11a and 12a**). In order to accurately delineate habitats, plant communities and waters of the state; a desert ecologist and wetland specialist used large regional maps, site specific 11x17 aerial photographs, photo-documentation, and GPS to identify the type, quality, and extent of the different habitat and wetland types on the Property. Each plant community was described and verified during biological field surveys by identifying the dominant perennial vegetation. Plant communities were named using guidelines described in *California Vegetation* (Holland and Keil 1995). Within each site, areas containing tree species were identified as DDWW using guidelines established by the “Holland Code”

(Holland 1986) and *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009). Plant nomenclature was taken from *The Jepson Desert Manual* (Baldwin et al. 2002). This information facilitated the complete delineation of the habitat and landform types, with a special emphasis on wetlands, on the Property (**Figure 13**). Human impacts, invasive species and other potential threats to sensitive species being considered were investigated and recorded. A summary of the threats to the habitat can be found in section 4.6 below.

4.2 BIOLOGICAL FIELD SURVEY RESULTS

Six directional photo points (one photo in each cardinal direction) were established on the Property in order to visually demonstrate the variability in species composition and vertical and horizontal structure of the landforms and plant communities throughout the Property (**Figure 11a**). Directional photo points include:

- Upland (**Figure 11b**)
- Desert Wash Scrub within VS (**Figure 11c**)
- Open DDWW (**Figure 11d, 11f, 11g**)
- Desert Pavement (**Figure 11e**)

In order to document the plant communities on the Property, representative photos were taken that identified plant species of interest, the dominant perennial vegetation, and/or examples of the overstory dominant trees or shrubs used in the determination of plant community. Photos were also taken to document incidental observations of wildlife (**Figure 12a**). Photos taken documented the presence of:

- Big Galleta Grass (*Pleuraphis rigida*) within VS (**Figure 12b**)
- Big Galleta Grass Grassland within VS (**Figure 12c**)
- DT Carcass (**Figure 12d**)
- Acacia (*Senegalia greggii*) within open DDWW (**Figure 12e**)
- Smoke Tree (*Psorothamnus spinosus*) (**Figure 12f**)
- Acacia within open DDWW (**Figure 12g**)
- Jojoba (*Simmondsia chinensis*) within DDWW (**Figure 12h**)
- Condalia (*Condalia globosa*) within DDWW (**Figure 12i**)
- Smoke Tree within DDWW (**Figure 12j**)

One DT carcass was identified near the western edge of the Property (**Figures 12a, 12d**). The time since death for this female DT carcass was estimated to be 2-3 years. No obvious indications of the cause of death were discernable.

4.2.1 Landforms and Plant Communities

The landforms identified on the property can be grouped into two distinct categories; uplands and wetlands. Uplands identified on the property include vegetated areas mostly containing the plant community Sonoran Creosote Bush Scrub (Holland Code 33100); and desert pavement, an unvegetated geologic landform characterized by closely packed, interlocking angular or rounded rock fragments of pebble and cobble size. The wetland landforms identified on the Property include VS, SN, and washes.

Plant communities identified on the wetland landforms include DDWW (Holland Code 62200), and an undescribed plant community referred to as desert wash scrub (DWS); with scattered amounts of Sonoran Creosote Scrub.

The wetland landforms on the Property contain runoff from the Chuckwalla Mountains that, upon leaving the Property, flow northwest through the Chuckwalla Bench, then eventually flow south into Salt Creek. The Property contains numerous ephemeral stream channels that are straight to slightly meandering as the channels flow south out of the Chuckwalla Mountains. DDWW is located in isolated washes near the center of the Property as well as more confined channels in the southeast corner and near the center. The DDWW washes on the Property increase in width as increased hydrologic input from adjacent swales increases towards the south. The wetlands onsite demonstrate anastomosed morphology in the form of braided beds of VS and washes with regular incised compound channels and multiple relic channels that have since formed into ancillary and concomitant SN with a developed DWS overstory. The VS, SN and washes onsite are susceptible to widening and avulsions (i.e., rapid changes in channel position and/or channel relocation) during moderate to high discharges, reestablishing a low-flow channel during subsequent low flows. The Property also contains upland interfluves, mostly composed of convex topography with a mix of Sonoran Creosote Bush Scrub and desert pavement.

The jurisdictional limits of the DDWW were considered, recorded, and mapped for areas within all washes and wash features where the association of wash-dependent vegetation was present and/or other upland habitat types (Sonoran Creosote bush scrub, desert pavement) was not established at more than 5 percent absolute cover. Jurisdictional lateral extents of the non DDWW washes, SN, and VS were determined by the farthest extents of the respective established channel bed and banks (including shelving and scouring) of each subchannel. When the established channel bed and banks began to transition into less distinct features, such as features that only support sheet flow, and/or features that began to blend into the landscape and or reflect the features of a swale or relictual channel, the jurisdictional linear extent(s) of the feature(s) was determined to have ceased.

Landform types and plant communities are described in detail below.

4.2.1.1 Desert Dry Wash Microphyllous Woodland

DDWW (Holland Code 62200) is an open to dense, drought-deciduous, microphyllous riparian thorn scrub woodland dominated by any of several fabaceous trees. DDWW is distributed along the larger drainages of the lower Mojave Desert and more generally through the Colorado Desert. Site factors for DDWW include sandy or gravelly washes and arroyos, largely in frost-free areas. These washes typically have braided channels that substantially rearrange with every surface flow event. DDWW is typically an open vegetation community; however, canopy development and density are variable and may depend on water supply (Holland 1986, CDFG 1988).

The DDWW plant community occupies a major wash that traverses the western portion of the Property, as well as two patches near the center of the Property and in the southeast corner of the Property. These washes flow from north to south and are hydrologically connected to numerous VS and SN throughout the Property. This vegetation community is dominated by an open overstory of honey mesquite (*Prosopis glandulosa*), ironwood (*Olnea tesota*), smoke tree (*Psorothamnus spinosus*), acacia (*Senegalia greggii*), condalia (*Condalia globosa*); with a scattered understory of burrowbrush (*Hymenoclea salsola*), and desert lavender (*Hyptis emoryi*). DDWW is more developed in the major washes where channel

development is most pronounced and water supply likely more abundant from the increased elevational landscape to the northeast (**Figure 13**).

4.2.1.2 Sonoran Creosote Bush Scrub

Sonoran Creosote Bush Scrub (Holland Code 33100) is a shrub dominated habitat composed of .05-3 m tall, widely spaced shrubs, usually with bare ground in-between. This habitat is very similar in appearance to Mojave Creosote Bush Scrub (Holland Code 44110), but with greater species and life form diversity including several succulents. Growth occurs from winter to early spring (or rarely at other seasons) if

rainfall is sufficient. Shrubs may be dormant for long periods. Many species of ephemeral herbs may flower in late February and March (earlier than in Mojave Creosote Bush Scrub) if the winter rains are sufficient. This is the basic creosote scrub of the Colorado Desert. This habitat type is found in the well-drained secondary soils of slopes, fans and valleys rather than upland sites with thin residual soils or sites with high soil salinity. Winter temperatures are seldom below freezing. Sonoran creosote bush scrub is the dominant upland habitat type on the Property.

4.2.1.3 Desert Wash Scrub

DWS was identified and classified as a diverse scrubland with no single dominant shrub. In a DWS community a mosaic of desert shrubs fill the landscape. In most areas on the Property, DWS comprised the dominant plant community in the SN, and VS wetlands and washes where DDWW was not fully developed. The Property contains well developed concomitant DWS swale networks that present direct hydrologic input into the larger unconfined anastomosed wash and DDWW.

DWS is not a recognized vegetation community, and as a result does not have an assigned Holland Code. DWS most closely resembles Mojave Wash Scrub (Holland Code 34250) in that it is a low, shrubby, open community with a scattered to locally dense overstory of microphyllous trees and shrubs. Mojave Wash Scrub is distributed in washes, arroyos, and canyons of intermittent streams throughout the Mojave Desert Region. The plant community described as DWS consists of relatively large creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), burrowbush (*Hymenoclea salsola*), acacia (*Senegalia greggii*), boxthorn (*Lycium cooperi*), honey mesquite (*Prosopis glandulosa*), and the occasional smoketree (*Psoralea schottii*).

DWS is the dominant habitat type found in the VS and SN and washes where DDWW is not fully formed.

4.2.1.4 Vegetated Swales and Swale Networks

VS occupy minor washes throughout the Property, and are more typically confined to channels. Numerous VS contribute hydrologically to the open DDWW channels that flow on the eastern portion of the Property (**Figure 13**).

SN form where swale channels become less confined, but wash dependent vegetation and shelving and scouring in channels and subchannels are still identified. The Property contains a well developed network of concomitant SN which present direct hydrologic input into larger anastomosed washes and DDWW (**Figure 13**).

The SN and VS on the Property are composed of acacia woodland with moderate mustard occurrences, typical of the region. These wetland habitats with diverse vegetation are dominated by some of the same species found in the DDWW and found in the Sonoran Creosote Bush Scrub, but also contain numerous additional shrub and perennial herbaceous plants, and are best described as DWS.

4.2.1.5 Desert Pavement

Desert pavements are areas with rock fragments of pebble to cobble size that cover an underlying layer of sand, silt, or clay. Desert pavement areas typically have little or no vegetation cover, but it is thought that the lower layers of the varnish contain microbiotic subsurface algal crusts. Desert pavements form from two different processes (McAuliffe 2000). On rocky alluvial fans, fine dust settling out of the air

accumulates between and below the surface layer of rocks, eventually forming a relatively thin silt and clay layer that separates the surface rocks from the main part of the alluvial fan. Desert pavement also can form on sandy soils that contain significant amounts of gravel and rock fragments. In such situations, wind and water erosion can remove most of the sand and fine sediments from the surface, leaving the remaining rock fragments as the predominant surface layer. The extent to which desert pavement reduces wind erosion and resulting fugitive dust depends on the density of the rock fragments covering the underlying soil.

Desert pavements are covered with a glossy substance made out of mineral ingredients including clays and manganese and any other minerals are present in trace amounts. This glossy rock covering is called a varnish or desert varnish. Desert varnish is typically very dark in completion, despite the color of the internal rock. The longer a desert pavement has been forming, the darker the desert varnish. The glossy coatings of desert varnish are very thin, at most a few hundredths of a millimeter thick. Desert varnish also contains organic matter derived from microbial activity.

Many of the mineral ingredients of varnish, including clays and manganese, are derived from airborne materials that settle on rock surfaces. Bacteria residing on the rock surface may play a major role in concentrating and cementing these materials to form the glossy coatings. Rock varnish gives off considerable carbon dioxide when moistened, indicating bacterial respiration. However, bacteria are generally absent from the shiny exposed surfaces of varnish, indicating that they reside within and beneath the microscopic varnish layers. The formation of varnish may actually be a means by which these microbes protect themselves in the exposed, extreme environment of a rock surface in the desert (McAuliffe 2000).

4.2.2 Botanical Inventory

A botanical inventory was conducted concurrently with biological surveys. Appendix A includes a list of plant species observed onsite and in the vicinity of the Property during the biological surveys conducted from August 2010 to January 2011. Photo-documentation was used to representatively identify and map the presence and distribution of microphyllous trees and other dominant shrubs on the Property (**Figures 12a-j**).

4.3 ACRES AND QUALITY OF HABITAT AND WETLAND TYPE

The following Table 1 shows the final delineation of habitat and wetland type and quality based upon regional and site specific analyses and biological field surveys with desert ecology and wetland experts (Figure 13).

Table 1. Habitat And Wetland Quality		
Species Habitat Type	Habitat Acreage	Habitat Quality (low, moderate, high)¹
Desert Tortoise	127.7	High
Western Burrowing Owl	127.7	High
Desert Bighorn Sheep	127.7	High
Plant Community/Wetland		
Desert Dry Wash Microphyllous Woodland	10.7	High
Other Waters of the State	46.9	High
<small>1 – A designation of high quality describes the indicated acreages suitability to mitigate for impacts to the GSEP based on species composition, habitat characteristics, threats, and additional characteristics of the site as described in section 4.1.</small>		

4.4 CALIFORNIA NATURAL DIVERSITY DATABASE

A CNDDDB analysis of the Property was conducted to identify documented occurrences of special status plants and wildlife. CNDDDB occurrence records indicate that three species have been identified within a five-mile radius of the Property including (Figure 14);

- DT,
- Desert bighorn sheep, and
- Harwood's milk-vetch.

4.5 LINE DISTANCE SAMPLING DATA

The Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994, 2008) requires monitoring of DT to assess changes in status with the best available data. Line distance sampling (LDS) (Buckland et al.

2001) has been chosen as the standard method for conducting range-wide monitoring of DT in the Mojave Desert. LDS is also conducted in the Colorado Desert and there are numerous transects within the vicinity of the Property. LDS DT detections between 2001 and 2007 indicate that DT have been consistently identified in the vicinity of the Property (**Figure 15**) and have an estimated density of 4.5 animals/hectare (USFWS 2009). Between 2001 and 2007 (no data available for 2006), there were 95 live DT occurrences and 217 carcasses positively identified during LDS surveys within a 6-mile radius of the Property. One DT carcass was detected on the Property in 2004 according to the LDS data.

4.6 THREATS ANALYSIS

Threats to long-term habitat values such as invasive species, human impacts (development, off road vehicles, etc.) were assessed on the Property. **Table 2** shows all potential threats identified onsite during general site visits and biological surveys. Potential threats analyzed in this table were taken from Salafsky et al. 2008. A Preliminary Title Report and Phase 1 Environmental Site Assessment was obtained to identify existing encumbrances or environmental issues that have the potential to impact the long-term conservation values of the Property. The Title Report and Preliminary Property Analysis can be found in Exhibit A-2, and the Initial Hazardous Materials Survey Report (Phase 1 Environmental Site Assessment) is found in Exhibit A-3 of the Colorado Desert Preserve Formal Acquisition Proposal.

**Table 2. Threats Analysis:
Management Concerns Identified During Field Surveys**

1. Development	None identified or expected to occur onsite or in the vicinity. See 3. <i>Energy Production</i> (below) for discussion of renewable energy applications in the vicinity of the Property.
2. Agriculture	None identified or expected to occur onsite or in the vicinity.
3. Energy Production	None identified onsite or in the vicinity. The Property is adjacent on the south to the proposed Graham Pass, LLC wind generation project (Figure 16). The Graham Pass Wind Energy Project is an approximately 30,800 acre right of way application with BLM, on BLM ground located in the Chuckwalla area of Riverside County.
4. Transportation and Service Corridors	Bradshaw/Butterfield Trail located near the southwestern boundary of the Property. An approximately ½ mile portion of the Bradshaw/Butterfield trail crosses onto the Property just north of the eastern half of the southern boundary .
5. Human Intrusions	Bradshaw/Butterfield Trail – See below.

**Table 2. Threats Analysis:
Management Concerns Identified During Field Surveys**

5.1 Human Access	Very little trespass evidence was found. The possibility of trespass via the Bradshaw/Butterfield Trail exists, but is not anticipated to be substantially different from trespass issues on surrounding properties. Regular landowner access is anticipated to be reduced and managed via the conservation easement and management plan.
5.2 Surface Disturbance	None identified or expected to occur onsite or in the vicinity.
5.3 Altered Hydrology	Limited altered hydrology from the Bradshaw/Butterfield Trail towards the southwestern end of the site. Because the Bradshaw/Butterfield Trail is unpaved, it is unlikely to influence vegetation, wildlife or habitat types. Bradshaw/Butterfield trail appears to be periodically maintained by blading/grading, however, trail maintenance does not ecologically impact the collective swale/wash/DDWW system.
5.4 Motor Vehicles on Paved Roads	No paved roads onsite or in the vicinity.
5.5 Motor Vehicles on Un-Paved Roads	The Bradshaw/Butterfield Trail is located along the southwestern boundary. This trail is infrequently utilized for four-wheel-drive vehicle touring and hiking. Dupont road is an infrequently traveled 4-wheel drive road that runs north-south, crossing the Property near the western boundary. Although this 4-wheel drive road is expected to be utilized on occasion, it is not noticeably maintained and is not expected to negatively impact the hydrology or biological integrity of the Property.
5.6 Motor Vehicles Off Route	None identified or expected to occur onsite or in the vicinity. The Property is located in a BLM designated Wash Closed Zone (BLM 2002). In Wash Closed Zones, vehicle use is restricted to specific routes, including navigable washes, which are designated "open" or "limited". Navigable washes on the Property will not be designated as "open" or "limited".
5.7 Non-motorized Recreation	None identified onsite or in the vicinity.
5.8 Military Operations	None identified. The Property is bordered on the southwest by the 456,000 acre Chocolate Mountain Aerial Gunnery Range where of military operations occur. Because the area is so large, it is unlikely that activities will impact the Property. Department of Defense lands are subject to more dramatic changes in management or use than other Federal lands depending on the changing national security situation. However, the value of military lands to conservation has long been recognized (USFWS 2008). Military lands include a great deal of DT habitat outside of and contiguous with tortoise conservation areas (USFWS 2008), and protection of CDP-1 will contribute towards the amount of conservation land contiguous with the Chocolate Mountain Aerial Gunnery Range. Its restricted access contributes towards the protection of the Property.

**Table 2. Threats Analysis:
Management Concerns Identified During Field Surveys**

5.9 Illegal Immigration	The Bradshaw/Butterfield Trail is a known corridor for illegal immigration and human trafficking. No impacts associated with these activities were identified and illegal immigration trespass/enforcement activity is not anticipated to be substantially different from illegal immigration trespass/enforcement activity on surrounding properties.
6. Fire	Compared to other parts of California, there are relatively few fires in the area of the Property and most are small. No fires have been reported in the Chocolate Mountain Aerial Gunnery Range (adjacent on the southwest) in the last ten years. The threat of natural or anthropogenic fire is not anticipated to be substantially different from surrounding properties. No additional fire suppression activities are anticipated that would separate the Property from the surrounding landscape. Campfires and vehicle access are anticipated to be reduced or eliminated via the conservation easement and management plan.
7. Invasive Plants	Sahara mustard (<i>Brassica tournefortii</i>) was identified onsite. The density of this invasive species was moderate to low, and typical of the area.
8. Pollutants/Hazardous Materials	None expected to occur onsite or in the vicinity.

Section 5 Conclusion/Summary

This 127.7-acre Property contains high quality DT habitat, high quality spring foraging and corridor connectivity habitat for desert bighorn sheep and high quality BUOW habitat based on the following indicators:

- Connectivity and consolidation of protected habitat within the Chuckwalla Bench (**Figure 1**)
- Soils (**Figure 3**)
- Connectivity and corridors (**Figures 6 and 7**)
- Connectivity between the Chuckwalla Mountains bighorn sheep deme and the Chocolate Hills bighorn sheep deme (**Figure 9**)
- Proximity to observed BUOW occurrence (**Figure 10**)
- Habitat types (**Figure 13**)
- CNDDDB occurrences (**Figure 14**)
- High density of LDS DT occurrences within the region (**Figure 15**)
- High vegetation diversity (**Appendix A**)

Based upon the results of the consultants reports, biological field surveys, botanical inventories, and regional analyses, the Property provides high quality DDWW, SN, and VS habitats; and has the potential to support populations of BUOW based on the positively identified BUOW approximately 3 miles east of the Property (**Figure 10**). While the Property does protect important bighorn sheep spring foraging habitat and connectivity corridors, the GSEP does not have impacts or mitigation requirements associated with desert bighorn sheep. Therefore these habitat values are not being used to serve as mitigation, cannot and will not be reserved or transferred to a different project and are being described only for informational purposes.

5.1 MITIGATION SUITABILITY

The GSEP Commission Decision (CEC 2010) requires that all mitigation lands used to offset the impacts from GSEP must be connected to lands of equal or better quality than the anticipated impacts.

The results of the consultant reports, biological field surveys, botanical inventories, regional analyses, and site visits with BLM and USFWS biologists indicate that the habitats on CDP-1 and on adjacent lands are of equal or better quality and function than the habitats anticipated to be impacted by the GSEP, and are therefore suitable to mitigate for permitted impacts resulting from the GSEP. Table 3 is a habitat layering summary quantifying the type and acreage of habitat values on CDP-1 that are suitable as mitigation for the GSEP.

Table 3. CDP-1 ⁽¹⁾ Habitat Layering Summary			
DT⁽²⁾, BUOW⁽³⁾ (acres)	DT, BUOW, DDWW⁽⁴⁾ (acres)	DT, BUOW, Other State Waters (acres)	Total⁽⁵⁾ (acres)
70.1	10.7	46.9	127.7
<u>Comments</u>			
(1) Acreages included in this table are current as of May 24, 2011			
(2) Mojave desert tortoise			
(3) Western burrowing owl. To qualify for BUOW habitat, the entire property or portions of the property have to be within 5 miles of a documented burrowing owl utilizing an active burrow complex.			
(4) Desert dry wash microphyllous woodland			
(5) Total acreages and acreages for each habitat type subject to change			

Section 6 References

- Berry, K.H., 1997. The Desert Tortoise Recovery Plan: An Ambitious Effort to Conserve Biodiversity in the Mojave and Colorado Deserts of the United States. Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles – An International Conference. New York Turtle and Tortoise Society, pp 430-440
- Bleich, V.C., Wehausen, J.D., Holl, S.A., 1990. Desert-dwelling Mountain Sheep: Conservation Implications of a Naturally Fragmented Distribution. *Conservation Biology*. V4 No. 4. 383-390
- BLM (Bureau of Land Management). 2002. Proposed Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) and Final Environmental Impact Statement.
- Buckland, S. T., Anderson, D. R., Burnham, K. P., Laake, J. L., Borchers, D. L., Thomas, L. 2001. Introduction to Distance Sampling – Estimation Abundance of Biological Populations. Oxford University Press, Oxford.
- Bureau of Land Management and California Energy Commission (BLM and CEC). 2010, Staff assessment and environmental impact statement, Genesis Solar power Project, Application for Certification (09-AFC-8). Sacramento, California. March 2010.
- Bureau of Land Management (BLM). 2010. Plan amendment/final environmental impact statement for the Genesis Solar Energy Project. Palm Springs, California. August 2010.
- California Department of Fish and Game (CDFG). 2010. Interim Mitigation Strategy As Required by SB X8 34. DRECP-100-2010-006-F
- California Department of Fish and Game (CDFG). 1988. A Guide to the Wildlife Habitats of California (1988 + updates) (Mayer, K.E. and W.F. Laudenslayer, Jr.). Available at <http://www.dfg.ca.gov/biogeodata/cwhr/pdfs/DSW.pdf>.
- California Energy Commission (CEC). 2010a. Genesis Solar Energy Project. Revised Staff Assessment. June 2010. Sacramento, California.
- California Energy Commission (CEC). 2010b. Genesis Solar Energy Project. Revised Staff Assessment Supplement. July 2010. Sacramento, California.
- California Energy Commission (CEC). 2010c. Genesis Solar Energy Project. Commission Decision. CEC-800-2010-011-CMF. October 2010. Sacramento, California
- Department of Water Resources (DWR). 2010. California Department of Water Resources Water Data Library. Available online at www.water.ca.gov/waterdatalibrary/. Accessed September 2010.

- DeSante, D. F., Ruhlen, E. D., and Scalf, R. 2007. The distribution and relative abundance of Burrowing Owls in California during 1991–1993: Evidence for a declining population and thoughts on its conservation, in Proceedings of the California Burrowing Owl Symposium, November 2003 (J. H. Barclay, K. W. Hunting, J. L. Lincer, J. Linthicum, and T. A. Roberts, eds.), pp. 1–41. Bird Populations Monogr. 1. The Institute for Bird Populations and Albion Environmental, Inc.
- Gervais, J. A., Rosenberg, D. K., Fry, D. M., Trulio, L., and Sturm, K. K. 2000. Burrowing Owls and agricultural pesticides: Evaluation of residues and risks for three populations in California. *Environ. Toxicol. and Chem.* 19:337–343.
- Green, G. A., and Anthony, R. G. 1989. Nesting success and habitat relationships of Burrowing Owls in the Columbia basin, Oregon. *Condor* 91:347–354.
- Green, G. A., Fitzner, R. E., Anthony, R. G., and Rogers, L. E. 1993. Comparative diets of Burrowing Owls in Oregon and Washington. *Northwest Sci.* 67:88–93.
- Haug, E. A., and Didiuk, A. B. 1993. Use of recorded calls to detect Burrowing Owls. *J. Field Ornithol.* 64:188–194.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency.
- McAuliffe, Joseph R. 2000. Desert Soils. Internet Web site: http://www.desertmuseum.org/books/nhsd_desert_soils.php. Accessed on March 04, 2010.
- Miller, J. 2003. Petition to the State of California Fish and Game Commission and supporting information for listing the California population of the Western Burrowing Owl (*Athene cucularia hypugaea*) as an endangered or threatened species under the California Endangered Species Act. Available from Ctr. Biol. Diversity, 1095 Market St., Suite 511, San Francisco, CA 94103 or at www.biologicaldiversity.org/swcbd/species/b-owl/index.html.
- Monson, G., and L. Sumner, eds. 1980. The desert bighorn: its life history, ecology, and management. Univ. Arizona Press, Tucson. 370pp.
- Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H., 2009, Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.
- Plumpton, D. L., and Lutz, R. S. 1993. Prey selection and food habits of Burrowing Owls in Colorado. *Great Basin Nat.* 53:299–304.
- Reed, P.N., 1988. National List of plant species that occur in wetlands: national summary. U.S. Fish Wildl. Serv. Biol. Rep. 88(24). 244 pp.
- Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of Burrowing Owls in a grassland ecosystem. M.S. thesis, Oregon State Univ., Corvallis.

- Salafsky et al. 2008. A standard lexicon for biodiversity conservation: unified classifications of threats and actions. *Conservation Biology* 22: 897-911.
- Shuford, W.D., and Gardali, T., editors. 2008. *California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California*. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Schwartz, O.A., V.C. Bleich, and S.A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. *Biological Conservation* 37: 179-90
- Soil Survey 2010. Natural Resources Conservation Service, United States Department of Agriculture. U.S. General Soil Map (STATSGO) for California. Available online at <http://soildatamart.nrcs.usda.gov>. Accessed September 2010.
- Tetra Tech. 2010. Genesis Solar Energy Project biological assessment. June 2010. Report prepared for the Bureau of Land Management, Palm Springs South Coast Field Office, Palm Springs, California. 46 pp. + appendices.
- Thompson, C. D., and Anderson, S. H. 1988. Foraging behavior and food habits of Burrowing Owls in Wyoming. *Prairie Nat.* 20:23–28.
- Trulio, L. 1997. Burrowing owl demography and habitat use at two urban sites in Santa Clara County, California. *Raptor Res. Rep.* 9:84–89.
- UCIPM 2010. University of California Integrated Pest Management, California Weather Database. Blythe.C (NCDC #0924, Blythe) weather station. Observer = California Department of Forestry. Data Range = Jan 1, 1951 to late 2011.
- U.S. Fish and Wildlife Service (USFWS). 2010. Section 7 Biological Opinion on the Genesis Solar Energy Project, Riverside County, California. In Reply to FWS-ERIV-08B0060-10F0879. November 2, 2010.
- U.S. Fish and Wildlife Service (USFWS). 2009. Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.
- U.S. Fish and Wildlife Service (USFWS). 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). California and Nevada Region, Sacramento, California.
- U.S. Fish and Wildlife Service (USFWS). 1994. Desert tortoise (Mojave population) recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon. 73 pages plus appendices.
- York, M., Rosenberg, D. K., and Sturm, K. K. 2002. Diet and food-niche breadth of Burrowing Owls (*Athene cunicularia*) in the Imperial Valley, California. *W. North Am. Nat.* 62:280–287.

Appendix A. Plant Species Observed on and in the Vicinity of CDP-1

Scientific Name	Common Name	Plant Community
<i>Acamptopappas sphaerocephalus</i>	Goldenhead	Creosote Scrub
<i>Ambrosia dumosa</i>	Burro-weed	Creosote Scrub, DWS, DDWW
<i>Bebbia juncea</i>	Sweetbush	Creosote Scrub, DWS, DDWW
<i>Brikelia incana</i>	Woolly Brickellbush	Creosote Scrub, DWS, DDWW
<i>Condalia globosa</i>	Condalia	DDWW
<i>Cylindropuntia echinocarpa</i>	Golden Cholla	Creosote Scrub, DWS
<i>Echinocactus polycephalus</i>	Cottontop Cactus	Creosote Scrub
<i>Encelia sp.</i>	Encelia	Creosote Scrub, DWS, DDWW
<i>Ephedra sp.</i>	Ephedra	Creosote Scrub, DWS, DDWW
<i>Foquieria splendens</i>	Ocotillo	Creosote Scrub, DWS
<i>Hymenoclea salsola</i>	Burrowbrush	DDWW
<i>Hyptis emoryi</i>	Desert lavender	DDWW
<i>Krameria grayi</i>	Rhatany	Creosote Scrub, DWS
<i>Larrea tridentata</i>	Creosote Bush	Creosote Scrub, DWS

Appendix A. Plant Species Observed on and in the Vicinity of CDP-1

<i>Lycium cooperi</i>	Boxthorn	DWS, DDWW
<i>Olnya tesota</i>	Ironwood	DDWW
<i>Optunia basilaris</i>	Beavertail Pricklypear	Creosote Scrub
<i>Pleuraphis rigida</i>	Big Galleta Grass	DWS
<i>Prosopis glandulosa</i>	Honey Mesquite	DDWW
<i>Psorothamnus spinosus</i>	Smoke Tree	DDWW
<i>Salazaria mexicana</i>	Paperbag Bush	DWS, DDWW
<i>Senegalia greggii</i>	Acacia	Creosote Scrub, DWS, DDWW
<i>Senna armata</i>	Senna	DWS, DDWW
<i>Simmondsia chinensis</i>	Jojoba	DWS, DDWW
<i>Yucca schidigera</i>	Mojave Yucca	Creosote Scrub, DWS

Colorado Desert Preserve

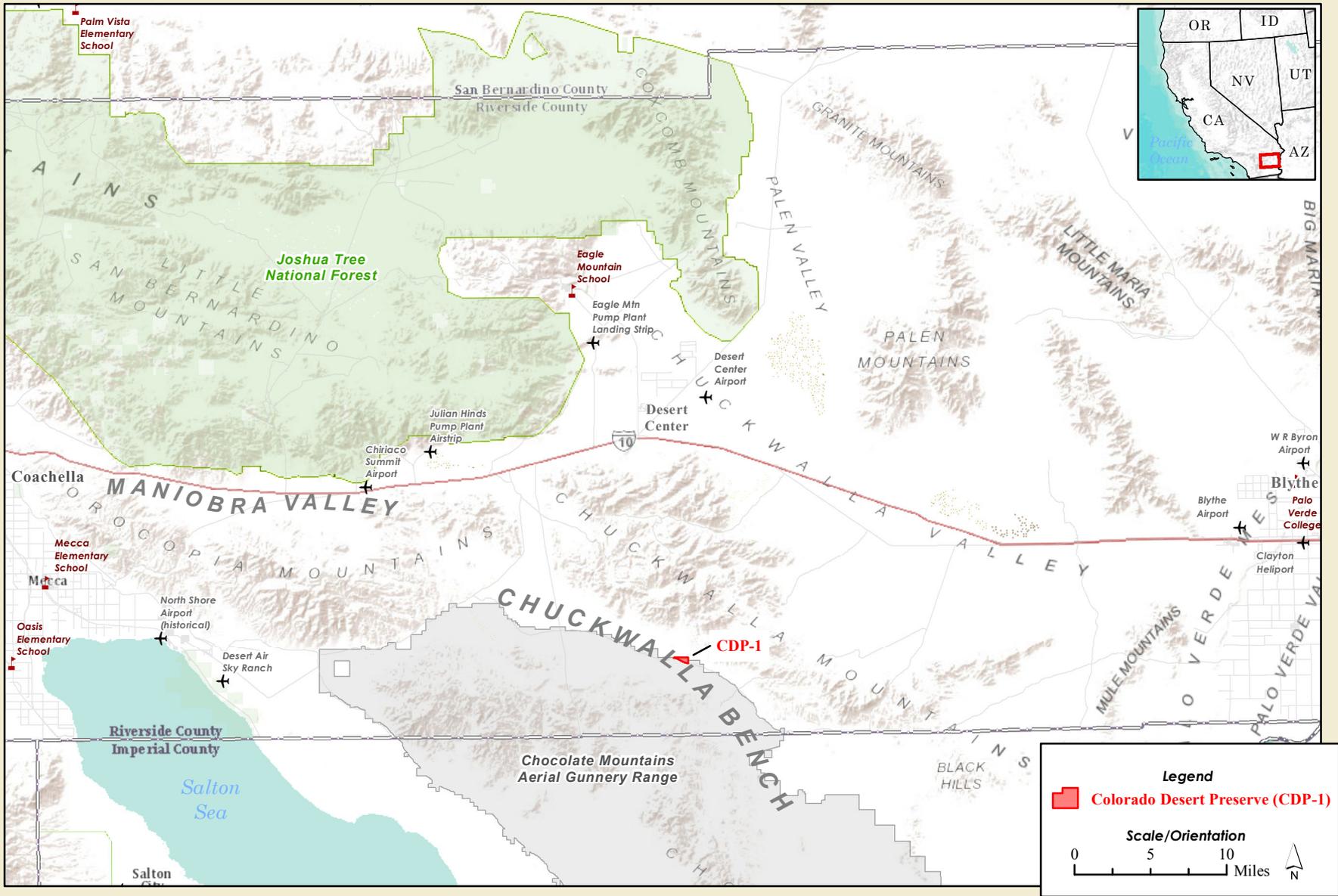


Figure 1 - Location
CDP-1
Biological Resources Report - May 2011



Colorado Desert Preserve

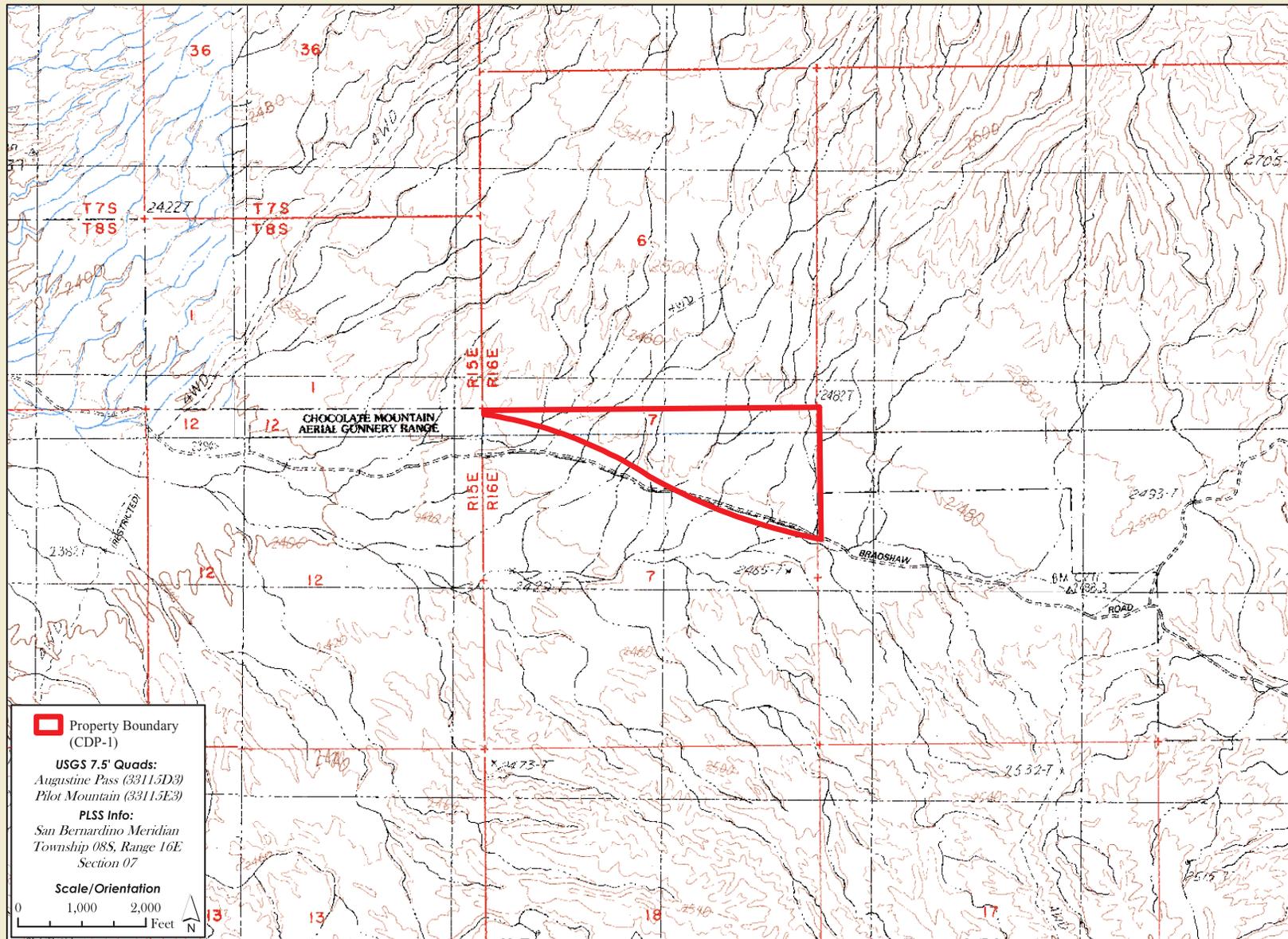


Figure 2 - Topography
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

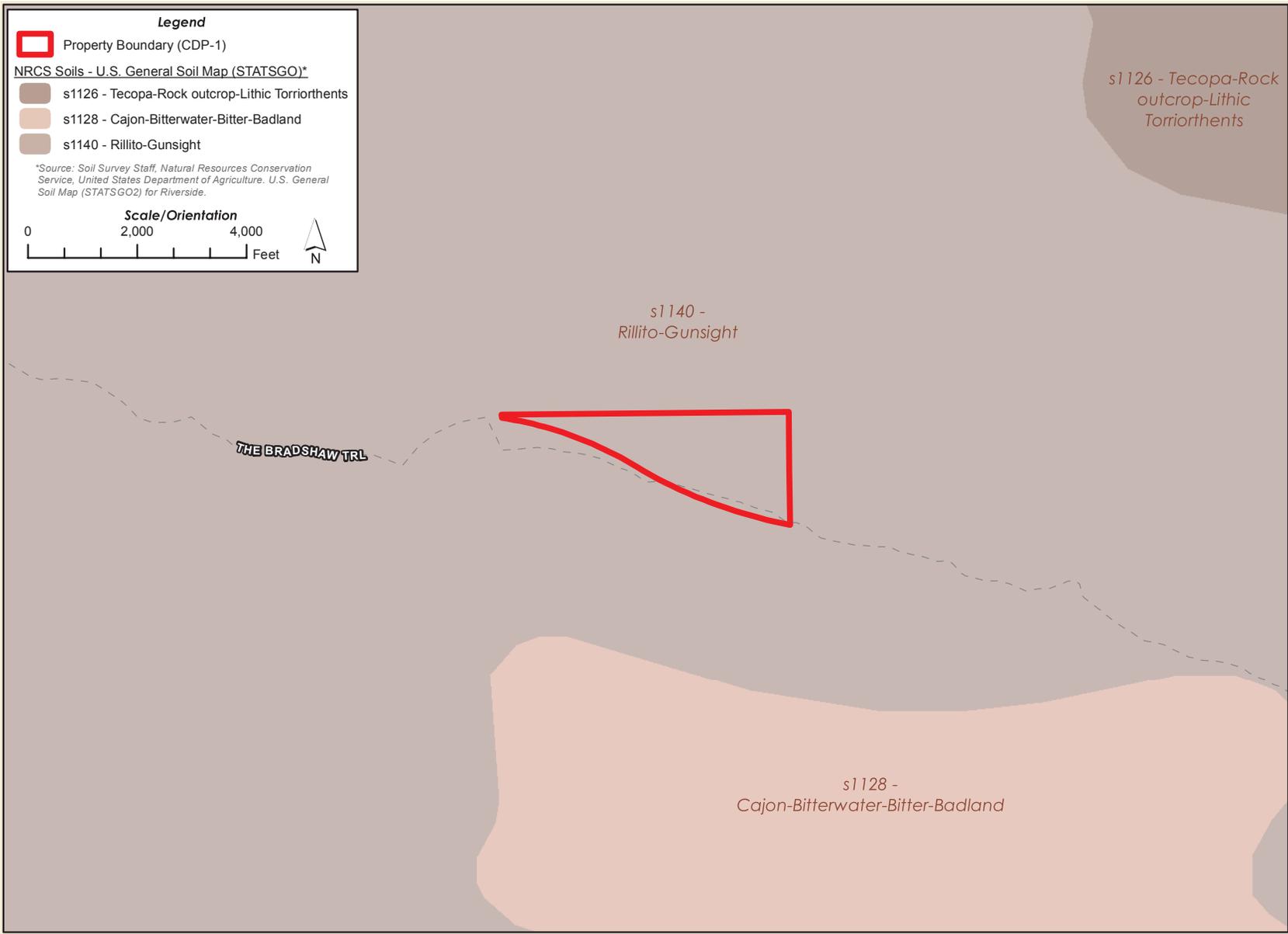


Figure 3 - Soils
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

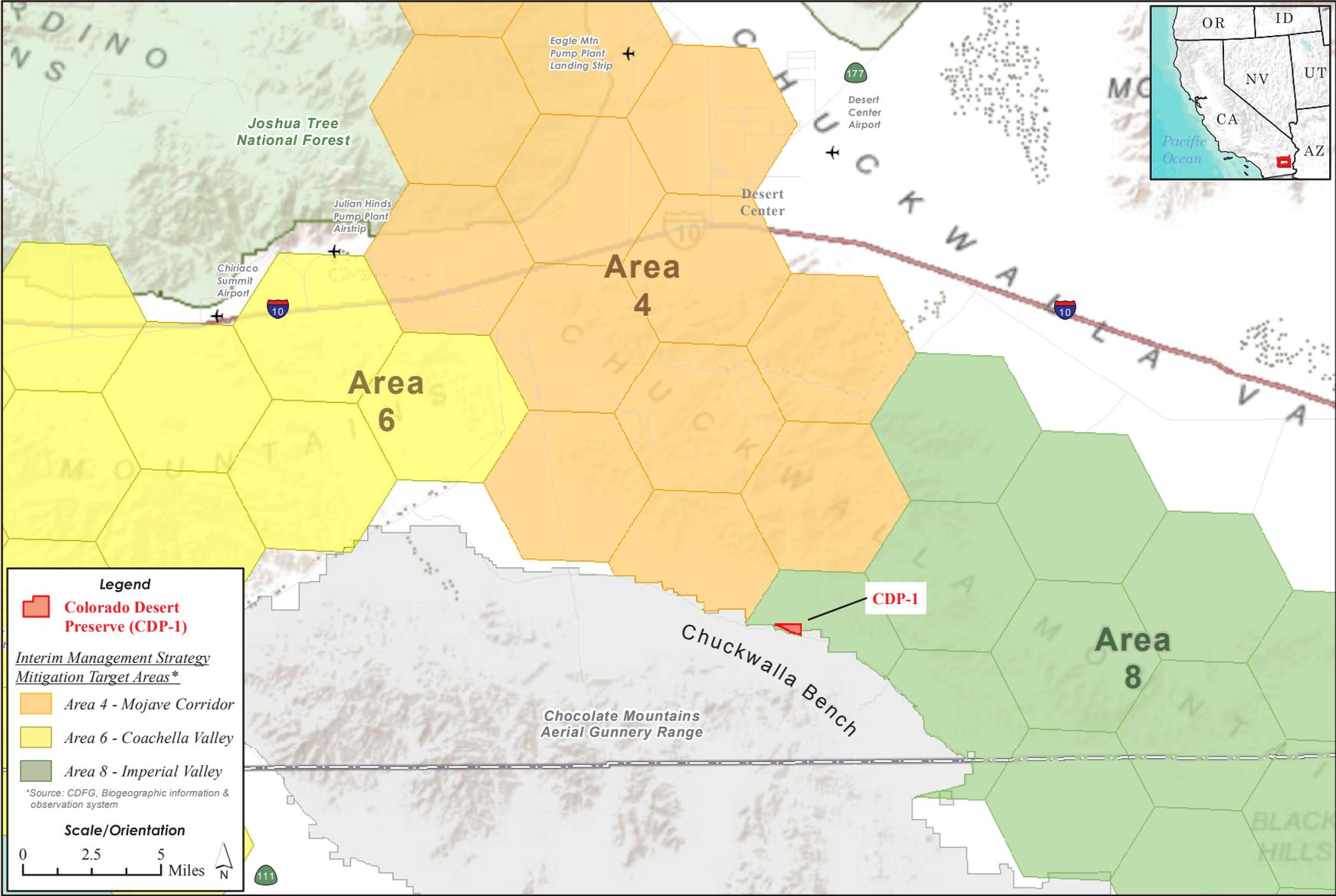


Figure 4 - DRECP Interim Mitigation Strategy - Mitigation Target Areas CDP-1
 Biological Resources Report - May 2011

Colorado Desert Preserve

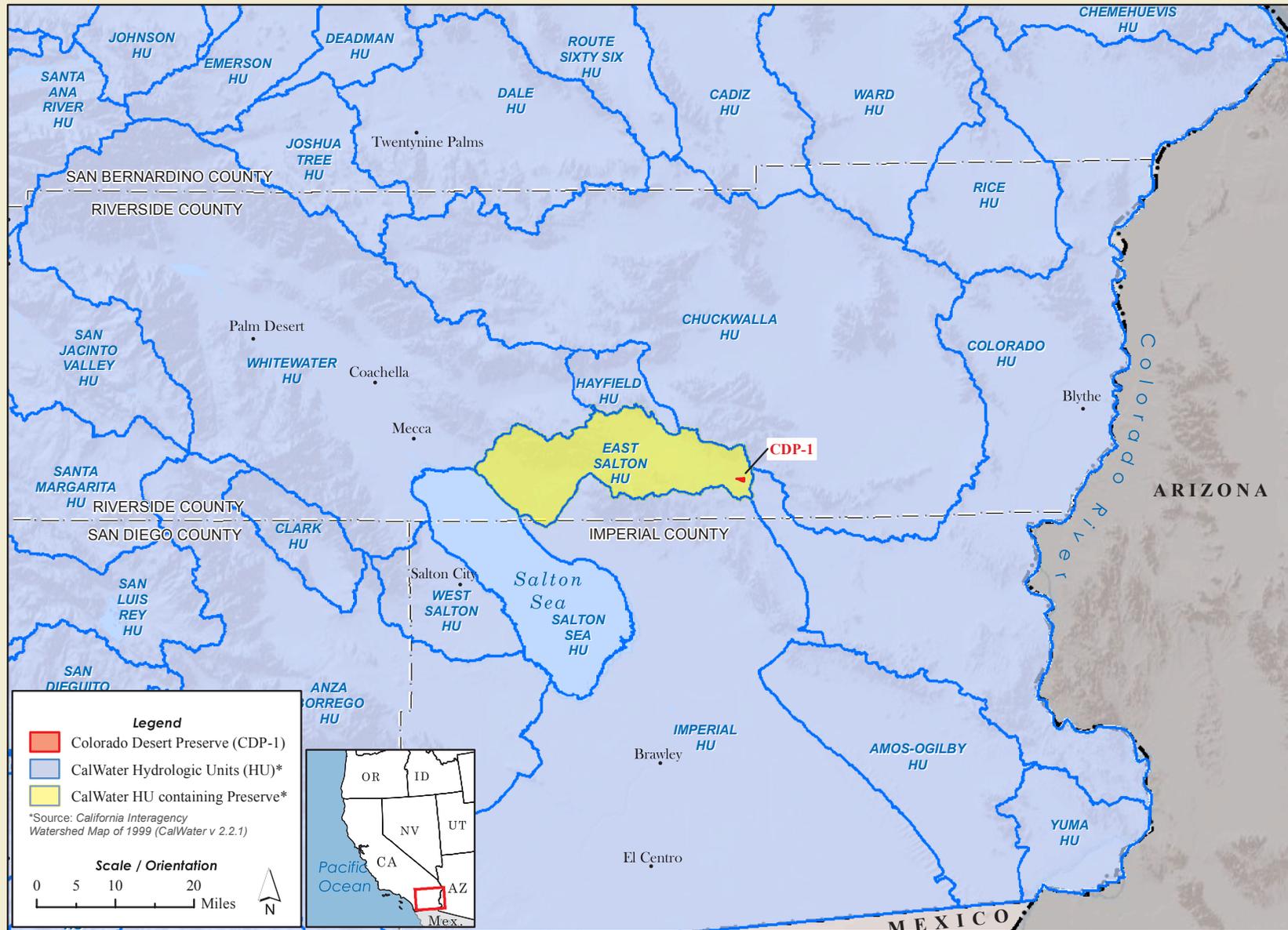
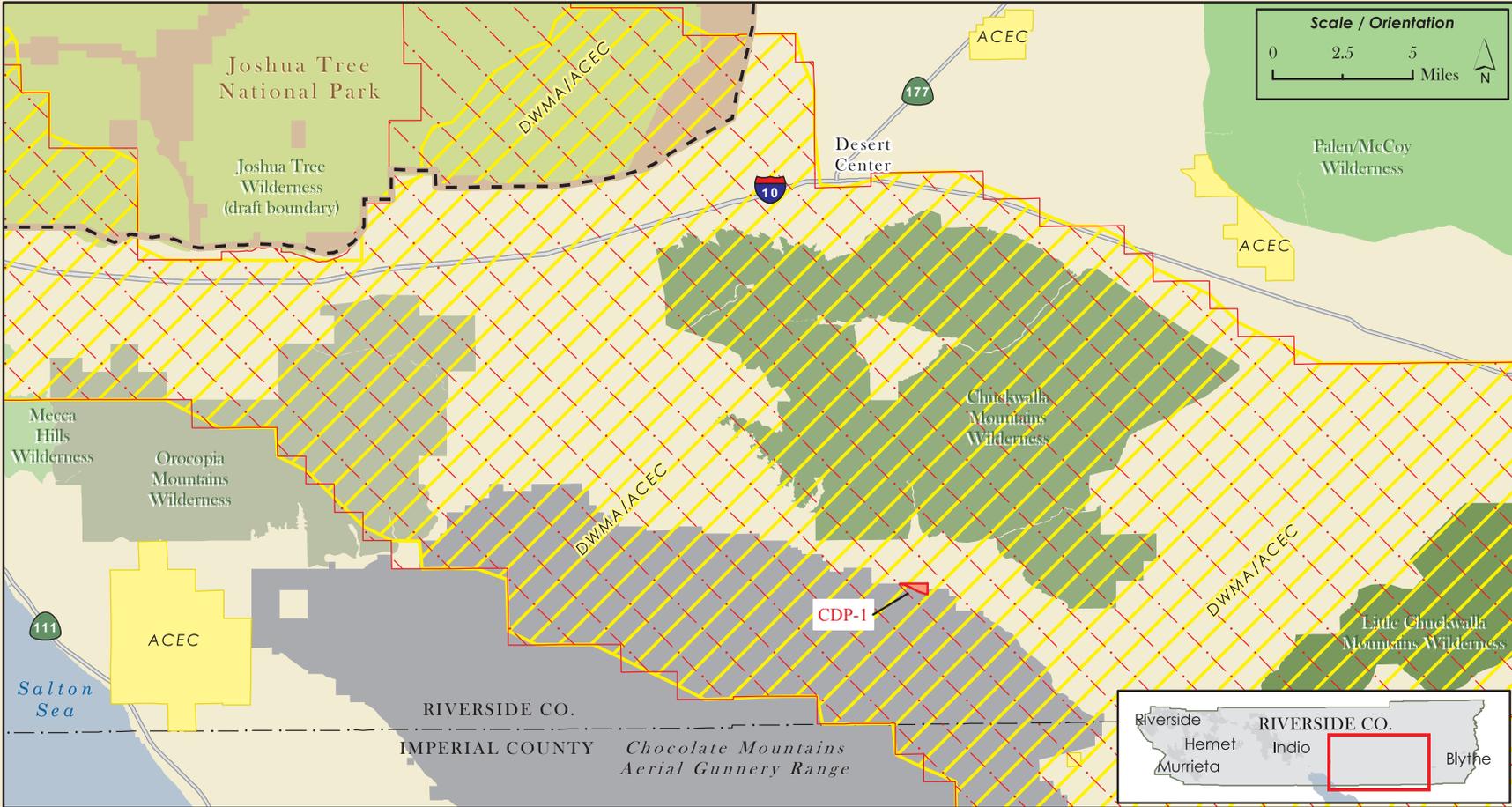


Figure 5 - Watershed - State Hydrologic Unit
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



Legend

Colorado Desert Preserve (CDP-1)	Desert Tortoise Critical Habitat - Chuckwalla Complex ⁽³⁾	Wilderness Areas (WA)⁽⁶⁾	Mecca Hills WA
BLM Areas of Critical Environmental Concern (ACEC) ⁽¹⁾	Joshua Tree National Park ⁽⁴⁾	Chuckwalla Mountains WA	Orocopia Mountains WA
Chuckwalla Desert Wildlife Management Area/BLM (ACEC) ⁽¹⁾⁽²⁾	Chocolate Mountains Aerial Gunnery Range ⁽⁵⁾	Joshua Tree WA	Palen/McCoy WA
		Little Chuckwalla Mountains WA	

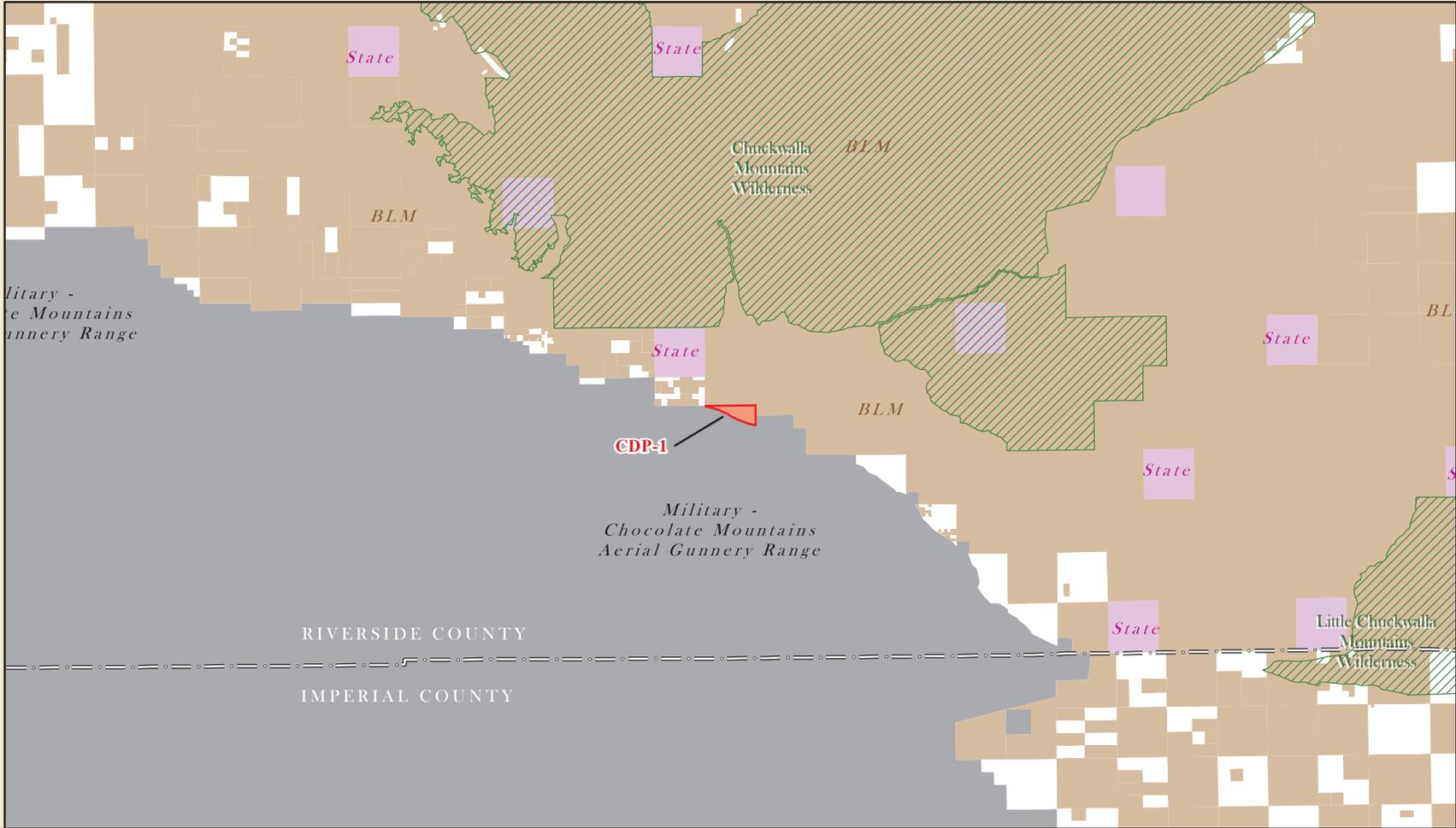
Data Sources

(1) U.S. Bureau of Land Management, CA State Office, (2) Redlands Institute, University of Redlands, (3) US Fish and Wildlife Service, (4) U.S. Geological Survey, (5) U.S Bureau of Land Management, (6) Wilderness Institute, University of Montana.

Figure 6 - Regional Conservation Analysis
CDP-1
Biological Resources Report - May 2011



Colorado Desert Preserve



Legend

 Colorado Desert Preserve (CDP-1)	Public Land Ownership**	Source: *Wilderness Institute, University of Montana **Public Land Ownership data taken from BLM's Surface Ownership (OWNPCA), January 19, 1999.	
 Wilderness Areas (WA)*	 Bureau of Land Management (BLM)		 National Park Service (NPS)
 Private Land	 State		

Scale / Orientation

0 1 2
Miles 

Figure 7 - Regional Land Ownership and Protection Status
 CDP-1
 Biological Resources Report - May 2011



Colorado Desert Preserve

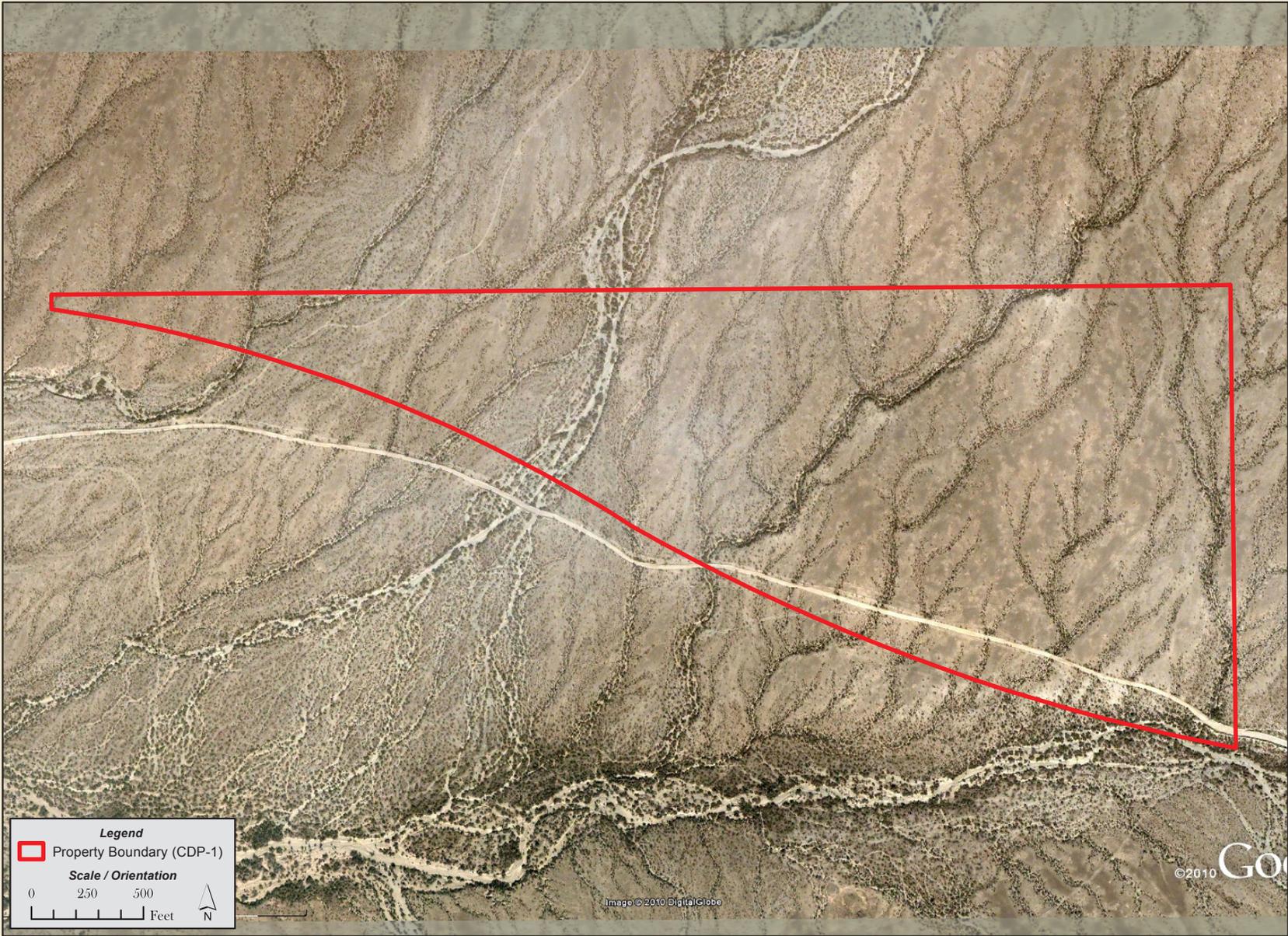


Figure 8 - Aerial Photograph
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

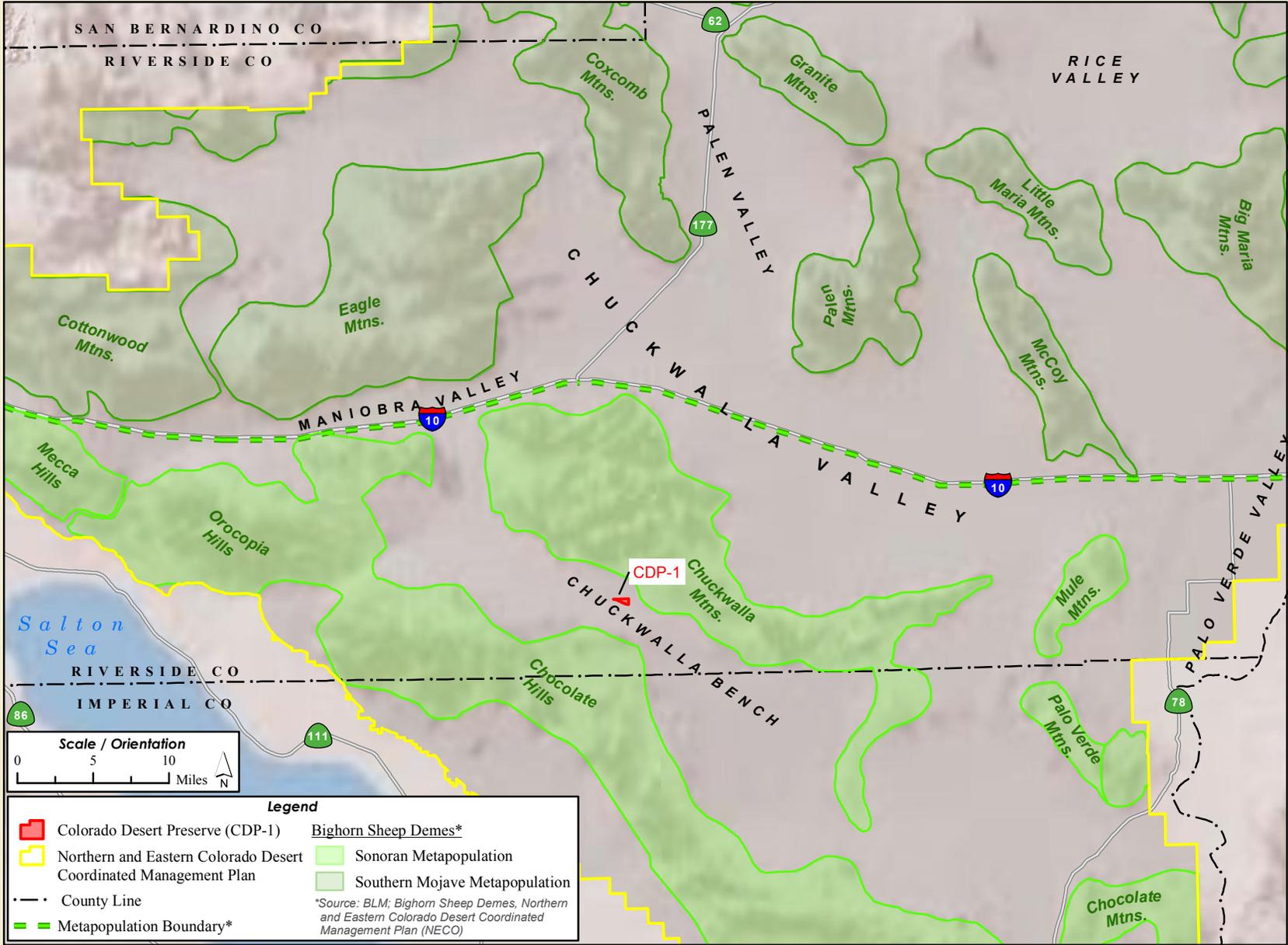


Figure 9 - Desert Bighorn Sheep Demes
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

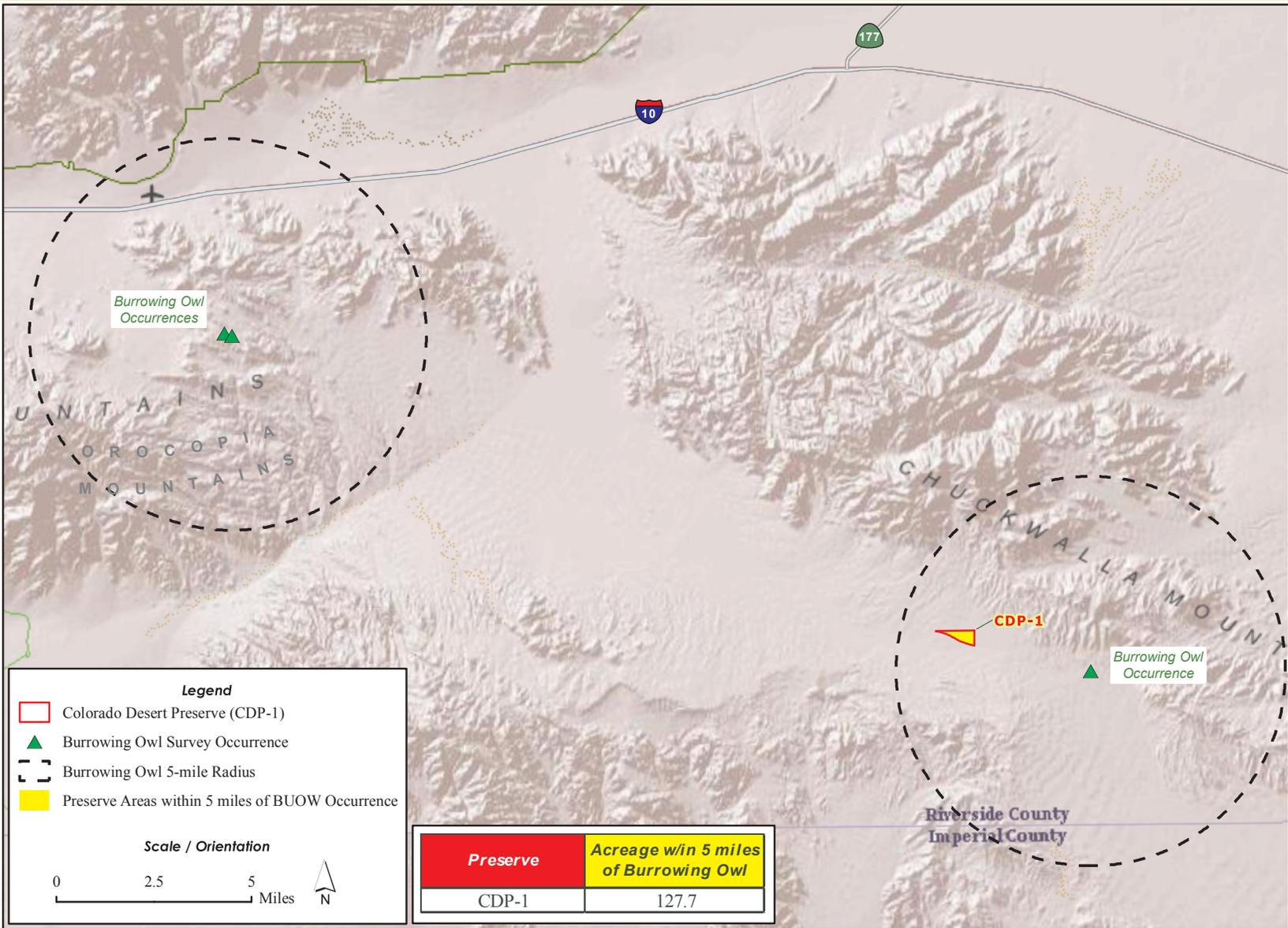


Figure 10 - Acreage of Preserve within 5 miles of Western Burrowing Owl Occurrence CDP-1
 Biological Resources Report - May 2011

Colorado Desert Preserve

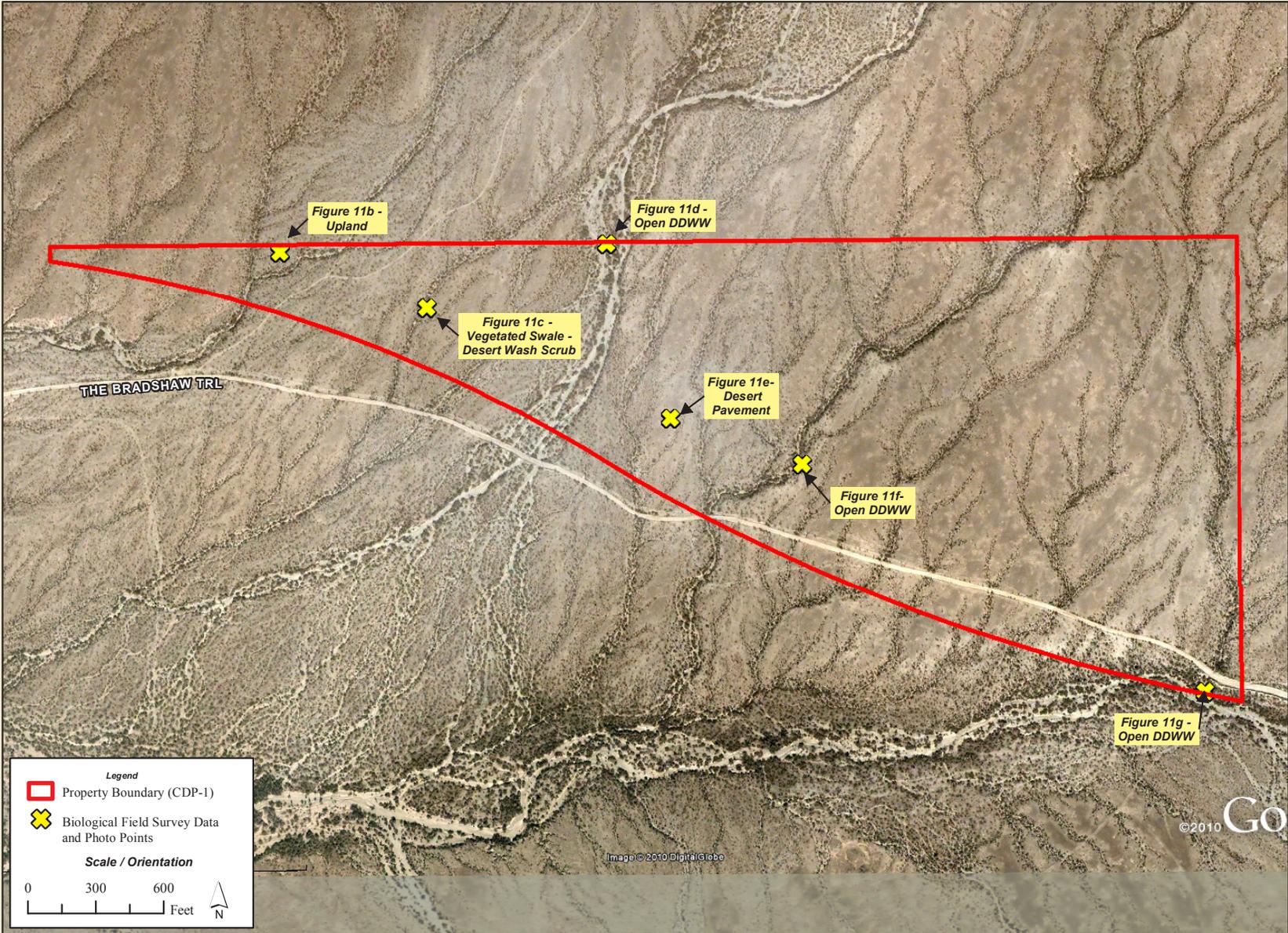


Figure 11a - Directional Photo Points
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



North



East



South



West

Figure 11c - Vegetated Swale - Desert Wash Scrub within Vegetated Swale
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



North



East



South



West

Figure 11g - Open Desert Dry Wash Microphyllous Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

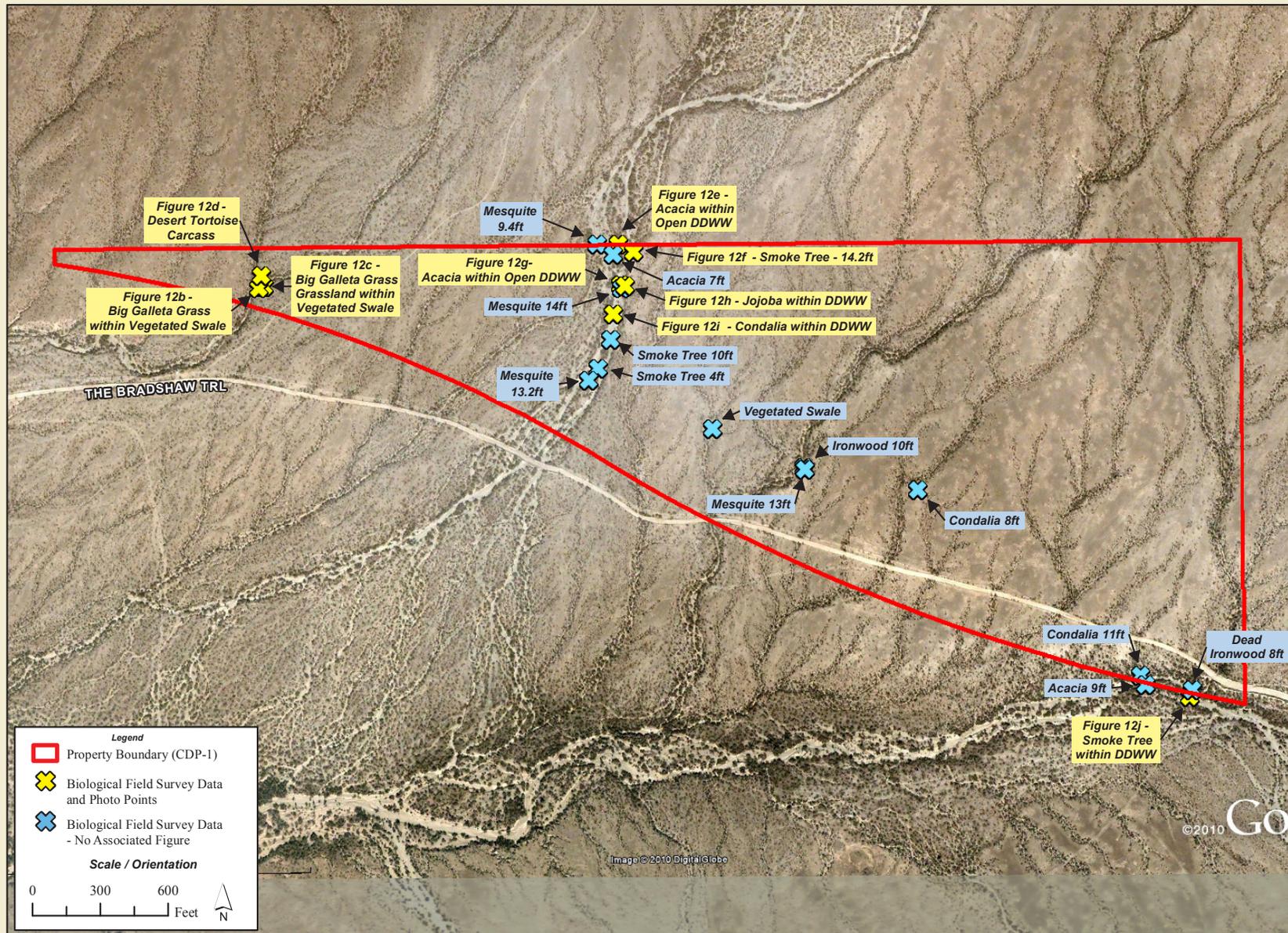


Figure 12a - Representative Vegetation and Wildlife Photos and Data
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



Figure 12b - Big Galleta Grass within Vegetated Swale
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



North



South

Colorado Desert Preserve



Figure 12d - Desert Tortoise Carcass
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 10ft

Figure 12e - Acacia (*Senegali greggii*) within Open Desert Dry Wash Microphyllous Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 14.2ft

Figure 12f - Smoke Tree (*Psoralea argemone*) within Desert Dry Wash Microphyllous Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

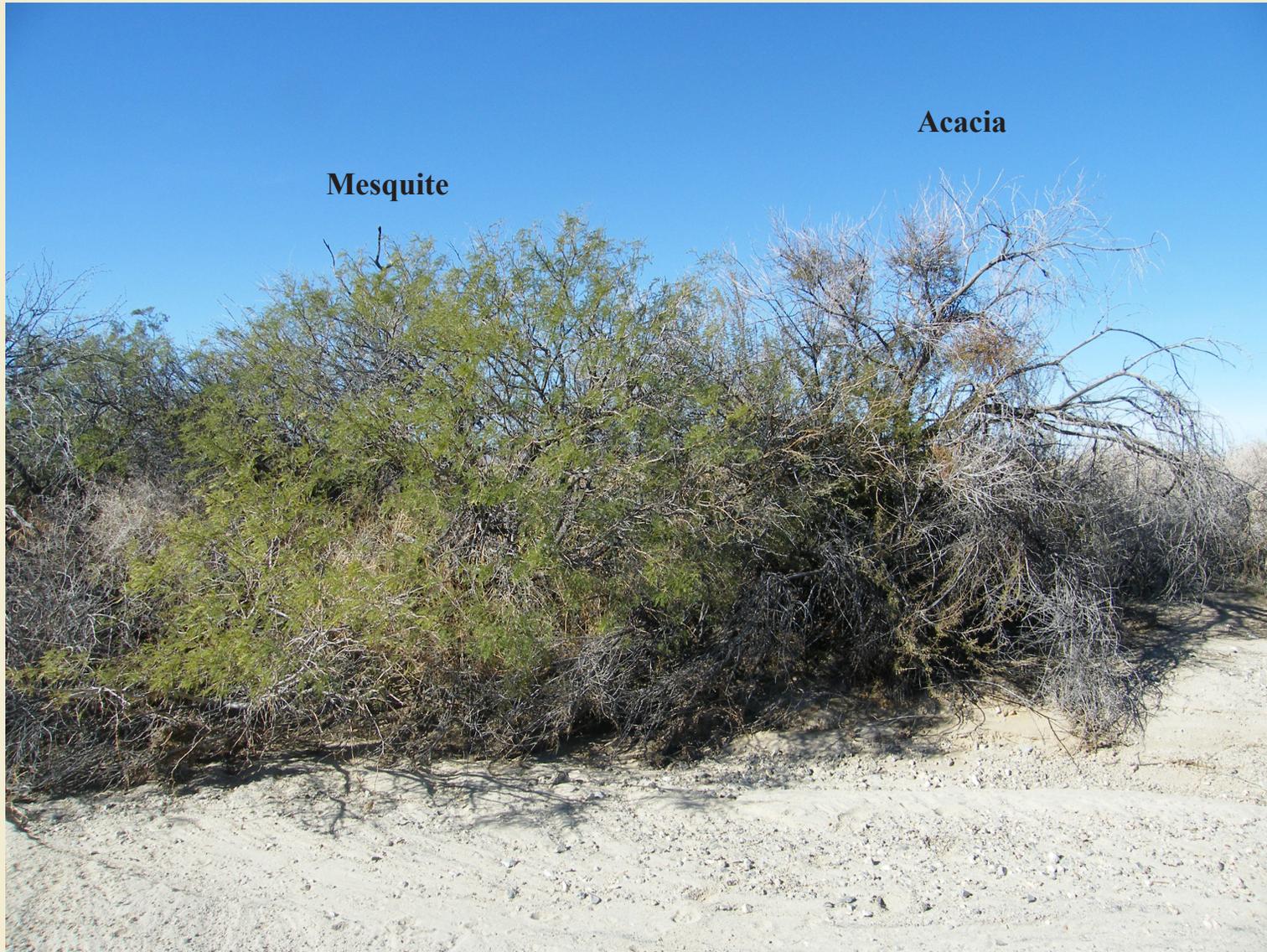


Figure 12g - Acacia (*Senegali greggii*) within Open Desert Dry Wash Microphyllous Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 11ft

Figure 12h - Jojoba (*Simmondsia chinensis*) within Desert Dry Wash Microphyllous Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 16ft

Figure 12i - *Condalia* (*Condalia globosa*) within Desert Dry Wash Microphyllous Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 11ft

Figure 12j - Smoke Tree (*Psoralea argemone*) within Desert Dry Wash Microphyllous Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

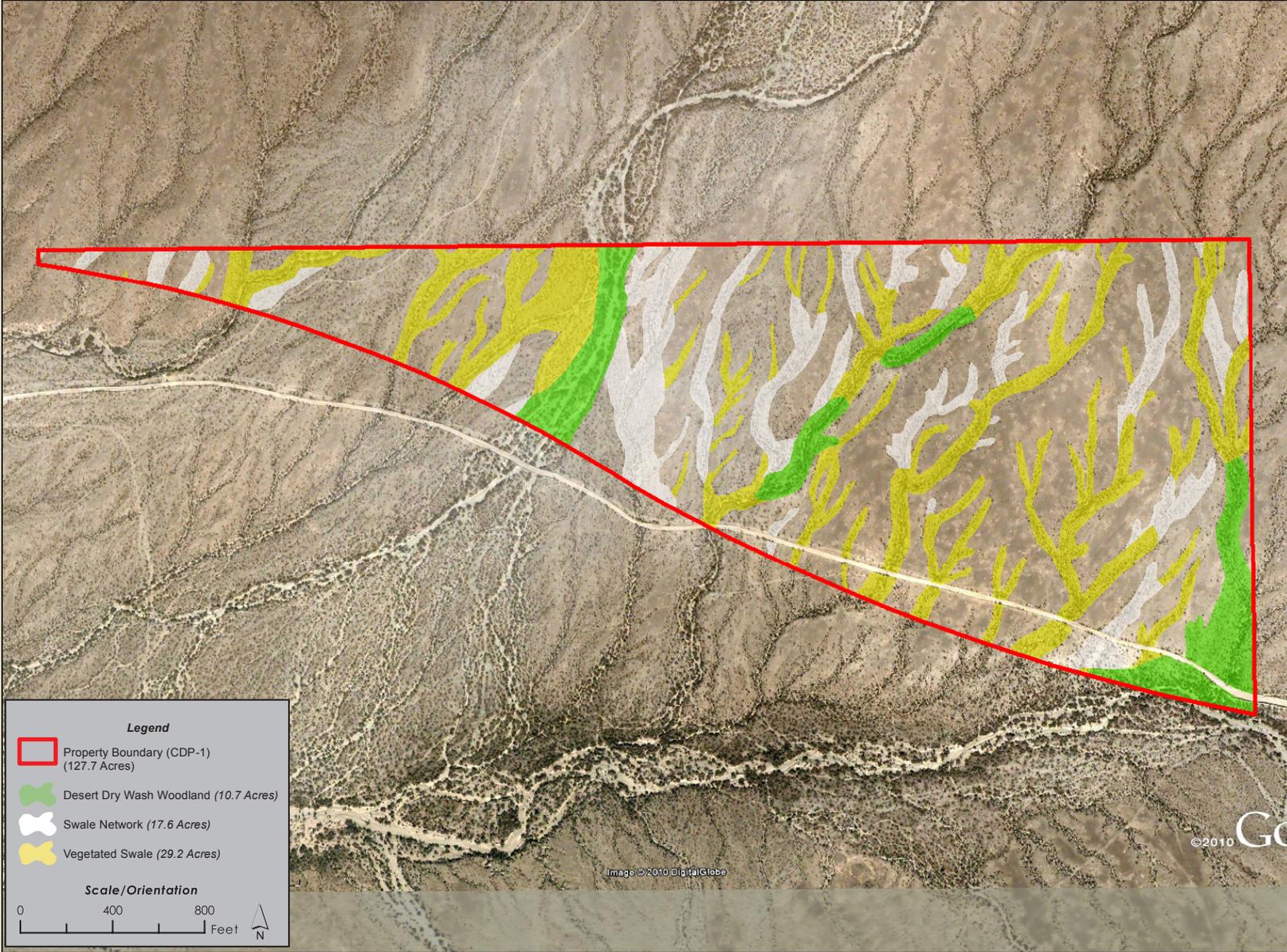


Figure 13 - Wetlands and Microphyll Woodland
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

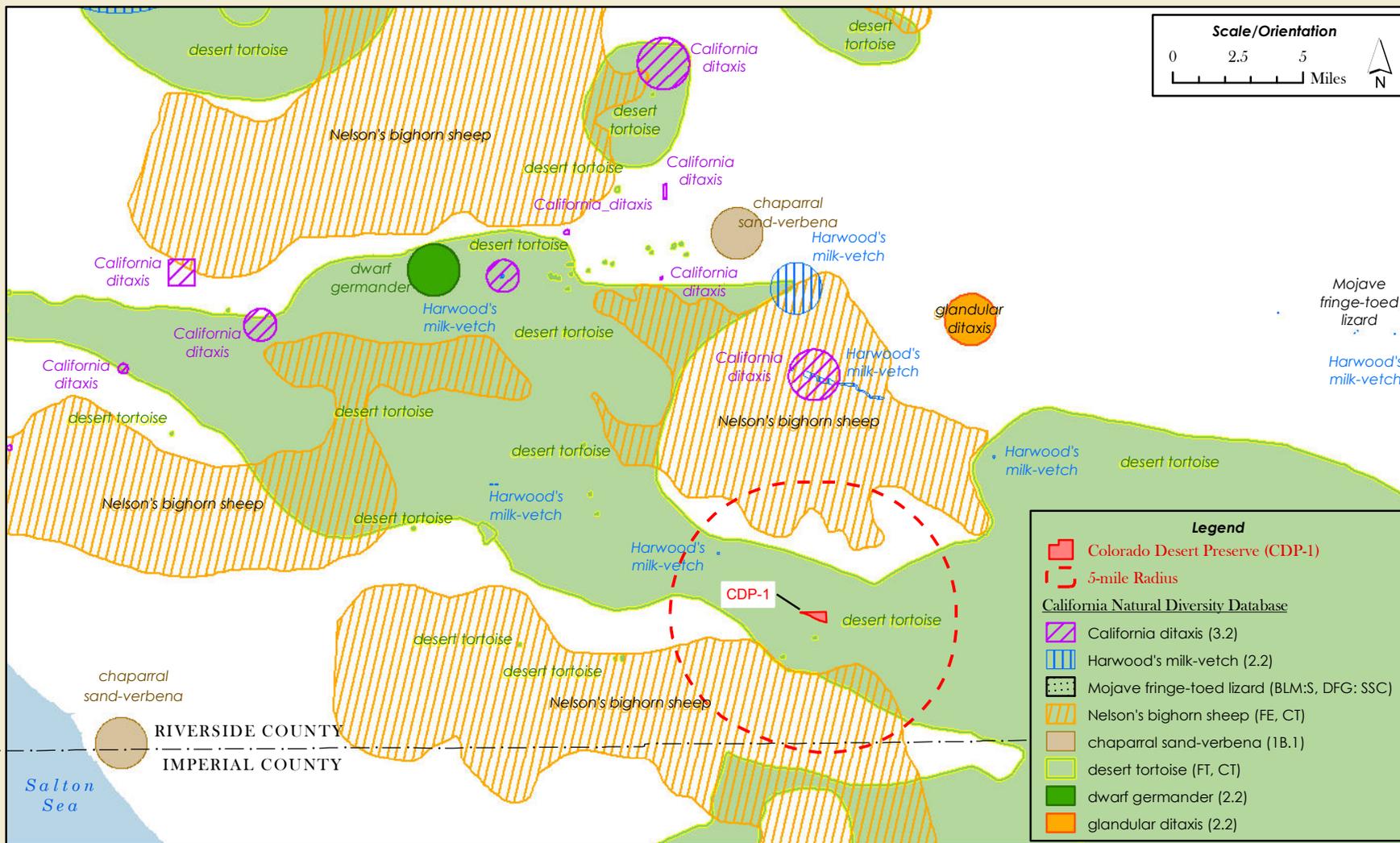


Figure 14 - CNDDDB Occurrences
CDP-1
Biological Resources Report - May 2011

Colorado Desert Preserve

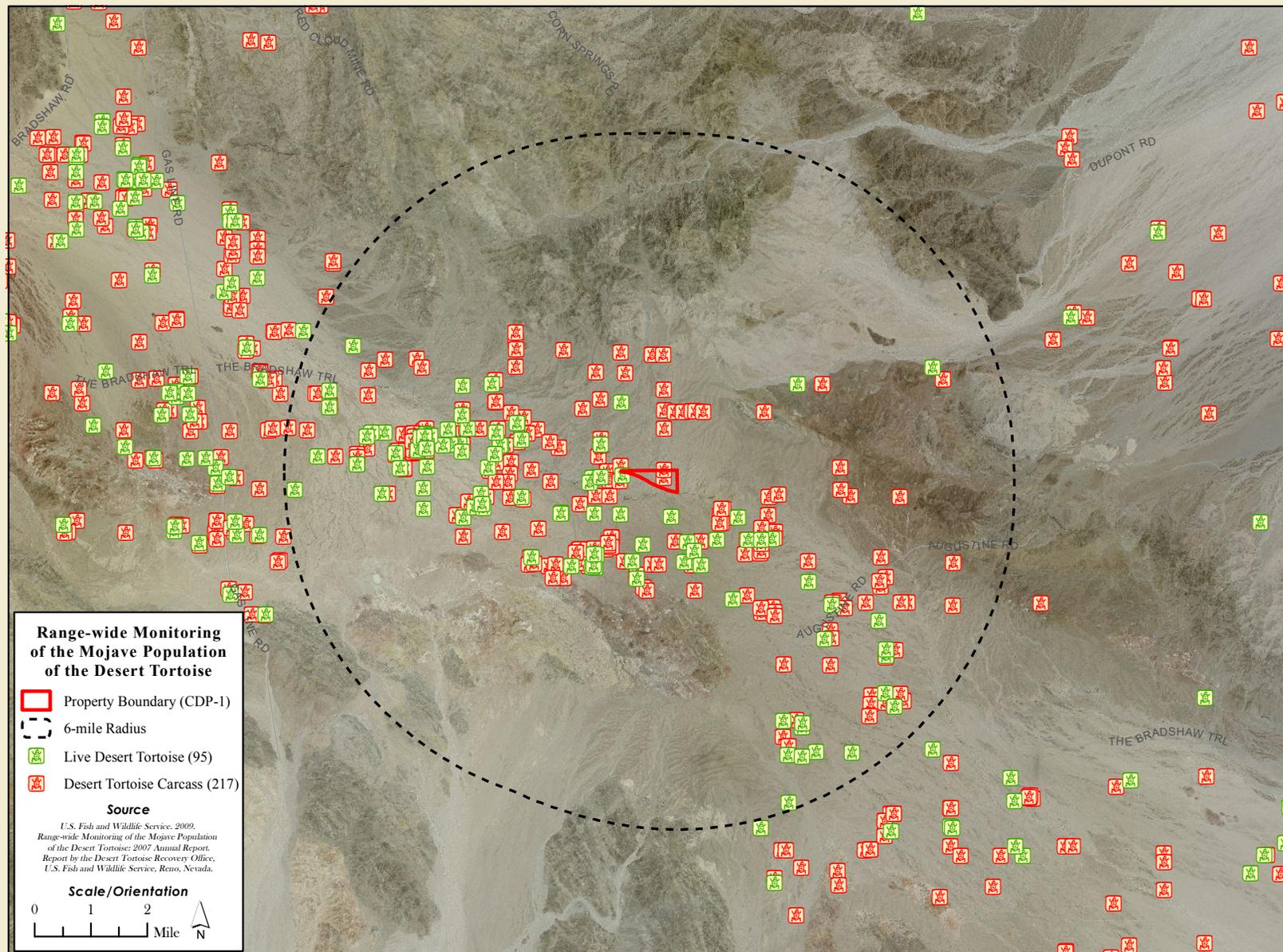
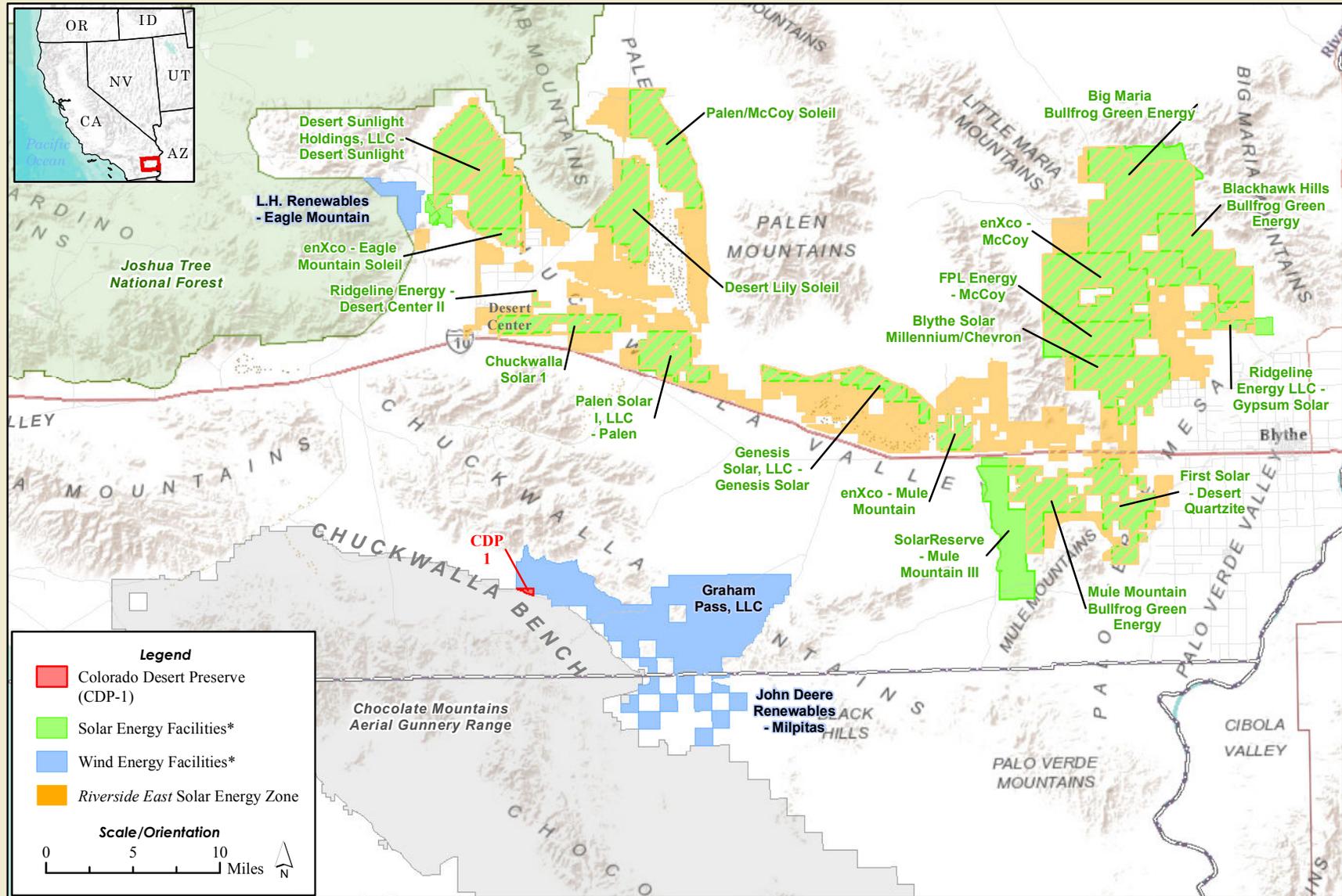


Figure 15 - Desert Tortoise LDS Survey Points
 CDP-1
 Biological Resources Report - May 2011

Colorado Desert Preserve



*Data Sources: (1) PEIS Development Alternative: Lands Available for Application - Solar Energy Zone Program GIS Data. June 3, 2010, <http://solareis.anl.gov/maps/gis/index.cfm>.
 (2) Solar Energy Applications, Palm Springs, South Coast Office. Genesis Solar Energy Project - Revised Staff Assessment Figure 3. June 2010. <http://www.energy.ca.gov/2010publications/CEC-700-2010-006/CEC-700-2010-006-REV.PDF>

Figure 16 - Proposed Renewable Energy Projects
 CDP-1
 Biological Resources Report - May 2011

Exhibit A-1.2
CDP-2 Biological Resources Report



**COLORADO DESERT PRESERVE
CDP-2**

**BIOLOGICAL RESOURCES REPORT
APN: 709-420-032**

FOR THE

**GENESIS SOLAR ENERGY PROJECT
CEC DOCKET No. 9-AFC-8
BLM CASE FILE No. CACA 048880**

Prepared by:
Wildlands, Inc.
3855 Atherton Road
Rocklin, CA 95765
Tel: (916) 435-3555
Fax: (916) 435-3556
Website: www.wildlandsinc.com

May 2011

TABLE OF CONTENTS

Section 1	Introduction	1
1.1	Background.....	1
1.2	Regulatory Guidance	1
1.3	Colorado Desert Preserve	2
Section 2	Parcel Information	3
2.1	Acres	3
2.2	Location	3
2.3	APN	3
2.4	Hydrology and Topography	3
2.5	Soils	4
Section 3	Geographic Analysis to Identify Suitable Mitigation	5
3.1	Desert Renewable Energy Conservation Plan – Interim Mitigation Strategy.....	5
3.2	Watershed	6
3.3	Desert Wildlife Management Area	6
3.4	Area of Critical Environmental Concern	6
3.5	Continuity Analysis/Adjacency	7
3.5.1	Adjacency to Protected Lands	7
3.5.1.1	Wilderness Areas	7
3.5.1.2	Bureau of Land Management	8
3.5.1.3	National Parks.....	8
3.5.2	Critical Habitat.....	8
Section 4	Biological Analysis	9
4.1	Desktop Analysis and Biological Field Surveys.....	9
4.1.1	Methods and Procedures	9
4.1.1.1	Desert Tortoise Habitat Analysis.....	10
4.1.1.2	Desert Bighorn Sheep Habitat Analysis	10
4.1.1.3	Western Burrowing Owl Habitat Analysis	11
4.1.1.4	Wetland Landforms Analysis	12
4.1.1.5	Biological Field Surveys.....	12
4.2	Biological Field Survey Results.....	13
4.2.1	Landforms and Plant Communities	13
4.2.1.1	Desert Dry Wash Microphyllous Woodland.....	14
4.2.1.2	Sonoran Creosote Bush Scrub	14
4.2.1.3	Desert Wash Scrub	15
4.2.1.4	Vegetated Swales and Swale Networks.....	15
4.2.1.5	Desert Pavement	15
4.2.2	Botanical Inventory.....	16
4.3	Acres and Quality of Habitat and Wetland Type.....	16
4.4	California Natural Diversity Database.....	17
4.5	Line Distance Sampling Data	17
4.6	Threats Analysis	18

TABLE OF CONTENTS (CONTINUED)

Section 5	Conclusion/Summary	20
5.1	Mitigation Suitability	20
Section 6	References.....	22

TABLE OF CONTENTS (CONTINUED)

List of Tables

Table 1. Habitat And Wetland Quality	17
Table 2. Threats Analysis: Management Concerns Identified During Field Surveys	19
Table 3. CDP-2 ⁽¹⁾ Credit Summary	21

List of Appendices

Appendix A. Plant Species Observed on and in the Vicinity of CDP-2	
--	--

TABLE OF CONTENTS (CONTINUED)

List of Figures

- Figure 1. Location
- Figure 2. Topography
- Figure 3. Soils
- Figure 4. Desert Renewable Energy Conservation Plan Interim Mitigation Strategy – Mitigation Target Areas
- Figure 5. Watershed – State Hydrologic Unit
- Figure 6. Regional Conservation Analysis
- Figure 7. Regional Land Ownership and Protection Status
- Figure 8. Aerial Photograph
- Figure 9. Desert Bighorn Sheep Demes
- Figure 10. Acreage of Preserve within 5 miles of Western Burrowing Owl Occurrences
- Figure 11a-c. Directional Photo Points
- Figure 12a-e Representative Vegetation Photos and Data
- Figure 13 Wetlands and Microphyll Woodland
- Figure 14. CNDDDB Occurrences
- Figure 15. Desert Tortoise LDS Survey Points
- Figure 16. Proposed Renewable Energy Projects

TABLE OF CONTENTS (CONTINUED)

List of Acronyms

ACEC	Areas of Critical Environmental Concern
Agencies	BLM, CDFG, CEC, USFWS
BLM	Bureau of Land Management
BUOW	Western Burrowing Owl
CDFG	California Department of Fish and Game
CDP	Colorado Desert Preserve
CDP-2	Subject Property (APN: 709-420-032)
CEC	California Energy Commission
CNDDDB	California Natural Diversity Database
DDWW	Desert Dry Wash Microphyllous Woodland
DRECP-IMS	Desert Renewable Energy Conservation Plan – Interim Mitigation Strategy
DT	Desert Tortoise
DWMA	Desert Wildlife Management Area
DWS	Desert Wash Scrub
GSEP	Genesis Solar Energy Project
LDS	Line Distance Sampling
MSL	Mean Sea Level
Property	Subject Property (APN: 709-420-032)
SN	Swale Network
USFWS	United States Fish and Wildlife Service
UVW	Unvegetated Wash
VS	Vegetated Swale
Wildlands	Wildlands California Holdings I, LLC

Section 1 Introduction

1.1 BACKGROUND

The State of California has mandated that 33% of its energy come from renewable sources by 2020 (Executive Orders S-21-09 and S-14-08). Much of this energy is expected to come from the development of utility scale solar projects in California's southeastern deserts. The Genesis Solar Energy Project (GSEP) (CEC Docket No. 09-AFC-8) is a concentrated solar thermal electric generating facility located in the Colorado Desert approximately 20 miles west of the City of Blythe, just north of Interstate 10.

1.2 REGULATORY GUIDANCE

In an attempt to comply with the mitigation requirements associated with the GSEP, Wildlands has assembled a portfolio of suitable habitats on private ground within the Colorado Desert. Wildlands utilized guidelines in the following documents to identify mitigation lands whose quality and function are of equal or better quality and function than the habitats impacted by the GSEP;

- BLM/CEC joint Staff Assessment and Environmental Impact Statement, Genesis Solar Energy Project (BLM and CEC 2010)
- BLM Plan Amendment/Final Environmental Impact Statement for the Genesis Solar Energy Project (BLM 2010)
- CEC Genesis Solar Energy Project Revised Staff Assessment (CEC 2010a)
- CEC Genesis Solar Energy Project Revised Staff Assessment Supplement (CEC 2010b)
- CEC Genesis Solar Energy Project Commission Decision (CEC 2010c)
- Genesis Solar Energy Project Biological Assessment (Tetra Tech 2010)
- USFWS Biological Opinion (USFWS 2010)
- final and draft revised desert tortoise recovery plans (Service 1994, 2008)

Wildlands habitat acquisition specifically targeted areas and habitat types that are appropriate to fulfill mitigation measures for permitted impacts to: desert tortoise habitat (DT), Mojave fringe-toed lizard habitat, western burrowing owl (BUOW) habitat, as well as waters of the state including desert dry wash (microphyll) woodland (DDWW).

Additional mitigation values identified and analyzed on the targeted areas include habitat for desert bighorn sheep and Couch's spadefoot toad, although no impacts to these species occurred as a result of the Genesis Solar Energy Project. These habitat types and mitigation values are described below in order to more completely describe the biological significance of the identified properties.

1.3 COLORADO DESERT PRESERVE

The approximately 2,137-acre Colorado Desert Preserve (“Preserve”) is comprised of five groups of properties (CDP-1 through CDP-5), grouped by geographic proximity, which together are being submitted for certification as suitable mitigation lands for the Genesis Solar Energy Project. Five Biological Resources Reports (one for each group of properties or “Complex”) are being submitted as part of the Colorado Desert Preserve Formal Acquisition Proposal.

The following Biological Resources Report for the approximately 41.9-acre complex number 2 (“Complex” or “CDP-2”) will detail the biological resources contained onsite in order to prove their applicability as mitigation for the Genesis Solar Energy Project.

Section 2 Parcel Information

This biological resources report will demonstrate the suitability of Complex number two (2) of the Wildlands Colorado Desert Preserve (“CDP-2” or “Property”) to provide compensation for environmental impacts within the Colorado Desert resulting from the GSEP. The habitats on the Property, as well as the Property’s connectivity to other protected landscapes, make it appropriate to mitigate for impacts to sensitive species and their habitats including Mojave Desert tortoise (*Gopherus agassizii*) (DT), western burrowing owl (*Athene cunicularia hypugea*) (BUOW), desert bighorn sheep (*Ovis canadensis nelsoni*); and California jurisdictional waters including vegetated swale (VS), swale network (SN), and DDWW. Habitats on CDP-2 that will be utilized by GSEP to offset permitted impacts include 41.9 acres of DT, 41.9 acres of BUOW, 1.8 acres of DDWW, and 3.5 acres of other state waters (SN and VS).

2.1 ACRES

The Property consists of one contiguous parcel (709-420-032) totaling approximately 41.9 acres.

2.2 LOCATION

The Property is located in Riverside County approximately 62 miles west of the city of Blythe, approximately 17 miles west of the town of Desert Center, and approximately 29 miles east of the city of Coachella (**Figure 1**). The Property is located 4.5 miles south of interstate 10 in the east-west oriented Red Canyon, a geographic landform separating portions of the northeast and southwest Orocochia Mountains. The coordinates for the northwest corner of the Property are 33°36’07.39”N, 115°40’42.05”W. The Property is located in the United States Geological Survey 7.5” Red Canyon Quadrangle (33115E6) in portions of Township 06 South, Range 13 East, Sections 31 of the San Bernardino Meridian (**Figure 2**).

2.3 APN

The Assessor’s Parcel Number for the Property is 709-420-032.

2.4 HYDROLOGY AND TOPOGRAPHY

The elevation of the Property ranges from approximately 1,988 feet above mean sea level (MSL) in the southwest to approximately 1,927 feet above MSL in the east. The topography is slightly sloping throughout property with a south facing slope average of approximately 10% (**Figure 2**). Waters on the Property are ephemeral and rainfall driven, flowing generally in a northwest to southeast direction.

The annual average precipitation for the Property is 3.86 inches, estimated using the University of California Integrated Pest Management Weather Station System weather station located in Blythe,

approximately 62 miles east (UCIPM 2010). According to the Department of Water Resources Water Data Library Website, the depth to groundwater in the region varies considerably and has been measured between 10 and 172 feet below the ground surface (DWR 2010).

2.5 SOILS

The Natural Resources Conservation Service's U.S. General Soil Map identified one soil series within the Property (Soil Survey 2010) (**Figure 3**):

- Cajon – Bitterwater – Bitter – Badland (s1128), 100% of the Property

Cajon – Bitterwater – Bitter – Badland (s1128)

This soil unit consists of relatively equal portions of fifteen soil series. The most abundant soil series in the association is the Bitterwater series.

Cajon Soil series consists of somewhat excessively drained soils on fans and valley fill. These soils formed in mixed alluvium. Slopes are 5 to 15 percent. Cajon soils occur between 1,200 and 3,600 feet above MSL. The vegetation is creosote bush, yucca, cholla, cactus, Mormon tea, buckhorn, manzanita, and annual grasses. Typically, the surface layer is grayish brown and brown loamy sand 12 inches thick. The substratum to a depth of 60 inches or more is brown loamy sand. The soil is neutral or slightly acid in the upper part and moderately alkaline and calcareous below 52 inches. The soil is rapidly permeable. Available water capacity is 4.5 to 6 inches. The effective rooting depth is 60 inches or more.

Bitterwater Soils are deep, well-drained soils that form from sandstone. They occur on foothills with slopes between 9–75 percent, between 600 and 2,000 ft above MSL. Bitterwater soils are coarse, mixed, calcareous, loamy typic torriorthents. Bitterwater soils have very rapid runoff and moderately high permeability.

Bitter Soils are deep, well drained soils that form from weathered granite with some metamorphic and carbonate bedrock. Bitter soils form on dissected fan terraces with slopes between 2-20 percent. Bitter soils occur between 2,500 and 3,600 ft above MSL. They have medium runoff and moderately low permeability. They support creosote bush or Joshua tree woodland vegetation.

Badland soil series consists of very steep, excessively drained, severely eroded areas broken by numerous deeply entrenched channels and many steep side drainages that have raw bands, or freshly exposed material. The slightly consolidated sandy alluvium is capped with a very thin mantle of loose sand. Badland produces large amounts of sediment. It is nearly barren of vegetation. About 10 percent of this mapping unit is included areas of Carsitas soils and about 5 percent is Riverwash. These are also small areas of rock outcrop. Surface runoff is very rapid, and the erosion hazard is very high. Badland has no value for farming. It is used for watershed, wildlife habitat, and recreation.

Section 3 Geographic Analysis to Identify Suitable Mitigation

Under the guidance of the California Energy Commission (CEC), California Department of Fish and Game (CDFG), Bureau of Land Management (BLM), and the United States Fish and Wildlife Service (USFWS) (collectively “Agencies”) involved in development and mitigation in the Colorado Desert, Wildlands used various geographically based filters to identify potentially suitable mitigation lands. In order to mitigate for impacts to the DT, Wildlands attempted to find suitable habitat within the Colorado Desert Recovery Unit, the Chuckwalla Desert Wildlife Management Area (DWMA), and within BLM designated Areas of Critical Environmental Concern (ACEC). Wildlands used the California Natural Diversity Database (CNDDDB) to identify areas with known species occurrences, as well as DT critical habitat and a United States Geological Society model that determines the statistical probability of DT habitat that was used to map potential DT habitat (Nussear et al. 2009). Wildlands was able to concentrate on areas that had already been identified as in need of permanent conservation by looking in these previously identified areas first. In accordance with the CEC’s GSEP (CEC Docket Number: 09-AFC-8) Final Decision released October 12th, 2010 (publication #CEC-800-2010-011-CMF) (CEC 2010c), Wildlands identified properties within the Chuckwalla-Ford Dry Lake or surrounding watersheds as close to GSEP as possible. Wildlands utilized all available geographic data, interviews with desert species and habitat experts, and guidance from regulatory agencies to specifically target high priority areas that would contribute to species connectivity, corridors, and continued and improved gene flow for the overall Colorado Desert ecosystem and its species.

3.1 DESERT RENEWABLE ENERGY CONSERVATION PLAN – INTERIM MITIGATION STRATEGY

The Property is located within Mitigation Target Area 6 – Coachella Valley (**Figure 4**), of the Desert Renewable Energy Conservation Plan Interim Mitigation Strategy (DRECP-IMS) (CDFG 2010). The DRECP-IMS used a multi agency/Non-Governmental Organization collaborative approach, coupled with GIS analysis to identify areas with high quality habitat and that may have parcels available for acquisition. Mitigation Target Area 6 – Coachella Valley is described by the DRECP-IMS as:

Area 6 includes portions of the Coachella Valley Multi-Species Conservation Plan area in Central Riverside County and the margins of the Salton Sea. Acquisition in this area would help to maintain habitat connectivity along the east and west sides of the valley. The area includes Desert Tortoise Critical Habitat, active bighorn sheep range, California Essential Connectivity Areas, Peninsular Bighorn Sheep Final Revised Critical Habitat, Coachella Valley Fringe-toed Lizard Final Critical Habitat, and Arroyo Toad Final Critical Habitat. The area also supports desert pupfish, BUOW, American badger, shorebirds and waterfowl, and dune systems. Acquisition in this area would connect BLM protected areas including Bighorn Sheep and Dry Wash Woodlands Wildlife Habitat Management Areas, Big Morongo Canyon ACEC, Dos Palmas ACEC, and Whitewater Canyon ACEC, and the Chuckwalla DWMA.

3.2 WATERSHED

The Property is located in the State's East Salton hydrologic unit (**Figure 5**) and in the federally recognized 18100204-Salton Sea eight-digit Hydrologic Unit Code.

3.3 DESERT WILDLIFE MANAGEMENT AREA

Following the federal listing of the DT as threatened in 1990, a Desert Tortoise Recovery Team (Recovery Team) was selected to develop a plan for recovery of the DT. Drawing from concepts in the federal Endangered Species Act, the Recovery Team identified six DT recovery units using published and unpublished data on genetic variability, morphology, and behavior patterns of populations as well as ecosystem types. The six DT recovery unit boundaries represent major ecosystem boundaries. Within the recovery units the Recovery Team recommended the establishment of 14 reserves or DWMA (Berry 1997). DWMA are general areas recommended by the 1994 Recovery Plan within which recovery efforts for the DT would be concentrated. DWMA had no specific legal boundaries in the 1994 Recovery Plan (USFWS 1994). The BLM formalized the general DWMA from the 1994 Recovery Plan through its planning process and administers them as Areas of Critical Environmental Concern (USFWS 2008), and feature a 1 percent surface disturbance limit (BLM 2002). Although the 1 percent surface disturbance limit is intended to incentivize projects being located outside of DWMA, it does specifically allow for development.

DWMA are an administrative area within the recovery unit, which is managed such that resource-level protection is afforded DT populations while maintaining and protecting other sensitive species and ecosystem functions (e.g., watersheds) (USFWS 1994). Establishment of recovery units and DWMA was intended, in part, to facilitate an ecosystem approach to land management and desert tortoise recovery, as stipulated by section 2(b) of the Endangered Species Act (USFWS 2008).

Because the threat of development within areas identified for protection is a real possibility, it is important that private potentially developable land within DWMA be placed under permanent protection. The Property is located within the Colorado Desert DT recovery unit and the Chuckwalla DWMA (**Figure 6**).

3.4 AREA OF CRITICAL ENVIRONMENTAL CONCERN

ACEC is an administrative designation made by the BLM through a land use plan. This designation is unique to BLM in that no other agency uses this form of designation. Private lands and lands administered by other agencies may be located within the boundaries of an ACEC, but are not subject to the prescribed management of the ACEC. As a result, it is of significant importance to protect privately-owned lands within an ACEC because conservation of these lands contributes towards a more comprehensive, regional natural resource management regime. Congress mandated the designation of ACEC through the Federal Land Policy and Management Act to manage areas containing unique and significant resource values. An ACEC is a designation that highlights areas where special management attention is needed to protect and prevent irreparable damage to important historic, cultural and scenic

values; fish, wildlife resources or other natural systems or processes; or to protect human life and safety from natural hazards. The designation is a record of significant values that must be accommodated when BLM considers future management actions and land use proposals. The Property is located within the BLM designated Chuckwalla ACEC and approximately 9.5 miles northeast of the Dos Palmas ACEC (Figure 6).

3.5 CONTINUITY ANALYSIS/ADJACENCY

In addition to the location criteria specified above, lands having connectivity to larger blocks of lands that are already protected or planned for protection were prioritized. Lands adjacent to BLM properties or other federal protected lands were specifically targeted. This connectivity is essential due to the fractured nature of private land ownership in the area. The conservation value of a site is enhanced by its connectivity to other high quality habitats and its contributory value as a linkage corridor to similarly protected sites.

3.5.1 Adjacency to Protected Lands

The Property is located in a remote area and is contiguous with a broad expanse of similar habitat. The Property is a private inholding within the Orocopia Mountain Wilderness area and is adjacent to BLM owned and managed ground on the south, west, and southwest. Permanent protection of the Property will contribute towards:

- connectivity between the Chuckwalla Bench and the Maniobra Valley
- connectivity to Joshua Tree National Park,
- connectivity to protected Wilderness Areas,
- consolidation of private ground within protected Wilderness Areas,
- addition of protected habitat and management within the Chuckwalla DWMA and ACEC, and
- addition of protected habitat and management within the Chuckwalla critical habitat unit for DT.

3.5.1.1 Wilderness Areas

In 1964 congress enacted The Wilderness Act, which identified individual Wilderness Areas that make up a nationwide Wilderness System. Wilderness Areas serve multiple uses, but the Wilderness Act mandates that each Wilderness Area be administered to preserve the “wilderness character of the area.” Wilderness Areas protect watersheds and clean-water supplies vital to downstream municipalities and agriculture, as well as habitats supporting diverse wildlife, including endangered species. Activities such as logging and oil and gas drilling are prohibited in designated Wilderness Areas. Within the Northern and Eastern Colorado Desert Planning Area there are twenty-three BLM designated Wilderness Areas totaling 1,621,109 acres (BLM 2002).

The Property is an inholding within the Orocopia Mountains Wilderness Area. Protection of private ground within designated Wilderness areas is important, because although they are technically designated as protected, they are not subject to the same restrictions as publicly owned Wilderness Areas. The Property contributes towards connectivity between the Joshua Tree National Park, the Joshua Tree Wilderness Area, and the Orocopia Mountains Wilderness

Area. The Property is located within the eastern portion of the Orocopia Mountains Wilderness Area, approximately 10 miles west of the Chuckwalla Mountains Wilderness Area and 6 miles south of Joshua Tree National Park. The protection of this Property will add to the protected corridor of mostly undeveloped habitat that connects these Wilderness Areas and the Joshua Tree National Park (**Figure 7**).

3.5.1.2 Bureau of Land Management

The Property is contiguous with BLM owned and managed land on the west, south, and southwest (**Figure 7**). The Property is also located within the BLM designated Chuckwalla DWMA and ACEC (**Figure 6**).

3.5.1.3 National Parks

The Property is approximately 6 miles south of the Joshua Tree National Park, and it will contribute towards habitat connectivity in the region. Protection of the Property will add to the mostly contiguous expanse of native habitat that is connected with the Joshua Tree National Park (**Figure 7**).

3.5.2 Critical Habitat

On February 8th, 1994, the USFWS designated 6.4 million acres of critical habitat in California, Nevada, Utah, and Arizona for the Mojave population of DT (USFWS 1994, 2008). Critical habitat consists of legally defined areas that are essential for the conservation of the DT that support physical and biological features essential for DT survival, and that may require special management considerations or protection (USFWS 2008).

Properties that could provide habitat connectivity and build linkages between desert tortoise critical habitat and known populations of desert tortoise were targeted. The Property is located within the Chuckwalla critical habitat unit for the DT (**Figure 6**).

Section 4 Biological Analysis

4.1 DESKTOP ANALYSIS AND BIOLOGICAL FIELD SURVEYS

After identifying properties that fit the identified geographical criteria, a thorough aerial photography/satellite imagery analysis was conducted to preliminarily identify landforms, plant communities, and habitats on the Property, and any potential existing or future threats to the quality and long-term sustainability of the Property. Landforms are geographic features of the earth defined by topographic relief, geology, and hydrologic connectivity. A plant community is a recognizable and complex assemblage of plant species which interact with each other as well as with the elements of their environment and is distinct from adjacent plant communities. A habitat is an ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism. **Figure 8** shows an aerial photograph of the Property. Following this desktop analysis, Wildlands conducted biological field surveys. The goals of the surveys were to:

- assess habitat quality for species of interest including DT, bighorn sheep, BUOW, Couch's spadefoot toad,
- delineate and ground truth desktop delineated landforms (including jurisdictional and non-jurisdictional wetlands) and plant communities, and
- identify potential threats onsite or in the vicinity.

Surveys were conducted on foot, by truck, and via helicopter on August 3rd, 4th, 31st, September 1st, 2nd, November 2nd, 2010, and January 11th-14th, 17th-20th, 2011. Surveys conducted on August 3rd and 4th utilized a helicopter as transportation so the surveying biologists could quickly and efficiently travel to and throughout the area as well as evaluate and identify potential threats and management issues from an aerial vantage point. All other surveys were conducted using a four-wheel-drive vehicle on approved roads and trails to get as close to the Property as possible before hiking on foot.

4.1.1 Methods and Procedures

Wildlands conducted thorough DT, desert bighorn sheep, BUOW and wetland specific analyses of the Property prior to conducting biological field surveys. These analyses were conducted with input and guidance from experts in the fields of DT ecology, desert wetland delineations, and general desert ecology. Habitat quality for each species of interest as well as for the wetlands and plant communities was preliminarily assessed using a general qualitative value (low, moderate or high), which was then verified and modified as necessary during biological field visits. For the wildlife species of interest, a general qualitative value of "low" indicates that the Property is not likely to support the species. A general qualitative value of "medium" indicates that the Property has the potential to support the species. A general qualitative value of "high" indicates that species use of the Property was verified, or that based on observed habitat characteristics it is highly likely that the Property supports the species. For the wetlands and plant communities, the criteria used to assign a general qualitative value is described in section 4.1.1.4.

4.1.1.1 Desert Tortoise Habitat Analysis

An analysis of DT habitat extent and quality was conducted by layering existing geographic data sets on to aerial photography/satellite imagery in order to assess the suitability of the habitats within the Property as DT habitat. The preliminary desktop general qualitative values (low, moderate, high) for DT were based in part on:

- ability to provide connectivity corridors for species movement and gene flow,
- location within the Chuckwalla DWMA,
- proximity and similarity to known areas that support existing DT populations,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

Based on the preliminary desktop habitat analysis, the results of the biological field surveys (see section 4.2), the CNDDDB (see section 4.4), and USFWS Line Distance Sampling (see section 4.5), the Property was assigned the general qualitative value of “Medium” for DT habitat.

4.1.1.2 Desert Bighorn Sheep Habitat Analysis

The analysis of the Property suitability as habitat for desert bighorn sheep used aerial photography/satellite imagery. Nelson bighorns (also called desert bighorn sheep) occur in desert mountain ranges from the White Mountains of Mono and Inyo Counties, south to the San Bernardino Mountains, southeastward to the Mexican border. Habitats used include alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian (Monson and Sumner 1980).

The Property is located within the bighorn sheep Sonoran metapopulation, within the Orocopia Mountains/Chocolate Mountains bighorn sheep deme (**Figure 9**). Protection of habitat within bighorn sheep demes with existing bighorn sheep populations is important because these populations can serve as source populations that may expand bighorn sheep range through the recolonization of demes whose populations have been extirpated.

Telemetry studies in desert habitats have recorded more intermountain movement by desert bighorn sheep than was previously thought to occur. As a result, nontraditional habitat connecting mountain habitats are considered important dispersal corridors for male desert bighorn sheep as they leave occupied mountainous territories in search of unoccupied mountainous territories. Bighorn sheep move between demes, resulting in gene flow, and provide opportunities for recolonization of vacant or formerly occupied areas. These movements between demes are considered vital to the maintenance of genetic variability necessary to sustain a metapopulation (Bleich et al. 1990, Schwartz et al. 1986) and facilitate the recolonization of extirpated demes. The entire Property supplies this important corridor habitat whose protection is essential for the long-term survival of the desert bighorn sheep so that they do not become “mountain islands within desert seas” (Bleich et al. 1990).

The desert bighorn sheep preliminary desktop general qualitative value of high was based predominantly on:

- ability to provide connectivity corridors for species movement and gene flow,
- adjacency to DEME,
- proximity and similarity to known areas that support existing desert bighorn sheep populations,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

While the Property does protect important bighorn sheep habitat, the GSEP does not have impacts or mitigation requirements associated with desert bighorn sheep. Therefore these habitat values are not being used to serve as mitigation, cannot and will not be reserved or transferred to a different project and are being described only for informational purposes.

4.1.1.3 Western Burrowing Owl Habitat Analysis

The western burrowing owl (*Athene cunicularia*) (BUOW) is a wide ranging California Species of Special Concern that can be found throughout the majority of the State (Shuford et al 2008). Burrowing Owls occur across most of the Mojave and Colorado deserts of Inyo, eastern Kern, northern Los Angeles, San Bernardino, eastern Riverside, eastern San Diego, and Imperial counties (Miller 2003). In desert systems such as the Colorado Desert, regional numbers are low and occupied areas are widely scattered. Higher densities of BUOW are found on private lands where they benefit from anthropogenic changes in the landscape including farmland, ditches, canal banks, road crossings, and other altered landscapes (DeSante et al. 2004). The main indicator of suitable BUOW habitat is the presence of burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs and taller vegetation (Green and Anthony 1989, Haug et al. 1993). Nest and roost burrows of the Burrowing Owl in California are most commonly dug by ground squirrels (e.g., *Spermophilus beecheyi*; Trulio 1997), but they may use badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (e.g., San Joaquin Kit Fox, *Vulpes macrotis mutica*) dens or holes (Ronan 2002). The diet of Burrowing Owls in California includes a broad array of arthropods (centipedes, spiders, beetles, crickets, and grasshoppers), small rodents, birds, amphibians, reptiles, and carrion (Thompson and Anderson 1988, Green et al. 1993, Plumpton and Lutz 1993, Gervais et al. 2000, York et al. 2002). Although insects dominate the diet numerically, vertebrates account for the majority of biomass in some regions (Green et al. 1993).

Properties were characterized as containing suitable BUOW habitat that contained the elements necessary to support populations of BUOW including:

- Soils suitable to contains burrows
- The existence of burrows suitable to support burrowing owls
- The observation of fossorial animals
- The observation of typical prey species (i.e. arthropods, mammals, reptiles)
- Appropriate vegetation (i.e. short vegetation with sparse shrubs and trees)

Two BUOW occurrences were positively identified approximately 1.5 north of the northern boundary of the Property. The general qualitative value of “high” was based on the fact that the entire Property is located within 5 miles (estimated dispersal distance) of these documented occurrences (**Figure 10**).

4.1.1.4 Wetland Landforms Analysis

The analysis of waters of the State used aerial photography/satellite imagery to assess the presence and extent of wetland landforms on the Property. The analysis of waters of the State used aerial photography/satellite imagery to assess the presence and extent of the wetland landforms on the Property. Three wetland types were identified on the property including swale network (SN), vegetated swales (VS), and desert washes.

The preliminary desktop general qualitative values (low, moderate, high) for wetlands were based in part on:

- species composition and structure including the presence of desert dry wash microphyllous woodland (DDWW) (Holland Code 62200) (Holland 1986),
- hydrologic connectivity,
- ability to provide habitat for Colorado Desert flora and fauna,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

A description of the wetlands and landforms found on the Property, including the general qualitative value and the results of the biological field surveys, can be found in section 4.2.1.

4.1.1.5 Biological Field Surveys

Biological field surveys were conducted to ground truth the extensive photo-interpretation. Field surveys utilized the expertise of numerous experts in Colorado Desert ecology including consultants with expertise in DT ecology, desert wetland delineations, and desert botanical inventories.

During biological field surveys, the Property was evaluated based on its vegetative diversity and density, location and topography. The results from the biological field survey evaluation, in conjunction with the preliminary desktop analyses, were used to determine a final ranking of species habitat, plant community, and wetland as high, moderate, or low. Proximity to known occurrences of sensitive species was taken into consideration in the ranking of the Property for habitat suitability (see section 4.4 CNDDDB, and section 4.5 Line Distance Sampling). Plant community, species composition and structure, and wash-dependent vegetation density were taken into consideration in the ranking of the Property for wetlands. The vegetation, soils, and topography on the Property was photographed and directional photo points (one at each cardinal direction) were taken to document the species occurrences and habitats found onsite (**Figures 11a and 12a**). In order to accurately delineate habitats, plant communities and waters of the state; a desert ecologist and wetland specialist used large regional maps, site specific 11x17 aerial photographs, photo-documentation, and GPS to identify the type, quality, and extent of the different habitat and wetland types on the Property. Each plant community was described and verified during biological field surveys by identifying the dominant perennial vegetation. Plant communities were named using guidelines described in *California Vegetation* (Holland and Keil 1995). Within each site, areas containing tree species were identified as DDWW using guidelines established by the “Holland Code” (Holland 1986) and *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009). Plant

nomenclature was taken from *The Jepson Desert Manual* (Baldwin et al. 2002). This information facilitated the complete delineation of the habitat and landform types, with a special emphasis on wetlands, on the Property (**Figure 13**). Human impacts, invasive species and other potential threats to sensitive species being considered were investigated and recorded. A summary of the threats to the habitat can be found in section 4.6 below.

4.2 BIOLOGICAL FIELD SURVEY RESULTS

Two directional photo points (one photo in each cardinal direction) were established on the Property in order to visually demonstrate the variability in species composition and vertical and horizontal structure of the landforms and plant communities throughout the Property (**Figure 11a**). Directional photo points include:

- DDWW (**Figure 11b**)
- Edge of SN (**Figure 11c**)

In order to document the plant communities on the Property, representative photos were taken that identified plant species of interest, the dominant perennial vegetation, and/or examples of the overstory dominant trees or shrubs used in the determination of plant community. Photos taken documented the presence of:

- Blue palo verde (*Cercidium floridum*) within DDWW (**Figure 12b, 12e**)
- Honey mesquite (*Prosopis glandulosa*) within DDWW (**Figure 12c**)
- Big galleta grass (*Pleuraphis rigida*) within VS (**Figure 12d**)

A BUOW was detected approximately 4,000 feet north of the Property. Two BUOW burrows were also detected near where the BUOW was flushed. These burrows contain white wash as well as a number of fresh pellets. Examination of the pellets revealed that the BUOW's diet consisted mainly of insects due to the dominance of exoskeleton within the pellets.

4.2.1 Landforms and Plant Communities

The landforms identified on the property can be grouped into two distinct categories; uplands and wetlands. Uplands identified on the property include vegetated areas mostly containing the plant community Sonoran Creosote Bush Scrub (Holland Code 33100); and desert pavement, an unvegetated geologic landform characterized by closely packed, interlocking angular or rounded rock fragments of pebble and cobble size. The wetland landforms identified on the Property include VS, SN, and washes. Plant communities identified on the wetland landforms include DDWW (Holland Code 62200), and an undescribed plant community referred to as desert wash scrub (DWS); with scattered amounts of Sonoran Creosote Scrub.

The Property is located in the Red Canyon, part of the easternmost headwaters draining into Salt Creek. The wetlands onsite, including the large DDWW channel, flows through the property towards the east before entering more topographically extreme areas, and then turning south before emptying into Salt Creek. Salt Creek also contains conveys runoff from the Chuckwalla Bench.

The jurisdictional limits of the DDWW were considered, recorded, and mapped for areas within all washes and wash features where the association of wash-dependent vegetation was present and/or other upland habitat types (Sonoran Creosote bush scrub, desert pavement) was not established at more than 5 percent absolute cover. Jurisdictional lateral extents of the non DDWW washes, SN, and VS were determined by the farthest extents of the respective established channel bed and banks (including shelving and scouring) of each subchannel. When the established channel bed and banks began to transition into less distinct features, such as features that only support sheet flow, and/or features that began to blend into the landscape and or reflect the features of a swale or relictual channel, the jurisdictional linear extent(s) of the feature(s) was determined to have ceased.

Plant communities and landform types are described in detail below.

4.2.1.1 Desert Dry Wash Microphyllous Woodland

DDWW (Holland Code 62200) is an open to dense, drought-deciduous, microphyllous riparian thorn scrub woodland dominated by any of several fabaceous trees. DDWW is distributed along the larger drainages of the lower Mojave Desert and more generally through the Colorado Desert. Site factors for DDWW include sandy or gravelly washes and arroyos, largely in frost-free areas. These washes typically have braided channels that substantially rearrange with every surface flow event. DDWW is typically an open vegetation community; however, canopy development and density are variable and may depend on water supply (Holland 1986, CDFG 1988).

The DDWW plant community occupies a large highly channelized wash that transect the northwest corner of the Property, reentering the north boundary of the Property towards the center, and flowing south east towards the east side of the Property. All features on the Property generally flow from west to east. This plant community is dominated by an open overstory of blue palo verde (*Cercidium floridum* ssp. *floridum*), acacia (*Senegalia greggii*), and honey mesquite (*Prosopis glandulosa*); with a scattered understory of senna (*Senna armata*), sweetbush (*Bebbia juncea*), boxthorn (*Lycium cooperi*), and big galleta grass (*Pleuraphis rigida*). DDWW is more developed in the major washes where channel development is most pronounced and water supply likely more abundant.

4.2.1.2 Sonoran Creosote Bush Scrub

Sonoran Creosote Bush Scrub (Holland Code 33100) is a shrub dominated plant community composed of .05-3 m tall, widely spaced shrubs, usually with bare ground in-between. This plant community is very similar in appearance to Mojave Creosote Bush Scrub (Holland Code 44110), but with greater species and life form diversity including several succulents. Growth occurs from winter to early spring (or rarely at other seasons) if rainfall is sufficient. Shrubs may be dormant for long periods. Many species of ephemeral herbs may flower in late February and March (earlier than in Mojave Creosote Bush Scrub) if the winter rains are sufficient. This is the basic creosote scrub of the Colorado Desert. This plant community is found in the well-drained secondary soils of slopes, fans and valleys rather than upland sites with thin residual soils or sites with high soil salinity. Winter temperatures are seldom below freezing.

Sonoran creosote bush scrub is the dominant upland plant community on the Property. There is very little desert pavement and Sonoran mixed woody and succulent scrub due to the relatively higher topography relative to other property within the Preserve.

4.2.1.3 Desert Wash Scrub

DWS was identified and classified as a diverse scrubland with no single dominant shrub. In a DWS community a mosaic of desert shrubs fill the landscape. In most areas on the Property, DWS comprised the dominant plant community in the SN, and VS wetlands and washes where DDWW was not fully developed. The Property contains well developed concomitant DWS swale networks that present direct hydrologic input into the larger DDWW.

DWS is not a recognized vegetation community, and as a result does not have an assigned Holland Code. DWS most closely resembles Mojave Wash Scrub (Holland Code 34250) in that it is a low, shrubby, open community with a scattered to locally dense overstory of microphyllous trees and shrubs. Mojave Wash Scrub is distributed in washes, arroyos, and canyons of intermittent streams throughout the Mojave Desert Region. The plant community described as DWS consists of relatively large creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), burrowbush (*Hymenoclea salsola*), acacia (*Senegalia greggii*), boxthorn (*Lycium cooperi*), honey mesquite (*Prosopis glandulosa*), and the occasional smoketree (*Psoralea schottii*). DWS is the dominant habitat type found in the VS and SN and washes where DDWW is not fully formed.

4.2.1.4 Vegetated Swales and Swale Networks

Vegetated swales occupy minor washes throughout the Property, and are more typically confined to channels. Numerous vegetated swales contribute hydrologically to the more confined DDWW located on the Property (**Figure 13**).

Swale networks form where swale channels become less confined, but wash dependent vegetation and shelving and scouring in channels and subchannels are still identified. The Property contains a small network of concomitant swale networks directly adjacent to DDWW on the east.

There are numerous swale networks on the Property that are adjacent and hydrologically connected to the DDWW on the eastern edge of the Property. These swale networks are composed of DWS acacia woodland with moderate mustard occurrences, typical of the region.

4.2.1.5 Desert Pavement

Desert pavements are areas with rock fragments of pebble to cobble size that cover an underlying layer of sand, silt, or clay. Desert pavement areas typically have little or no vegetation cover, but it is thought that the lower layers of the varnish contain microbiotic subsurface algal crusts. Desert pavements form from two different processes (McAuliffe 2000). On rocky alluvial fans, fine dust settling out of the air accumulates between and below the surface layer of rocks, eventually forming a relatively thin silt and clay layer that separates the surface rocks from the main part of the alluvial fan. Desert pavement also can form on sandy soils that contain significant amounts of gravel and rock fragments. In such situations, wind and water erosion can remove most of the sand and fine sediments from the surface, leaving the remaining rock fragments as the predominant surface layer. The extent to which desert pavement reduces wind erosion and resulting fugitive dust depends on the density of the rock fragments covering the underlying soil.

Desert pavements are covered with a glossy substance made out of mineral ingredients including clays and manganese and any other minerals are present in trace amounts. This glossy rock covering is called a

varnish or desert varnish. Desert varnish is typically very dark in completion, despite the color of the internal rock. The longer a desert pavement has been forming, the darker the desert varnish. The glossy coatings of desert varnish are very thin, at most a few hundredths of a millimeter thick. Desert varnish also contains organic matter derived from microbial activity.

Many of the mineral ingredients of varnish, including clays and manganese, are derived from airborne materials that settle on rock surfaces. Bacteria residing on the rock surface may play a major role in concentrating and cementing these materials to form the glossy coatings. Rock varnish gives off considerable carbon dioxide when moistened, indicating bacterial respiration. However, bacteria are generally absent from the shiny exposed surfaces of varnish, indicating that they reside within and beneath the microscopic varnish layers. The formation of varnish may actually be a means by which these microbes protect themselves in the exposed, extreme environment of a rock surface in the desert. (McAuliffe 2000).

4.2.2 Botanical Inventory

A botanical inventory was conducted concurrently with biological surveys. Appendix A includes a list of plant species observed onsite and in the vicinity of the Property during the biological surveys conducted from August 2010 to January 2011. Photo-documentation was used to representatively identify and map the presence and distribution of microphyllous trees and other dominant shrubs on the Property (**Figures 12a-e**).

4.3 ACRES AND QUALITY OF HABITAT AND WETLAND TYPE

The following Table 1 shows the final delineation of habitat and wetland type and quality based upon regional and site specific analyses and biological field surveys with desert ecology and wetland experts (**Figure 13**).

Table 1. Habitat And Wetland Quality		
Species Habitat Type	Habitat Acreage	Habitat Quality¹ (low, moderate, high)
Desert Tortoise	41.9	Medium
Western Burrowing Owl	41.9	High
Desert Bighorn Sheep	41.9	High
Plant Community/Wetland		
Desert Dry Wash Microphyllous Woodland	1.8	High
Other Waters of the State	3.5	High
1 – A designation of high quality indicates that the acreage is suitable to mitigate for impacts to the GSEP based on species composition, habitat characteristics, threats, and additional characteristics of the site as described in section 4.1. A designation of medium indicates that it is likely that the species occurs on the property, but no obvious signs were identified.		

4.4 CALIFORNIA NATURAL DIVERSITY DATABASE

A CNDDDB analysis of the Property was conducted to identify documented occurrences of special status plants and wildlife. CNDDDB occurrence records indicate that three species have been identified within a five mile radius of the Property including (**Figure 14**);

- DT,
- Desert bighorn sheep, and
- California ditaxis.

4.5 LINE DISTANCE SAMPLING DATA

The Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994, 2008) requires monitoring of DT to assess changes in status with the best available data. Line distance sampling (LDS) (Buckland et al. 2001) has been chosen as the standard method for conducting range-wide monitoring of DT in the Mojave Desert. LDS is also conducted in the Colorado Desert and there are numerous transects within the vicinity of the Property. LDS DT detections between 2001 and 2007 indicate that DT have been consistently identified in the vicinity of the Property (**Figure 15**) and have an estimated density of 4.5 animals/hectare (USFWS 2009). Between 2001 and 2007 (no data available for 2006), there were 23 live DT occurrences and 26 carcasses positively identified during LDS surveys within a 6 mile buffer of the Property.

4.6 THREATS ANALYSIS

Threats to long-term habitat values such as invasive species, human impacts (development, off road vehicles, etc.) were assessed on the Property. **Table 2** shows all potential threats identified on the Property during general site visits and biological surveys. Potential threats analyzed in this table were taken from Salafsky et al. 2008. A Preliminary Title Report and Phase 1 Environmental Site Assessment was obtained to identify existing encumbrances or environmental issues that have the potential to impact the long-term conservation values of the Property. The Title Report and Preliminary Property Analysis can be found in Exhibit A-2, and the Initial Hazardous Materials Survey Report (Phase 1 Environmental Site Assessment) is found in Exhibit A-3 of the Colorado Desert Preserve Formal Acquisition Proposal.

**Table 2. Threats Analysis:
Management Concerns Identified During Field Surveys**

1. Development	There is no development identified on or in the vicinity of the Property.
2. Agriculture	None identified or expected to occur onsite or in the vicinity.
3. Energy Production	None identified or expected to occur onsite or in the vicinity. No renewable energy applications were identified in the vicinity of the Property (Figure 16).
4. Transportation and Service Corridors	None identified or expected to occur onsite or in the vicinity.
5. Human Intrusions	None identified onsite.
5.1 Human Access	None identified onsite.
5.2 Surface Disturbance	None identified or expected to occur onsite or in the vicinity.
5.3 Altered Hydrology	None identified or expected to occur onsite.
5.4 Motor Vehicles on Paved Roads	None identified or expected to occur onsite or in the vicinity.
5.5 Motor Vehicles on Un-Paved Roads	None identified or expected to occur onsite or in the vicinity.
5.6 Motor Vehicles Off Route	None identified or expected to occur onsite or in the vicinity.
5.7 Non-motorized Recreation	None identified onsite or in the vicinity.
5.8 Military Operations	None identified onsite or in the vicinity.
5.9 Illegal Immigration	None identified or expected to occur onsite or in the vicinity.
6. Fire	Compared to other parts of California, there are relatively few fires in the area of the Property and most are small. The threat of natural or anthropogenic fire is not anticipated to be substantially different from surrounding properties. No additional fire suppression activities are anticipated that would separate the Property from the surrounding landscape. Campfires and vehicle access are anticipated to be reduced or eliminated via the conservation easement and management plan.
7. Invasive Plants	Sahara mustard (<i>Brassica tournefortii</i>) was identified onsite. The density of this invasive species was moderate to low, and typical of the area.
8. Pollutants/Hazardous Materials	None identified or expected to occur onsite or in the vicinity.

Section 5 Conclusion/Summary

This 41.9-acre Property contains high quality DT, and high quality habitat for desert bighorn sheep and high quality BUOW habitat based on a large number of indicators including:

- connectivity between the Chuckwalla Bench and the Maniobra Valley (**Figure 1**),
- soils (**Figure 3**),
- ability to provide connectivity corridors for species movement and gene flow,
- consolidation of private ground within the Orocopia Mountain Wilderness Area (**Figure 7**)
- consolidation of private ground within the Orocopia Mountain/Chocolate Mountains bighorn sheep deme (**Figure 9**),
- Proximity to observed BUOW occurrence (**Figure 10**)
- habitats, landforms, and plant communities (**Figure 13**),
- CNDDDB occurrences (**Figure 14**), and
- high vegetation diversity.

Based upon the results of the consultants reports, biological field surveys, botanical inventories, and regional analyses, the Property provides high quality DDWW, SN, and VS wetland habitats; and has the potential to support populations of BUOW based on the positively identified BUOW less than one mile north of the Property. While the Property does protect important bighorn sheep habitat, the GSEP does not have impacts or mitigation requirements associated with desert bighorn sheep. Therefore these habitat values are not being used to serve as mitigation, cannot and will not be reserved or transferred to a different project and are being described only for informational purposes.

5.1 MITIGATION SUITABILITY

The GSEP Commission Decision (CEC 2010) requires that all mitigation lands used to offset the impacts from GSEP must be connected to lands of equal or better quality than the anticipated impacts.

The results of the consultant reports, biological field surveys, botanical inventories, regional analyses, and site visits with BLM and USFWS biologists indicate that the habitats on CDP-2 and on adjacent lands are of equal or better quality and function than the habitats anticipated to be impacted by the GSEP, and are therefore suitable to mitigate for permitted impacts resulting from the GSEP. Table 3 is a habitat layering summary quantifying the type and acreage of habitat values on CDP-2 that are suitable as mitigation for the GSEP.

Table 2. CDP-2 ⁽¹⁾ Habitat Layering Summary			
DT⁽²⁾, BUOW⁽³⁾ (acres)	DT, BUOW, DDWW⁽⁴⁾ (acres)	DT, BUOW, Other State Waters (acres)	Total⁽⁵⁾ (acres)
41.9	1.8	3.5	41.9
Comments			
(1) Acreages included in this table are current as of May 24, 2011			
(2) Mojave desert tortoise			
(3) Western burrowing owl. To qualify for BUOW habitat, the entire property or portions of the property had to be within 5 miles of a documented burrowing owl utilizing an active burrow complex.			
(4) Desert dry wash microphyllous woodland			
(5) Total acreages and acreages for each habitat type subject to change			

Section 6 References

- Berry, K.H., 1997. The Desert Tortoise Recovery Plan: An Ambitious Effort to Conserve Biodiversity in the Mojave and Colorado Deserts of the United States. Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles – An International Conference. New York Turtle and Tortoise Society, pp 430-440
- Bleich, V.C., Wehausen, J.D., Holl, S.A., 1990. Desert-dwelling Mountain Sheep: Conservation Implications of a Naturally Fragmented Distribution. *Conservation Biology*. V4 No. 4. 383-390
- Buckland, S. T., Anderson, D. R., Burnham, K. P., Laake, J. L., Borchers, D. L., Thomas, L. 2001. Introduction to Distance Sampling – Estimation Abundance of Biological Populations. Oxford University Press, Oxford.
- Bureau of Land Management and California Energy Commission (BLM and CEC). 2010, Staff assessment and environmental impact statement, Genesis Solar power Project, Application for Certification (09-AFC-8). Sacramento, California. March 2010.
- Bureau of Land Management (BLM). 2010. Plan amendment/final environmental impact statement for the Genesis Solar Energy Project. Palm Springs, California. August 2010.
- BLM (Bureau of Land Management). 2002. Proposed Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) and Final Environmental Impact Statement.
- California Department of Fish and Game (CDFG). 2010. Interim Mitigation Strategy As Required by SB X8 34. DRECP-100-2010-006-F
- California Department of Fish and Game (CDFG). 1988. A Guide to the Wildlife Habitats of California (1988 + updates) (Mayer, K.E. and W.F. Laudenslayer, Jr.). Available at <http://www.dfg.ca.gov/biogeodata/cwhr/pdfs/DSW.pdf>.
- California Energy Commission (CEC). 2010a. Genesis Solar Energy Project. Revised staff assessment. June 2010. Sacramento, California.
- California Energy Commission (CEC). 2010b. Genesis Solar Energy Project. Revised Staff Assessment Supplement. July 2010. Sacramento, California.
- California Energy Commission (CEC). 2010c. Genesis Solar Energy Project Commission Decision. CEC-800-2010-011-CMF. October 2010. Sacramento, California
- Department of Water Resources (DWR). 2010. California Department of Water Resources Water Data Library. Available online at www.water.ca.gov/waterdatalibrary/. Accessed September 2010.
- DeSante, D. F., Ruhlen, E. D., and Scalf, R. 2007. The distribution and relative abundance of Burrowing Owls in California during 1991–1993: Evidence for a declining population and thoughts on its conservation, in Proceedings of the California Burrowing Owl Symposium, November 2003 (J. H. Barclay, K. W. Hunting, J. L. Lincer, J. Linthicum, and T. A. Roberts, eds.), pp. 1–41. Bird Populations Monogr. 1. The Institute for Bird Populations and Albion Environmental, Inc.

- Gervais, J. A., Rosenberg, D. K., Fry, D. M., Trulio, L., and Sturm, K. K. 2000. Burrowing Owls and agricultural pesticides: Evaluation of residues and risks for three populations in California. *Environ. Toxicol. and Chem.* 19:337–343.
- Green, G. A., and Anthony, R. G. 1989. Nesting success and habitat relationships of Burrowing Owls in the Columbia basin, Oregon. *Condor* 91:347–354.
- Green, G. A., Fitzner, R. E., Anthony, R. G., and Rogers, L. E. 1993. Comparative diets of Burrowing Owls in Oregon and Washington. *Northwest Sci.* 67:88–93.
- Haug, E. A., and Didiuk, A. B. 1993. Use of recorded calls to detect Burrowing Owls. *J. Field Ornithol.* 64:188–194.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency.
- McAuliffe, Joseph R. 2000. Desert Soils. Internet Web site: http://www.desertmuseum.org/books/nhsd_desert_soils.php. Accessed on March 04, 2010.
- Miller, J. 2003. Petition to the State of California Fish and Game Commission and supporting information for listing the California population of the Western Burrowing Owl (*Athene cucularia hypugaea*) as an endangered or threatened species under the California Endangered Species Act. Available from Ctr. Biol. Diversity, 1095 Market St., Suite 511, San Francisco, CA 94103 or at www.biologicaldiversity.org/swcbd/species/b-owl/index.html.
- Monson, G., and L. Sumner, eds. 1980. The desert bighorn: its life history, ecology, and management. Univ. Arizona Press, Tucson. 370pp.
- Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H., 2009, Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.
- Plumpton, D. L., and Lutz, R. S. 1993. Prey selection and food habits of Burrowing Owls in Colorado. *Great Basin Nat.* 53:299–304.
- Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of Burrowing Owls in a grassland ecosystem. M.S. thesis, Oregon State Univ., Corvallis.
- Salafsky et al. 2008. A standard lexicon for biodiversity conservation: unified classifications of threats and actions. *Conservation Biology* 22: 897-911.
- Schwartz, O.A., V.C. Bleich, and S.A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. *Biological Conservation* 37: 179-90
- Shuford, W.D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Soil Survey 2010. Natural Resources Conservation Service, United States Department of Agriculture. U.S. General Soil Map (STATSGO) for California. Available online at <http://soildatamart.nrcs.usda.gov>. Accessed September 2010.

Tetra Tech. 2010. Genesis Solar Energy Project biological assessment. June 2010. Report prepared for the Bureau of Land Management, Palm Springs South Coast Field Office, Palm Springs, California. 46 pp. + appendices.

Thompson, C. D., and Anderson, S. H. 1988. Foraging behavior and food habits of Burrowing Owls in Wyoming. *Prairie Nat.* 20:23–28.

Trulio, L. 1997. Burrowing owl demography and habitat use at two urban sites in Santa Clara County, California. *Raptor Res. Rep.* 9:84–89.

UCIPM 2010. University of California Integrated Pest Management, California Weather Database. Blythe.C (NCDC #0924, Blythe) weather station. Observer = California Department of Forestry. Data Range = Jan 1, 1951 to late 2010.

U.S. Fish and Wildlife Service (USFWS). 2010. Section 7 Biological Opinion on the Genesis Solar Energy Project, Riverside County, California. In Reply to FWS-ERIV-08B0060-10F0879. November 2, 2010.

U.S. Fish and Wildlife Service (USFWS). 2009. Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.

U.S. Fish and Wildlife Service (USFWS). 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). California and Nevada Region, Sacramento, California.

U.S. Fish and Wildlife Service (USFWS). 1994. Desert tortoise (Mojave population) recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon. 73 pages plus appendices.

York, M., Rosenberg, D. K., and Sturm, K. K. 2002. Diet and food-niche breadth of Burrowing Owls (*Athene cunicularia*) in the Imperial Valley, California. *W. North Am. Nat.* 62:280–287.

Appendix A.
Plant Species Observed on and in the Vicinity of CDP-2

Scientific Name	Common Name	Plant Community
<i>Ambrosia dumosa</i>	Burro-weed	Creosote Scrub
<i>Bebbia juncea</i>	Sweetbush	DWS, Creosote Scrub
<i>Cercidium floridum</i>	Blue Palo Verde	DDWW
<i>Encelia farinosa</i>	Brittlebush	Creosote Scrub
<i>Hymenoclea salsola</i>	Burrowbrush	DDWW
<i>Larrea tridentata</i>	Creosote Bush	Creosote Scrub
<i>Lycium cooperi</i>	Boxthorn	DDWW, DWS
<i>Pleuraphis rigida</i>	Big Galleta Grass	DWS
<i>Prosopis glandulosa</i>	Honey Mesquite	DDWW, DWS
<i>Senegalia greggii</i>	Acacia	DDWW, DWS, Creosote Scrub
<i>Senna armata</i>	Senna	DWS, Creosote Scrub

Colorado Desert Preserve

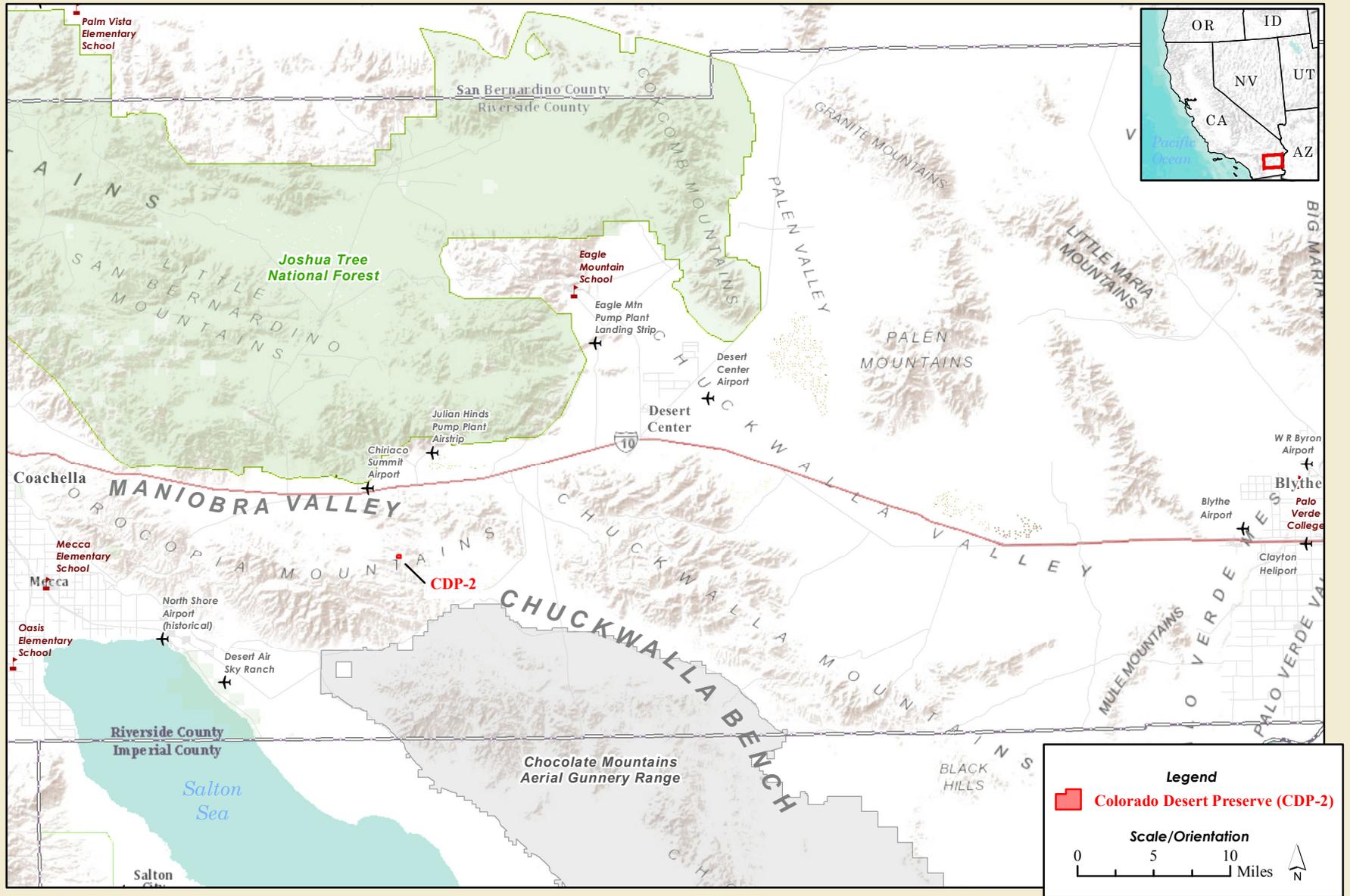


Figure 1 - Location
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

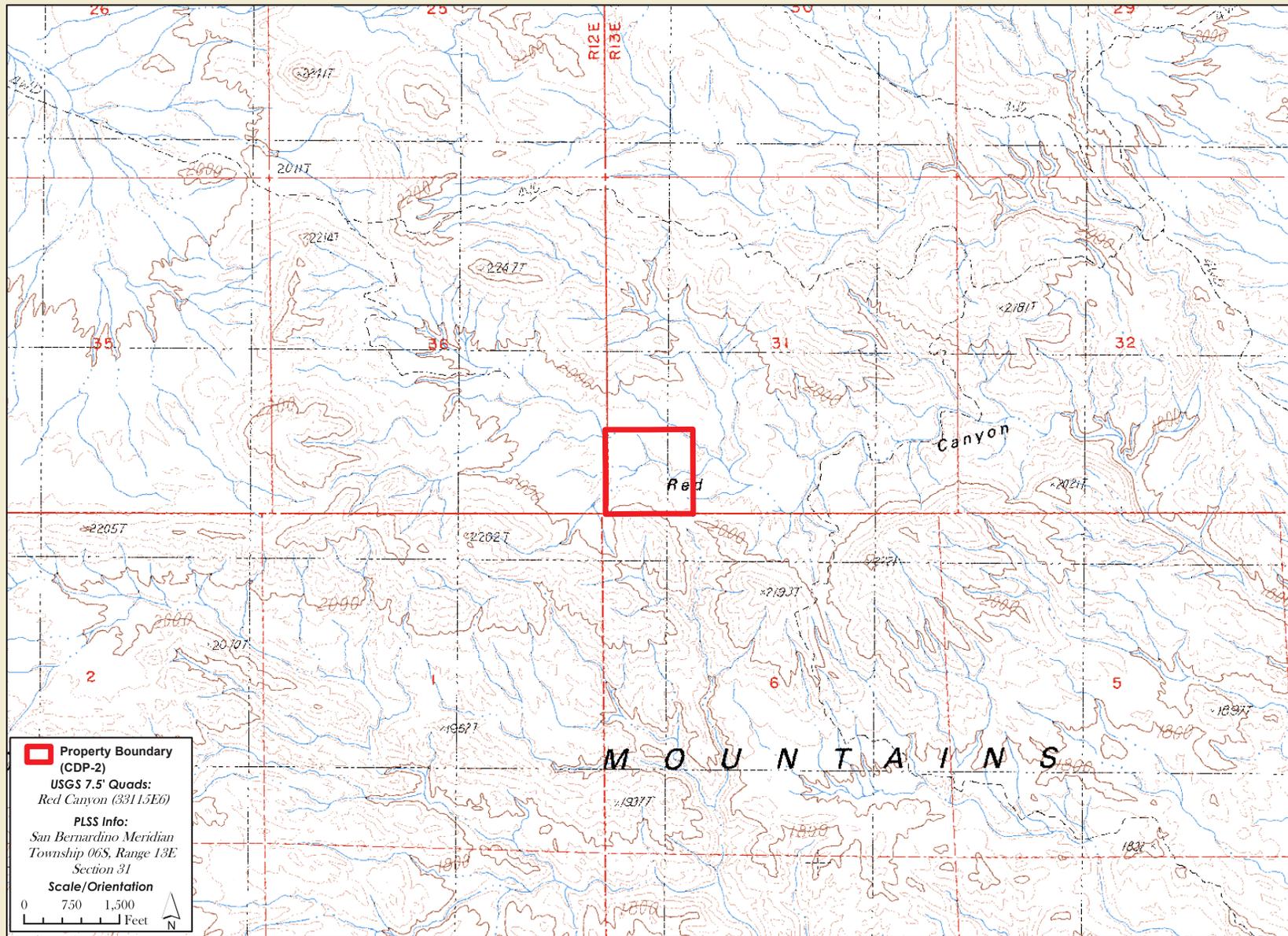


Figure 2 - Topography
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

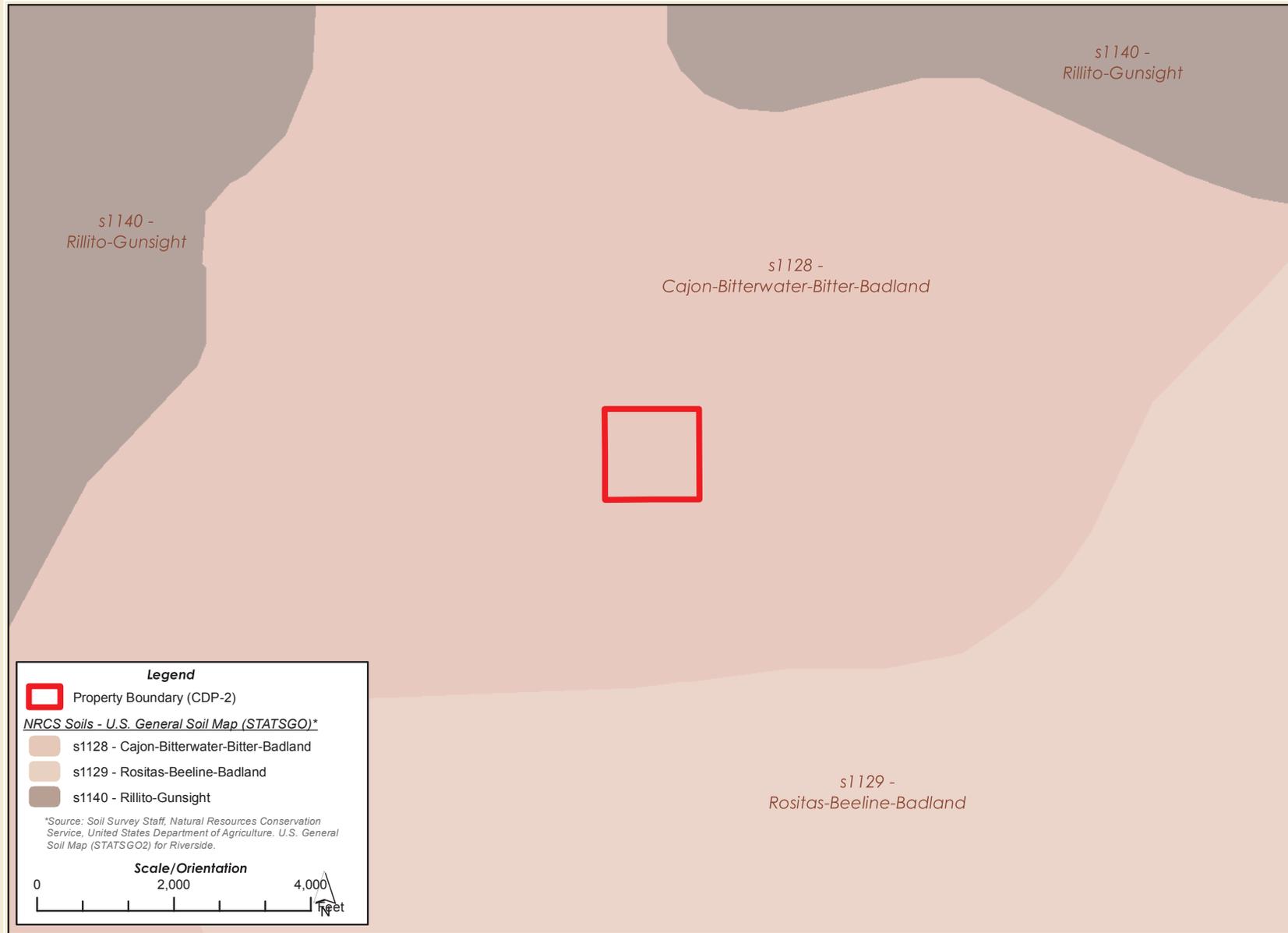


Figure 3 - Soils
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

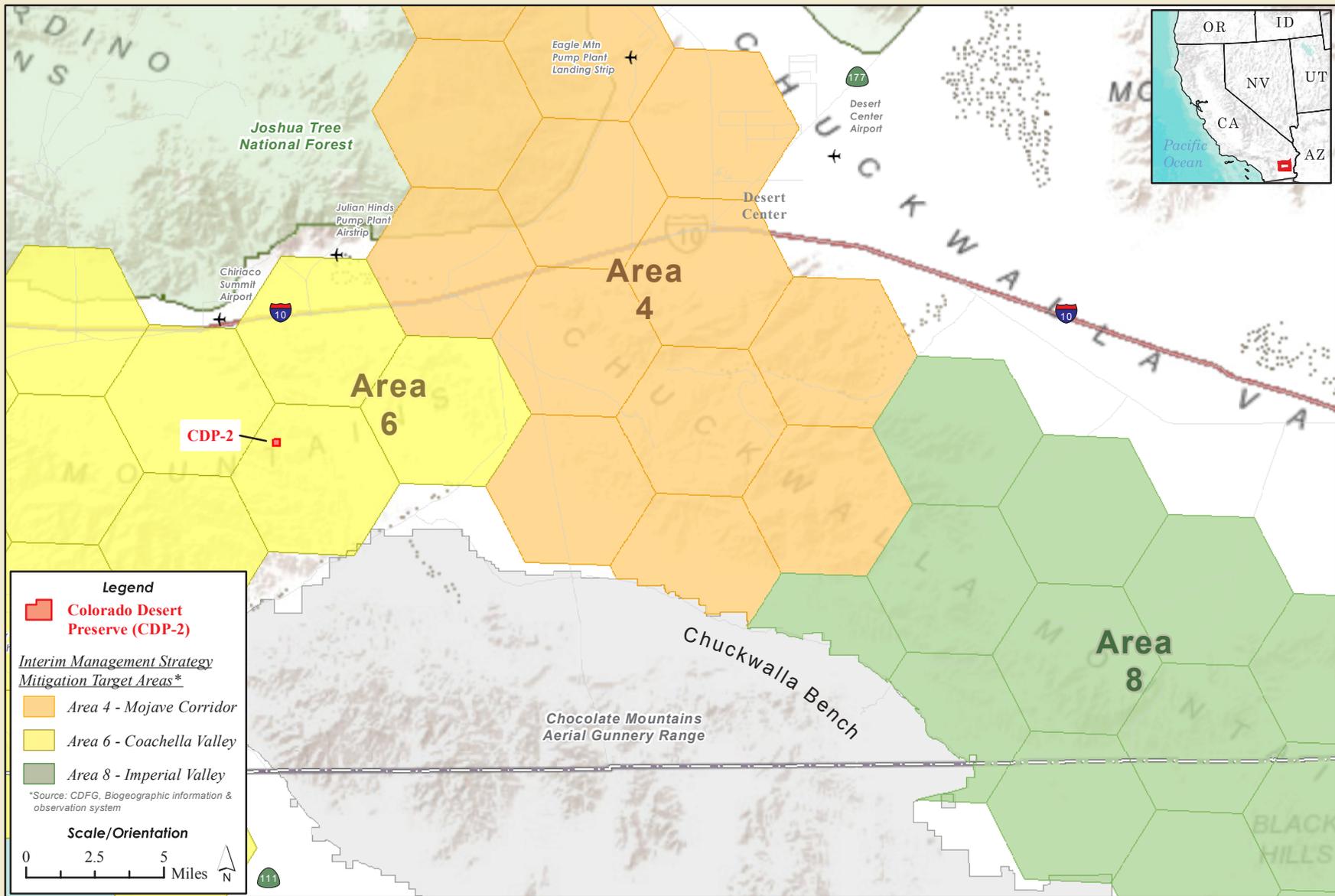


Figure 4 - DRECP Interim Mitigation Strategy - Mitigation Target Areas
 CDP-2
 Biological Resources Report - May 2011

Colorado Desert Preserve

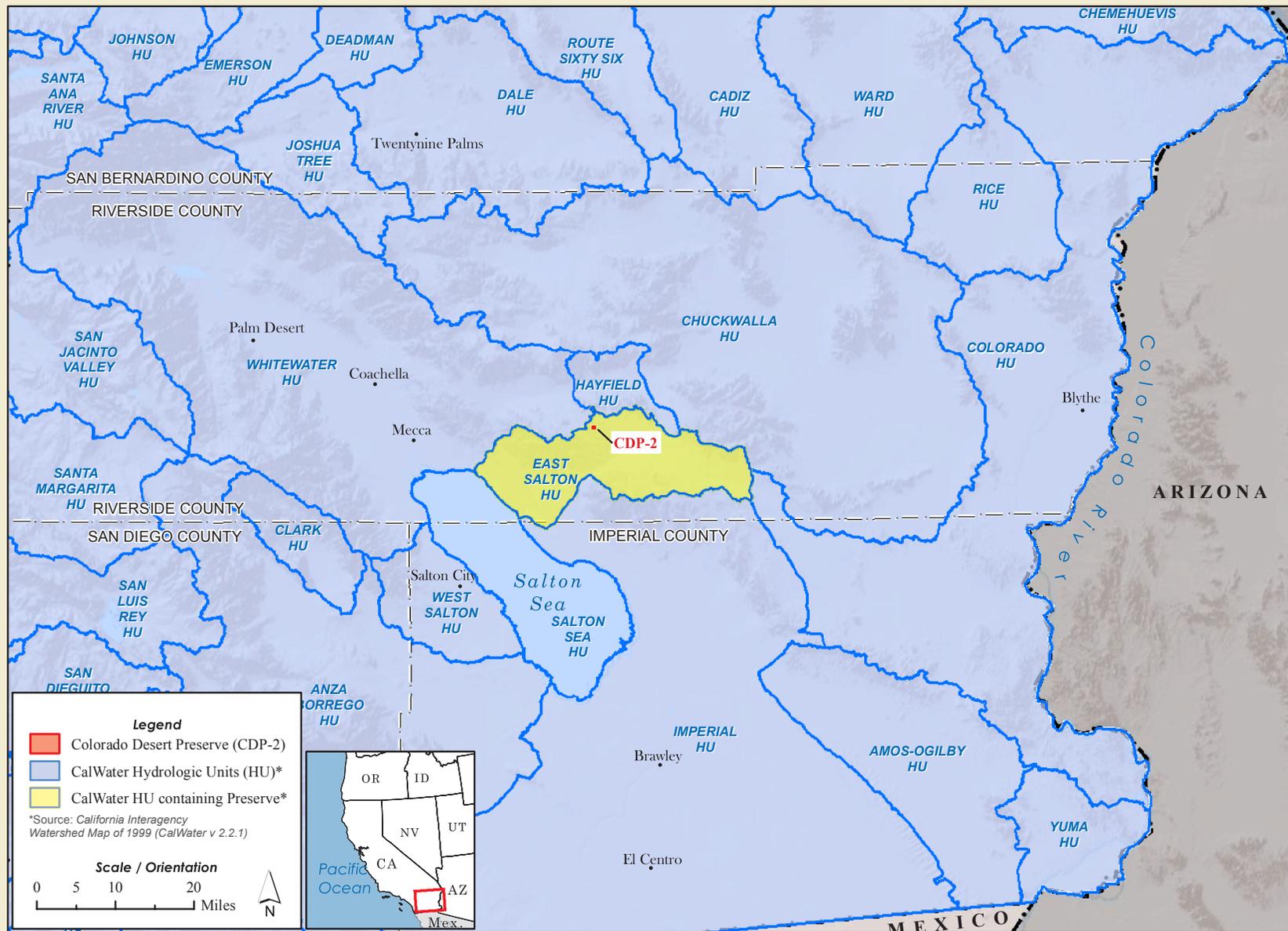
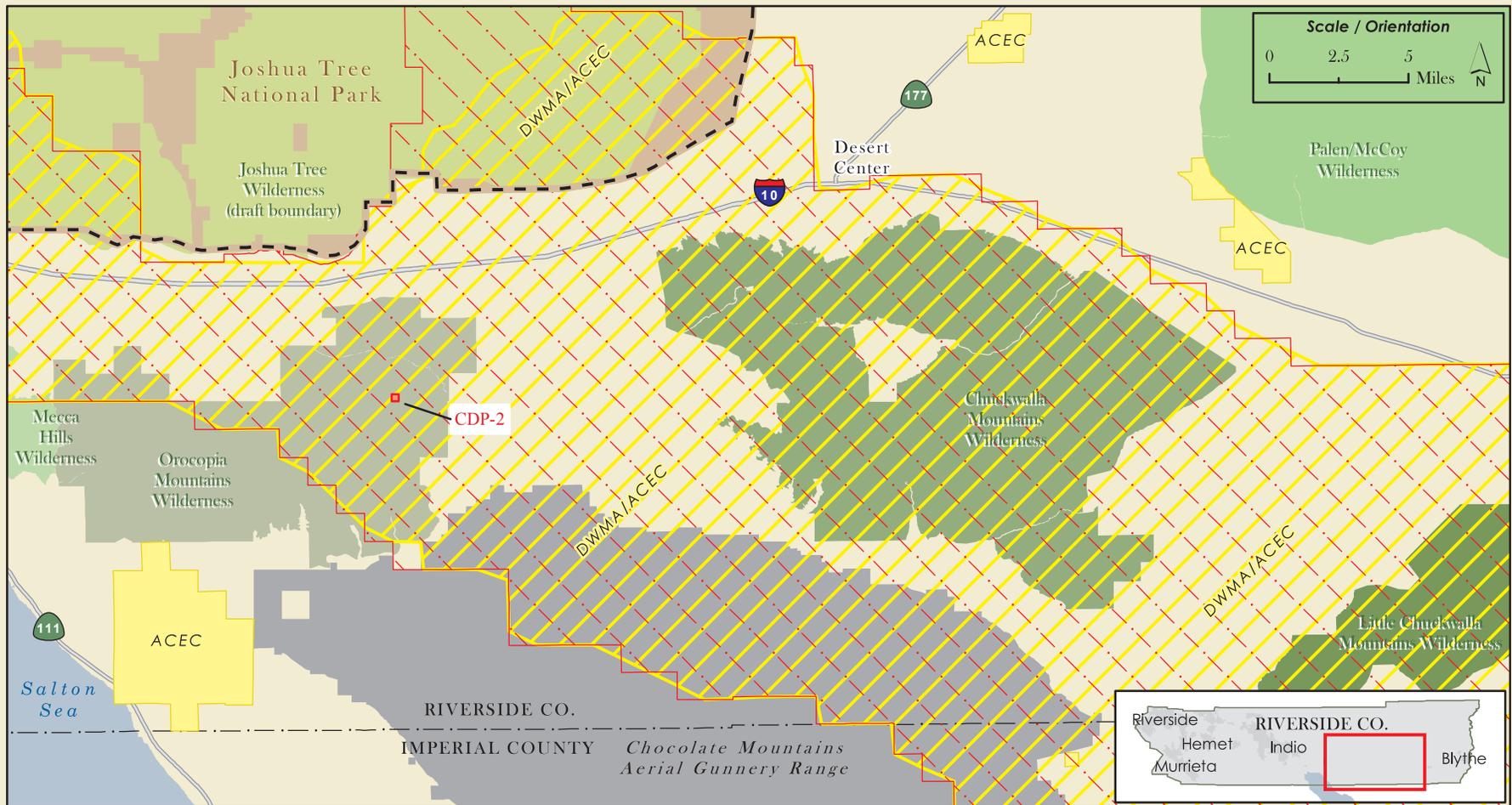


Figure 5 - Watershed - State Hydrologic Unit
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve



Legend

Colorado Desert Preserve (CDP-2)	Desert Tortoise Critical Habitat - Chuckwalla Complex ⁽³⁾	Wilderness Areas (WA)⁽⁶⁾	Mecca Hills WA
BLM Areas of Critical Environmental Concern (ACEC) ⁽¹⁾	Joshua Tree National Park ⁽⁴⁾	Chuckwalla Mountains WA	Orocopia Mountains WA
Chuckwalla Desert Wildlife Management Area/ BLM (ACEC) ⁽¹⁾⁽²⁾	Chocolate Mountains Aerial Gunnery Range ⁽⁵⁾	Joshua Tree WA	Palen/McCoy WA
		Little Chuckwalla Mountains WA	

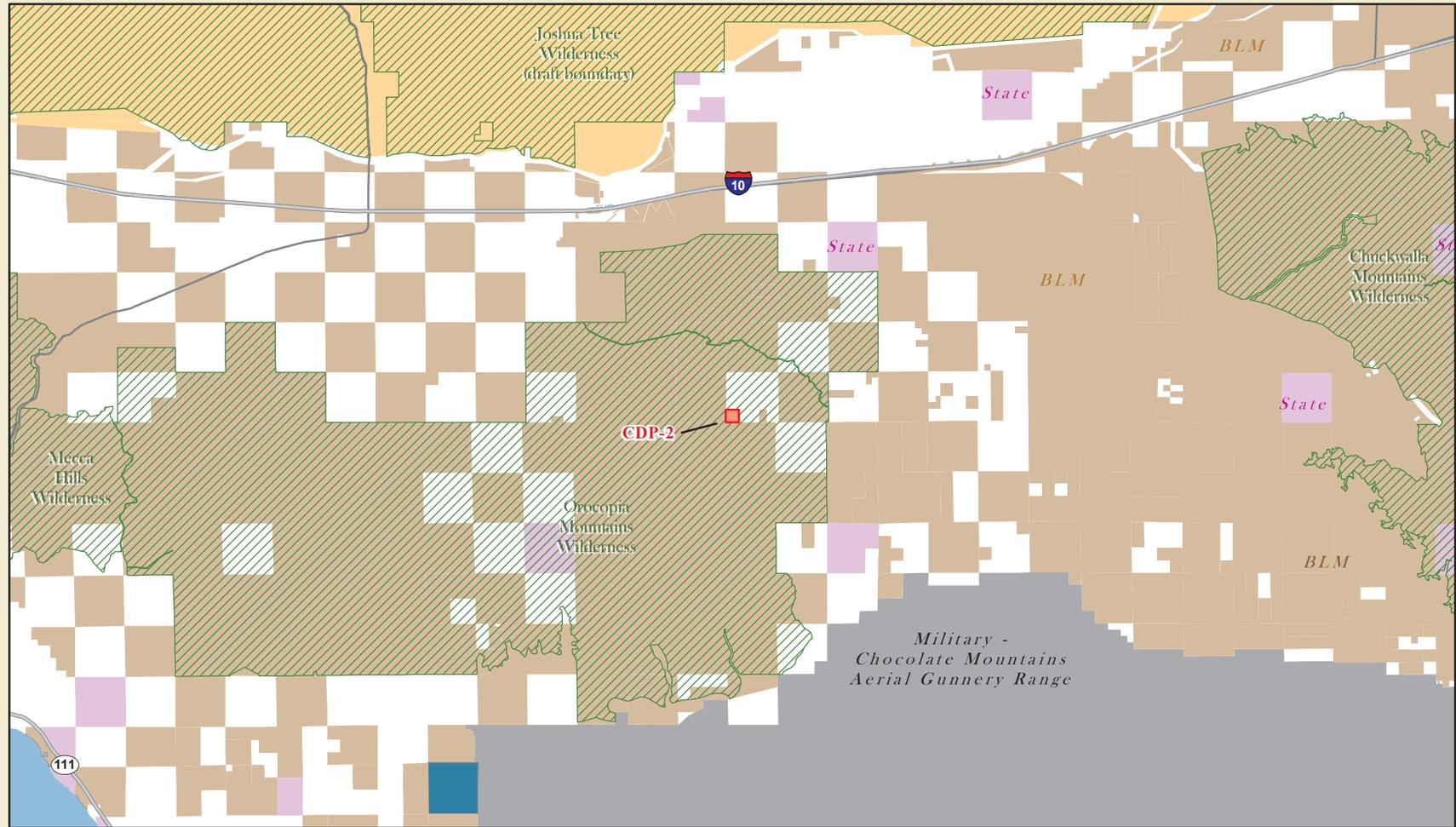
Data Sources

(1) U.S. Bureau of Land Management, CA State Office, (2) Redlands Institute, University of Redlands, (3) US Fish and Wildlife Service, (4) U.S. Geological Survey, (5) U.S Bureau of Land Management, (6) Wilderness Institute, University of Montana.

Figure 6 - Regional Conservation Analysis
CDP-2
Biological Resources Report - May 2011



Colorado Desert Preserve



Legend

 Colorado Desert Preserve (CDP-2)	Public Land Ownership**	Source: *Wilderness Institute, University of Montana **Public Land Ownership data taken from BLM's Surface Ownership (OWNPCA), January 19, 1999.
 Wilderness Areas (WA)*	 Bureau of Land Management (BLM)	
 Private Land	 National Park Service (NPS)	
	 State	

Scale / Orientation

0 1 2 Miles 

Figure 7 - Regional Land Ownership and Protection Status
 CDP-2
 Biological Resources Report - May 2011

Colorado Desert Preserve



Figure 8 - Aerial Photograph
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

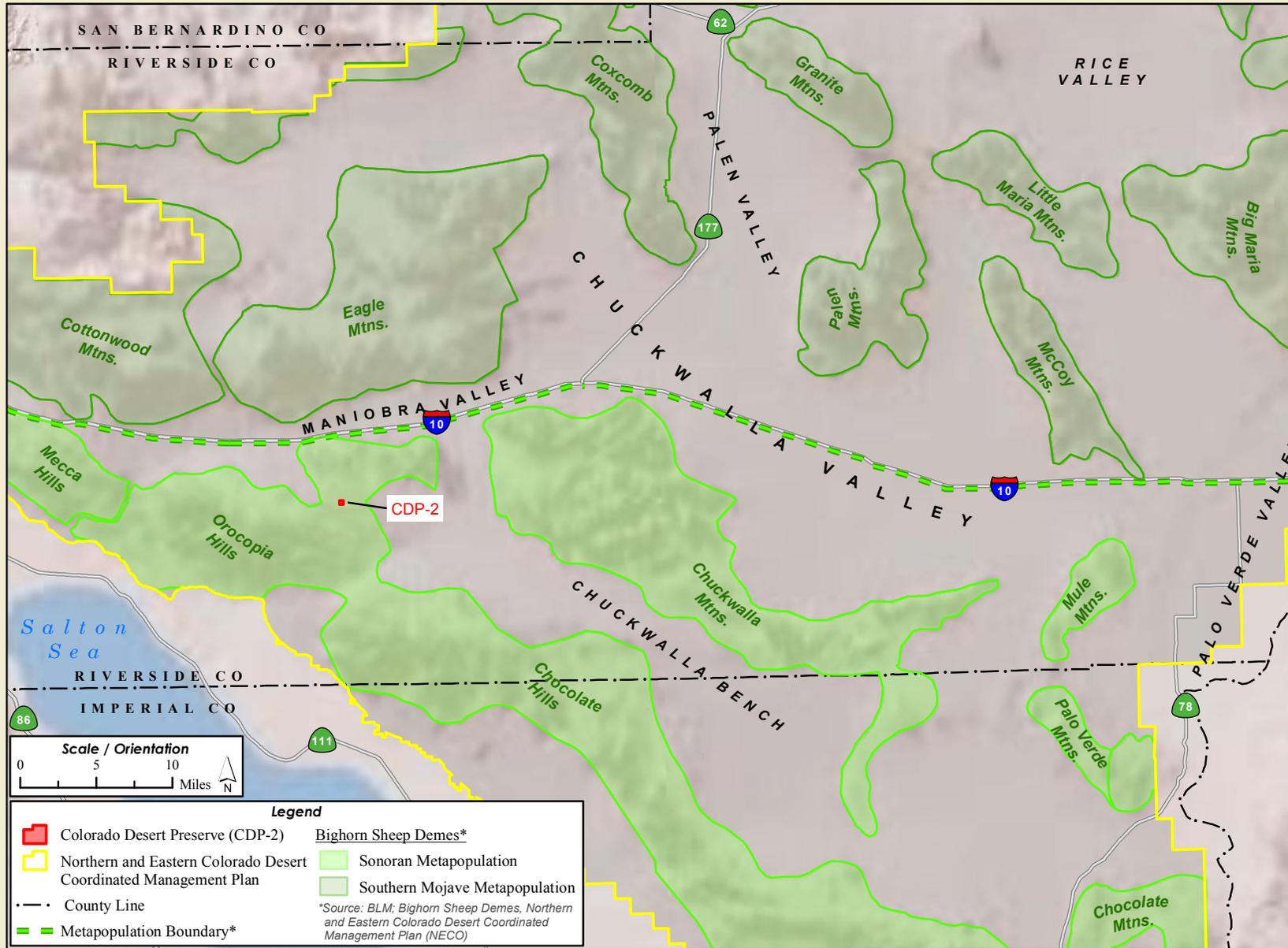


Figure 9 - Desert Bighorn Sheep Demes
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

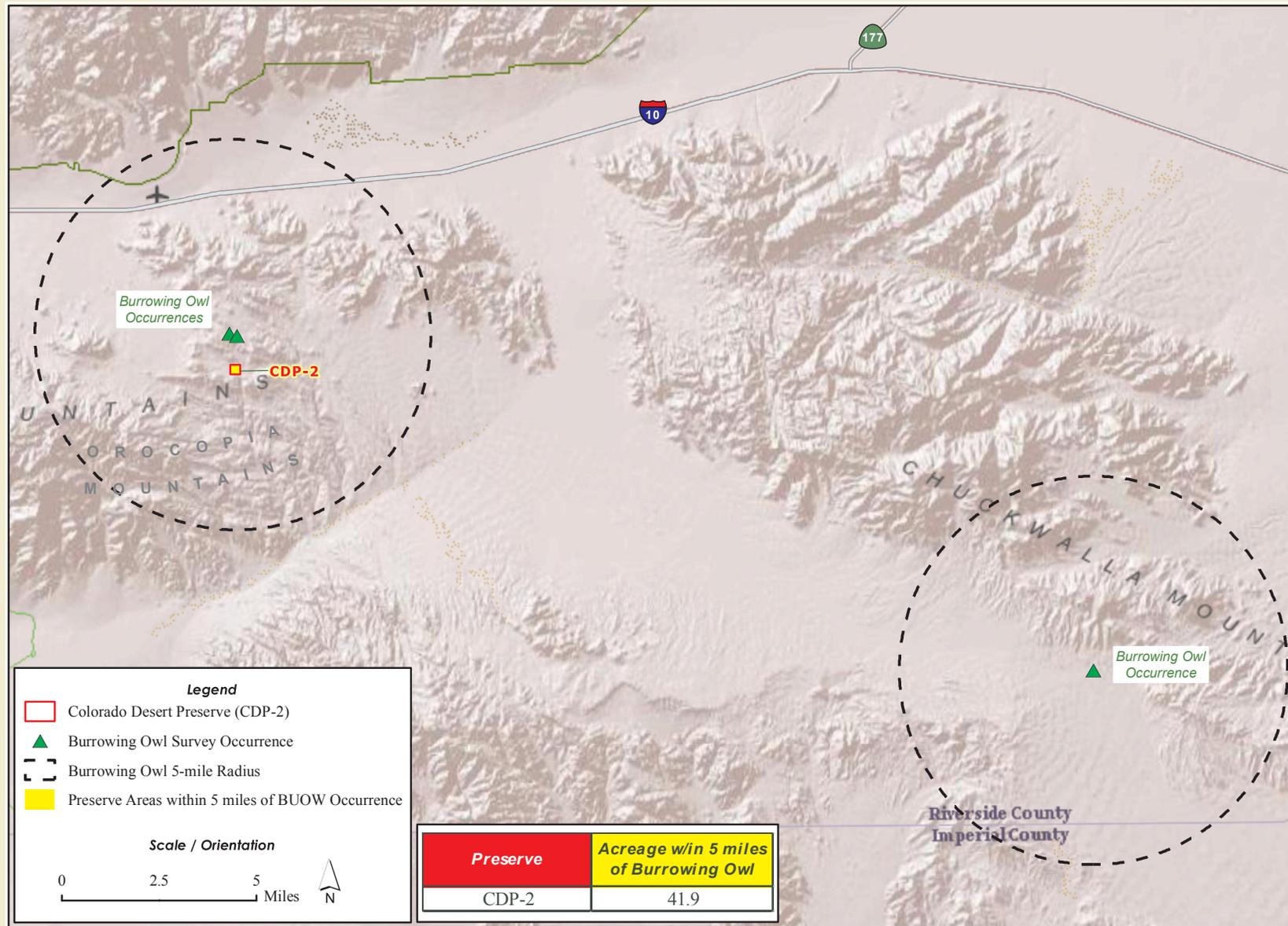


Figure 10 - Acreage of Preserve Within 5-Miles of Western Burrowing Owl Occurrence CDP-2
 Biological Resources Report - May 2011



Colorado Desert Preserve

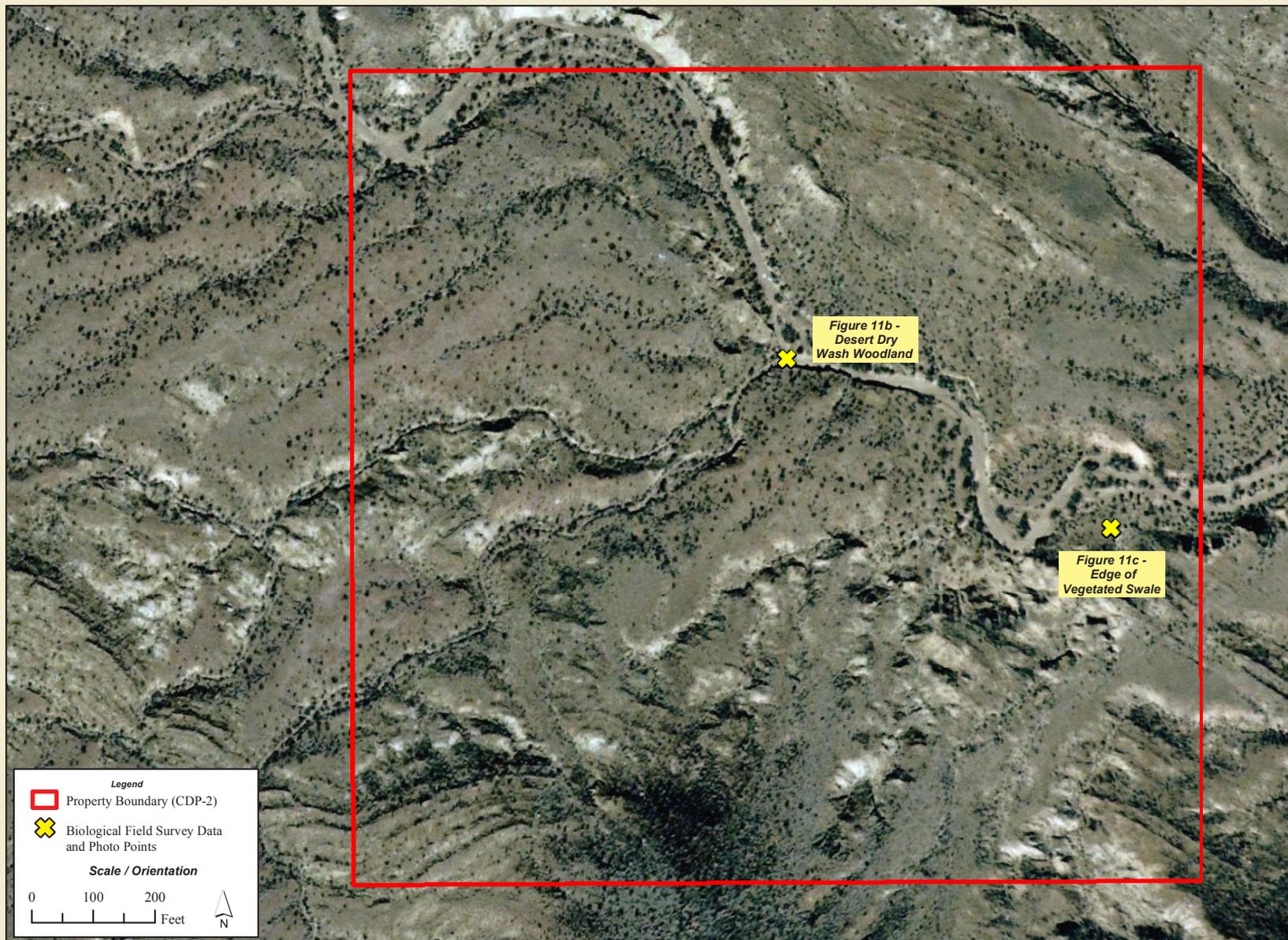


Figure 11a - Directional Photo Points
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve

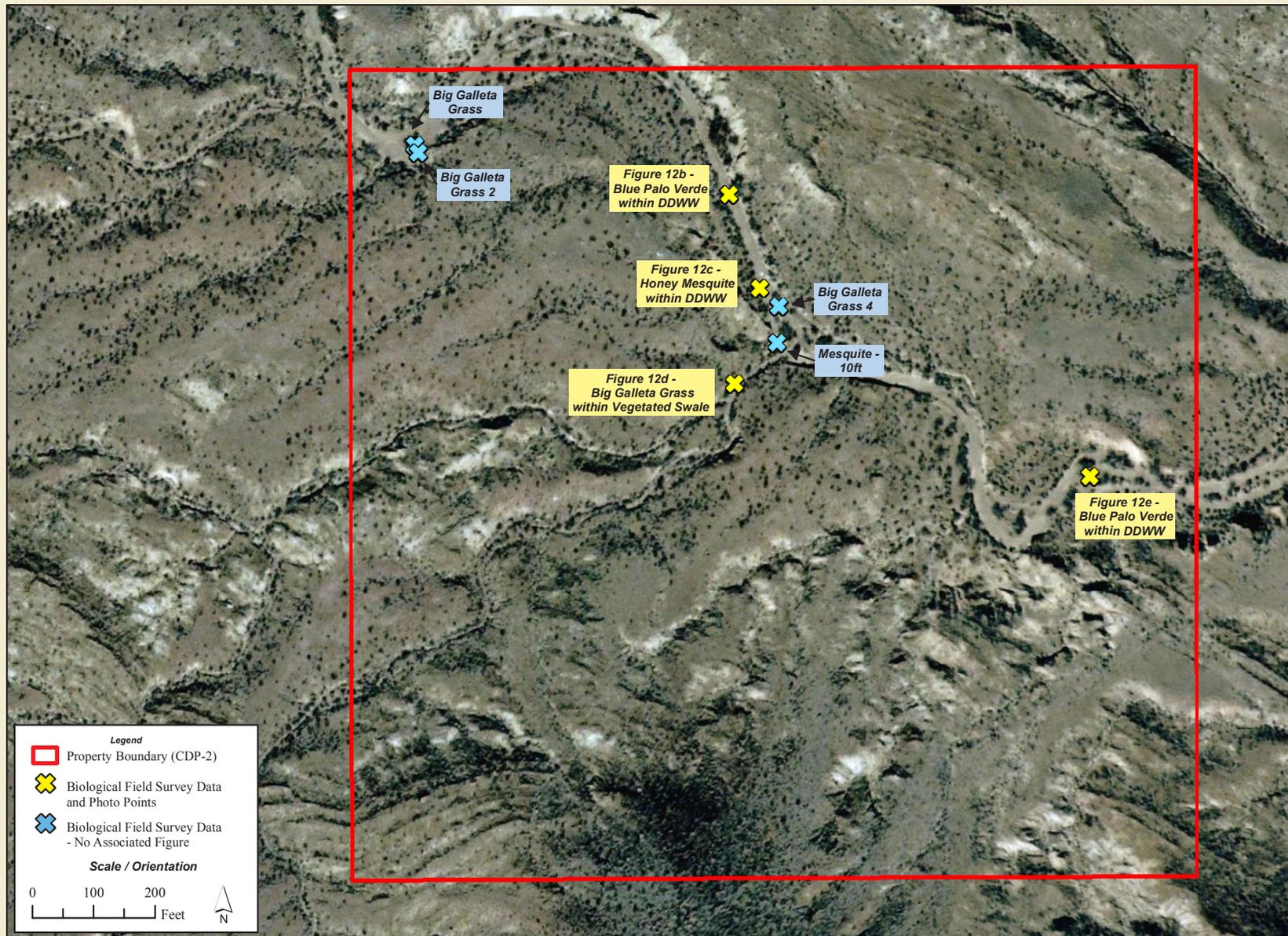


Figure 12a - Representative Vegetation and Wildlife Photos and Data
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 18ft

Figure 12b - Blue Palo Verde (*Cercidium floridum* ssp. *floridum*) within Desert Dry Wash Microphyllous Woodland
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 10ft

Figure 12c - Honey Mesquite within Desert Dry Wash Microphyllous Woodland
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve



Figure 12d - Big Galleta Grass within Vegetated Swale
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve



Height: 17.2ft

Figure 12e - Blue Palo Verde within Desert Dry Wash Microphyllous Woodland
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

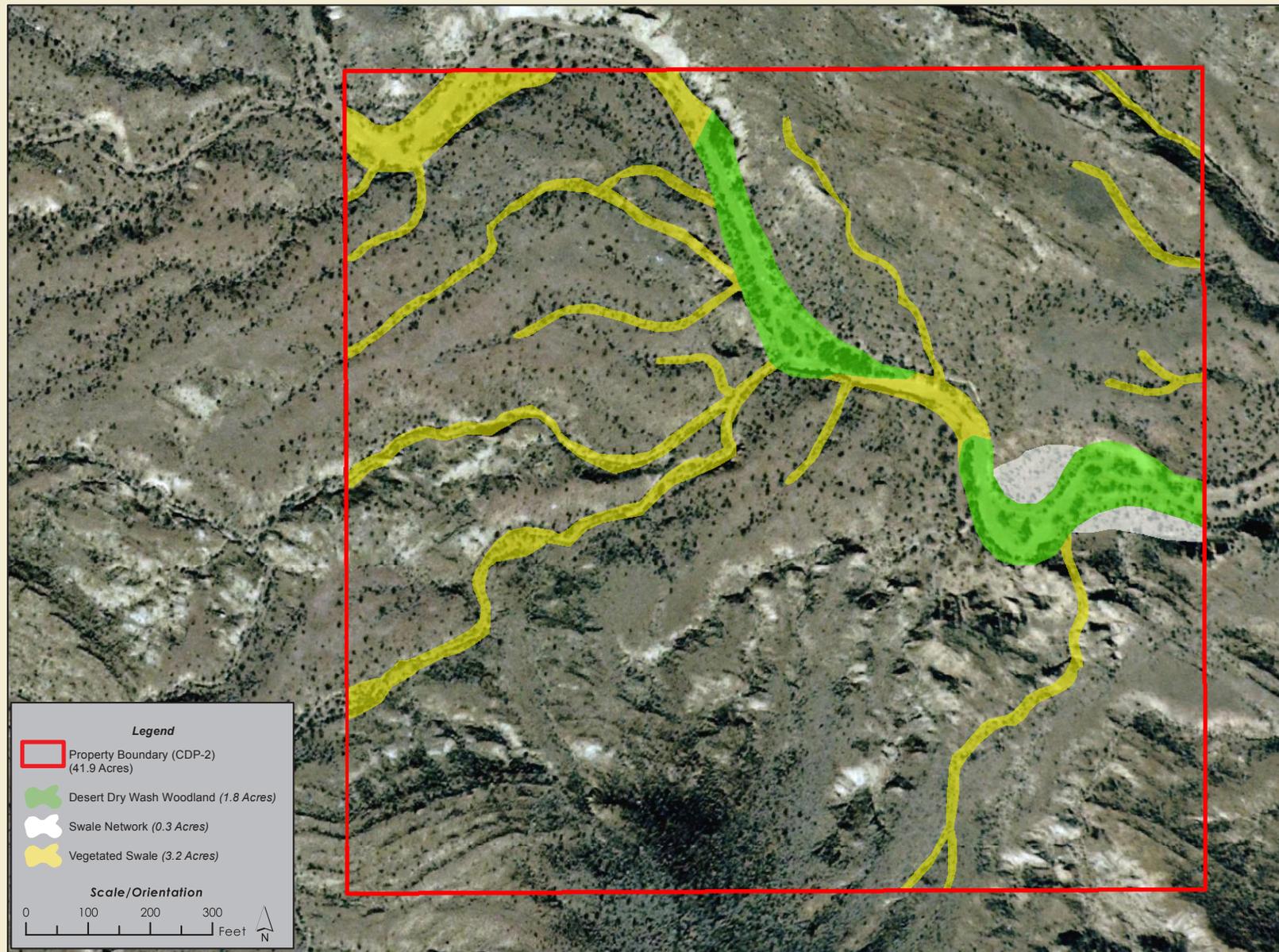


Figure 13 - Wetlands and Microphyll Woodland
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

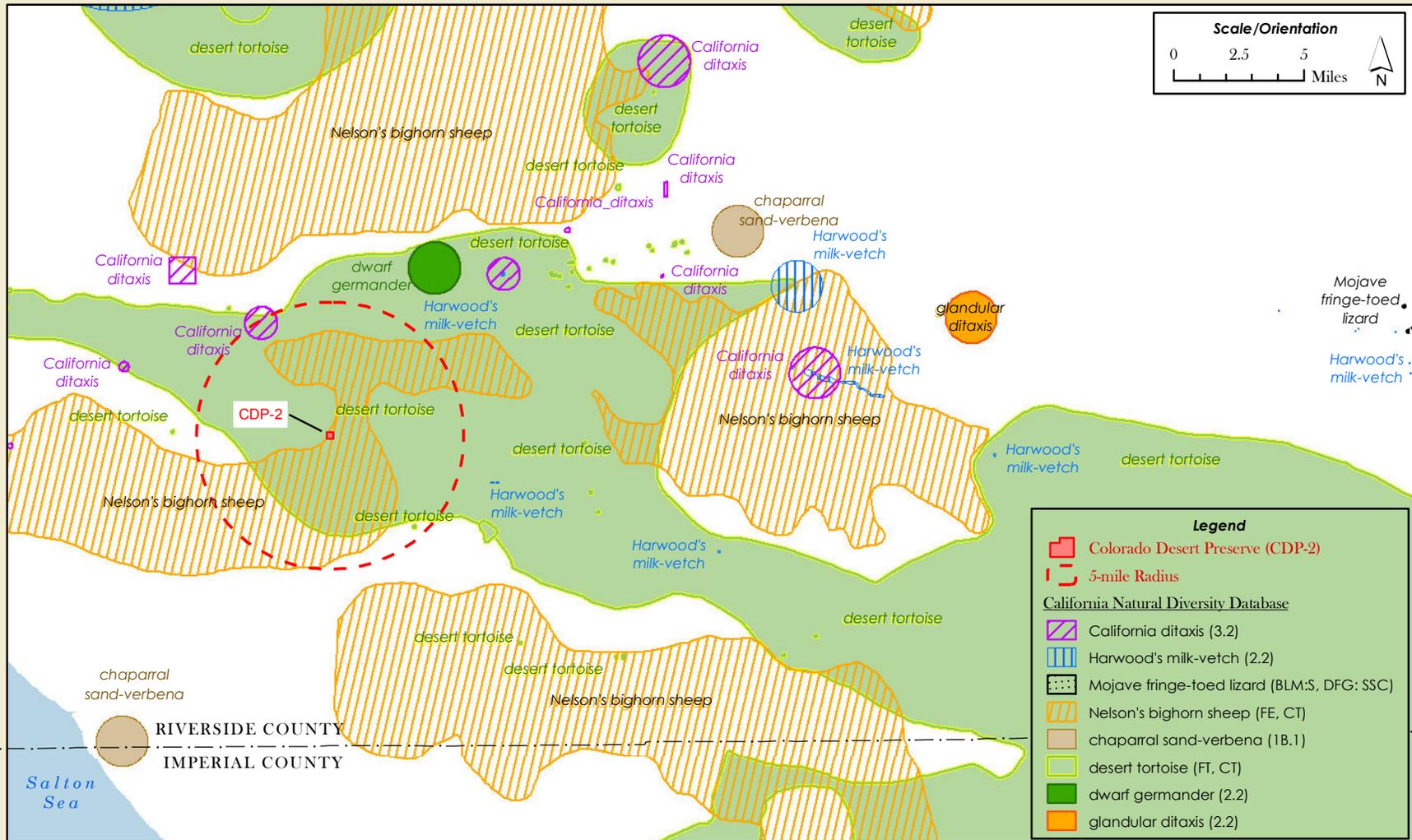


Figure 14 - CNDDDB Occurrences
CDP-2
Biological Resources Report - May 2011

Colorado Desert Preserve

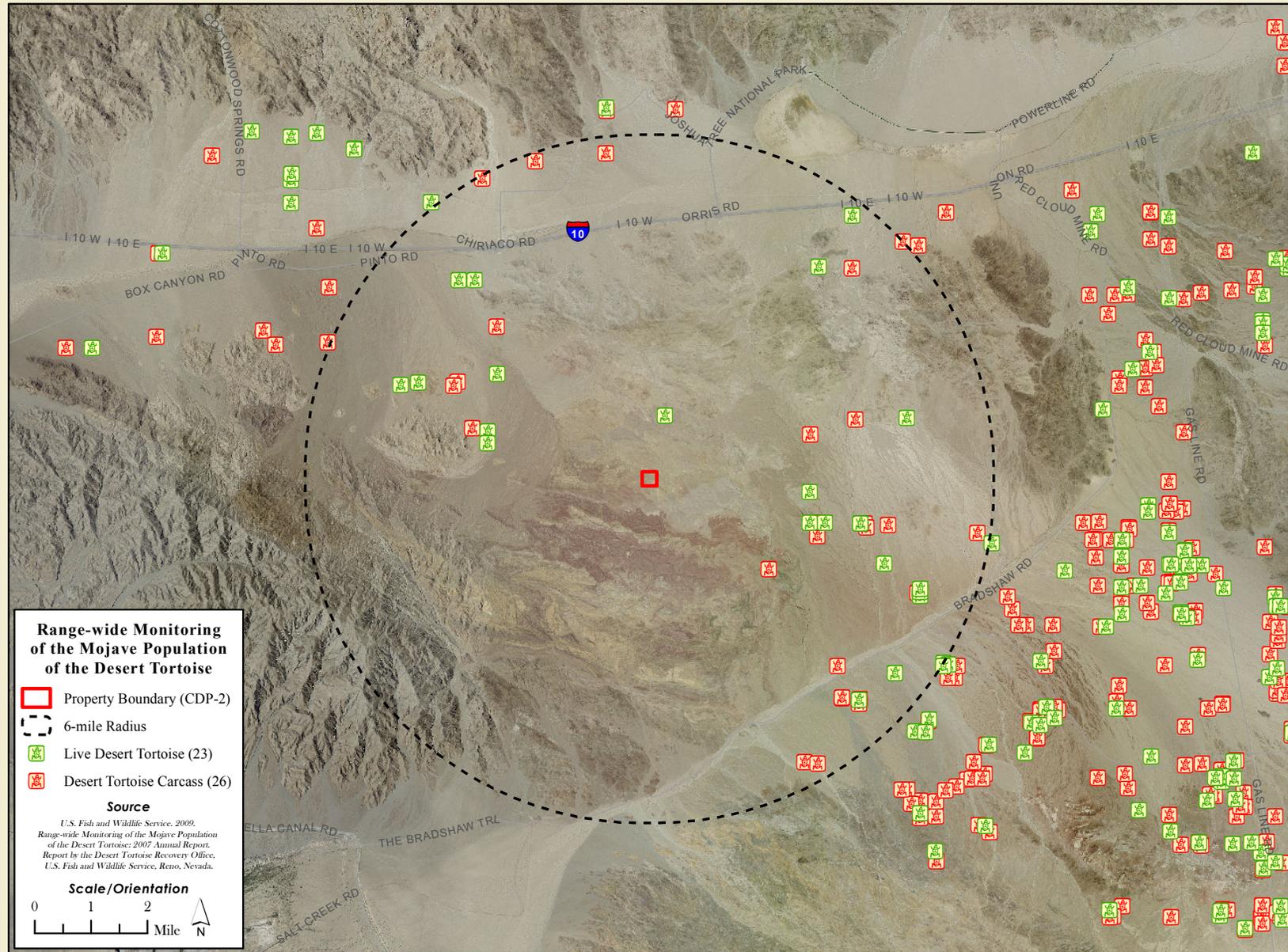


Figure 15 - Desert Tortoise LDS Survey Points
 CDP-2
 Biological Resources Report - May 2011

Exhibit A-1.3
CDP-3 Biological Resources Report



**COLORADO DESERT PRESERVE
CDP-3
EAST SALTON COMPLEX**

BIOLOGICAL RESOURCES REPORT

APN's:

**709-600-010, 709-600-012,
709-440-052, 719-280-003**

FOR THE

**GENESIS SOLAR ENERGY PROJECT
CEC DOCKET # 9-AFC-8
BLM CASE FILE No. CACA 048880**

Prepared by:

Wildlands, Inc.

3855 Atherton Road

Rocklin, CA 95765

Tel: (916) 435-3555

Fax: (916) 435-3556

Website: www.wildlandsinc.com

May 2011

TABLE OF CONTENTS

Section 1	Introduction	1
1.1	Background.....	1
1.2	Regulatory Guidance	1
1.3	Colorado Desert Preserve	2
Section 2	Parcel Information	3
2.1	Acres	3
2.2	Location	4
2.3	APN's	4
2.4	Hydrology and Topography	4
2.5	Soils	4
Section 3	Geographic Analysis to Identify Suitable Mitigation	6
3.1	Desert Renewable Energy Conservation Plan – Interim Mitigation Strategy.....	6
3.2	Watershed	7
3.3	Desert Wildlife Management Area	7
3.4	Area of Critical Environmental Concern	7
3.5	Continuity Analysis/Adjacency	8
3.5.1	Adjacency to Protected Lands	8
3.5.1.1	Wilderness Areas	8
3.5.1.2	BLM.....	9
3.5.1.3	National Parks.....	9
3.5.2	Critical Habitat.....	9
Section 4	Biological Analysis	10
4.1	Desktop Analysis and Biological Field Surveys.....	10
4.1.1	Methods and Procedures	10
4.1.1.1	Desert Tortoise Habitat Analysis.....	11
4.1.1.2	Desert Bighorn Sheep Habitat Analysis	11
4.1.1.3	Western Burrowing Owl Habitat Analysis	12
4.1.1.4	Wetlands Landforms Analysis.....	13
4.1.1.5	Biological Field Surveys.....	13
4.2	Biological Field Survey Results.....	14
4.2.1	Landforms and Plant Communities	15
4.2.1.1	Desert Dry Wash Microphyll Woodland	16
4.2.1.2	Sonoran Creosote Bush Scrub	16
4.2.1.3	Desert Wash Scrub	16
4.2.1.4	Vegetated Swales.....	17
4.2.1.5	Desert Pavement	17
4.2.2	Botanical Inventory.....	18
4.3	Acres And Quality of Habitat and Wetland Type.....	18
4.4	California Natural Diversity Database.....	18
4.5	Line Distance Sampling Data	19
4.6	Threats Analysis	19

TABLE OF CONTENTS (CONTINUED)

Section 5	Conclusion/Summary	22
5.1	Mitigation Suitability	22
Section 6	References.....	24

TABLE OF CONTENTS (CONTINUED)

List of Tables

Table 1. CDP-3 East Salton Complex Details by Sub-Area.....	3
Table 2. Habitat And Wetland Quality	18
Table 3. Threats Analysis: Management Concerns Identified During Biological Field Surveys	19
Table 4. CDP-3 ⁽¹⁾ Credit Summary	23

List of Appendices

Appendix A. Plant Species Observed on and in the Vicinity of CDP-3	
--	--

TABLE OF CONTENTS (CONTINUED)

List of Figures

- Figure 1. Location
- Figure 2. CDP-3 (East Salton Complex) Sub-Area Index
- Figure 3. Topography
- Figure 4. Soils
- Figure 5. DRECP Interim Mitigation Strategy – Mitigation Target Areas
- Figure 6. Watershed – State Hydrologic Unit
- Figure 7. Regional Conservation Analysis
- Figure 8. Regional Land Ownership and Protection Status
- Figure 9a-d. Aerial Photograph
- Figure 10. Desert Bighorn Sheep Demes
- Figure 11. Acreage of Preserve within 5 miles of Western Burrowing Owl Occurrences
- Figure 12a-f. Sub-Area 1 Directional Photo Points
- Figure 13a-c. Sub-Area 2 Directional Photo Points
- Figure 14a-d. Sub-Area 1 Representative Vegetation Photos and Data
- Figure 15a-c. Sub-Area 2 Representative Vegetation and Wildlife Photos and Data
- Figure 16. Sub-Area 3 Representative Vegetation Data
- Figure 17a-d. Wetlands and Microphyll Woodland
- Figure 18. CNDDDB Occurrences
- Figure 19. Desert Tortoise LDS Sampling Points
- Figure 20. Proposed Renewable Energy Projects

TABLE OF CONTENTS (CONTINUED)

List of Acronyms and Explanations

ACEC	Areas of Critical Environmental Concern
Agencies	BLM, CDFG, CEC, USFWS
BLM	Bureau of Land Management
BUOW	Western Burrowing Owl
Complex	CDP-3 of the Colorado Desert Preserve
CDFG	California Department of Fish and Game
CDP	Colorado Desert Preserve
CDP-3	Subject Property (APN's: 709-600-010, 709-600-012, 709-440-052, 719-280-003)
CEC	California Energy Commission
CNDDB	California Natural Diversity Database
DDWW	Desert Dry Wash Woodland
DRECP-IMS	Desert Renewable Energy Conservation Plan – Interim Mitigation Strategy
DT	Desert Tortoise
DWMA	Desert Wildlife Management Area
DWS	Desert Wash Scrub
GSEP	Genesis Solar Energy Project
LDS	Line Distance Sampling
USFWS	United States Fish and Wildlife Service
VS	Vegetated Swale
Wildlands	Wildlands California Holdings I, LLC

Section 1 Introduction

1.1 BACKGROUND

The State of California has mandated that 33% of its energy come from renewable sources by 2020 (Executive Orders S-21-09 and S-14-08). Much of this energy is expected to come from the development of utility scale solar projects in California's southeastern deserts. The Genesis Solar Energy Project (GSEP) (CEC Docket No. 09-AFC-8) is a concentrated solar thermal electric generating facility located in the Colorado Desert approximately 20 miles west of the City of Blythe, just north of Interstate 10.

1.2 REGULATORY GUIDANCE

In an attempt to comply with the mitigation requirements associated with the GSEP, Wildlands has assembled a portfolio of suitable habitats on private ground within the Colorado Desert. Wildlands utilized guidelines in the following documents to identify mitigation lands whose quality and function are of equal or better quality and function than the habitats impacted by the GSEP;

- BLM/CEC joint Staff Assessment and Environmental Impact Statement, Genesis Solar Energy Project (BLM and CEC 2010)
- BLM Plan Amendment/Final Environmental Impact Statement for the Genesis Solar Energy Project (BLM 2010)
- CEC Genesis Solar Energy Project Revised Staff Assessment (CEC 2010a)
- CEC Genesis Solar Energy Project Revised Staff Assessment Supplement (CEC 2010b)
- CEC Genesis Solar Energy Project Commission Decision (CEC 2010c)
- Genesis Solar Energy Project Biological Assessment (Tetra Tech 2010)
- USFWS Biological Opinion (USFWS 2010)
- final and draft revised desert tortoise recovery plans (USFWS 1994, 2008)

Wildlands habitat acquisition specifically targeted areas and habitat types that are appropriate to fulfill mitigation measures for permitted impacts to: desert tortoise habitat, Mojave fringe-toed lizard habitat, western burrowing owl (BUOW) habitat, as well as waters of the state including desert dry wash (microphyll) woodland.

Additional mitigation values identified and analyzed on the targeted areas include habitat for desert bighorn sheep and Couch's spadefoot toad, although no impacts to these species occurred as a result of the Genesis Solar Energy Project. These habitat types and mitigation values are described below in order to more completely describe the biological significance of the identified properties.

1.3 COLORADO DESERT PRESERVE

The approximately 2,137-acre Colorado Desert Preserve (“Preserve”) is comprised of five groups of properties (CDP-1 through CDP-5), grouped by geographic proximity, which together are being submitted for certification as suitable mitigation lands for the Genesis Solar Energy Project. Five Biological Resources Reports (one for each group of properties or “Complex”) are being submitted as part of the Colorado Desert Preserve Formal Acquisition Proposal.

The following Biological Resources Report for the approximately 190.7-acre East Salton Complex (“Complex” or “CDP-3”) will detail the biological resources contained onsite in order to prove their applicability as mitigation for the Genesis Solar Energy Project.

Section 2 Parcel Information

This biological resources report will demonstrate the suitability of CDP-3 (East Salton Complex) to provide compensation for environmental impacts within the Colorado Desert resulting from the GSEP. The habitats on CDP-3, as well as CDP-3's connectivity to other protected landscapes, make it appropriate to mitigate for impacts to species and their habitats including Mojave Desert tortoise (*Gopherus agassizii*) (DT), western burrowing owl (*Athene cunicularia hypugea*) (BUOW), desert bighorn sheep (*Ovis canadensis nelsoni*), and California jurisdictional waters including vegetated swale (VS), and desert dry wash microphyll woodland (DDWW). Habitats on CDP-3 that will be utilized by GSEP to offset permitted impacts include 190.7 acres of DT, 49.9 acres of BUOW, 15.2 acres of DDWW, and 20.5 acres of other state waters (SN and VS).

2.1 ACRES

East Salton Complex number 3 (CDP-3) consists of four individual parcels (709-600-010, 709-600-012, 709-440-052, and 719-280-003) totaling approximately 190.7 acres. These four parcels are located in the East Salton state Hydrologic Unit, just east of the Orocochia Mountains and just west of Salt Creek, on the western side of the Chuckwalla Bench (**Figure 1**). This area is an important corridor between the Chuckwalla Bench and the Maniobra Valley, two areas with high DT densities. In order to more easily describe CDP-3, it has been divided up into three Sub-Areas ranging in size from approximately 10 to 168 acres (**Figure 2**). **Table 1** identifies the Sub-Area, APN, Acreage, and coordinates for each parcel within the East Salton Complex.

Table 1. CDP-3 East Salton Complex Details by Sub-Area			
Sub-Area	APN	Coordinates of the Northwest Corner	Total Acreage
1	719-280-003	33°35'02.02"N, 115°36'00.49"W	160.7
2	709-440-052	33°36'13.64"N, 115°36'06.03"W	10
3	709-600-010	33°37'05.74"N, 115°35'03.47"W	20
	709-600-012	33°37'12.26"N, 115°35'11.25"W	
Total			190.7

2.2 LOCATION

CDP-3 is located in Riverside County approximately 5 miles south of Interstate 10, approximately 55 miles west of the city of Blythe, approximately 13 miles southwest of the town of Desert Center, and approximately 34 miles east of the city of Coachella (**Figure 1**). CDP-3 is located in the United States Geological Survey 7.5" East of Red Canyon Quadrangle (33115E5) in portions of Township 07 South, Range 13 East, Sections 2 and 11; and Township 06 South, Range 13 East, Sections 25 and 35 of the San Bernardino Meridian (**Figure 3**).

2.3 APN'S

The Assessor's Parcel Number's for CDP-3 are 709-600-010, 709-600-012, 709-440-052, and 719-280-003.

2.4 HYDROLOGY AND TOPOGRAPHY

The elevation of CDP-3 ranges from approximately 1,560 feet above mean sea level in the south (Sub-Area 1) to approximately 1,870 feet above mean sea level in the north (Sub-Area 3). The topography varies from being generally flat in Sub-Area 2 to containing significant topographic relief between the wetland channels and the adjacent uplands (Sub-Area 1) (**Figure 3**). Waters on CDP-3 are ephemeral and rainfall driven, flowing generally in a north to south direction. Numerous drainages, ranging from highly confined and channelized (Sub-Area 1) to anastomosed with bajada characteristics (Sub-Area 2) are located on CDP-3.

The annual average precipitation for CDP-3 is 3.86 inches, estimated using the University of California Integrated Pest Management Weather Station System weather station located in Blythe, approximately 55 miles east (UCIPM 2010). According to the Department of Water Resources Water Data Library Website, the depth to groundwater in the region varies considerably and has been measured between 10 and 172 feet below the ground surface (DWR 2010).

2.5 SOILS

The Natural Resources Conservation Service's U.S. General Soil Map identified one soil series within CDP-3 (**Figure 4**) (Soil Survey 2010):

- Rillito – Gunsight (s1140), 100% of CDP-3

Rillito – Gunsight (s1140)

This soil series includes soils formed in mixed alluvium. These soils include calcareous gravelly loam,

gravelly to gravelly sandy loam, and gravelly silt loam to silty clay loam. Local areas of desert pavement are found in this soil formation.

The Rillito series consists of very deep, somewhat excessively drained soils that formed in mixed alluvium. Rillito soils are on fan terraces or stream terraces. This soil series is somewhat excessively drained; slow or medium runoff; moderate permeability. Vegetation is mainly creosote bush, desert sage, cacti, mesquite, palo verde, ironwood, and annual grasses and weeds.

The Gunsight series consists of very deep, somewhat excessively drained, strongly calcareous soils that formed in alluvium from mixed sources. Gunsight soils are on fan terraces or stream terraces, somewhat excessively drained; medium runoff; moderate or moderately rapid permeability. The vegetation is creosote bush, ocotillo, palo verde, saguaro, cholla and triangle bursage.

Section 3 Geographic Analysis to Identify Suitable Mitigation

Under the guidance of the California Energy Commission (CEC), California Department of Fish and Game (CDFG), Bureau of Land Management (BLM), and United States Fish and Wildlife Service (USFWS), (collectively “Agencies”) involved in development and mitigation in the Colorado Desert, Wildlands used various geographically based filters to identify potentially suitable mitigation lands. In order to mitigate for impacts to the DT, Wildlands attempted to find suitable habitat within the Colorado Desert Recovery Unit, the Chuckwalla Desert Wildlife Management Area (DWMA), and within BLM designated Areas of Critical Environmental Concern (ACEC). Wildlands also used the California Natural Diversity Database (CNDDDB) to identify areas with known species occurrences, as well as DT critical habitat and a United States Geological Society model that utilizes statistical probability to map potential DT habitat (Nussear et al. 2009). In accordance with the CEC’s GSEP (CEC Docket Number: 09-AFC-8) Final Decision released October 12th, 2010 (publication #CEC-800-2010-011-CMF) (CEC 2010c), Wildlands identified properties in the Chuckwalla-Ford Dry Lake or surrounding watersheds as close to GSEP as possible when looking for wetland resource values. Wildlands utilized all available geographic data, interviews with desert species and habitat experts, and guidance from regulatory agencies to specifically target high priority areas that would contribute to species connectivity, corridors, and continued and improved gene flow for the overall Colorado Desert ecosystem and its species.

3.1 DESERT RENEWABLE ENERGY CONSERVATION PLAN – INTERIM MITIGATION STRATEGY

CDP-3 is located within Mitigation Target Area 6 – Coachella Valley (**Figure 5**), of the Desert Renewable Energy Conservation Plan Interim Mitigation Strategy (DRECP-IMS) (CDFG 2010). The DRECP-IMS used a multi-agency/Non-Governmental Organization collaborative approach, coupled with GIS analysis to identify areas with high quality habitat and that may have parcels available for acquisition. Mitigation Target Area 6 – Coachella Valley is described by the DRECP-IMS as:

Area 6 includes portions of the Coachella Valley Multi-Species Conservation Plan area in Central Riverside County and the margins of the Salton Sea. Acquisition in this area would help to maintain habitat connectivity along the east and west sides of the Valley. This area includes desert tortoise critical habitat, active bighorn sheep range, California Essential Connectivity Areas, Peninsular bighorn sheep final revised critical habitat, Coachella Valley fringe-toed lizard final critical habitat, and arroyo toad final critical habitat. The area also supports desert pupfish, BUOW, American badger, shorebirds and waterfowl, and dune systems. Acquisition in this area would connect BLM protected areas including Wildlife Habitat Management Areas for bighorn sheep and dry wash woodlands, as well as the Big Morongo Canyon ACEC, Chuckwalla DWMA, Dos Palos ACEC, and Whitewater Canyon ACEC.

3.2 WATERSHED

CDP-3 is located in the State's East Salton Hydrologic Unit (**Figure 6**) and in the federally recognized 18100204-Salton Sea eight-digit Hydrologic Unit Code.

3.3 DESERT WIDLIFE MANAGEMENT AREA

Following the federal listing of the DT as threatened in 1990, a Desert Tortoise Recovery Team (Recovery Team) was selected to develop a plan for recovery of the DT. Drawing from concepts in the federal Endangered Species Act, the Recovery Team identified six DT recovery units using published and unpublished data on genetic variability, morphology, and behavior patterns of populations as well as ecosystem types. The six DT recovery unit boundaries represent major ecosystem boundaries. Within the recovery units the Recovery Team recommended the establishment of 14 reserves or DWMA (Berry 1997). DWMA are general areas recommended by the 1994 Recovery Plan within which recovery efforts for the DT would be concentrated. DWMA had no specific legal boundaries in the 1994 Recovery Plan (USFWS 1994). The BLM formalized the general DWMA from the 1994 Recovery Plan through its planning process and administers them as Areas of Critical Environmental Concern (USFWS 2008), and feature a 1 percent surface disturbance limit (BLM 2002). Although the 1 percent surface disturbance limit is intended to incentivize projects being located outside of DWMA, it does specifically allow for development.

DWMA are an administrative area within the recovery unit, which is managed such that resource-level protection is afforded DT populations while maintaining and protecting other sensitive species and ecosystem functions (e.g., watersheds) (USFWS 1994). Establishment of recovery units and DWMA was intended, in part, to facilitate an ecosystem approach to land management and desert tortoise recovery, as stipulated by section 2(b) of the Endangered Species Act (USFWS 2008).

Because the threat of development within areas identified for protection is a real possibility, it is important that private potentially developable land within DWMA be placed under permanent protection. CDP-3 is located within the Colorado Desert DT recovery unit and the Chuckwalla DWMA (**Figure 7**).

3.4 AREA OF CRITICAL ENVIRONMENTAL CONCERN

ACEC is an administrative designation made by the BLM through a land use plan. This designation is unique to BLM in that no other agency uses this form of designation. Private lands and lands administered by other agencies may be located within the boundaries of an ACEC, but are not subject to the prescribed management of the ACEC. As a result, it is of significant importance to protect privately-owned lands within an ACEC because conservation of these lands contributes towards a more comprehensive, regional natural resource management regime. Congress mandated the designation of ACEC through the Federal Land Policy and Management Act to manage areas containing unique and significant resource values. An ACEC is a designation that highlights areas where special management attention is needed to protect and prevent irreparable damage to important historic, cultural and scenic

values; fish, wildlife resources or other natural systems or processes; or to protect human life and safety from natural hazards. The designation is a record of significant values that must be accommodated when BLM considers future management actions and land use proposals. CDP-3 is located in the BLM designated Chuckwalla ACEC (**Figure 7**).

3.5 CONTINUITY ANALYSIS/ADJACENCY

In addition to the location criteria specified above, lands having connectivity to larger blocks of lands that are already protected or planned for protection were prioritized. Lands adjacent to BLM properties or other federally protected lands were specifically targeted. This connectivity is essential due to the fractured nature of private land ownership in the area. The conservation value of a site is enhanced by its connectivity to other high quality habitats and its contributory value as a linkage corridor to similarly protected sites.

3.5.1 Adjacency to Protected Lands

CDP-3 is located in a remote area and is contiguous with a broad expanse of similar habitat. Permanent protection of CDP-3 will contribute towards:

- connectivity between two protected Wilderness Areas,
- consolidation of ownership and control by conservation organizations of protected habitat within the Chuckwalla DWMA,
- consolidation of ownership and control by conservation organizations of protected habitat within the Chuckwalla critical habitat unit for DT, and
- consolidation of ownership and control by conservation organizations of protected habitat within BLM designated ACEC.

Sub-Area 1 is contiguous with BLM owned and managed ground on all sides except the east and is in close proximity with the Chocolate Mountain Aerial Gunnery Range, a large expanse of mostly undeveloped habitat with prohibited public access. Sub-Area 2 is approximately 500 feet east of BLM owned and managed ground, and Sub-Area 3 is approximately 850 feet north of BLM owned and managed ground (**Figure 8**).

3.5.1.1 Wilderness Areas

In 1964 congress enacted The Wilderness Act, which identified individual Wilderness Areas that make up a nationwide Wilderness System. Wilderness Areas serve multiple uses, but the Wilderness Act mandates that each Wilderness Area be administered to preserve the “wilderness character of the area.” Wilderness Areas protect watersheds and clean-water supplies vital to downstream municipalities and agriculture, as well as habitats supporting diverse wildlife, including endangered species. Activities such as logging and oil and gas drilling are prohibited in designated Wilderness Areas. Within the Northern and Eastern Colorado Desert Planning Area there are twenty-three BLM designated Wilderness Areas totaling 1,621,109 acres (BLM 2002).

CDP-3 is located in an important corridor between the Orocopia Mountains Wilderness and the Chuckwalla Mountains Wilderness Area, and contributes towards connectivity between these protected areas. CDP-3 is located approximately 2 miles east of the Orocopia Mountains Wilderness Area, and approximately 4.5 miles west of the Chuckwalla Mountains Wilderness Area. The protection of CDP-3 will add to the protected corridor of undeveloped habitat that connects these two Wilderness Areas and the Chocolate Mountain Gunnery Range (**Figure 8**).

3.5.1.2 BLM

Sub-Area 1 of CDP-3 is contiguous with BLM owned and managed land on all sides except the east (**Figure 8**). CDP-3 is also located within the BLM designated Chuckwalla DWMA and ACEC (**Figure 7**).

3.5.1.3 National Parks

CDP-3 is located approximately 6 miles south of the Joshua Tree National Park, and will contribute towards habitat connectivity in the region. (**Figure 7**).

3.5.2 Critical Habitat

On February 8th, 1994, the USFWS designated 6.4 million acres of critical habitat in California, Nevada, Utah, and Arizona for the Mojave population of DT (USFWS 1994, 2008). Critical habitat consists of legally defined areas that are essential for the conservation of the DT that support physical and biological features essential for DT survival, and that may require special management considerations or protection (USFWS 2008).

Properties that could provide habitat connectivity and build linkages between DT critical habitat and known populations of DT were targeted. CDP-3 is located within the Chuckwalla critical habitat unit for DT (**Figure 6**).

Section 4 Biological Analysis

4.1 DESKTOP ANALYSIS AND BIOLOGICAL FIELD SURVEYS

After identifying properties that fit the identified geographical criteria, a thorough aerial photography/satellite imagery analysis was conducted to preliminarily identify landforms, plant communities, and habitats on CDP-3, and any potential existing or future threats to the quality and long-term sustainability of CDP-3 as a preserve. Landforms are geographic features of the earth defined by topographic relief, geology, and hydrologic connectivity. A plant community is a recognizable and complex assemblage of plant species which interact with each other as well as with the elements of their environment and is distinct from adjacent plant communities. A habitat is an ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism. **Figures 9a-d** show aerial photographs of CDP-3. Following this preliminary desktop analysis, Wildlands conducted biological field surveys. The goals of the surveys were to:

- assess habitat quality for species of interest including DT, bighorn sheep, BUOW, Couch's spadefoot toad,
- delineate and ground truth desktop delineated landforms (including jurisdictional and non-jurisdictional wetlands) and plant communities, and
- identify potential threats onsite or in the vicinity.

Surveys were conducted on foot, by truck, and via helicopter on August 3rd, 4th, 31st, September 1st, 2nd, November 2nd, 2010, and January 11th-14th, 17th-20th, 2011. Surveys conducted on August 3rd and 4th utilized a helicopter as transportation so the surveying biologists could quickly and efficiently travel to and throughout the area as well as evaluate and identify potential threats and management issues from an aerial vantage point. All other surveys were conducted using a four-wheel-drive vehicle on approved roads and trails to get as close to CDP-3 as possible before hiking on foot.

4.1.1 Methods and Procedures

Wildlands conducted thorough DT, desert bighorn sheep, BUOW, and wetlands specific analyses of CDP-3 prior to conducting biological field surveys. These analyses were conducted with input and guidance from experts in the fields of DT ecology, desert wetland delineations, and general desert ecology. Habitat quality for each species of interest as well as for the wetlands and plant communities was preliminarily assessed using a general qualitative value (low, moderate or high), which was then verified and modified as necessary during biological field visits. For the wildlife species of interest, a general qualitative value of "low" indicates that the Property is not likely to support the species. A general qualitative value of "medium" indicates that the Property has the potential to support the species. A general qualitative value of "high" indicates that species use of the Property was verified, or that based on observed habitat characteristics it is highly likely that the Property supports the species. For the wetlands and plant communities, the criteria used to assign a general qualitative value is described in section 4.1.1.4.

4.1.1.1 Desert Tortoise Habitat Analysis

An analysis of DT habitat extent and quality was conducted by layering existing geographic data sets on to aerial photography/satellite imagery in order to assess the suitability of the habitats onsite as DT habitat. The preliminary desktop general qualitative values (low, moderate, high) for DT were based in part on:

- ability to provide connectivity corridors for species movement and gene flow,
- location within the Chuckwalla DWMA,
- proximity and similarity to known areas that support existing DT populations,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

Based on the preliminary desktop habitat analysis, the results of the biological field surveys that documented DT scat, DT burrow, and one DT carcass (see section 4.2), the CNDDDB (see section 4.4), and USFWS Line Distance Sampling (see section 4.5), the Property was assigned the general qualitative value of “High” for DT habitat.

4.1.1.2 Desert Bighorn Sheep Habitat Analysis

The analysis of CDP-3’s suitability as habitat for desert bighorn sheep used aerial photography/satellite imagery.

Nelson bighorns (also called desert bighorn sheep) occur in desert mountain ranges from the White Mountains of Mono and Inyo Counties, south to the San Bernardino Mountains, southeastward to the Mexican border. Habitats used include alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian (Monson and Sumner 1980).

CDP-3 is located within the bighorn sheep Sonoran metapopulation, adjacent to the toe slope of the Orocopia/Chocolate Mountains. Sub-Areas 1 and 2 are located approximately 1.5 miles east of the Orocopia Hills/Chocolate Mountains bighorn sheep deme (small, isolated subpopulations), and Sub-Area 3 is immediately adjacent to this deme on the southwest. CDP-3 contains important spring foraging ground for the Orocopia Hills/Chocolate Mountains bighorn sheep deme (**Figure 10**). The spring green-up that occurs on CDP-3 supplies important nutrients during the lambing season.

Telemetry studies in desert habitats have recorded more intermountain movement by desert bighorn sheep than was previously thought to occur. As a result, nontraditional habitat connecting mountainous habitats are considered important dispersal corridors for male desert bighorn sheep as they leave occupied mountainous territories in search of unoccupied mountainous territories. Bighorn sheep move between demes, resulting in gene flow, and provide opportunities for recolonization of vacant or formerly occupied areas. These movements between demes are considered vital to the maintenance of genetic variability necessary to sustain a metapopulation (Bleich et al. 1990, Schwartz et al. 1986) and facilitate the recolonization of extirpated demes. CDP-3 is located in an important corridor between the Chuckwalla Mountains bighorn sheep deme and the Chocolate Mountains bighorn sheep deme (**Figure 10**). The entire CDP-3 supplies this important corridor habitat whose protection is essential for the long-

term survival of the desert bighorn sheep so that they do not become “mountain islands within desert seas” (Bleich et al. 1990).

The desert bighorn sheep preliminary desktop general qualitative value of high was based predominantly on:

- ability to provide connectivity corridors for species movement and gene flow,
- adjacency to DEME,
- proximity and similarity to known areas that support existing desert bighorn sheep populations,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

While the Property does protect important bighorn sheep spring foraging and connectivity corridor habitat, the GSEP does not have impacts or mitigation requirements associated with desert bighorn sheep. Therefore these habitat values are not being used to serve as mitigation, cannot and will not be reserved or transferred to a different project and are being described only for informational purposes.

4.1.1.3 Western Burrowing Owl Habitat Analysis

The western burrowing owl (*Athene cunicularia*) (BUOW) is a wide ranging California Species of Special Concern that can be found throughout the majority of the State (Shuford et al 2008). Burrowing Owls occur across most of the Mojave and Colorado deserts of Inyo, eastern Kern, northern Los Angeles, San Bernardino, eastern Riverside, eastern San Diego, and Imperial counties (Miller 2003). In desert systems such as the Colorado Desert, regional numbers are low and occupied areas are widely scattered. Higher densities of BUOW are found on private lands where they benefit from anthropogenic changes in the landscape including farmland, ditches, canal banks, road crossings, and other altered landscapes (DeSante et al. 2004). The main indicator of suitable BUOW habitat is the presence of burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs and taller vegetation (Green and Anthony 1989, Haug et al. 1993). Nest and roost burrows of the Burrowing Owl in California are most commonly dug by ground squirrels (e.g., *Spermophilus beecheyi*; Trulio 1997), but they may use badger (*Taxidea taxus*), coyote (*Canis latrans*), and fox (e.g., San Joaquin Kit Fox, *Vulpes macrotis mutica*) dens or holes (Ronan 2002). The diet of Burrowing Owls in California includes a broad array of arthropods (centipedes, spiders, beetles, crickets, and grasshoppers), small rodents, birds, amphibians, reptiles, and carrion (Thompson and Anderson 1988, Green et al. 1993, Plumpton and Lutz 1993, Gervais et al. 2000, York et al. 2002). Although insects dominate the diet numerically, vertebrates account for the majority of biomass in some regions (Green et al. 1993).

Properties were characterized as containing suitable BUOW habitat that contained the elements necessary to support populations of BUOW including:

- Soils suitable to contains burrows
- The existence of burrows suitable to support burrowing owls
- The observation of fossorial animals
- The observation of typical prey species (i.e. arthropods, mammals, reptiles)
- Appropriate vegetation (i.e. short vegetation with sparse shrubs and trees)

Two BUOW occurrences were positively identified approximately 4.3 miles west of the northwestern corner of Sub-Area 2. The general qualitative value of high was based on the fact that approximately 49.9 acres of the Property is located within 5 miles (estimated dispersal distance) of these documented occurrences (**Figure 11**).

4.1.1.4 Wetlands Landforms Analysis

The analysis of waters of the State used aerial photography/satellite imagery to assess the presence and extent of wetland landforms on CDP-3. Two wetland types were identified including vegetated swales (VS), and desert washes.

The preliminary desktop general qualitative values (low, moderate, high) for wetlands were based in part on:

- species composition and structure including the presence of desert dry wash (microphyll) woodland (DDWW) (Holland Code 62200) (Holland 1986),
- hydrologic connectivity,
- ability to provide habitat for Colorado Desert flora and fauna,
- the distance from major human-related disturbances,
- overall quality and suitability of the habitat, and
- proximity to protected lands.

A description of the wetlands and landforms found on the Property, including the general qualitative value and the results of the biological field surveys, can be found in section 4.2.1.

4.1.1.5 Biological Field Surveys

Biological field surveys were conducted to ground truth the extensive photo-interpretation. Field surveys utilized the expertise of numerous experts in Colorado Desert ecology including consultants with expertise in DT ecology, desert wetland delineations, and desert botanical inventories.

During biological field surveys, CDP-3 was evaluated based on its vegetative diversity and density, location and topography. The results from the biological field survey evaluation, in conjunction with the preliminary desktop analyses, were used to determine a final ranking of species habitat, plant community, and wetland as high, moderate, or low. Proximity to known occurrences of sensitive species was taken into consideration in the ranking of CDP-3 for habitat suitability (see section 4.4 CNDDDB, and section 4.5 Line Distance Sampling). Plant community, species composition and structure, and wash-dependent vegetation density were taken into consideration in the ranking of the Complex's wetlands. The vegetation, soils, and topography on CDP-3 was photographed and directional photo points (one at each cardinal direction) were taken to document the species occurrences and habitats found onsite (**Figures 12a, 13a, 14a, 15, 16**). In order to accurately delineate habitats, plant communities and waters of the state; a desert ecologist and wetland specialist used large regional maps, site specific 11x17 aerial photographs, photo-documentation, and GPS to identify the type, quality, and extent of the different habitat and wetland types on CDP-3. Each plant community was described and verified during biological field surveys by identifying the dominant perennial vegetation. Plant communities were named using guidelines described in *California Vegetation* (Holland and Keil 1995). Within each Sub-Area, areas containing tree species were identified as DDWW using guidelines established by the "Holland Code"

(Holland 1986) and *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009). Plant nomenclature was taken from *The Jepson Desert Manual* (Baldwin et al. 2002). This information facilitated the complete delineation of the habitat and landform types, with a special emphasis on wetlands, on CDP-3 (**Figure 17a-d**). Human impacts, invasive species and other potential threats to sensitive species being considered were investigated and recorded. A summary of the threats to the habitat can be found in section 4.6 below.

4.2 BIOLOGICAL FIELD SURVEY RESULTS

Seven directional photo points (one photo in each cardinal direction) were established on CDP-3 to visually demonstrate the variability in species composition and vertical and horizontal structure of the landforms and plant communities throughout CDP-3 (**Figures 12a, 13a**). Five directional photo points were taken on Sub-Area 1 including (**Figure 12a**);

- DDWW (**Figure 12b**),
- VS (**Figure 12c**),
- Creosote Scrub (**Figures 12d, 12f**), and
- Non-Wetland Channel (**Figure 12e**).

Two directional photo points were taken on Sub-Area 2 including (**Figure 13a**);

- Creosote Scrub (**Figure 13b**) and
- VS (**Figure 13c**).

In order to document the plant communities on CDP-3, representative photos were taken that identified plant species of interest, the dominant perennial vegetation, and/or examples of the overstory dominant trees or shrubs used in the determination of plant community. Photos were also taken to document incidental observations of wildlife. Photos taken on Sub-Area 1 (**Figure 14a**) documented the presence of:

- DT Burrow and DT Scat (**Figure 14b**),
- Ironwood (*Olneya tesota*) within DDWW (**Figure 14c**), and
- Blue Palo Verde (*Cercidium floridum*) within DDWW (**Figure 14d**).

Photos taken on Sub-Area 2 documented the presence of (**Figure 15a**):

- Ironwood (*Olneya tesota*) within VS (**Figure 15b**) and
- DT Carapace (**Figure 15c**).

During biological surveys of CDP-3, GIS data points were taken in order to ground truth the landforms and habitats, as well as to document any other important species information. This data does not correspond to a particular photo, but was collected for reference and geographic documentation of CDP-3.

Biological data collected on Sub-Area 1 includes (**Figure 13a**):

- Smoke Tree (*Psoralea argophylla*) – 6ft,
- Acacia Tree/Shrub (*Senegalia greggii*) – 6ft, and
- Big Galleta Grass (*Pleuraphis rigida*).

Biological data collected on Sub-Area 2 includes (**Figure 15a**):

- Ironwood (*Olneya tesota*) – 17ft and 14ft.

Biological data collected on Sub-Area 3 includes (**Figure 16**):

- Kangaroo Rat Complex in DDWW,
- Confluence of two DDWW channels,
- Canid Burrow with Fox-sized Scat within DDWW, and
- Desert Pavement/Creosote Scrub.

4.2.1 Landforms and Plant Communities

The landforms identified on CDP-3 can be grouped into two distinct categories; uplands and wetlands. Uplands identified on CDP-3 include vegetated areas mostly containing the plant community Sonoran Creosote Bush Scrub (Holland Code 33100); and desert pavement, an unvegetated geologic landform characterized by closely packed, interlocking angular or rounded rock fragments of pebble and cobble size. The wetland landforms identified on CDP-3 include VS and washes. Plant communities identified on the wetland landforms include DDWW (Holland Code 62200), and an undescribed plant community referred to as desert wash scrub (DWS); with scattered amounts of Sonoran Creosote Scrub. The wetlands on CDP-3 contain runoff from the Orocopia mountains that eventually flow south into Salt Creek. **Figure 17a** shows the index map of delineations conducted on CDP-3 by Sub-Area.

The jurisdictional limits of the DDWW were considered, recorded, and mapped for areas within all washes and wash features where the association of wash-dependent vegetation was present and/or other upland habitat types (Sonoran Creosote bush scrub, desert pavement) was not established at more than 5 percent absolute cover. Jurisdictional lateral extents of the non-DDWW washes and VS were determined by the farthest extents of the respective established channel bed and banks (including shelving and scouring) of each subchannel. When the established channel bed and banks began to transition into less distinct features, such as features that only support sheet flow, and/or features that began to blend into the landscape and or reflect the features of a swale or relictual channel, the jurisdictional linear extent(s) of the feature(s) was determined to have ceased.

Sub-Area 1 (**Figure 17b**) contains well developed DDWW channel that flows from north to south and begins towards the northern boundary of the Sub-Area 1. Another smaller DDWW channel clips the southwestern corner of the Sub-Area. These DDWW channels are surrounded by relatively steep banks that rise until reaching the convexed ridge-top upland areas containing mostly Creosote bush scrub with relatively sparse desert pavement. Numerous smaller channels throughout CDP-3 contain vegetated swales that intermittently flow into the larger DDWW.

Sub-Area 2 (**Figure 16c**) is located approximately 1 mile from the toe slope of the Orocopia Mountains at the downstream end of a bajada where numerous anastomosed washes begin to combine before further developing into more defined channels in lower elevations. As the VS wetlands flow onto Sub-Area 2 from northwest to southeast, they begin to develop into well developed concomitant braided washes. The upland interfluves have a convex topography and are mostly composed of desert pavement and Sonoran Creosote Bush Scrub.

The northern portion of Sub-Area 3 (**Figure 16d**) contains the confluence of two channels containing DDWW. These two DDWW channels come together to form one large, more developed DDWW, which continues to flow southeast through Sub-Area 3. Large vegetated swales are also located onsite, and these are either confined channels or a well developed concomitant swale network that flows into the DDWW.

The upland interfluves have a convex topography and are mostly composed of desert pavement and Sonoran Creosote Bush Scrub.

Plant communities and landform types are described in detail below.

4.2.1.1 Desert Dry Wash Microphyll Woodland

DDWW (Holland Code 62200) is an open to dense, drought-deciduous, microphyllous riparian thorn scrub woodland dominated by any of several fabaceous trees. DDWW is distributed along the larger drainages of the lower Mojave Desert and more generally through the Colorado Desert. Site factors for DDWW include sandy or gravelly washes and arroyos, largely in frost-free areas. These washes typically have braided channels that substantially rearrange with every surface flow event. DDWW is typically an open vegetation community; however, canopy development and density are variable and may depend on water supply (Holland 1986, CDFG 1988).

The DDWW on CDP-3 is dominated by an open overstory of ironwood (*Olnea tesota*), blue palo verde (*Cercidium floridium ssp. floridium*), and smoke tree (*Psorothamnus spinosus*); with a scattered understory of burrowbrush (*Hymenoclea salsola*), desert lavender (*Hyptis emoryi*), and Ephedra (*Ephedra ssp.*). DDWW is more developed in the major washes where channel development is most pronounced and water supply more abundant from the increased elevational landscape to the north and west (**Figure 17a-d**).

4.2.1.2 Sonoran Creosote Bush Scrub

Sonoran Creosote Bush Scrub (Holland Code 33100) is a shrub dominated habitat composed of .05-3 m tall, widely spaced shrubs, usually with bare ground in-between. This habitat is very similar in appearance to Mojave Creosote Bush Scrub (Holland Code 44110), but with greater species and life form diversity including several succulents. Growth occurs from winter to early spring (or rarely at other seasons) if rainfall is sufficient. Shrubs may be dormant for long periods. Many species of ephemeral herbs may flower in late February and March (earlier than in Mojave Creosote Bush Scrub) if the winter rains are sufficient. This is the basic creosote scrub of the Colorado Desert. This habitat type is found in the well-drained secondary soils of slopes, fans and valleys rather than upland sites with thin residual soils or sites with high soil salinity. Winter temperatures are seldom below freezing.

Sonoran creosote bush scrub is the dominant upland habitat type throughout CDP-3. Because of steeper banks in Sub-Area 1, the Sonoran creosote bush scrub extends from the hilltops all the way down to the easily delineated bank of the wetlands. As CDP-3 becomes less topographically variable in the northern areas (Sub-Areas 2 and 3) (**Figure 17c-d**), wetlands begin to transition from highly channelized to more concomitant and anastomosed washes.

4.2.1.3 Desert Wash Scrub

DWS was identified and classified as a diverse scrubland with no single dominant shrub. In a DWS community a mosaic of desert shrubs fill the landscape. In most areas on CDP-3, DWS comprised the dominant plant community in the VS wetlands and washes where DDWW was not fully developed. CDP-3 contains well developed concomitant DWS swale networks that present direct hydrologic input into the larger DDWW.

DWS is not a recognized vegetation community, and as a result does not have an assigned Holland Code. DWS most closely resembles Mojave Wash Scrub (Holland Code 34250) in that it is a low, shrubby, open community with a scattered to locally dense overstory of microphyllous trees and shrubs. Mojave Wash Scrub is distributed in washes, arroyos, and canyons of intermittent streams throughout the Mojave Desert Region. The plant community described as DWS consists of relatively large creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), burrowbush (*Hymenoclea salsola*), acacia (*Senegalia greggii*), boxthorn (*Lycium cooperi*), honey mesquite (*Prosopis glandulosa*), and the occasional smoketree (*Psoralea schottii*). DWS is the dominant habitat type found in the VS and washes where DDWW is not fully formed.

4.2.1.4 Vegetated Swales

VS occupy minor washes throughout CDP-3, and are more typically confined to channels. Numerous VS contribute hydrologically to the larger DDWW running throughout CDP-3. VS contain DWS and are dominated by some of the same species found in the DDWW as well as those found in the Sonoran Creosote Bush Scrub.

4.2.1.5 Desert Pavement

Desert pavements are areas with rock fragments of pebble to cobble size that cover an underlying layer of sand, silt, or clay. Desert pavement areas typically have little or no vegetation cover, but it is thought that the lower layers of the varnish contain microbiotic subsurface algal crusts. Desert pavements form from two different processes (McAuliffe 2000). On rocky alluvial fans, fine dust settling out of the air accumulates between and below the surface layer of rocks, eventually forming a relatively thin silt and clay layer that separates the surface rocks from the main part of the alluvial fan. Desert pavement also can form on sandy soils that contain significant amounts of gravel and rock fragments. In such situations, wind and water erosion can remove most of the sand and fine sediments from the surface, leaving the remaining rock fragments as the predominant surface layer. The extent to which desert pavement reduces wind erosion and resulting fugitive dust depends on the density of the rock fragments covering the underlying soil.

Desert pavements are covered with a glossy substance made out of mineral ingredients including clays and manganese and any other minerals are present in trace amounts. This glossy rock covering is called a varnish or desert varnish. Desert varnish is typically very dark in completion, despite the color of the internal rock. The longer a desert pavement has been forming, the darker the desert varnish. The glossy coatings of desert varnish are very thin, at most a few hundredths of a millimeter thick. Desert varnish also contains organic matter derived from microbial activity.

Many of the mineral ingredients of varnish, including clays and manganese, are derived from airborne materials that settle on rock surfaces. Bacteria residing on the rock surface may play a major role in concentrating and cementing these materials to form the glossy coatings. Rock varnish gives off considerable carbon dioxide when moistened, indicating bacterial respiration. However, bacteria are generally absent from the shiny exposed surfaces of varnish, indicating that they reside within and beneath the microscopic varnish layers. The formation of varnish may actually be a means by which these microbes protect themselves in the exposed, extreme environment of a rock surface in the desert. (McAuliffe 2000).

4.2.2 Botanical Inventory

A botanical inventory was conducted concurrently with biological surveys. Appendix A includes a list of plant species observed onsite and in the vicinity of CDP-3 during the biological surveys conducted from August 2010 to January 2011. Photo-documentation was used to representatively identify and map the presence and distribution of microphyllous trees and other dominant shrubs on CDP-3.

4.3 ACRES AND QUALITY OF HABITAT AND WETLAND TYPE

The following **Table 2** shows the final delineation of habitat and wetland type and quality based upon regional and site specific analyses and biological field surveys with desert ecology and wetland experts (**Figure 14a-d**).

Species Habitat Type	Habitat Acreage	Habitat Quality (low, moderate, high)
Desert Tortoise	190.7	High
Western Burrowing Owl	49.9	High
Desert Bighorn Sheep	190.7	High
Plant Community/Wetland		
Desert Dry Wash Microphyll Woodland	15.2	High
Other Waters of the State	20.5	High
1 – A designation of high quality indicates that the acreage is suitable to mitigate for impacts to the GSEP based on species composition, habitat characteristics, threats, and additional characteristics of the site as described in section 4.1.		

4.4 CALIFORNIA NATURAL DIVERSITY DATABASE

A CNDDDB analysis of CDP-3 was conducted to identify documented occurrences of special status plants and wildlife. **Figure 18** shows that according to the CNDDDB occurrence records, five species have been identified within a five-mile radius of CDP-3 including;

- DT,

- Desert bighorn sheep,
- California ditaxis (*Ditaxis serrata var. californica*)
- Harwood's milk-vetch (*Astragalus insularus var. harwoodii*), and
- dwarf germander (*Teucrium cubense ssp. depressum*).

4.5 LINE DISTANCE SAMPLING DATA

The Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994, 2008) requires monitoring of DT to assess changes in status with the best available data. Line distance sampling (LDS) (Buckland et al. 2001) has been chosen as the standard method for conducting range-wide monitoring of DT in the Mojave Desert. LDS is also conducted in the Colorado Desert and there are numerous transects within the vicinity of CDP-3. LDS DT detections between 2001 and 2007 indicate that DT have been consistently identified in the vicinity of CDP-3 (**Figure 19**) and have an estimated density of 4.5 animals/hectare (USFWS 2009). Between 2001 and 2007 (no data available for 2006), there were 75 live DT occurrences and 145 carcasses positively identified during LDS surveys within a 6-mile radius of CDP-3.

4.6 THREATS ANALYSIS

Threats to long-term habitat values such as invasive species, human impacts (development, off road vehicles, etc) were assessed on CDP-3. **Table 3** shows all potential threats identified onsite during biological surveys. Potential threats analyzed in this table were taken from Salafsky et al. 2008. A Preliminary Title Report and Phase 1 Environmental Site Assessment was obtained to identify existing encumbrances or environmental issues that have the potential to impact the long-term conservation values of CDP-3. The Title Report and Preliminary Property Analysis can be found in Exhibit A-2, and the Initial Hazardous Materials Survey Report (Phase 1 Environmental Site Assessment) is found in Exhibit A-3 of the Colorado Desert Preserve Formal Acquisition Proposal.

1. Development	None identified or expected to occur onsite or in the vicinity.
2. Agriculture	None identified or expected to occur onsite or in the vicinity.
3. Energy Production	None identified or expected to occur onsite or in the vicinity. No renewable energy applications were identified in the vicinity of CDP-3 (Figure 20).
4. Transportation and Service Corridors	Bradshaw road is approximately 0.64 miles south of CDP-3.
5. Human Intrusions	Bradshaw Road – See below.

**Table 3. Threats Analysis:
Management Concerns Identified During Biological Field Surveys**

5.1 Human Access	Very little evidence was found. The possibility of human access via the Bradshaw Road exists, but is expected to be extremely unlikely and limited in extent.
5.2 Surface Disturbance	None identified or expected to occur onsite or in the vicinity.
5.3 Altered Hydrology	Limited altered hydrology from the Bradshaw Road towards the southeastern end of the site. Because the Bradshaw Road is unpaved and topographically below CDP-3, it is unlikely to be significant enough to influence vegetation, wildlife or influence habitat types.
5.4 Motor Vehicles on Paved Roads	No paved roads onsite or in the vicinity.
5.5 Motor Vehicles on Un-Paved Roads	No unpaved roads onsite, Bradshaw Road is located southeast of the CDP-3 boundary. This trail is infrequently utilized for four-wheel-drive vehicle touring and hiking.
5.6 Motor Vehicles Off Route	None identified or expected to occur onsite or in the vicinity.
5.7 Non-motorized Recreation	None identified onsite or in the vicinity.
5.8 Military Operations	None identified onsite. CDP-3 is approximately 1.5 miles north of the 456,000-acre Chocolate Mountain Aerial Gunnery Range where of military operations occur. Because the area is so large, it is unlikely that activities will impact CDP-3. Its restricted access contributes towards the protection of CDP-3.
5.9 Illegal Immigration	The Bradshaw Road is a known corridor for illegal immigration and human trafficking. No impacts associated with these activities were identified and illegal immigration trespass/enforcement activity is not anticipated to be substantially different from illegal immigration trespass/enforcement activity on surrounding properties.
6. Fire	Compared to other parts of California, there are relatively few fires in the area of CDP-3 and most are small. The threat of natural or anthropogenic fire is not anticipated to be substantially different from surrounding properties. No additional fire suppression activities are anticipated that would separate CDP-3 from the surrounding landscape. Campfires and vehicle access are anticipated to be reduced or eliminated via the conservation easement and management plan.

**Table 3. Threats Analysis:
Management Concerns Identified During Biological Field Surveys**

7. Invasive Plants	Sahara mustard (<i>Brassica tournefortii</i>) was identified onsite. The density of this invasive species was moderate to low, and typical of the area.
8. Pollutants/Hazardous Materials	None identified or expected to occur onsite or in the vicinity.

Section 5 Conclusion/Summary

This 190.7-acre CDP-3 contains High quality DT habitat and high quality spring foraging and corridor connectivity habitat for desert bighorn sheep based on the following indicators:

- Connectivity between the Chuckwalla Bench and the Maniobra Valley (**Figure 1**)
- Ability to provide connectivity corridors for species movement and gene flow
- Soils (**Figure 4**)
- Connectivity between the Chuckwalla Mountains desert bighorn sheep deme and the Orocopia Hills desert bighorn sheep deme (**Figure 10**)
- Proximity to observed BUOW occurrence (**Figure 11**)
- The identified DT scat and the active burrow positively identified within CDP-3 boundary (**Figure 12g**)
- Habitat types and connectivity (**Figures 14a-d**)
- CNDDDB occurrences (**Figure 15**)
- High numbers of LDS occurrences within the region (**Figure 16**)
- High vegetation diversity (**Appendix A**)

Based upon the results of the consultants reports, biological field surveys, botanical inventories, and regional analyses, CDP-3 provides high quality DDWW and VS habitats; and has the potential to support populations of BUOW based on observed habitat characteristics. While the Property does protect important bighorn sheep spring foraging habitat and connectivity corridors, the GSEP does not have impacts or mitigation requirements associated with desert bighorn sheep. Therefore these habitat values are not being used to serve as mitigation, cannot and will not be reserved or transferred to a different project and are being described only for informational purposes.

5.1 MITIGATION SUITABILITY

The GSEP Commission Decision (CEC 2010c) requires that all mitigation lands used to offset the impacts from GSEP must be connected to lands of equal or better quality than the anticipated impacts.

The results of the consultant reports, biological field surveys, botanical inventories, regional analyses, and site visits with BLM and USFWS biologists indicate that the habitats on CDP-3, and on adjacent lands, are of equal or better quality than the habitats anticipated to be impacted by the GSEP, and are therefore suitable to mitigate for permitted impacts resulting from the GSEP. **Table 4** is a habitat layering summary quantifying the type and acreage of habitat values on CDP-3 that are suitable as mitigation for the GSEP.

Table 4. CDP-3⁽¹⁾ Habitat Layering Summary

DT⁽²⁾ (acres)	DT, BUOW⁽³⁾ (acres)	DT, DDWW⁽⁴⁾ (acres)	DT, Other State Waters (acres)	Total⁽⁵⁾ (acres)
105.1	49.9	15.2	20.5	190.7
Comments				
(1) Acreages included in this table are current as of May 24, 2011				
(2) Mojave desert tortoise				
(3) Western burrowing owl. To qualify for BUOW habitat, the entire property or portions of the property had to be within 5 miles of a documented burrowing owl utilizing an active burrow complex.				
(4) Desert dry wash microphyllous woodland				
(5) Total acreages and acreages for each habitat type subject to change				

Section 6 References

- Berry, K.H., 1997. The Desert Tortoise Recovery Plan: An Ambitious Effort to Conserve Biodiversity in the Mojave and Colorado Deserts of the United States. Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles – An International Conference. New York Turtle and Tortoise Society, pp 430-440
- Bleich, V.C., Wehausen, J.D., Holl, S.A., 1990. Desert-dwelling Mountain Sheep: Conservation Implications of a Naturally Fragmented Distribution. *Conservation Biology*. V4 No. 4. 383-390
- Buckland, S. T., Anderson, D. R., Burnham, K. P., Laake, J. L., Borchers, D. L., Thomas, L. 2001. Introduction to Distance Sampling – Estimation Abundance of Biological Populations. Oxford University Press, Oxford.
- Bureau of Land Management and California Energy Commission (BLM and CEC). 2010, Staff assessment and environmental impact statement, Genesis Solar power Project, Application for Certification (09-AFC-8). Sacramento, California. March 2010.
- Bureau of Land Management (BLM). 2010. Plan amendment/final environmental impact statement for the Genesis Solar Energy Project. Palm Springs, California. August 2010.
- BLM (Bureau of Land Management). 2002. Proposed Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) and Final Environmental Impact Statement.
- California Department of Fish and Game (CDFG). 2010. Interim Mitigation Strategy As Required by SB X8 34. DRECP-100-2010-006-F
- California Department of Fish and Game (CDFG). 1988. A Guide to the Wildlife Habitats of California (1988 + updates) (Mayer, K.E. and W.F. Laudenslayer, Jr.). Available at <http://www.dfg.ca.gov/biogeodata/cwhr/pdfs/DSW.pdf>.
- California Energy Commission (CEC). 2010a. Genesis Solar Energy Project. Revised staff assessment. June 2010. Sacramento, California.
- California Energy Commission (CEC). 2010b. Genesis Solar Energy Project. Revised Staff Assessment Supplement. July 2010. Sacramento, California.
- California Energy Commission (CEC). 2010c. Genesis Solar Energy Project Commission Decision. CEC-800-2010-011-CMF. October 2010. Sacramento, California
- Department of Water Resources (DWR). 2010. California Department of Water Resources Water Data Library. Available online at www.water.ca.gov/waterdatalibrary/. Accessed September 2010.

- DeSante, D. F., Ruhlen, E. D., and Scalf, R. 2007. The distribution and relative abundance of Burrowing Owls in California during 1991–1993: Evidence for a declining population and thoughts on its conservation, in Proceedings of the California Burrowing Owl Symposium, November 2003 (J. H. Barclay, K. W. Hunting, J. L. Lincer, J. Linthicum, and T. A. Roberts, eds.), pp. 1–41. Bird Populations Monogr. 1. The Institute for Bird Populations and Albion Environmental, Inc.
- Gervais, J. A., Rosenberg, D. K., Fry, D. M., Trulio, L., and Sturm, K. K. 2000. Burrowing Owls and agricultural pesticides: Evaluation of residues and risks for three populations in California. *Environ. Toxicol. and Chem.* 19:337–343.
- Green, G. A., and Anthony, R. G. 1989. Nesting success and habitat relationships of Burrowing Owls in the Columbia basin, Oregon. *Condor* 91:347–354.
- Green, G. A., Fitzner, R. E., Anthony, R. G., and Rogers, L. E. 1993. Comparative diets of Burrowing Owls in Oregon and Washington. *Northwest Sci.* 67:88–93.
- Haug, E. A., and Didiuk, A. B. 1993. Use of recorded calls to detect Burrowing Owls. *J. Field Ornithol.* 64:188–194.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency.
- Miller, J. 2003. Petition to the State of California Fish and Game Commission and supporting information for listing the California population of the Western Burrowing Owl (*Athene cucularia hypugaea*) as an endangered or threatened species under the California Endangered Species Act. Available from Ctr. Biol. Diversity, 1095 Market St., Suite 511, San Francisco, CA 94103 or at www.biologicaldiversity.org/swcbd/species/b-owl/index.html.
- Monson, G., and L. Sumner, eds. 1980. The desert bighorn: its life history, ecology, and management. Univ. Arizona Press, Tucson. 370pp.
- McAuliffe, J.R. 2000. Desert Soils. In S.J. Phillips and P.W. Comus (eds.), *A Natural History of the Sonoran Desert*, pp. 87-104. Arizona-Sonora Desert Museum Press, Tucson AZ & University of California Press, Berkeley CA
- Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H., 2009, Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.
- Plumpton, D. L., and Lutz, R. S. 1993. Prey selection and food habits of Burrowing Owls in Colorado. *Great Basin Nat.* 53:299–304.
- Ronan, N. A. 2002. Habitat selection, reproductive success, and site fidelity of Burrowing Owls in a grassland ecosystem. M.S. thesis, Oregon State Univ., Corvallis.
- Salafsky et al. 2008. A standard lexicon for biodiversity conservation: unified classifications of threats and actions. *Conservation Biology* 22: 897-911.

- Shuford, W.D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.
- Schwartz, O.A., V.C. Bleich, and S.A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biological Conservation 37: 179-90
- Soil Survey 2010. Natural Resources Conservation Service, United States Department of Agriculture. U.S. General Soil Map (STATSGO) for California. Available online at <http://soildatamart.nrcs.usda.gov>. Accessed September 2010.
- Tetra Tech. 2010. Genesis Solar Energy Project biological assessment. June 2010. Report prepared for the Bureau of Land Management, Palm Springs South Coast Field Office, Palm Springs, California. 46 pp. + appendices.
- Thompson, C. D., and Anderson, S. H. 1988. Foraging behavior and food habits of Burrowing Owls in Wyoming. Prairie Nat. 20:23–28.
- Trulio, L. 1997. Burrowing owl demography and habitat use at two urban sites in Santa Clara County, California. Raptor Res. Rep. 9:84–89.
- UCIPM 2010. University of California Integrated Pest Management, California Weather Database. Blythe.C (NCDC #0924, Blythe) weather station. Observer = California Department of Forestry. Data Range = Jan 1, 1951 to late 2010.
- U.S. Fish and Wildlife Service (USFWS). 2010. Section 7 Biological Opinion on the Genesis Solar Energy Project, Riverside County, California. In Reply to FWS-ERIV-08B0060-10F0879. November 2, 2010.
- U.S. Fish and Wildlife Service (USFWS). 2009. Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2007 Annual Report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.
- U.S. Fish and Wildlife Service (USFWS). 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). California and Nevada Region, Sacramento, California.
- U.S. Fish and Wildlife Service (USFWS). 1994. Desert tortoise (Mojave population) recovery plan. U.S. Fish and Wildlife Service, Portland, Oregon. 73 pages plus appendices.
- York, M., Rosenberg, D. K., and Sturm, K. K. 2002. Diet and food-niche breadth of Burrowing Owls (*Athene cunicularia*) in the Imperial Valley, California. W. North Am. Nat. 62:280–287.

Appendix A.
Plant Species Observed on and in the Vicinity of CDP-3

Scientific Name	Common Name	Habitat Type(s)
<i>Ambrosia dumosa</i>	Burro-weed	DWS, DDWW
<i>Bebbia juncea</i>	Sweetbush	DWS, DDWW
<i>Cercidium floridium ssp. floridium</i>	Blue Palo Verde	DDWW
<i>Cylindropuntia echinocarpa</i>	Silver cholla	Creosote Scrub
<i>Cylindropuntia ramosissima</i>	Pencil Cholla	Creosote Scrub
<i>Echinocactus polycephalus</i>	Cottontop Cactus	Creosote Scrub
<i>Ephedra sp.</i>	Ephedra	DWS, DDWW
<i>Foquieria splendens</i>	Ocotillo	Creosote Scrub
<i>Hymenoclea salsola</i>	Burrowbrush	DWS, DDWW
<i>Hyptis emoryi</i>	Desert Lavender	DWS, DDWW
<i>Krameria grayi</i>	White Rhatany	DWS, DDWW
<i>Larrea tridentata</i>	Creosote bush	Creosote Scrub
<i>Lycium cooperi</i>	Boxthorn	DWS, DDWW
<i>Olneya tesota</i>	Ironwood	DDWW
<i>Optunia basilaris</i>	Beavertail Pricklypear	Creosote Scrub
<i>Pleuraphis rigida</i>	Big Galleta Grass	DWS
<i>Psoralea argemone</i>	Smoke Tree	DDWW
<i>Salazaria mexicana</i>	Paperbag Bush	DWS, DDWW
<i>Senegalia greggii</i>	Catclaw Acacia	DWS, DDWW
<i>Simmondsia chinensis</i>	Jojoba	DWS, DDWW
<i>Stephanomeria pauciflora</i>	Desert Straw	DWS, DDWW
<i>Yucca schidigera</i>	Mojave Yucca	Creosote Scrub
<i>Ziziphus obtusifolia</i>	Graythorn Aborojo	DWS, DDWW

Colorado Desert Preserve

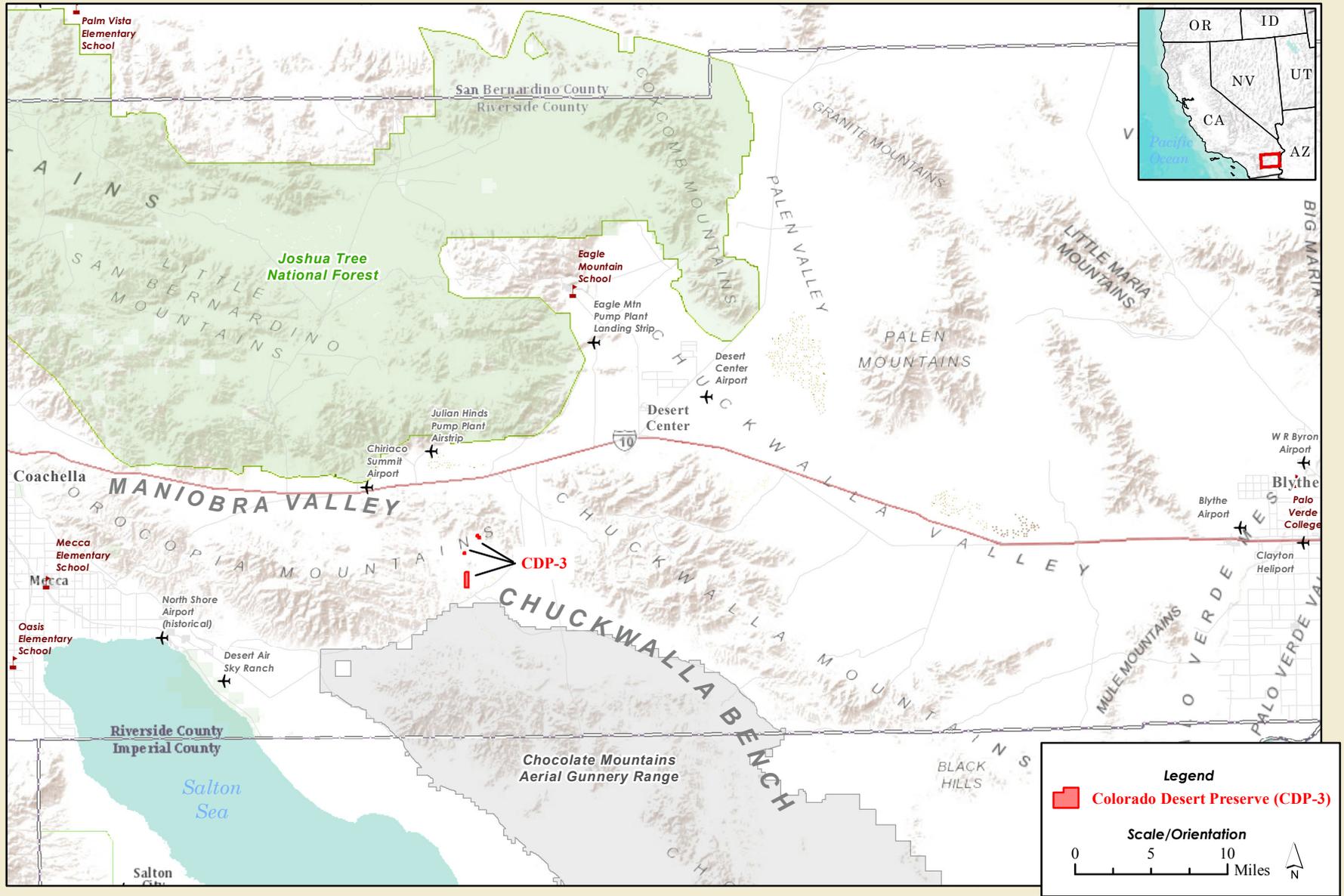


Figure 1 - Location
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

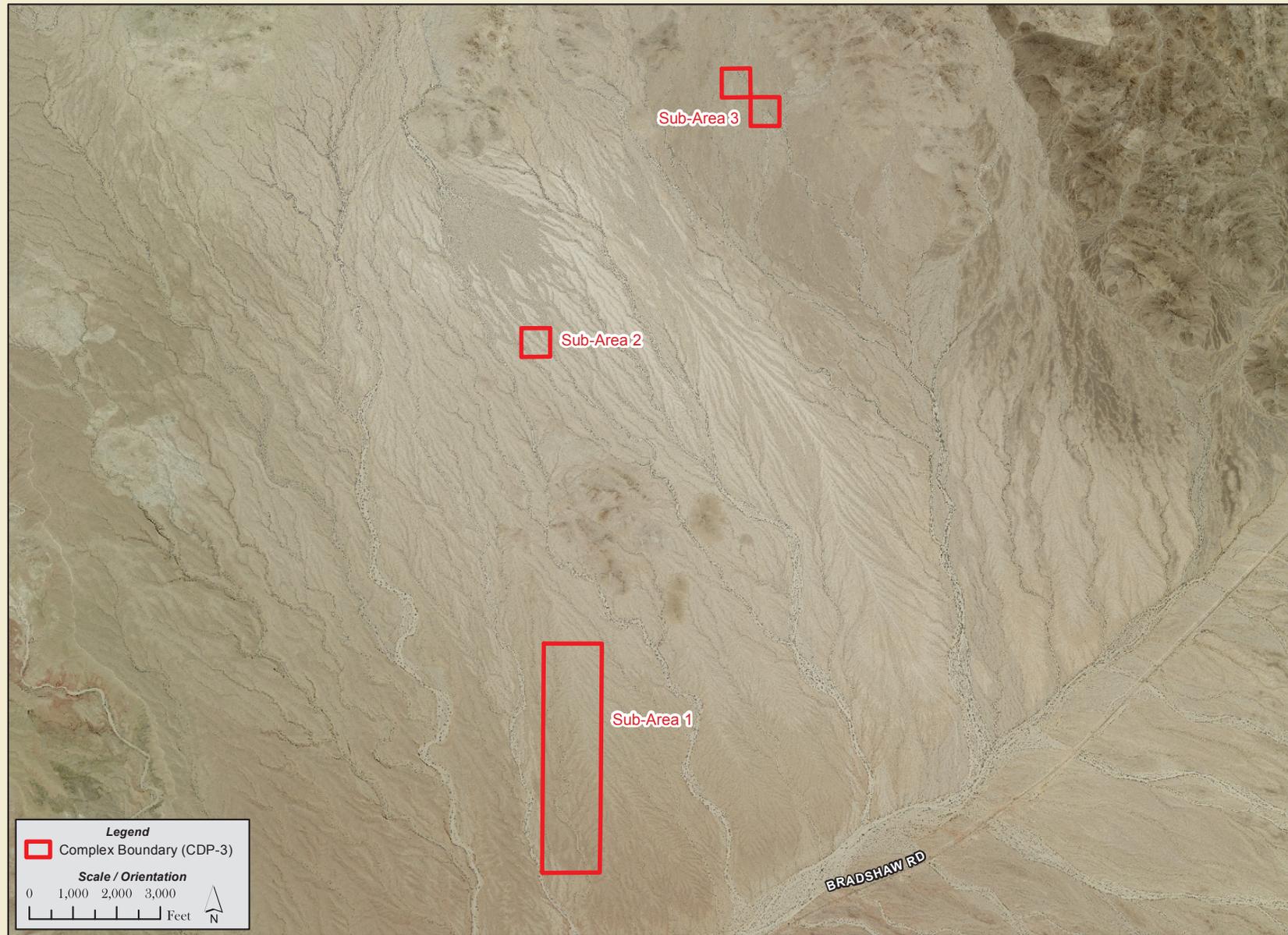


Figure 2 - CDP-3 (East Salton Complex) Sub-Area Index
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

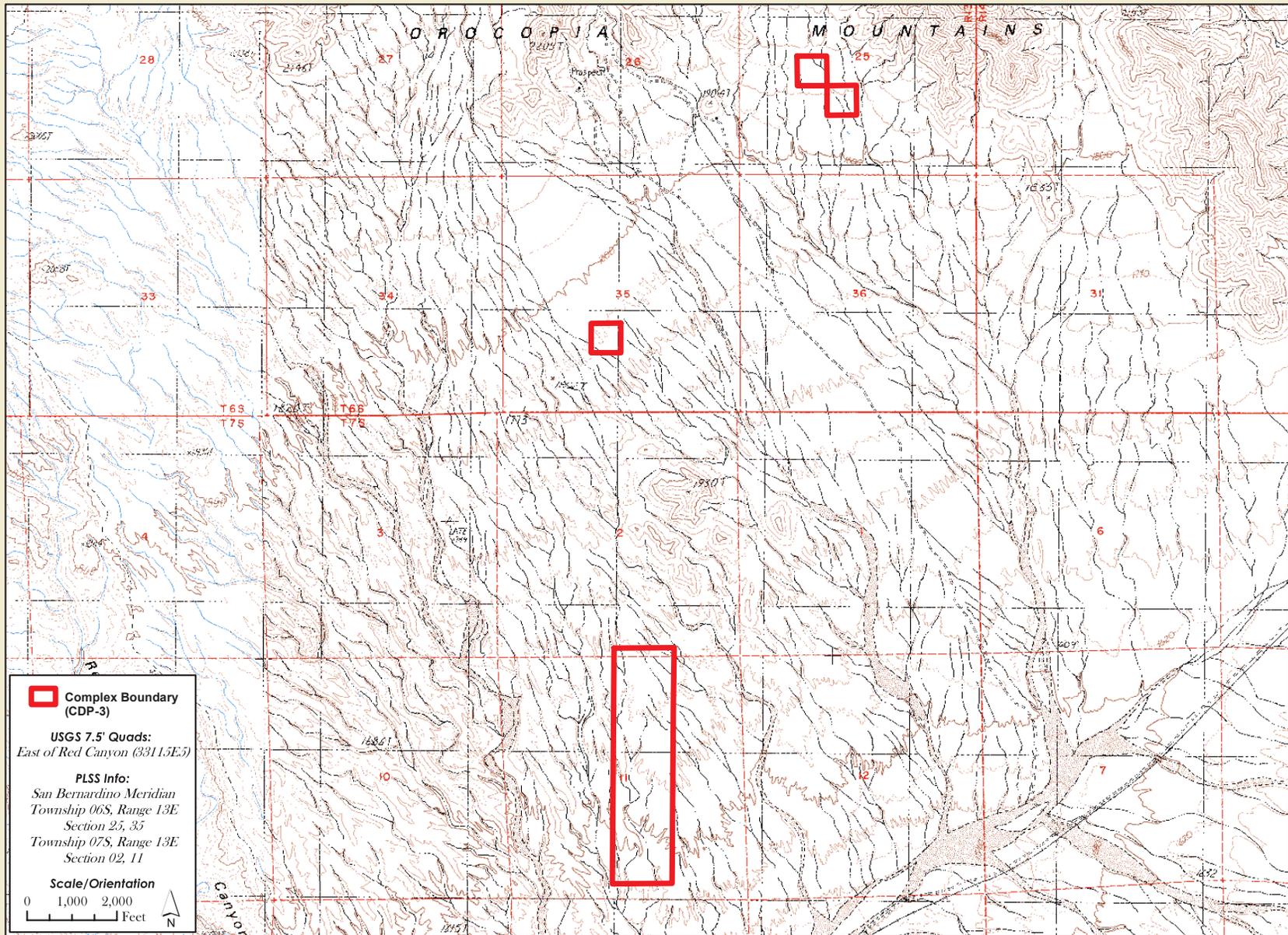


Figure 3 - Topography
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

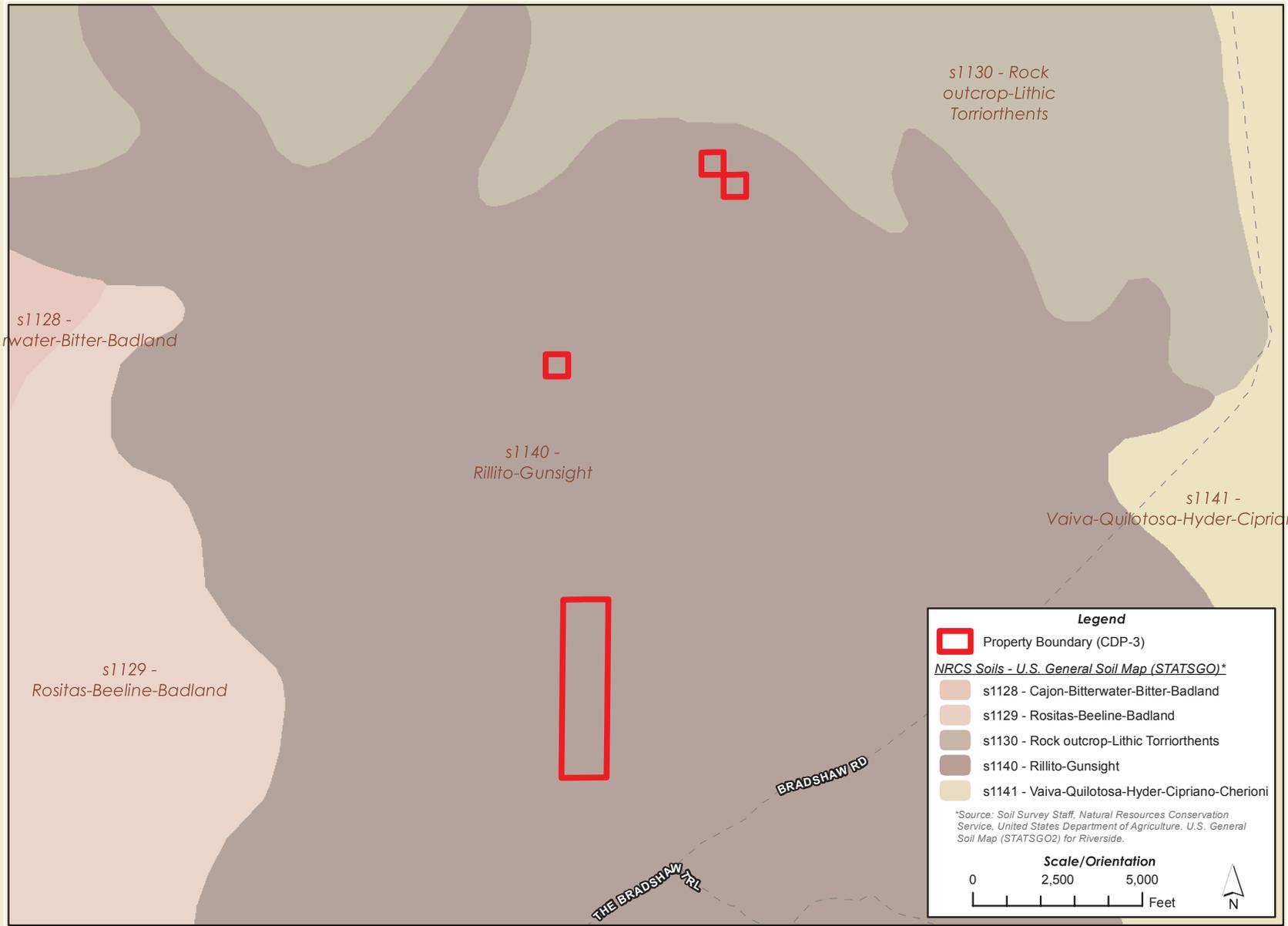


Figure 4 - Soils
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

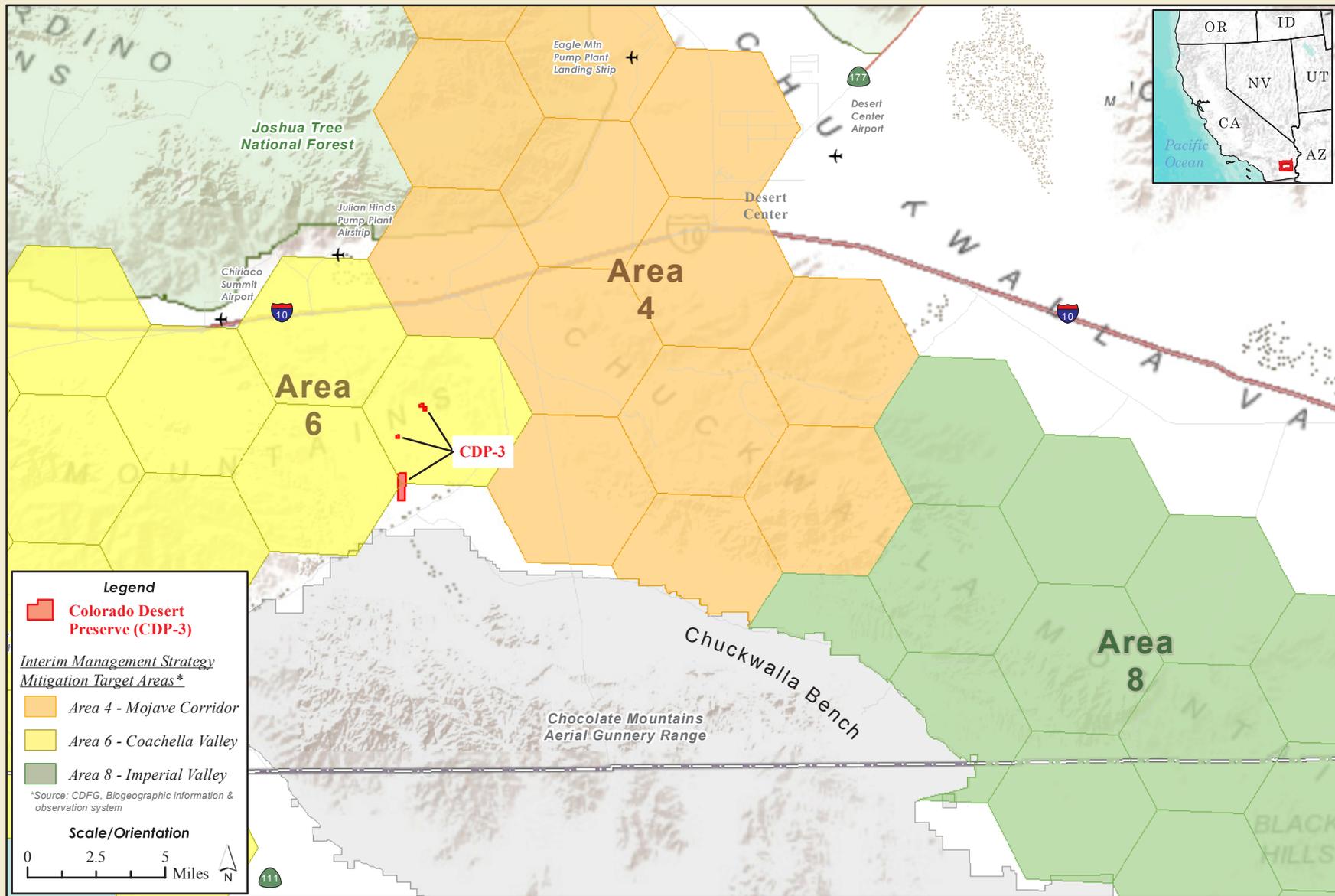


Figure 5 - DRECP Interim Mitigation Strategy - Mitigation Target Areas
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

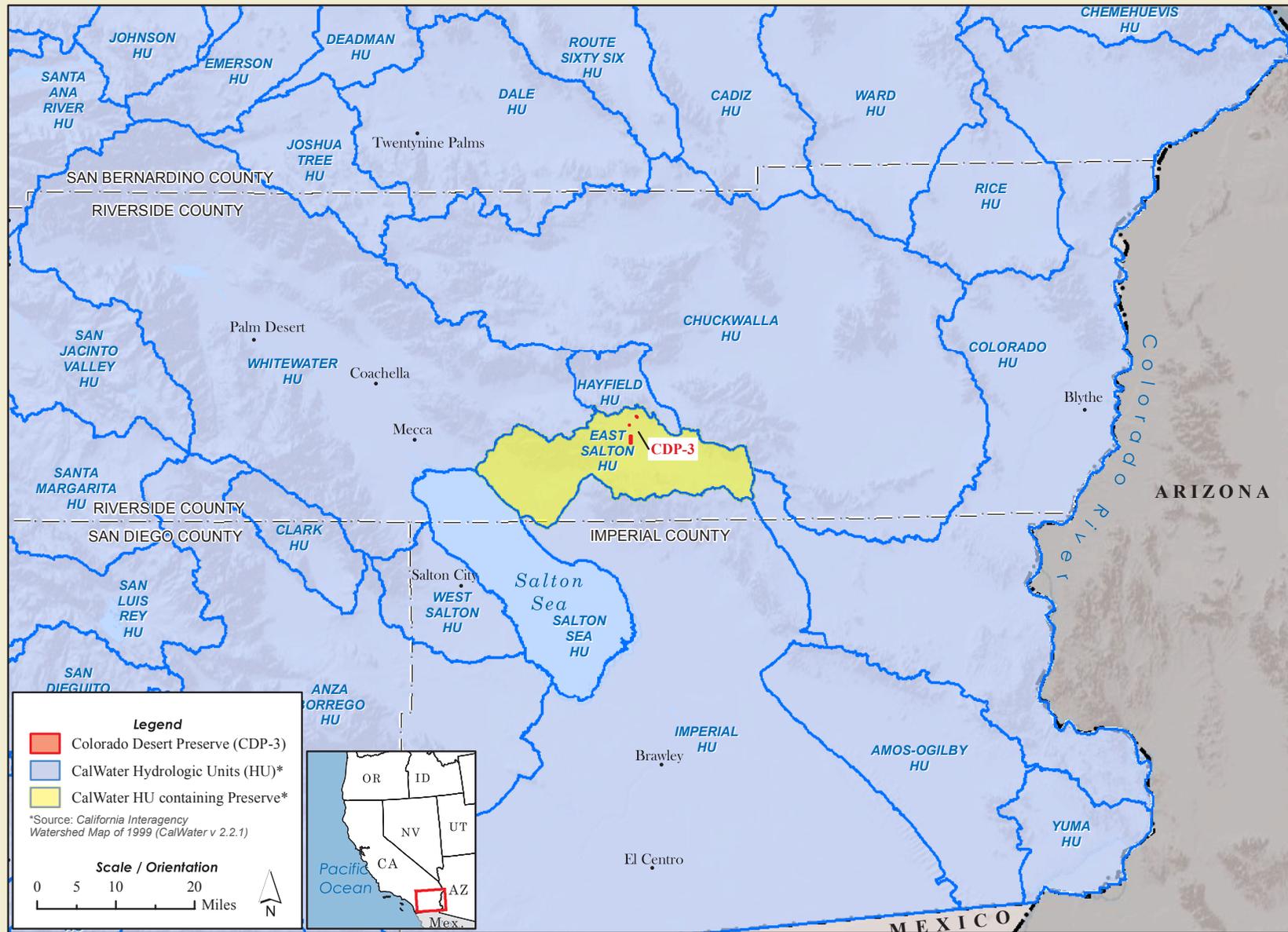
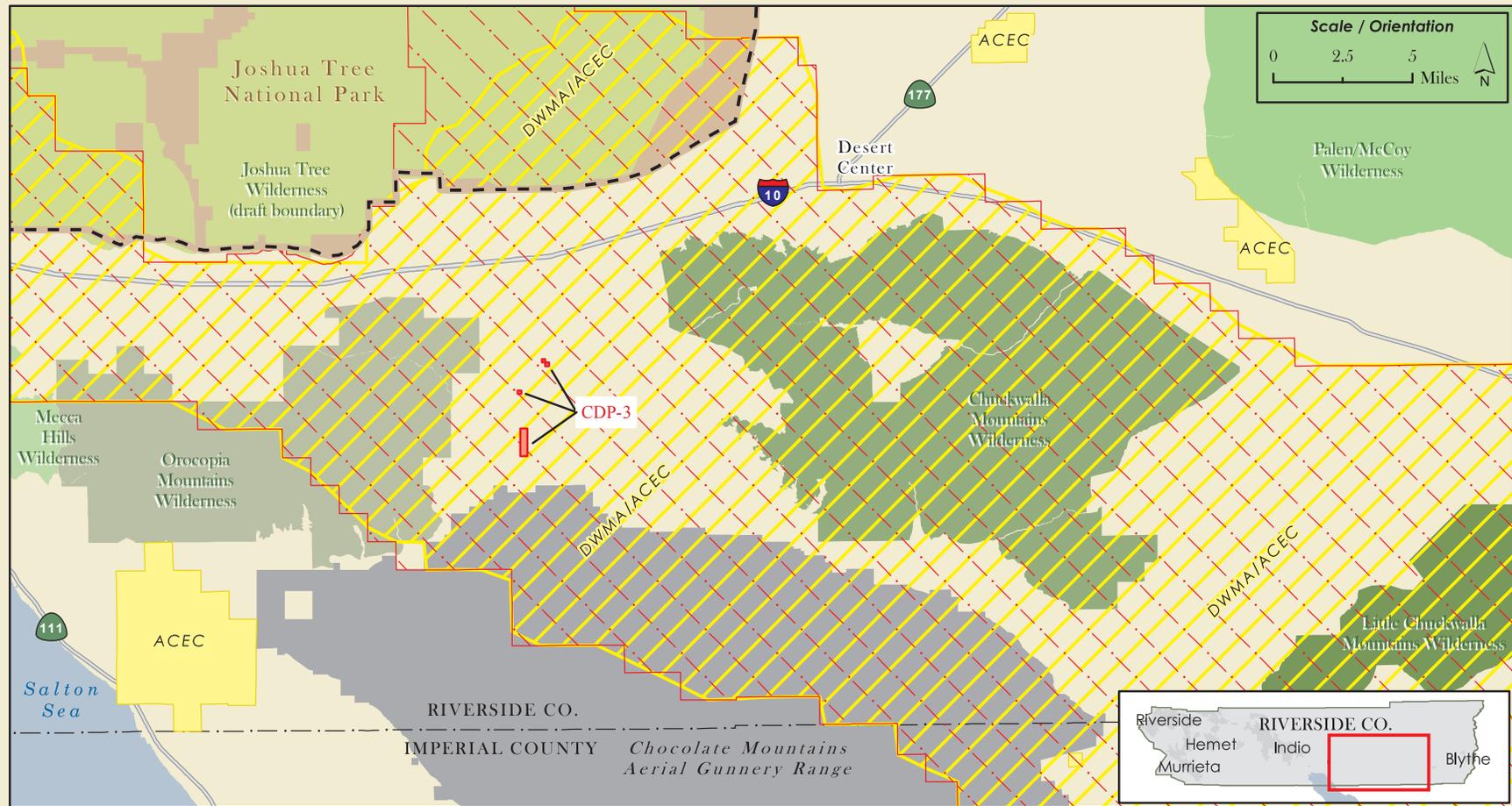


Figure 6 - Watershed - State Hydrologic Unit
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



Legend

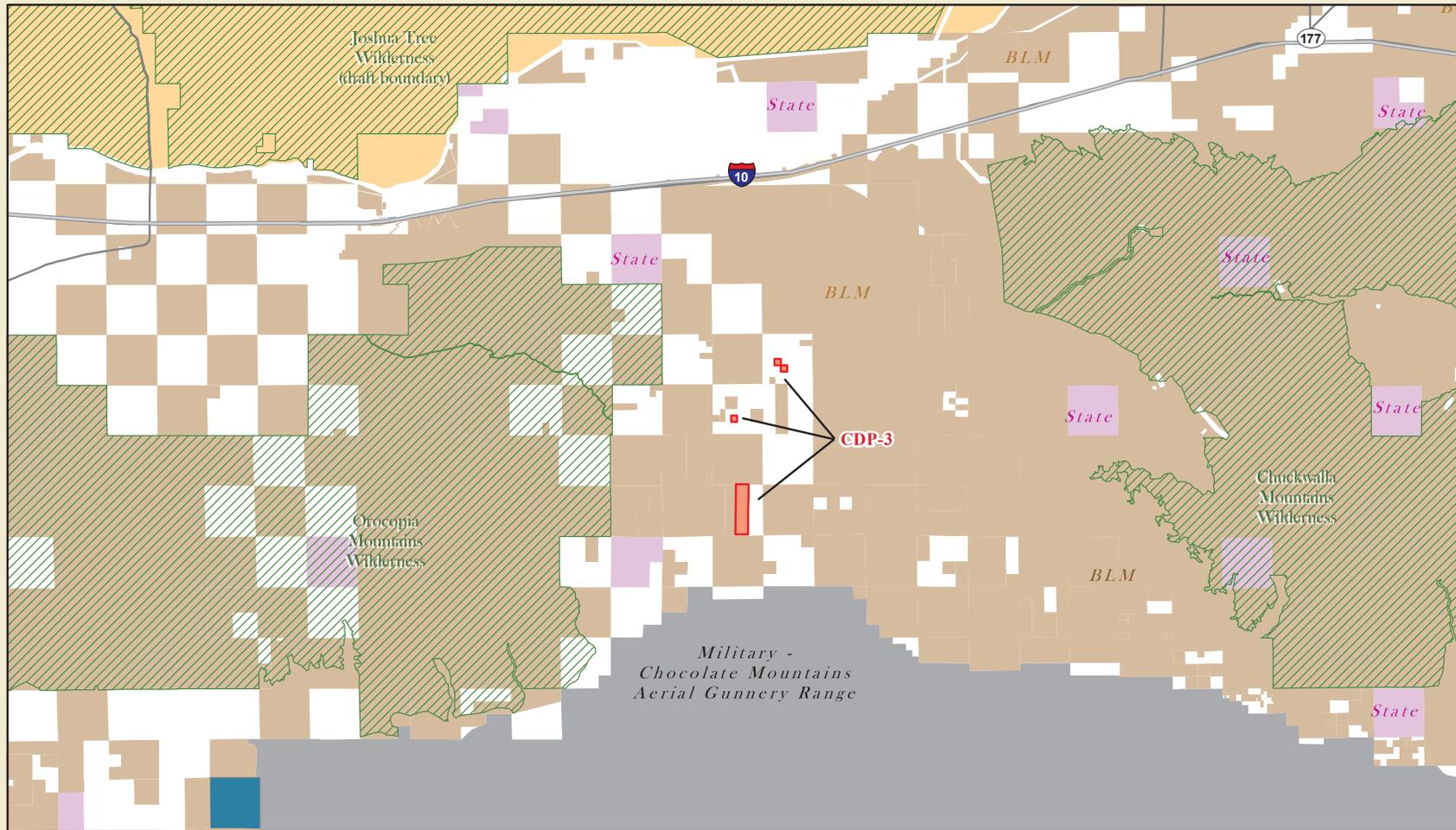
Colorado Desert Preserve (CDP-3)	Desert Tortoise Critical Habitat - Chuckwalla Complex ⁽³⁾	Wilderness Areas (WA)⁽⁶⁾	Mecca Hills WA
BLM Areas of Critical Environmental Concern (ACEC) ⁽¹⁾	Joshua Tree National Park ⁽⁴⁾	Chuckwalla Mountains WA	Orocopia Mountains WA
Chuckwalla Desert Wildlife Management Area/BLM (ACEC) ⁽¹⁾⁽²⁾	Chocolate Mountains Aerial Gunnery Range ⁽⁵⁾	Joshua Tree WA	Palen/McCoy WA
		Little Chuckwalla Mountains WA	

Data Sources

(1) U.S. Bureau of Land Management, CA State Office, (2) Redlands Institute, University of Redlands, (3) US Fish and Wildlife Service, (4) U.S. Geological Survey, (5) U.S Bureau of Land Management, (6) Wilderness Institute, University of Montana.

Figure 7 - Regional Conservation Analysis
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



Legend

 Colorado Desert Preserve (CDP-3)	Public Land Ownership**	Source: *Wilderness Institute, University of Montana **Public Land Ownership data taken from BLM's Surface Ownership (OWNPCA), January 19, 1999.
 Wilderness Areas (WA)*	 Bureau of Land Management (BLM)	
 Private Land	 National Park Service (NPS)	
	 State	

Scale / Orientation

0 1 2
Miles 

Figure 8 - Regional Land Ownership and Protection Status
 CDP-3
 Biological Resources Report - May 2011

Colorado Desert Preserve

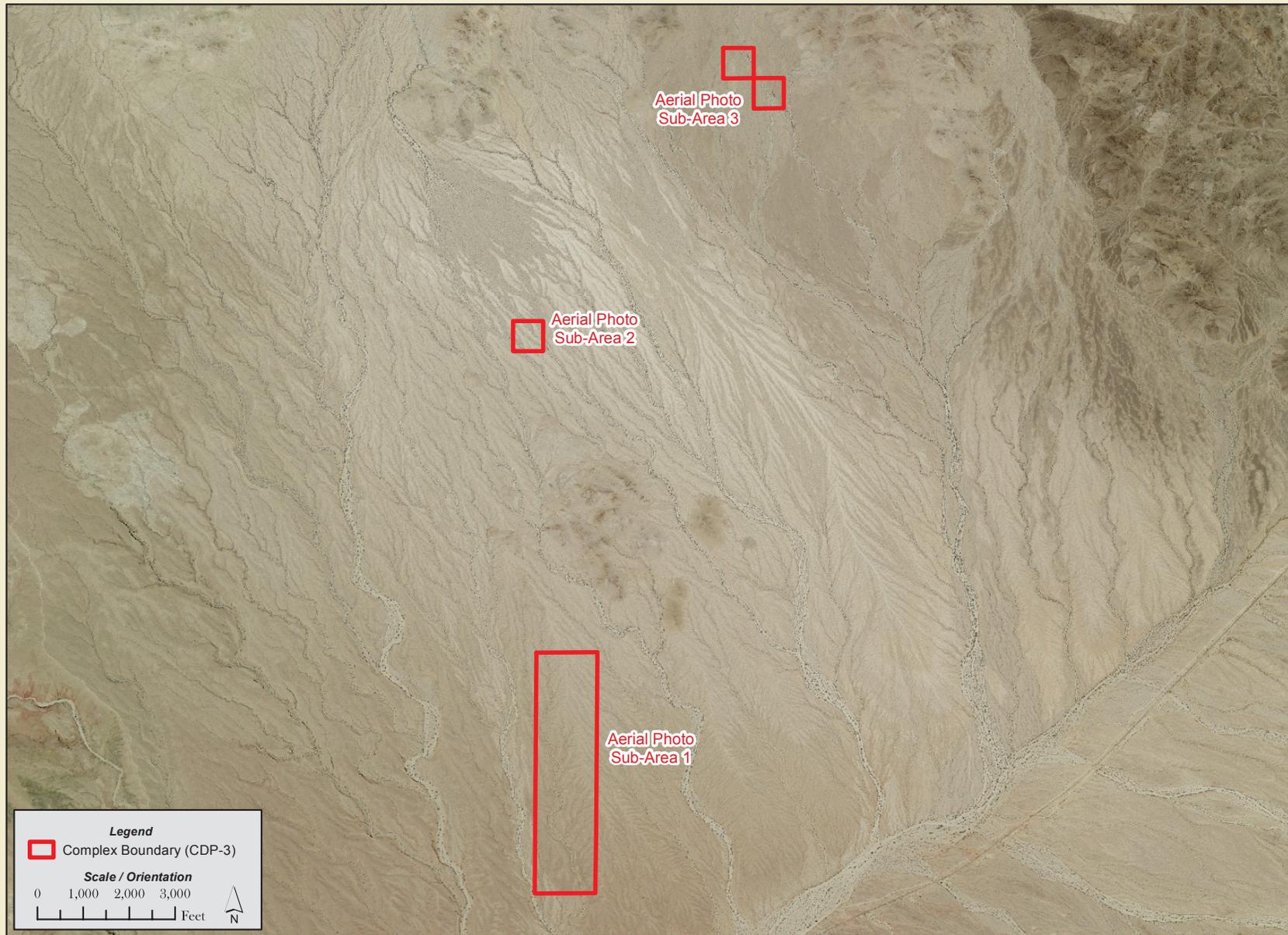


Figure 9a - Aerial Photograph (Index)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

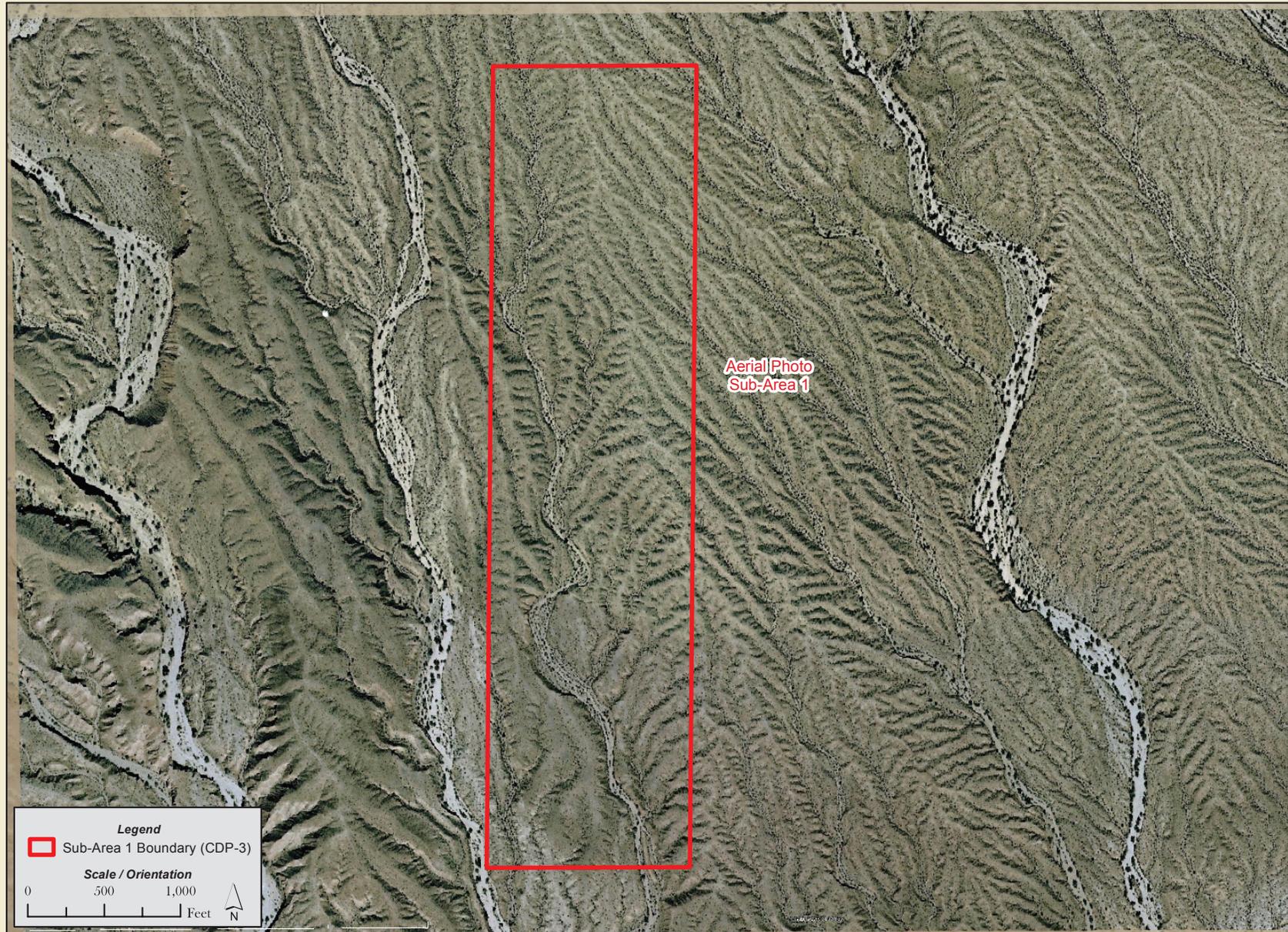


Figure 9b - Aerial Photograph (Area 1)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

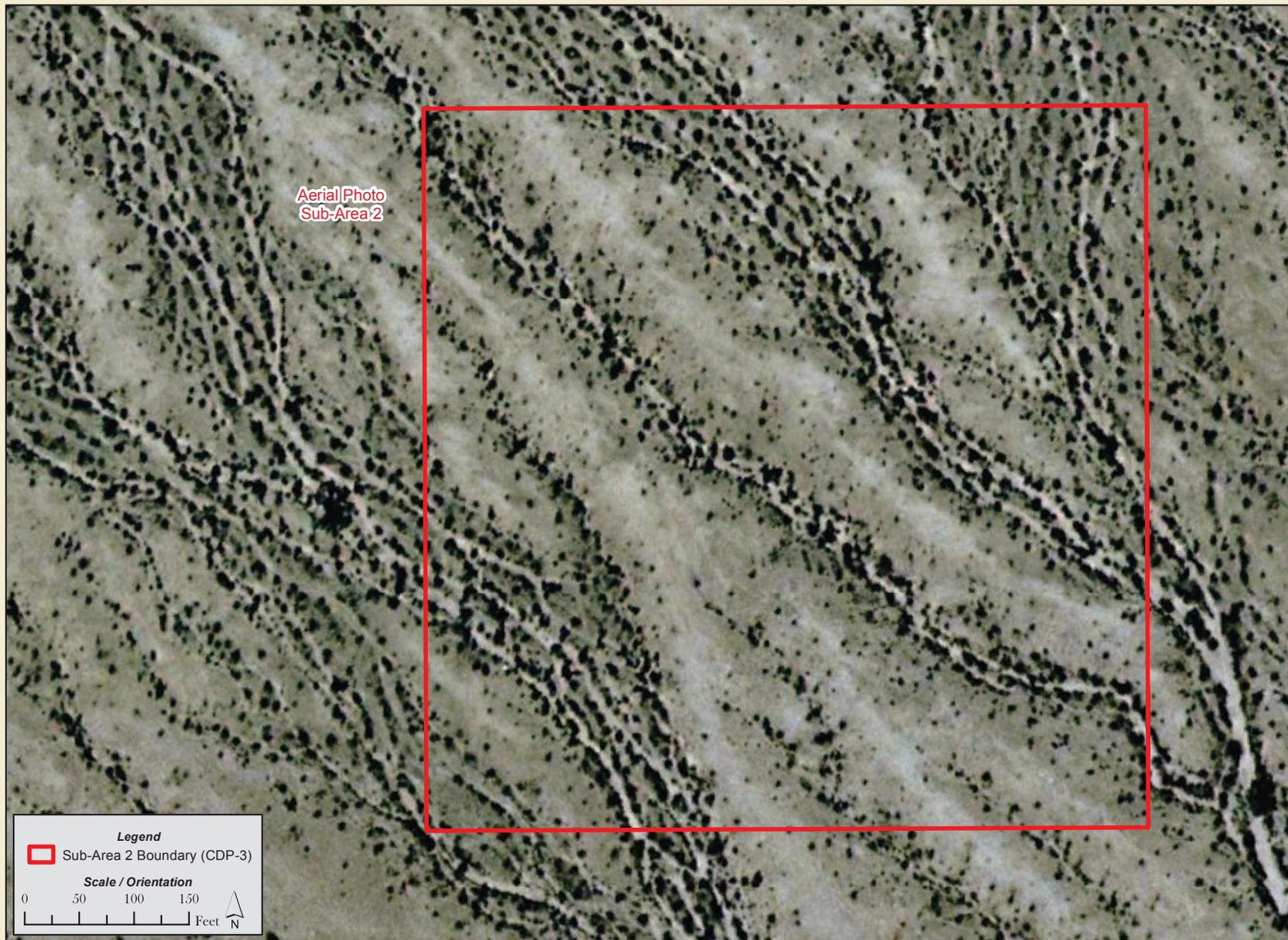


Figure 9c - Aerial Photograph (Area 2)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

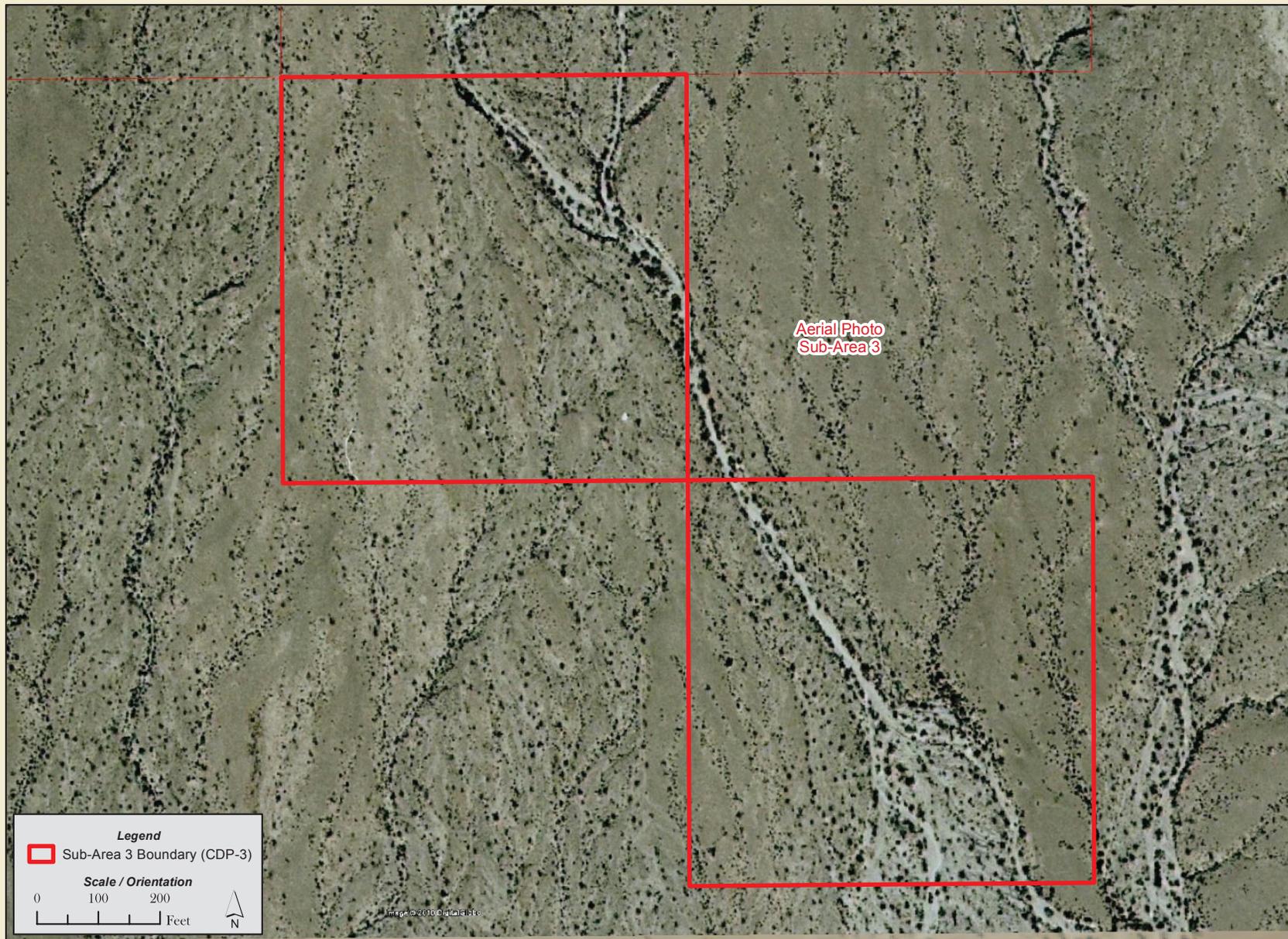


Figure 9d - Aerial Photograph (Area 3)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

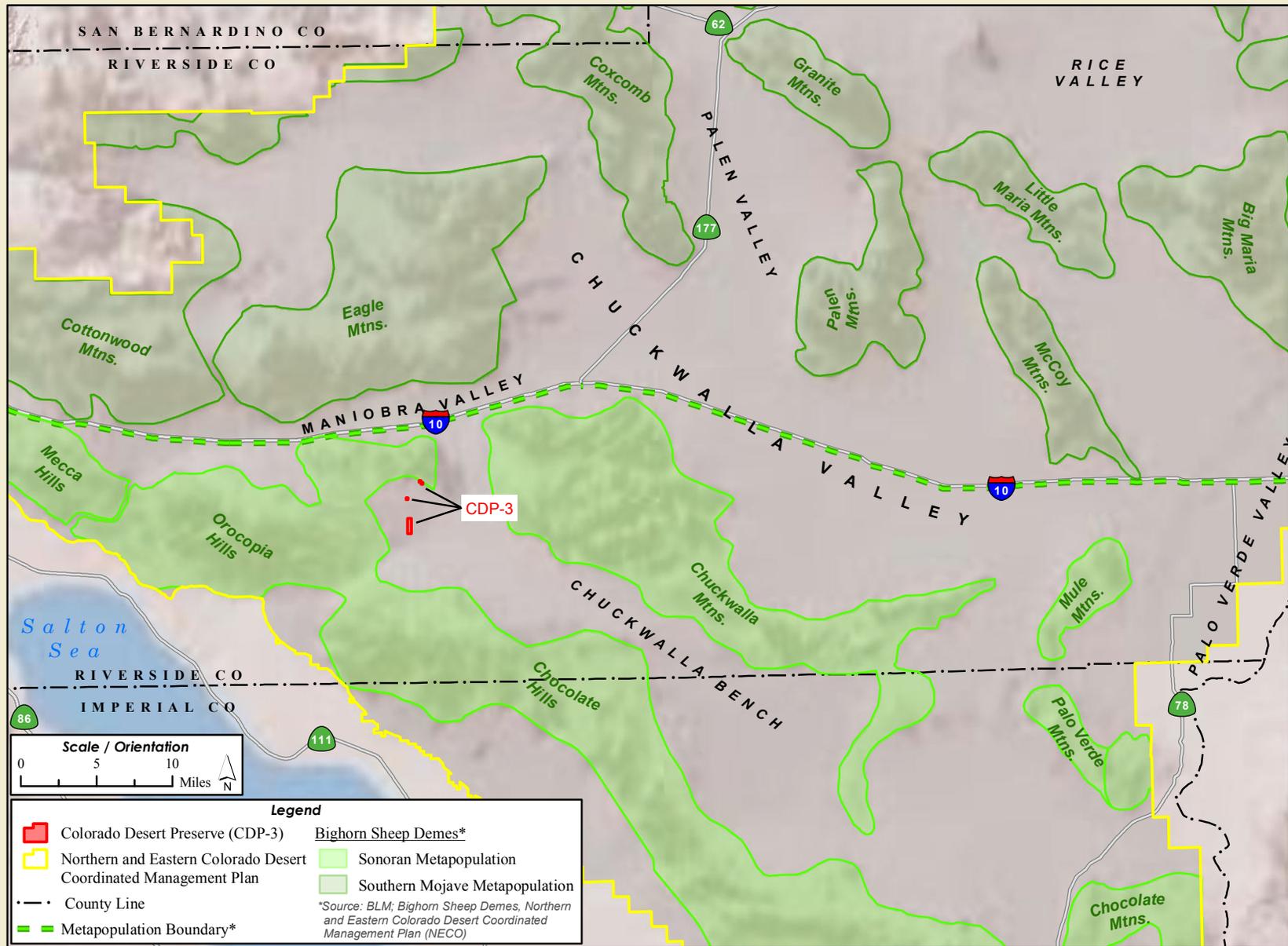


Figure 10 - Desert Bighorn Sheep Demes
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

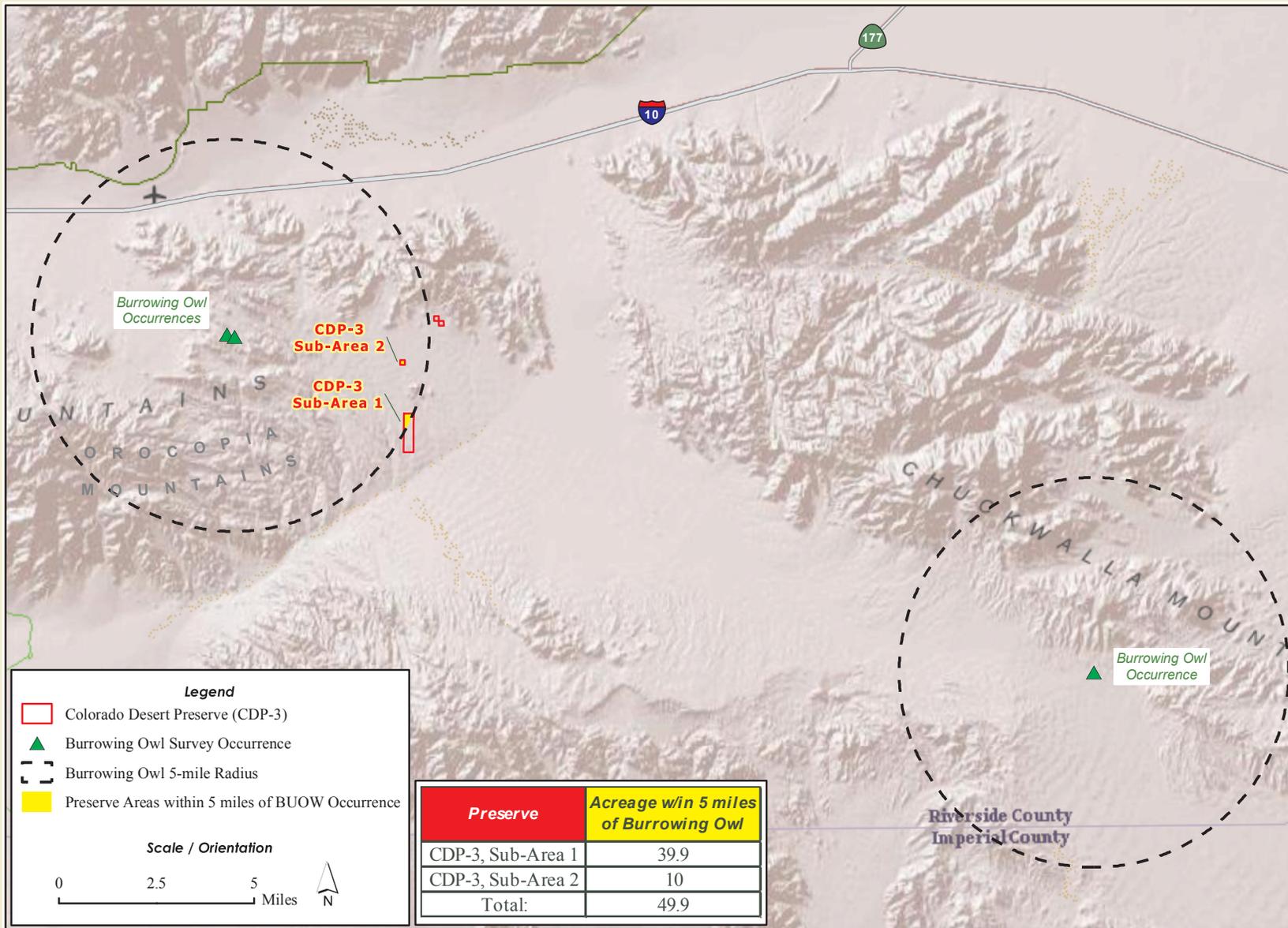


Figure 11 - Acreage of Preserve Within 5-Miles of Western Burrowing Owl Occurrence
 CDP-3
 Biological Resources Report - May 2011

Colorado Desert Preserve

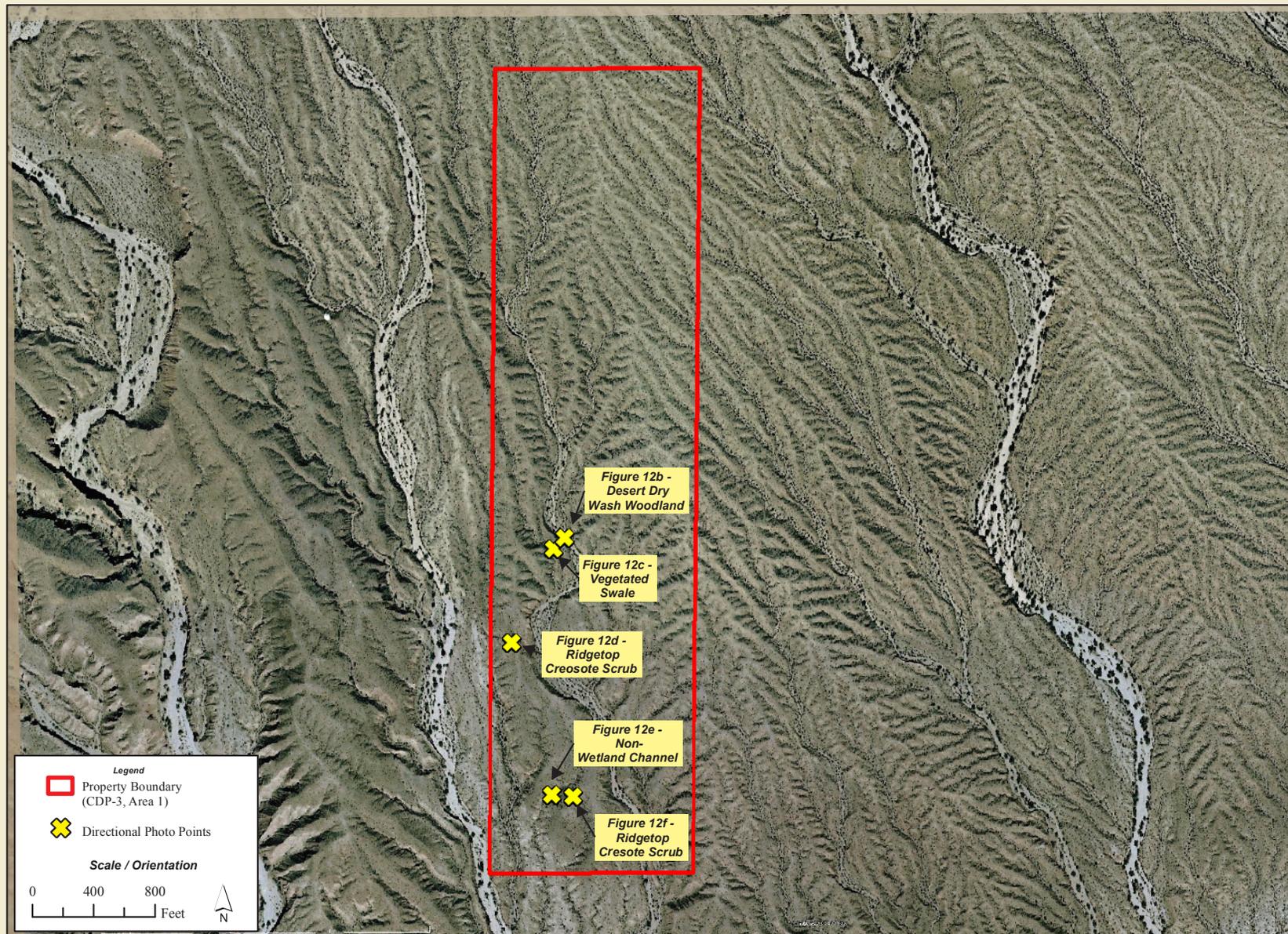


Figure 12a - Sub-Area 1 Directional Photo Points
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



North



East



South



West

Figure 12b - Desert Dry Wash Microphyllous Woodland
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



North



East



South



West

Figure 12d - Creosote Scrub
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



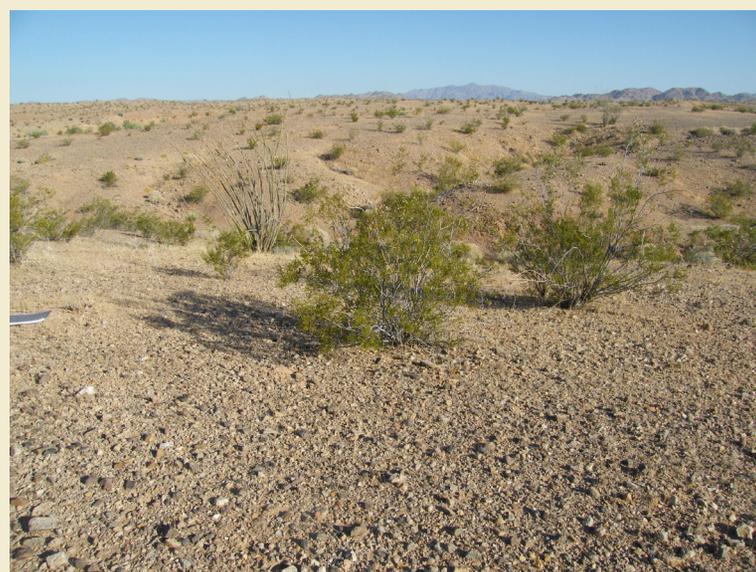
North



East



South



West

Figure 12f - Creosote Scrub
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

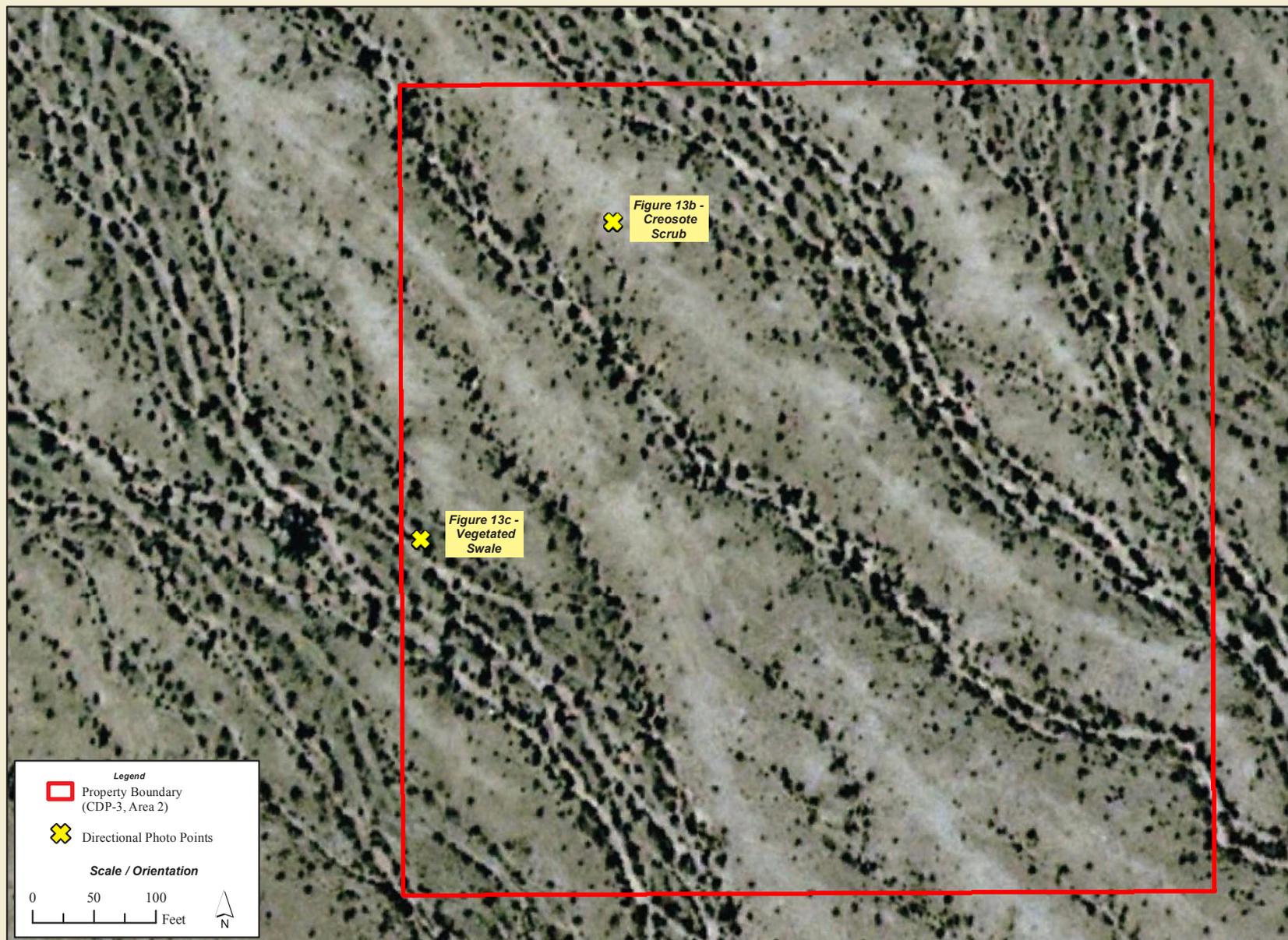


Figure 13a - Sub-Area 2 Directional Photo Points
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve



North



East



South



West

Colorado Desert Preserve

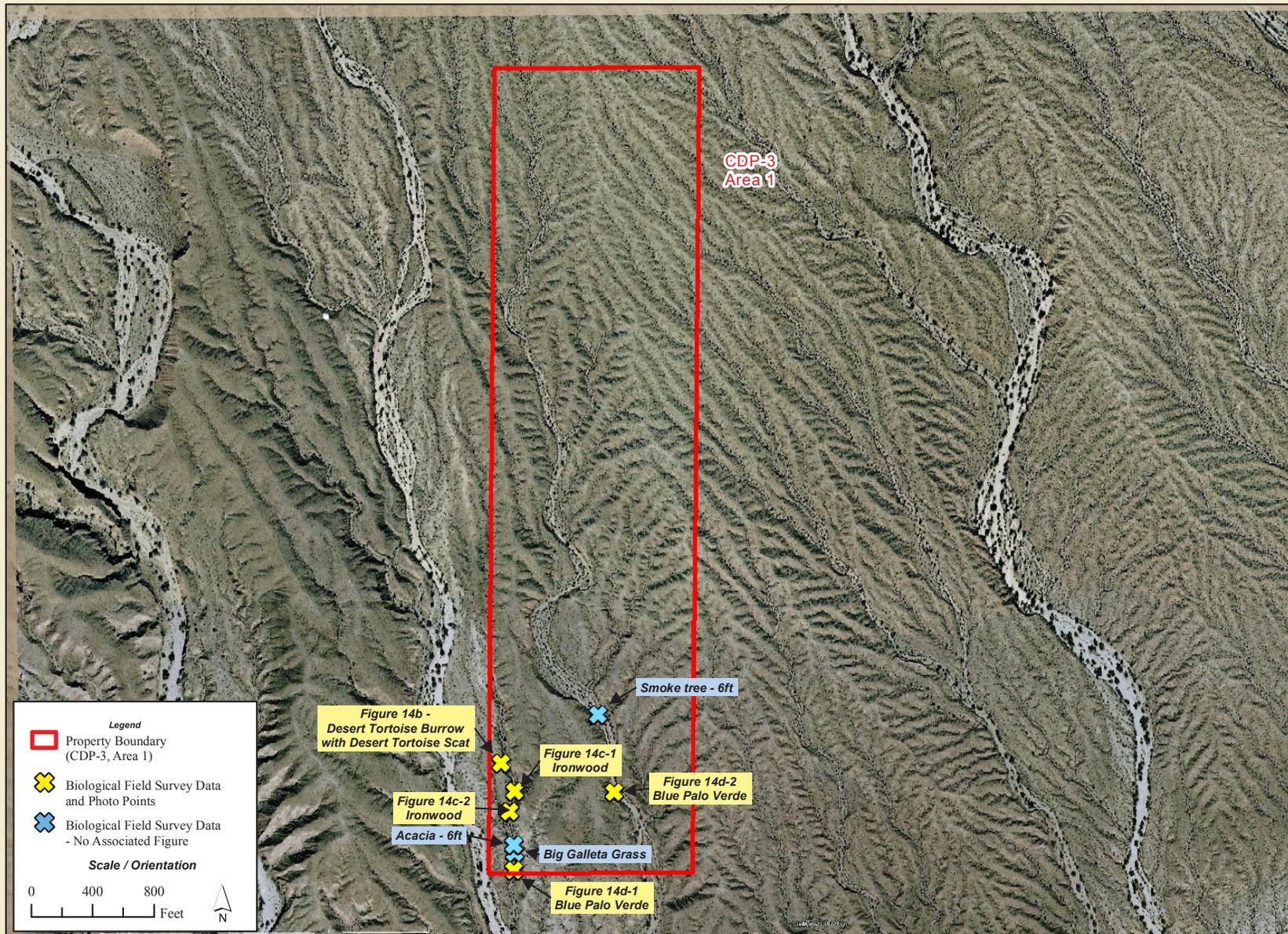


Figure 14a - Sub-Area 1 Representative Vegetation Photos and Data
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



Figure 14b - Desert Tortoise Burrow with Desert Tortoise Scat
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



13c-1 - 9ft



13c-2 - 15.2ft

Colorado Desert Preserve



13d-1



13d-2 - 16ft

Colorado Desert Preserve

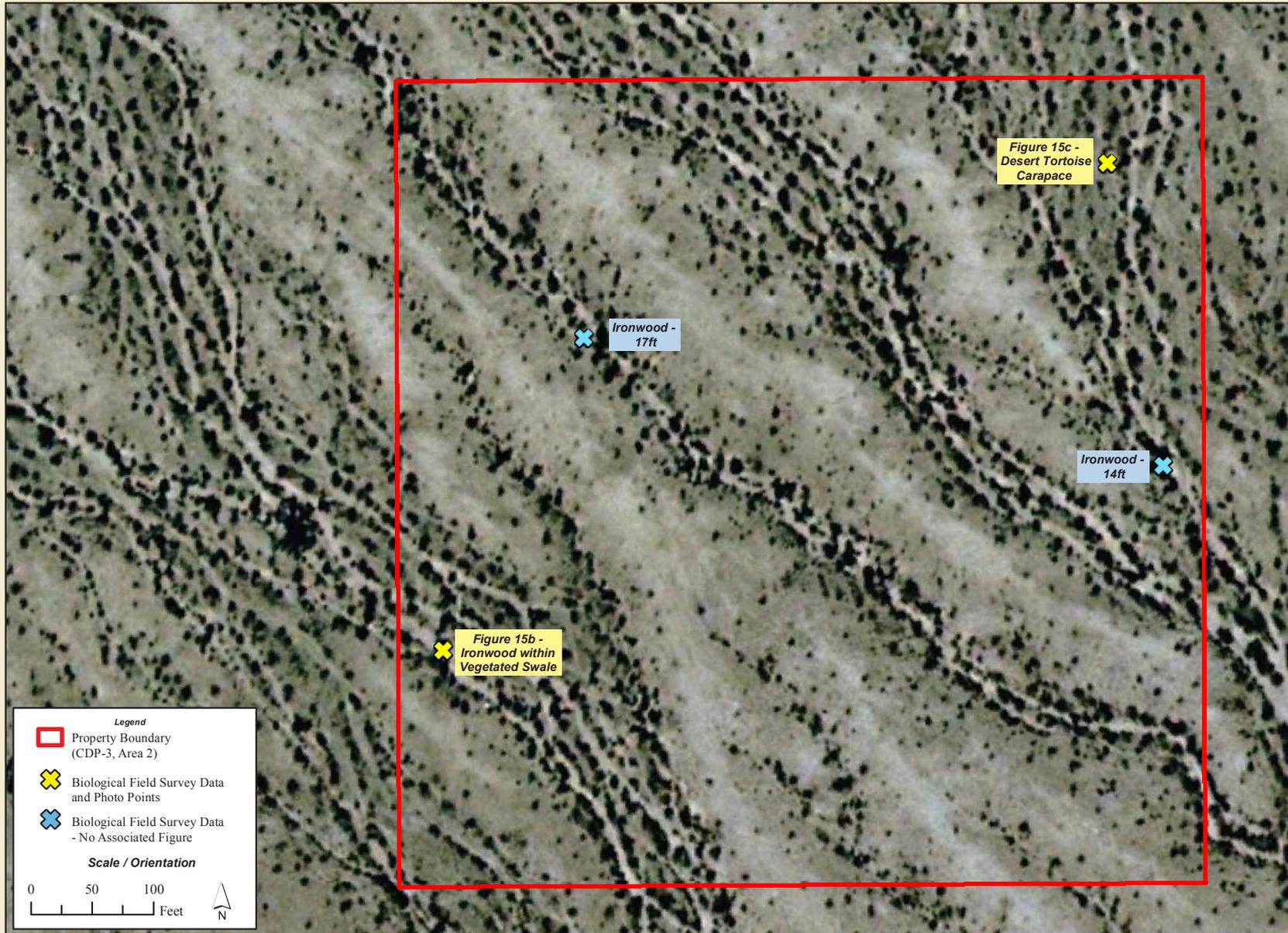


Figure 15a - Sub-Area 2 Representative Vegetation and Wildlife Photos and Data
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



14ft

Figure 15b - Ironwood (*Olneya tesota*) within Vegetated Swale
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



Figure 15c - Desert Tortoise Carapace, Female, 1-2 Years Since Death
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

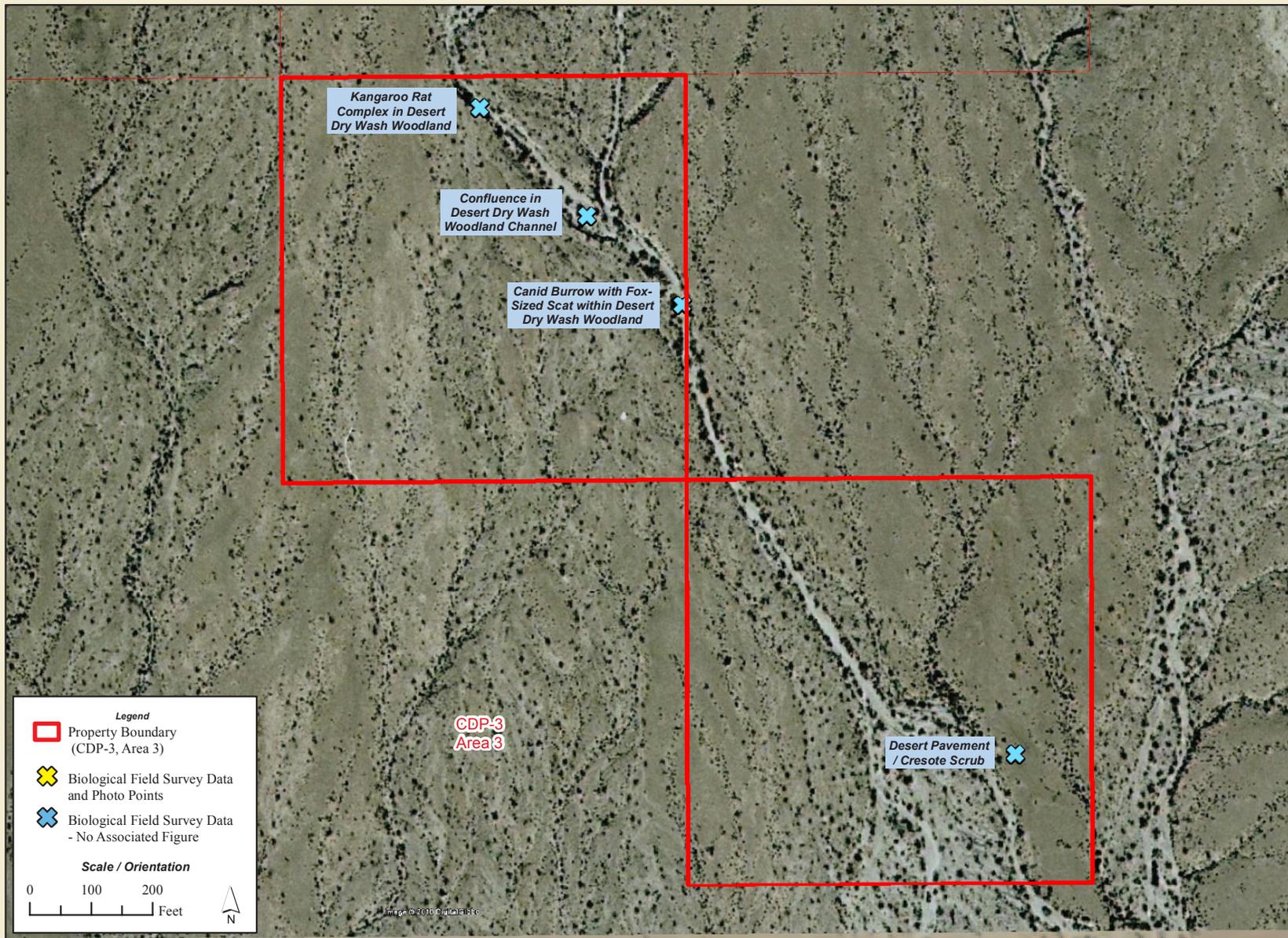


Figure 16 - Sub-Area 3 Representative Vegetation Data
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

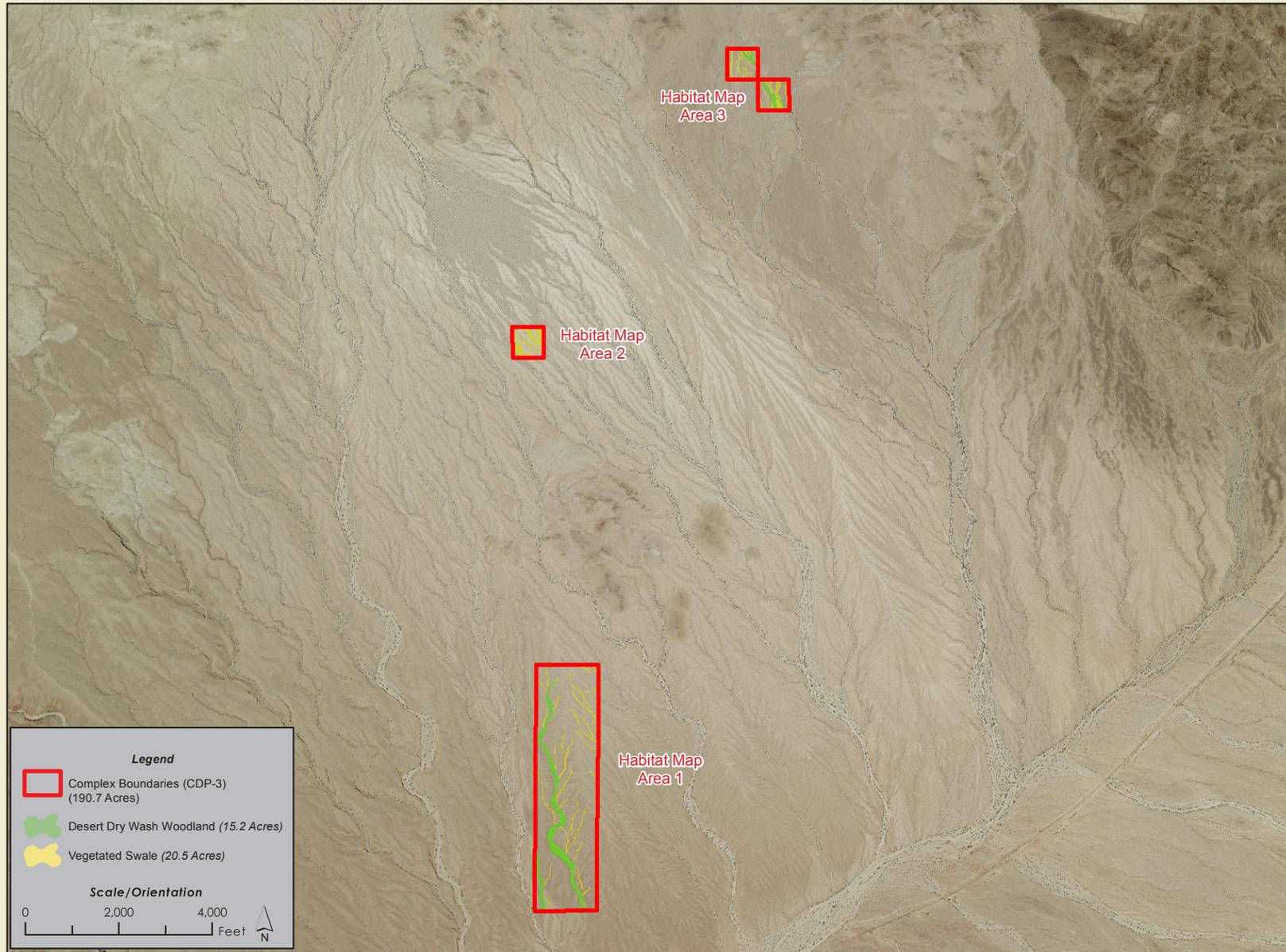


Figure 17a - Wetlands and Microphyll Woodland (Index)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

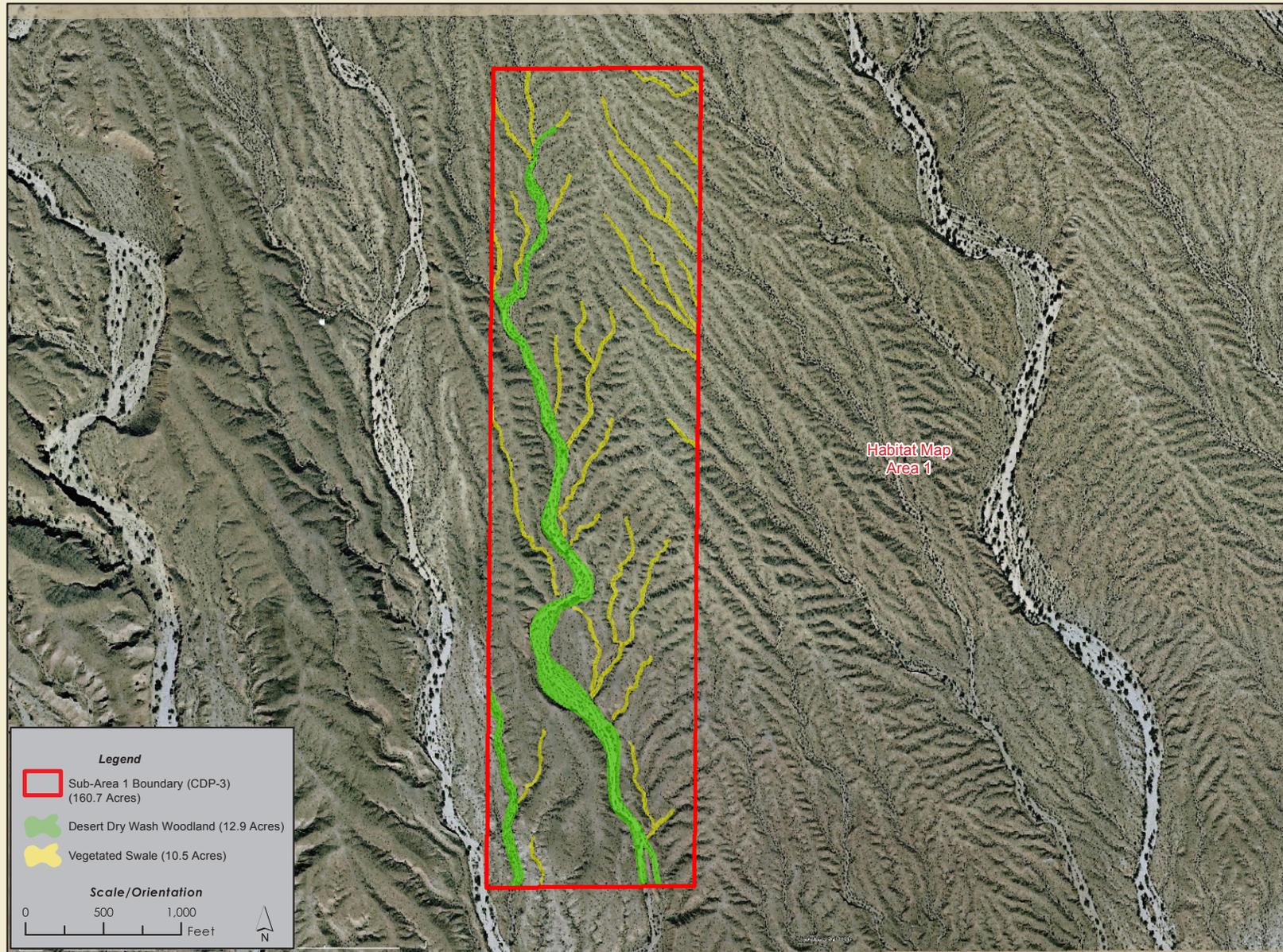


Figure 17b - Wetlands and Microphyll Woodland (Area 1)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve



Figure 17c - Wetlands and Microphyll Woodland (Area 2)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

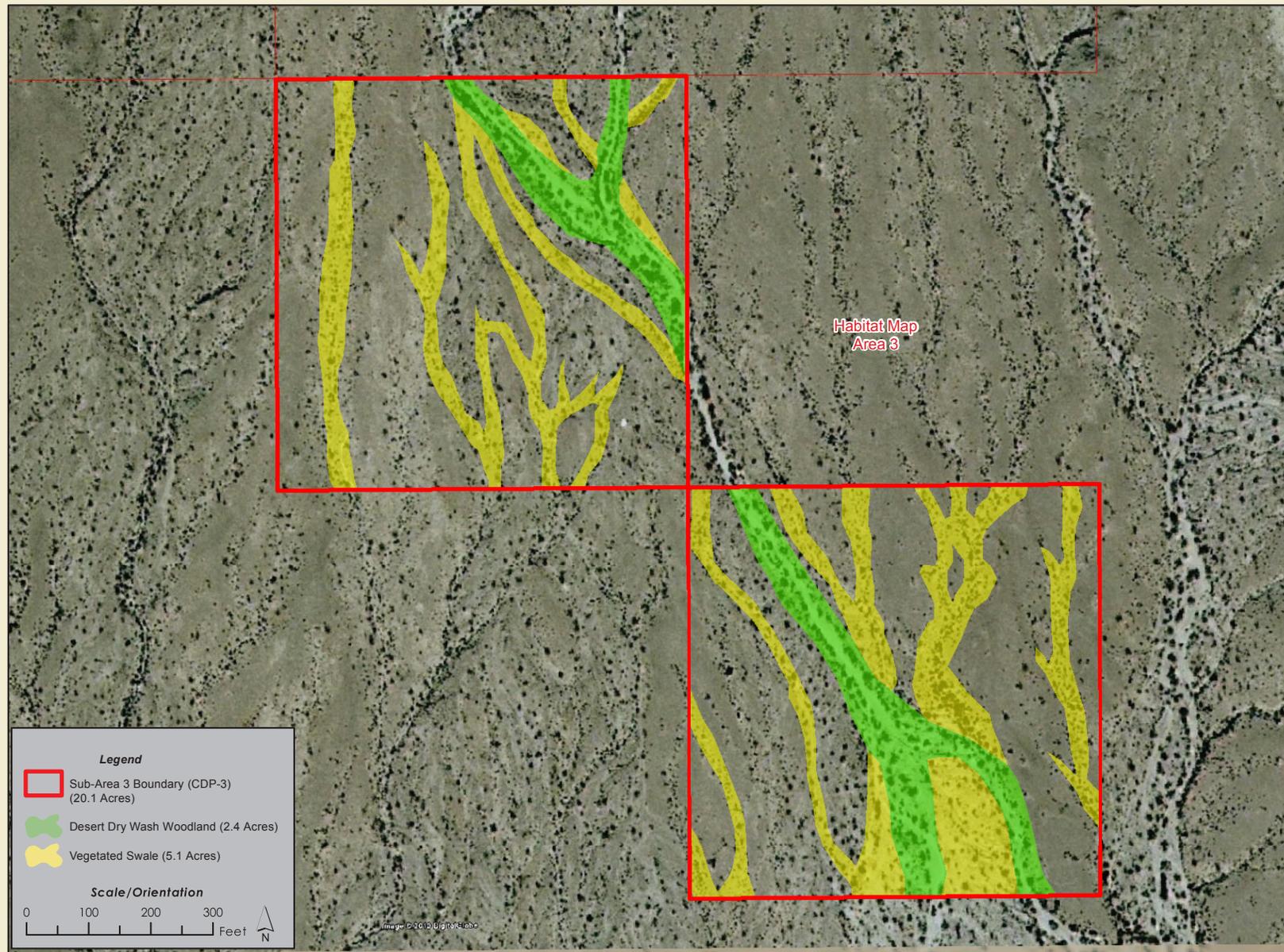


Figure 17d - Wetlands and Microphyll Woodland (Area 3)
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

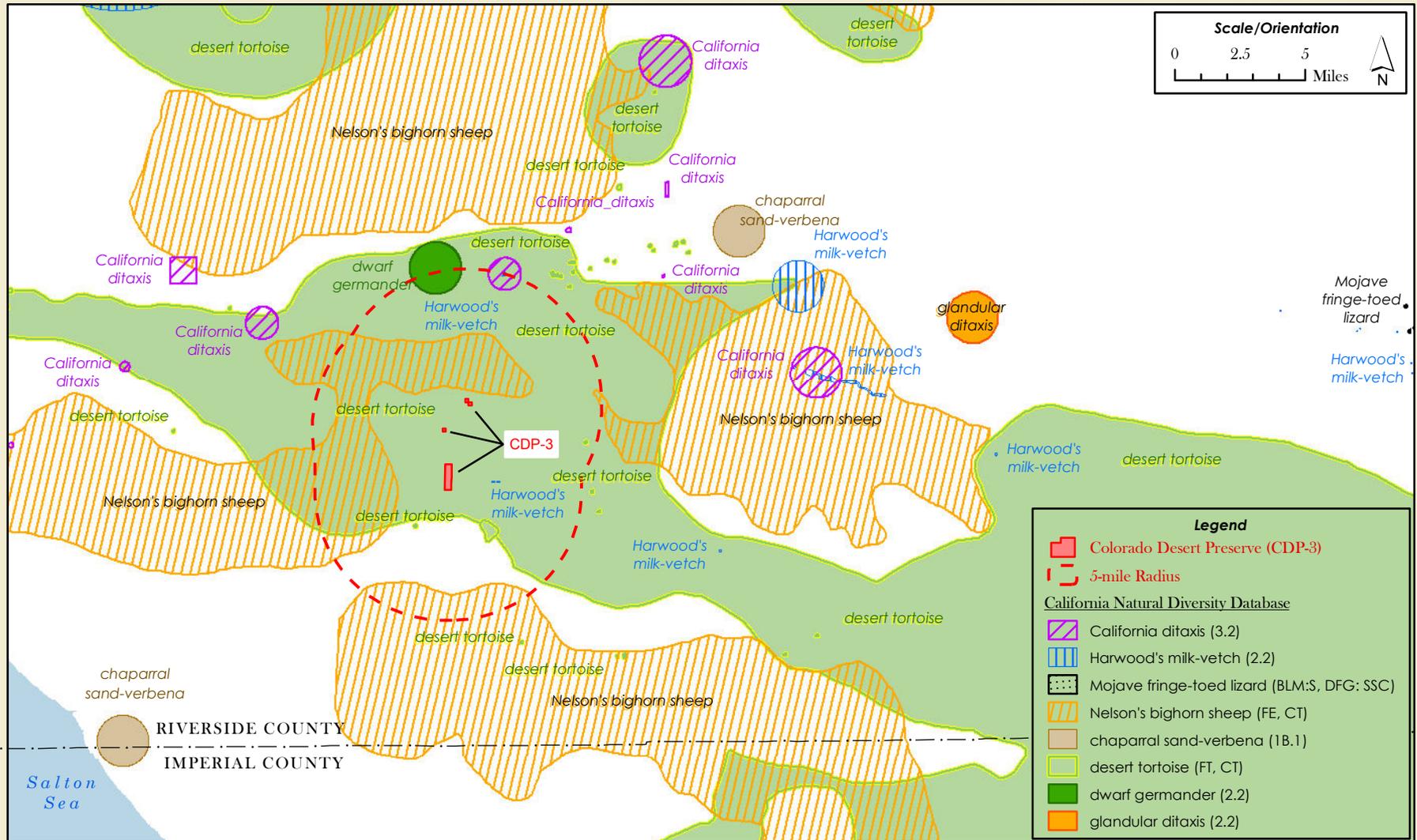


Figure 18 - CNDDDB Occurrences
CDP-3
Biological Resources Report - May 2011

Colorado Desert Preserve

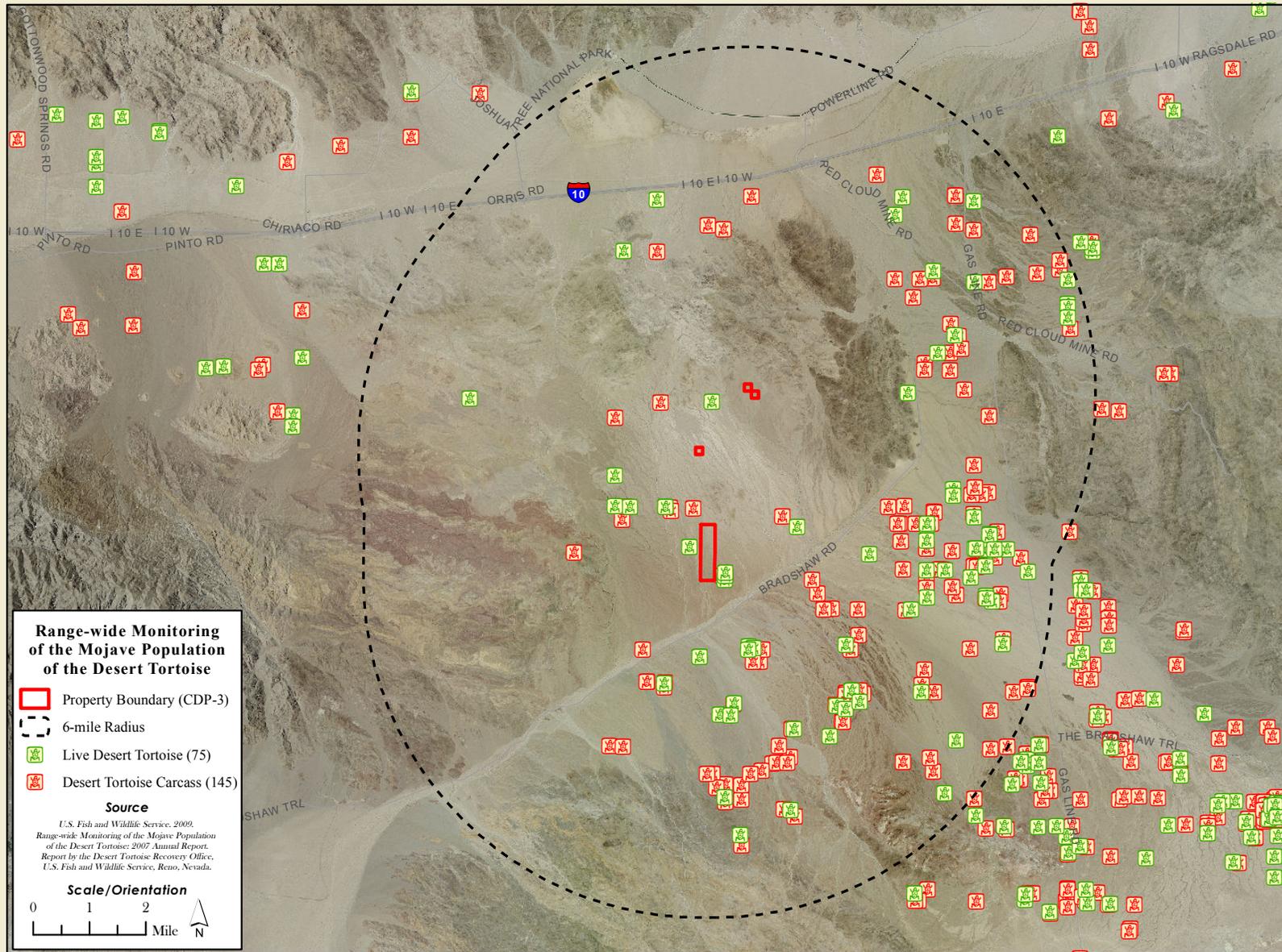
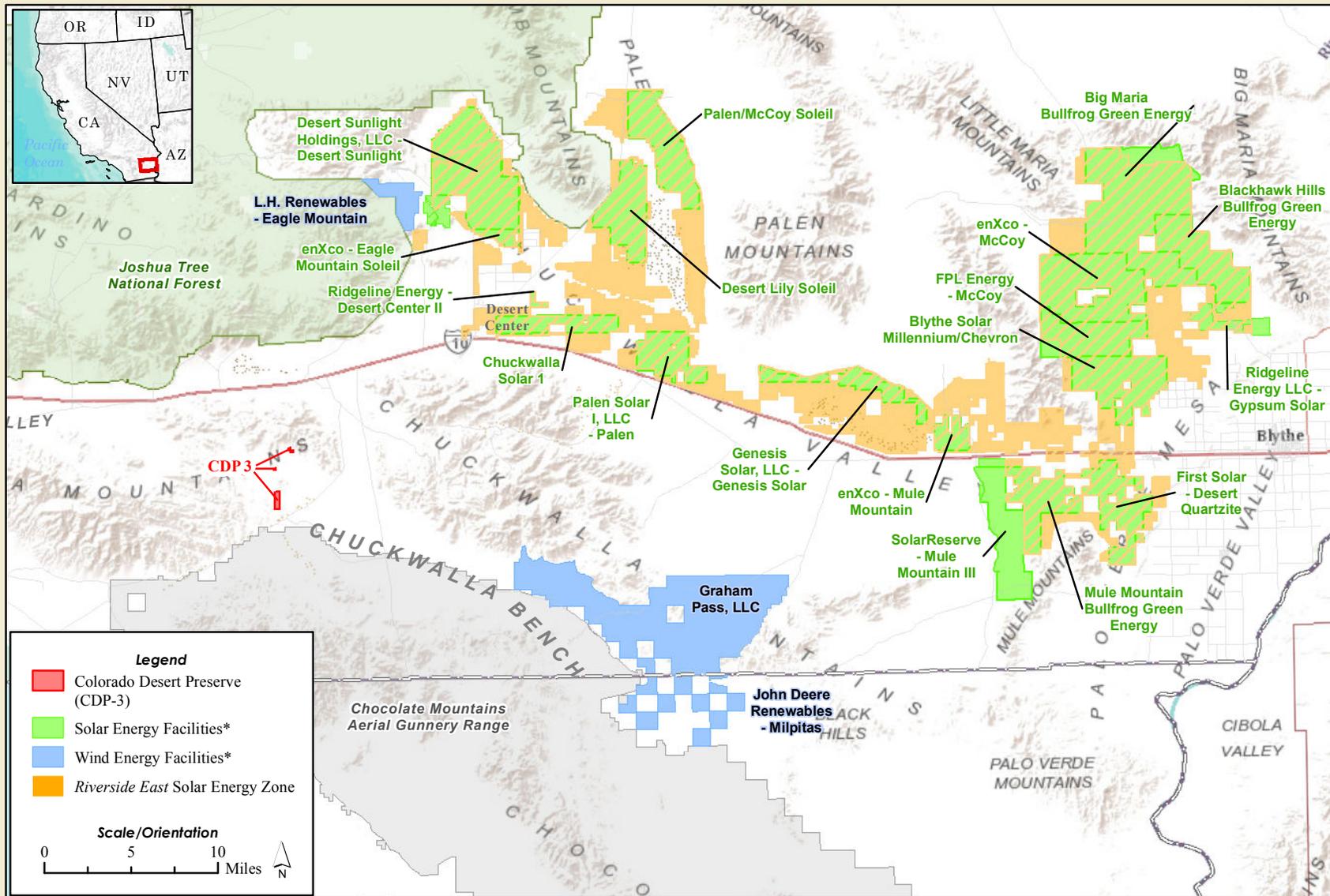


Figure 19 - Desert Tortoise LDS Survey Points
 CDP-3
 Biological Resources Report - May 2011

Colorado Desert Preserve



*Data Sources: (1) PEIS Development Alternative: Lands Available for Application - Solar Energy Zone Program GIS Data. June 3, 2010. <http://solareis.anl.gov/maps/gis/index.cfm>.
 (2) Solar Energy Applications, Palm Springs, South Coast Office. Genesis Solar Energy Project - Revised Staff Assessment Figure 3. June 2010. <http://www.energy.ca.gov/2010publications/CEC-700-2010-006/CEC-700-2010-006-REV.PDF>

Figure 20 - Proposed Renewable Energy Projects
 CDP-3
 Biological Resources Report - May 2011

Exhibit A-1.4
CDP-4 Biological Resources Report