DOCKETED	
Docket Number:	24-OPT-01
Project Title:	Perkins Renewable Energy Project
TN #:	259623
Document Title:	Perkins CEC Data Request Response Set #2 for the Opt-in Application 24-OPT-01 Part 2
Description:	Responses to CEC Data Requests on the Perkins Renewable Energy Project Opt-in Application.
Filer:	Emily Capello
Organization:	Panorama Environmental, Inc.
Submitter Role:	Applicant Consultant
Submission Date:	10/21/2024 12:09:43 PM
Docketed Date:	10/21/2024

Attachment C Biological Resources Support Documentation

Attachment C.4 Updated CNDDB Occurrence List

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Midway Well (3211561) OR Midway Well NW (3211562))

Map Index Number:	76163	**EO Index:**	77155
Key Quad:	Midway Well NW (3211562)	**Element Code:**	ABNME03041
Occurrence Number:	228	**Occurrence Last Updated:**	2012-04-23

Scientific Name: *Laterallus jamaicensis coturniculus* **Common Name:** California black rail

Listing Status: **Federal:** None

State: Threatened

CNDDB Element Ranks: **Global:** G3T1

State: S2

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_FP-Fully Protected
IUCN_EN-Endangered

General Habitat:

INHABITS FRESHWATER MARSHES, WET MEADOWS AND SHALLOW MARGINS OF SALTWATER MARSHES BORDERING LARGER BAYS.

Micro Habitat:

NEEDS WATER DEPTHS OF ABOUT 1 INCH THAT DO NOT FLUCTUATE DURING THE YEAR AND DENSE VEGETATION FOR NESTING HABITAT.

Last Date Observed:	2008-05-08	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2008-05-08	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM, USBOR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

VICINITY OF ALL AMERICAN CANAL S OF HWY 98, FROM ABOUT 1.8 MI E OF POWER DROP #4 TO ABOUT 2.2 MI W OF POWER DROP #3.

Detailed Location:

1984 & 1989: "ALL-AMERICAN CANAL SEEP MARSHES, BETWEEN DROPS 3 & 4." 2000: "ALL-AMERICAN CANAL DROPS 3,4 SOUTH" (AACS), STATIONS 1-23; STATION COORDINATES PROVIDED. MAPPED TO DETECTIONS FROM 2000-2008.

Ecological:

EMERGENT WETLAND VEGETATION. 2008: SEEP WETLANDS CHARACTERIZED BY BULRUSH, CATTAILS, COMMON REED (PHRAGMITES AUSTRALIS), AND SCATTERED WILLOW; "WETLAND ENHANCEMENT PROJECT" UNDERWAY IN AREA.

Threats:

General:

30-38 DETECTED IN 1984. 18 DETECTED IN 1989. 5+ DETECTED AT 6 STATIONS ON 13 JUN, 14+ AT 11 STATIONS ON 14 JUN, & 18+ AT 19 STATIONS ON 16 JUN 2000. 1 DETECTED IN 2007. UP TO 3 DETECTED IN 5 SURVEY DAYS MAR-MAY 2008.

PLSS:	T17S, R17E, Sec. 01, N (S)	**Accuracy:**	non-specific area	**Area (acres):**	188
UTM:	Zone-11 N3620014 E671240	**Latitude/Longitude:**	32.70459 / -115.17308	**Elevation (feet):**	95

County Summary:	**Quad Summary:**
Imperial	Midway Well NW (3211562)

Sources:

CON01D0001	CONWAY, C. (U.S. GEOLOGICAL SURVEY-BIOLOGICAL RESOURCES DIVISION) - SUMMARY OF BLACK RAIL BY LOCATION FROM THE NATIONAL MARSH BIRD MONITORING PROGRAM, 2000-2001. 2001-XX-XX
CON02R0002	CONWAY, C. ET AL. (U.S. BUREAU OF RECLAMATION) - POPULATION TRENDS, DISTRIBUTION, AND MONITORING PROTOCOLS FOR THE CALIFORNIA BLACK RAIL (FINAL REPORT) 2002-01-10
EVE91A0001	EVENS, J.G. ET AL (PRBO CONSERVATION SCIENCE) - DISTRIBUTION, RELATIVE ABUNDANCE AND STATUS OF THE CALIFORNIA BLACK RAIL IN WESTERN NORTH AMERICA. THE CONDOR 93(4):952-966 1991-11-XX
KON08U0001	KONECNY, J. (KONECNY BIOLOGICAL SERVICES) - RESULTS OF A FOCUSED SURVEY FOR THE YUMA CLAPPER RAIL AND CALIFORNIA BLACK RAIL AT THE IMPERIAL IRRIGATION DISTRICT'S ALL AMERICAN CANAL LINING PROJECT WETLAND ENHANCEMENT SITE. 2008-09-04
KON08U0002	KONECNY, J. (KONECNY BIOLOGICAL SERVICES) - LETTER REGARDING THE RESULTS OF A YUMA CLAPPER RAIL SURVEY IN THE IMPERIAL VALLEY AND YUMA AREA IN 2007 2008-06-26

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	06440	**EO Index:**	13041
Key Quad:	Midway Well NW (3211562)	**Element Code:**	ABNME0501A
Occurrence Number:	17	**Occurrence Last Updated:**	2011-09-14

Scientific Name: *Rallus obsoletus yumanensis* **Common Name:** Yuma Ridgway's rail

Listing Status: **Federal:** Endangered **Rare Plant Rank:**

State: Threatened **Other Lists:** CDFW_FP-Fully Protected

CNDDB Element Ranks: **Global:** G3T3

State: S1

General Habitat:

NESTS IN FRESHWATER MARSHES ALONG THE COLORADO RIVER AND ALONG THE SOUTH AND EAST ENDS OF THE SALTON SEA.

Micro Habitat:

PREFERS STANDS OF CATTAILS AND TULES DISSECTED BY NARROW CHANNELS OF FLOWING WATER; PRINCIPLE FOOD IS CRAYFISH.

Last Date Observed:	2008-04-22	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2008-05-08	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

ALL AMERICAN CANAL, AREA BETWEEN BM96 AND BM104 ON TOPO MAP, APPROX 20 MI E OF CALEXICO, JUST S OF HWY 98.

Detailed Location:

ALL AMERICAN CANAL LINING PROJECT ENHANCEMENT AREA. 2000: ALL AMERICAN CANAL BETWEEN DROPS 3 & 4. 2008 SITE NAMES: PS-9. MAPPED TO PROVIDED MAPS.

Ecological:

HABITAT AREA IS THE MARSHY AREAS BEHIND LEVEES ON BOTH SIDES OF THE CANAL. VEGETATION CONSISTED OF TAMARISK, ARROWWEED, & QUAILBUSH, WITH AN OCCASIONAL HONEY MOSQUITE & CREOSOTE BUSH. A DIRT UTILITY POWER LINE ROAD PARALLELS THE CANAL.

Threats:

General:

9 RAILS DETECTED IN 1981, 5 IN 1984, 3 IN 1985, AND 2 IN 2000. 1 PAIR DETECTED DURING SURVEY FROM 4 APR TO 18 MAY 2007. 1 RAIL "KEKKING" ON 4 APR, AND 1 PAIR DETECTED ON 22 APR DURING SURVEY FROM 18 MAR TO 8 MAY 2008.

PLSS:	T17S, R18E, Sec. 06, N (S)	**Accuracy:**	non-specific area	**Area (acres):**	326
UTM:	Zone-11 N3620074 E671321	**Latitude/Longitude:**	32.70512 / -115.17221	**Elevation (feet):**	95

County Summary:	**Quad Summary:**
Imperial	Midway Well NW (3211562)

Sources:

CON02R0002	CONWAY, C. ET AL. (U.S. BUREAU OF RECLAMATION) - POPULATION TRENDS, DISTRIBUTION, AND MONITORING PROTOCOLS FOR THE CALIFORNIA BLACK RAIL (FINAL REPORT) 2002-01-10
FWS83R0007	U.S. FISH & WILDLIFE SERVICE - YUMA CLAPPER RAIL RECOVERY PLAN, FINAL. 1983-02-04
KON08U0001	KONECNY, J. (KONECNY BIOLOGICAL SERVICES) - RESULTS OF A FOCUSED SURVEY FOR THE YUMA CLAPPER RAIL AND CALIFORNIA BLACK RAIL AT THE IMPERIAL IRRIGATION DISTRICT'S ALL AMERICAN CANAL LINING PROJECT WETLAND ENHANCEMENT SITE. 2008-09-04
KON08U0002	KONECNY, J. (KONECNY BIOLOGICAL SERVICES) - LETTER REGARDING THE RESULTS OF A YUMA CLAPPER RAIL SURVEY IN THE IMPERIAL VALLEY AND YUMA AREA IN 2007 2008-06-26
POW85U0002	POWELL, R. (CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE-BLYTHE) - MAPS AND LETTERS DESCRIBING THE CURRENT STATUS OF THE YUMA CLAPPER RAIL (3 SETS OF MAPS). 1985-12-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 70521
EO Index: 71425
Key Quad: Midway Well NW (3211562)
Element Code: AMAFF07013
Occurrence Number: 4
Occurrence Last Updated: 2007-11-27

Scientific Name: *Sigmodon hispidus eremicus*
Common Name: Yuma hispid cotton rat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern

CNDDB Element Ranks: **Global:** G5T2T3
State: S2

General Habitat:

ALONG THE COLORADO RIVER AND IN GRASS AND AGRICULTURAL AREAS NEAR IRRIGATION WATERS.

Micro Habitat:

WETLANDS AND UPLANDS WITH DENSE GRASS AND HERBACEOUS PLANTS. MAKES RUNWAYS THROUGH VEGETATION. NESTS ON SURFACE AND IN BURROWS.

Last Date Observed: 2007-10-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2007-10-10
Occurrence Rank: Unknown
Owner/Manager: PVT-IMPERIAL IRRIGATION DIST
Trend: Unknown
Presence: Presumed Extant

Location:

SOUTH SIDE OF THE ALL AMERICAN CANAL, 4.3 MILES EAST OF THE EAST HIGHLINE CANAL JUNCTION, 20 MILES ESE OF EL CENTRO.

Detailed Location:

Ecological:

HABITAT CONSISTS OF ARROW WEED SCRUB AND FRESHWATER MARSH ADJACENT TO AN IRRIGATION CANAL.

Threats:

General:

2 ADULT MALES CAPTURED ON 10 OCT 2007.

PLSS: T17S, R17E, Sec. 03, NE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3620001 E667688
Latitude/Longitude: 32.70502 / -115.21097
Elevation (feet): 90

County Summary:	Quad Summary:
Imperial	Midway Well NW (3211562)

Sources:

MIT07F0026 MITCHELL, D.R. (ECORP CONSULTING, INC.) - FIELD SURVEY FORM FOR SIGMODON HISPIDUS EREMICUS 2007-10-10

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 70523
EO Index: 71427
Key Quad: Midway Well NW (3211562)
Element Code: AMAFF07013
Occurrence Number: 6
Occurrence Last Updated: 2007-11-30

Scientific Name: *Sigmodon hispidus eremicus*
Common Name: Yuma hispid cotton rat

Listing Status: **Federal:** None
State: None
Rare Plant Rank:
Other Lists: CDFW_SSC-Species of Special Concern

CNDDB Element Ranks: **Global:** G5T2T3
State: S2

General Habitat:

ALONG THE COLORADO RIVER AND IN GRASS AND AGRICULTURAL AREAS NEAR IRRIGATION WATERS.

Micro Habitat:

WETLANDS AND UPLANDS WITH DENSE GRASS AND HERBACEOUS PLANTS. MAKES RUNWAYS THROUGH VEGETATION. NESTS ON SURFACE AND IN BURROWS.

Last Date Observed: 2007-10-12
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2007-10-12
Occurrence Rank: Unknown
Owner/Manager: PVT-IMPERIAL IRRIGATION DIST
Trend: Unknown
Presence: Presumed Extant

Location:

0.25 MILE SOUTH OF THE ALL AMERICAN CANAL, 23 MILES ESE OF EL CENTRO.

Detailed Location:

Ecological:

HABITAT CONSISTS OF ARROW WEED SCRUB AND FRESHWATER MARSH ADJACENT TO AN IRRIGATION CANALS.

Threats:

General:

4 NON-REPRODUCTIVE ADULT MALES, 8 NON-REPRODUCTIVE ADULT FEMALES, 1 JUVENILE MALE, AND 1 JUVENILE FEMALE CAPTURED ON 12 OCT 2007.

PLSS: T17S, R17E, Sec. 01, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3619627 E670324
Latitude/Longitude: 32.70124 / -115.18293
Elevation (feet): 85

County Summary:

Imperial

Quad Summary:

Midway Well NW (3211562)

Sources:

MIT07F0028 MITCHELL, D.R. (ECORP CONSULTING, INC.) - FIELD SURVEY FORM FOR SIGMODON HISPIDUS EREMICUS 2007-10-12

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96526
Key Quad: Midway Well NW (3211562)
Occurrence Number: 299
EO Index: 97699
Element Code: ARACF12040
Occurrence Last Updated: 2015-07-16

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1933-06-04
Last Survey Date: 1933-06-04
Owner/Manager: UNKNOWN
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ABOUT 6 MILES WEST OF MIDWAY WELL, EAST OF CALEXICO.

Detailed Location:

MAPPED GENERALLY TO LOCALITY GIVEN FOR 1933 SPECIMEN.

Ecological:

Threats:

General:

1 COLLECTED ON 4 JUN 1933.

PLSS: T16S, R17E, Sec. 35 (S)
UTM: Zone-11 N3620929 E670237
Accuracy: 1 mile
Latitude/Longitude: 32.71300 / -115.18362
Area (acres): 0
Elevation (feet): 100

County Summary:

Imperial

Quad Summary:

Midway Well NW (3211562)

Sources:

KLA33S0003 KLAUBER, P. - SDNHM #20174 COLLECTED FROM 6 MI W OF MIDWAY WELL 1933-06-04

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	96529	**EO Index:**	97704
Key Quad:	Midway Well NW (3211562)	**Element Code:**	ARACF12040
Occurrence Number:	300	**Occurrence Last Updated:**	2015-06-30

Scientific Name: *Phrynosoma mcallii*

Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

CNDDB Element Ranks: **Global:** G3

State: S3

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed:	2001-XX-XX	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2001-XX-XX	**Occurrence Rank:**	Unknown
Owner/Manager:	BLM	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

0.6 MILE NE OF INTERSTATE 8, 6.0 MILES WNW OF THE JUNCTION OF INTERSTATE 8 AND HIGHWAY 98, WEST OF HOLTVILLE.

Detailed Location:

1979 & 1986 OBSERVATIONS IN T16S R17E SECTION 23, EXACT LOCATIONS UNKNOWN. MAPPED TO LOCATION GIVEN FOR 2001 DETECTION.

Ecological:

1979 AND 1986 SURVEYORS ASSUMED THE SCAT THEY FOUND WAS FROM FLAT-TAILED HORNED LIZARD, BUT DID NOT RULE OUT DESERT HORNED OR FRINGE-TOED LIZARD.

Threats:

General:

1 LIZARD AND PRESUMED FLAT-TAILED HORNED LIZARD SCAT FOUND ON 4 MAY 1979. PRESUMED FTHL SCAT FOUND IN 1986. AT LEAST 1 LIZARD FOUND DURING SURVEYS IN 2001.

PLSS:	T16S, R17E, Sec. 23, NE (S)	**Accuracy:**	1/5 mile	**Area (acres):**	0
UTM:	Zone-11 N3625016 E670392	**Latitude/Longitude:**	32.74982 / -115.18122	**Elevation (feet):**	100

County Summary:	**Quad Summary:**
Imperial	Midway Well NW (3211562), Glamis SW (3211572)

Sources:

OLE88F0001	OLECH, L. - SET OF FIELD SURVEY FORMS ON FLAT-TAILED HORNED LIZARD COVERING BLM SURVEYS IN 1979, 1985, 1986, AND 1987. 1988-XX-XX
WRI02R0001	WRIGHT, G. (U.S. BUREAU OF LAND MANAGEMENT) - FLAT-TAILED HORNED LIZARD MONITORING REPORT, APRIL 2002 2002-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96544
EO Index: 97720
Key Quad: Midway Well NW (3211562)
Element Code: ARACF12040
Occurrence Number: 303
Occurrence Last Updated: 2015-06-30

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2013-03-14
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2013-03-14
Occurrence Rank: Unknown
Owner/Manager: BOR
Trend: Unknown
Presence: Presumed Extant

Location:

0.3 MILE SOUTH OF ALL AMERICAN CANAL, 3.5 MILES EAST OF INTERSECTION OF HIGHWAY 98 AND HOLDRIDGE ROAD, SE OF HOLTVILLE.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

ACCESS ROAD IN DESERT SCRUB HABITAT. DETECTION OCCURRED DURING CONSTRUCTION MONITORING ACTIVITIES.

Threats:

VEHICLE COLLISION. ROAD MAINTENANCE.

General:

1 OLD CARCASS FOUND DEAD ON 14 MAR 2013 ON EXISTING ACCESS ROAD DURING RE-GRADING MONITORING.

PLSS: T17S, R17E, Sec. 03, SE (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3619577 E667359
Latitude/Longitude: 32.70124 / -115.21455
Elevation (feet): 85

County Summary:	Quad Summary:
Imperial	Midway Well NW (3211562)

Sources:

MCD13D0001 MCDERMOTT, F. (RECON ENVIRONMENTAL, INC.) - SHAPEFILE OF INCIDENTAL OBSERVATIONS DURING RECON ENVIRONMENTAL MONITORING ACTIVITES, 12 JAN 2012-18 MAR 2013. 2013-03-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	96546	**EO Index:**	97722
Key Quad:	Midway Well NW (3211562)	**Element Code:**	ARACF12040
Occurrence Number:	304	**Occurrence Last Updated:**	2015-06-30

Scientific Name: *Phrynosoma mcallii*

Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

CNDDB Element Ranks: **Global:** G3

State: S3

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed:	2013-03-18	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2013-03-18	**Occurrence Rank:**	Unknown
Owner/Manager:	BOR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

0.8 MILE SOUTH OF ALL AMERICAN CANAL, 3.3 MILES EAST OF INTERSECTION OF HIGHWAY 98 AND HOLDRIDGE ROAD, SE OF HOLTVILLE.

Detailed Location:

MAPPED TO PROVIDED COORDINATES.

Ecological:

ACCESS ROAD IN DESERT SCRUB HABITAT. DETECTION OCCURRED DURING CONSTRUCTION MONITORING ACTIVITIES.

Threats:

VEHICLE COLLISION. ROAD MAINTENANCE.

General:

1 CARCASS FOUND DEAD ON 18 MAR 2013 ON EXISTING ACCESS ROAD DURING RE-GRADING MONITORING.

PLSS:	T17S, R17E, Sec. 03, SW (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3618820 E666931	**Latitude/Longitude:**	32.69449 / -115.21925	**Elevation (feet):**	80

County Summary:	**Quad Summary:**
Imperial	Midway Well NW (3211562)

Sources:

MCD13D0001 MCDERMOTT, F. (RECON ENVIRONMENTAL, INC.) - SHAPEFILE OF INCIDENTAL OBSERVATIONS DURING RECON ENVIRONMENTAL MONITORING ACTIVITES, 12 JAN 2012-18 MAR 2013. 2013-03-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96547
EO Index: 97723
Key Quad: Midway Well NW (3211562)
Element Code: ARACF12040
Occurrence Number: 305
Occurrence Last Updated: 2015-07-16

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2014-04-28
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2014-04-28
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

NEAR INTERSTATE 8, ABOUT 4.1 MILES NW OF ITS JUNCTION WITH HIGHWAY 98, SE OF HOLTVILLE.

Detailed Location:

MAPPED TO INCLUDE LOCATIONS GIVEN FOR 2001 AND 2014 DETECTIONS.

Ecological:

SANDY CREOSOTE FLATS. VEHICLE TRACK DENSITY ESTIMATED BETWEEN 3 AND 9% OF THE SURFACE AREA, WITH 6-9 ROUTES PER MILE IN 2001.

Threats:

OHV IMPACTS.

General:

AT LEAST 1 LIZARD FOUND DURING 2001 SURVEYS. 1 ADULT OBSERVED ON 28 APR 2014.

PLSS: T16S, R18E, Sec. 30, NW (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3623161 E672906
Latitude/Longitude: 32.73271 / -115.15474
Elevation (feet): 115

County Summary:	Quad Summary:
Imperial	Midway Well NW (3211562)

Sources:

HER16D0001	HERP, INC. - HERPETOLOGICAL EDUCATION AND RESEARCH PROJECT (HERP) DATABASE. FORMERLY A PROJECT OF THE NORTH AMERICAN FIELD HERPING ASSOCIATION. 2016-10-11
WRI02R0001	WRIGHT, G. (U.S. BUREAU OF LAND MANAGEMENT) - FLAT-TAILED HORNED LIZARD MONITORING REPORT, APRIL 2002 2002-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96548
EO Index: 97724
Key Quad: Midway Well (3211561)
Element Code: ARACF12040
Occurrence Number: 306
Occurrence Last Updated: 2015-06-30

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2010-08-19
Occurrence Type: Natural/Native occurrence
Last Survey Date: 2010-08-19
Occurrence Rank: Unknown
Owner/Manager: BLM
Trend: Unknown
Presence: Presumed Extant

Location:

NEAR INTERSTATE 8, 0.8 MILE NW OF JUNCTION WITH HIGHWAY 98, SE OF HOLTVILLE.

Detailed Location:

MAPPED TO COORDINATES GIVEN FOR 2010 DETECTION. 1961 SPECIMEN WITH LOCALITY GIVEN AS 26 MILES EAST OF EL CENTRO ON US 80 ALSO ATTRIBUTED HERE.

Ecological:

Threats:

General:

1 COLLECTED ON 3 AUG 1961. 1 ADULT FEMALE OBSERVED ON 19 AUG 2010.

PLSS: T16S, R18E, Sec. 34, SW (S)
Accuracy: 80 meters
Area (acres): 0
UTM: Zone-11 N3621323 E677856
Latitude/Longitude: 32.71535 / -115.10229
Elevation (feet): 125

County Summary:	Quad Summary:
Imperial	Midway Well (3211561)

Sources:

HER16D0001	HERP, INC. - HERPETOLOGICAL EDUCATION AND RESEARCH PROJECT (HERP) DATABASE. FORMERLY A PROJECT OF THE NORTH AMERICAN FIELD HERPING ASSOCIATION. 2016-10-11
PAU61S0002	PAULSON, D. - PAULSON #1870 LACM #62207, COLLECTED FROM 26 MI E OF EL CENTRO ON US 80 1961-08-03

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96551
EO Index: 97729
Key Quad: Midway Well (3211561)
Element Code: ARACF12040
Occurrence Number: 307
Occurrence Last Updated: 2015-07-01

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1936-04-10
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1936-04-10
Occurrence Rank: Unknown
Owner/Manager: BLM, USBOR
Trend: Unknown
Presence: Presumed Extant

Location:

VICINITY OF MIDWAY WELL, SE OF HOLTVILLE.

Detailed Location:

1936 SPECIMEN LOCALITY GIVEN AS "MIDWELL WELLS" (PRESUMABLY AN ALTERNATE SPELLING OF MIDWAY WELL). 1984 SURVEYS ALONG THE ALL AMERICAN CANAL FOUND SCAT BUT NO FLAT-TAILED HORNED LIZARDS IN THE VICINITY.

Ecological:

1984 SURVEYORS ASSUMED THE SCAT THEY FOUND WAS FROM FLAT-TAILED HORNED LIZARDS BUT APPEAR NOT TO HAVE RULED OUT DESERT HORNED LIZARD OR FRINGE-TOED LIZARD (WHICH WAS SIGHTED DURING SURVEYS).

Threats:

General:

1 FLAT-TAILED HORNED LIZARD COLLECTED ON 10 APR 1936.

PLSS: T16S, R18E, Sec. 35 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3620867 E679641
Latitude/Longitude: 32.71094 / -115.08334
Elevation (feet): 125

County Summary:	Quad Summary:
Imperial	Midway Well (3211561)

Sources:

BOG36S0001	BOGERT - LACM #19772 COLLECTED FROM MIDWELL [SIC] WELLS 1936-04-10
ROR84R0001	RORABAUGH, J. (U.S. BUREAU OF RECLAMATION) - AN EVALUATION OF FLAT-TAILED HORNED LIZARD (PHRYNOSOMA MCALLII) HABITAT QUALITY ALONG 40.9 KM (25.4 MI) OF THE PROPOSED ALL-AMERICAN CANAL ROUTE IN IMPERIAL COUNTY, CALIFORNIA 1984-06-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96553
Key Quad: Glamis SE (3211571)
Occurrence Number: 308
EO Index: 97730
Element Code: ARACF12040
Occurrence Last Updated: 2015-07-16

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2001-XX-XX
Last Survey Date: 2001-XX-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

3.0 MILES NNW OF THE JUNCTION OF HIGHWAY 98 AND INTERSTATE 8, EAST MESA, EAST OF HOLTVILLE.

Detailed Location:

MAPPED TO LIZARD DETECTION LOCATION PROVIDED IN 2002 REPORT.

Ecological:

VEHICLE TRACK DENSITY ASSESSED AT 3-9% OF SURFACE, 2-5 ROUTES PER MILE [OF TRANSECT] IN 2001.

Threats:

OHV IMPACTS.

General:

AT LEAST 1 LIZARD DETECTED DURING SURVEYS IN 2001.

PLSS: T16S, R18E, Sec. 21, NE (S)
Accuracy: 1/5 mile
Area (acres): 0
UTM: Zone-11 N3625241 E677075
Latitude/Longitude: 32.75080 / -115.10987
Elevation (feet): 120

County Summary:	Quad Summary:
Imperial	Midway Well (3211561), Glamis SE (3211571)

Sources:

WRI02R0001 WRIGHT, G. (U.S. BUREAU OF LAND MANAGEMENT) - FLAT-TAILED HORNED LIZARD MONITORING REPORT, APRIL 2002 2002-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96555
Key Quad: Midway Well (3211561)
Occurrence Number: 309
EO Index: 97732
Element Code: ARACF12040
Occurrence Last Updated: 2015-07-01

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 2001-XX-XX
Last Survey Date: 2001-XX-XX
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ABOUT 2.6 MILES NE OF THE JUNCTION OF HIGHWAY 98 AND INTERSTATE 8, EAST MESA, EAST OF HOLTVILLE.

Detailed Location:

MAPPED TO LIZARD DETECTION LOCATIONS PROVIDED IN 2002 REPORT.

Ecological:

VEHICLE TRACK DENSITY ASSESSED AT 3-9% OF SURFACE, 2-5 ROUTES PER MILE [OF TRANSECT] IN 2001.

Threats:

OHV IMPACTS.

General:

1 LIZARD FOUND WITHIN T16S, R19E SECTION 30 ON 29 APR 1979. AT LEAST 2 LIZARDS DETECTED DURING SURVEYS IN 2001.

PLSS: T16S, R19E, Sec. 19 (S)
Accuracy: non-specific area
Area (acres): 140
UTM: Zone-11 N3624003 E682017
Latitude/Longitude: 32.73882 / -115.05739
Elevation (feet): 140

County Summary:	Quad Summary:
Imperial	Midway Well (3211561)

Sources:

OLE88F0001	OLECH, L. - SET OF FIELD SURVEY FORMS ON FLAT-TAILED HORNED LIZARD COVERING BLM SURVEYS IN 1979, 1985, 1986, AND 1987. 1988-XX-XX
WRI02R0001	WRIGHT, G. (U.S. BUREAU OF LAND MANAGEMENT) - FLAT-TAILED HORNED LIZARD MONITORING REPORT, APRIL 2002 2002-04-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 96556
Key Quad: Midway Well (3211561)
Occurrence Number: 310
EO Index: 97734
Element Code: ARACF12040
Occurrence Last Updated: 2015-07-01

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G3
State: S3
Rare Plant Rank:
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1979-04-29
Last Survey Date: 1979-04-29
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:

ABOUT 3.5 MILES ENE OF THE JUNCTION OF HIGHWAY 98 AND INTERSTATE 8, EAST MESA, EAST OF HOLTVILLE.

Detailed Location:

DETECTION LOCATION ONLY GIVEN AS T16S R19E, SECTION 29.

Ecological:

SURVEYORS PRESUMED THE SCAT THEY FOUND WAS FROM FLAT-TAILED HORNED LIZARD BUT DID NOT RULE OUT DESERT HORNED OR FRINGE-TOED LIZARD.

Threats:

General:

1 LIZARD AND PRESUMED FLAT-TAILED HORNED LIZARD SCAT DETECTED ON 29 APR 1979. THE AMOUNT OF SCAT INDICATED A POPULATION OF LOW ABUNDANCE IN THIS VICINITY.

PLSS: T16S, R19E, Sec. 29 (S)
Accuracy: non-specific area
Area (acres): 640
UTM: Zone-11 N3623168 E684415
Latitude/Longitude: 32.73090 / -115.03197
Elevation (feet): 140

County Summary:	Quad Summary:
Imperial	Midway Well (3211561)

Sources:

OLE88F0001 OLECH, L. - SET OF FIELD SURVEY FORMS ON FLAT-TAILED HORNED LIZARD COVERING BLM SURVEYS IN 1979, 1985, 1986, AND 1987. 1988-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number:	96558	**EO Index:**	97736
Key Quad:	Midway Well (3211561)	**Element Code:**	ARACF12040
Occurrence Number:	311	**Occurrence Last Updated:**	2015-07-16

Scientific Name: *Phrynosoma mcallii*

Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None

State: None

Rare Plant Rank:

Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

CNDDB Element Ranks: **Global:** G3

State: S3

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed:	2014-04-28	**Occurrence Type:**	Natural/Native occurrence
Last Survey Date:	2014-04-28	**Occurrence Rank:**	Unknown
Owner/Manager:	USBOR	**Trend:**	Unknown
Presence:	Presumed Extant		

Location:

2.9 MILES EAST OF THE JUNCTION OF HIGHWAY 98 AND INTERSTATE 8, EAST MESA, SE OF HOLTVILLE.

Detailed Location:

A 1984 SURVEY FOUND SCAT, BUT NO FLAT-TAILED HORNED LIZARDS NEAR THE ALL-AMERICAN CANAL IN THIS AREA. MAPPED TO COORDINATES PROVIDED FOR 2014 DETECTION, ALONG EVAN HEWES HIGWAY, JUST NORTH OF INTERSTATE 8.

Ecological:

1984 SURVEYORS ASSUMED THE SCAT THEY FOUND WAS FROM FLAT-TAILED HORNED LIZARDS BUT APPEAR NOT TO HAVE RULED OUT DESERT HORNED LIZARD OR FRINGE-TOED LIZARD.

Threats:

General:

1 ADULT OBSERVED ON 28 APR 2014.

PLSS:	T16S, R19E, Sec. 32, SW (S)	**Accuracy:**	80 meters	**Area (acres):**	0
UTM:	Zone-11 N3620778 E683753	**Latitude/Longitude:**	32.70947 / -115.03951	**Elevation (feet):**	130

County Summary:	**Quad Summary:**
Imperial	Midway Well (3211561)

Sources:

HER16D0001	HERP, INC. - HERPETOLOGICAL EDUCATION AND RESEARCH PROJECT (HERP) DATABASE. FORMERLY A PROJECT OF THE NORTH AMERICAN FIELD HERPING ASSOCIATION. 2016-10-11
ROR84R0001	RORABAUGH, J. (U.S. BUREAU OF RECLAMATION) - AN EVALUATION OF FLAT-TAILED HORNED LIZARD (PHRYNOSOMA MCALLII) HABITAT QUALITY ALONG 40.9 KM (25.4 MI) OF THE PROPOSED ALL-AMERICAN CANAL ROUTE IN IMPERIAL COUNTY, CALIFORNIA 1984-06-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 97026
EO Index: 98265
Key Quad: Glamis SW (3211572)
Element Code: ARACF12040
Occurrence Number: 387
Occurrence Last Updated: 2015-07-29

Scientific Name: *Phrynosoma mcallii*
Common Name: flat-tailed horned lizard

Listing Status: **Federal:** None
State: None
Rare Plant Rank:

CNDDB Element Ranks: **Global:** G3
State: S3
Other Lists: BLM_S-Sensitive
CDFW_SSC-Species of Special Concern
IUCN_NT-Near Threatened

General Habitat:

RESTRICTED TO DESERT WASHES AND DESERT FLATS IN CENTRAL RIVERSIDE, EASTERN SAN DIEGO, AND IMPERIAL COUNTIES.

Micro Habitat:

CRITICAL HABITAT ELEMENT IS FINE SAND, INTO WHICH LIZARDS BURROW TO AVOID TEMPERATURE EXTREMES; REQUIRES VEGETATIVE COVER AND ANTS.

Last Date Observed: 1959-03-27
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1959-03-27
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN, BLM
Trend: Unknown
Presence: Presumed Extant

Location:

ABOUT 10.7 MILES EAST OF HOLTVILLE ALONG INTERSTATE 8.

Detailed Location:

MAPPED GENERALLY TO GIVEN LOCALITY, "HOLTVILLE - 10.7 MI. EAST ON U.S. 80." THE ROUTE OF FORMER US HIGHWAY 80 IS NOW INTERSTATE 8.

Ecological:

Threats:

General:

COLLECTED ON 27 MAR 1959.

PLSS: T16S, R17E, Sec. 21 (S)
Accuracy: 1 mile
Area (acres): 0
UTM: Zone-11 N3625037 E667188
Latitude/Longitude: 32.75050 / -115.21540
Elevation (feet): 85

County Summary:

Imperial

Quad Summary:

Midway Well NW (3211562), Glamis SW (3211572)

Sources:

LEW59S0002 LEWIS, R. - LACM #182029 COLLECTED FROM HOLTVILLE - 10.7 MI EAST ON US 80 1959-03-27

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 46724
Key Quad: Midway Well (3211561)
Occurrence Number: 53
EO Index: 16472
Element Code: PDAST6T012
Occurrence Last Updated: 2010-01-26

Scientific Name: *Palafoxia arida var. gigantea*
Common Name: giant spanish-needle

Listing Status: **Federal:** None
State: None
CNDDB Element Ranks: **Global:** G5T3?
State: S2
Rare Plant Rank: 1B.3
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

General Habitat:
DESERT DUNES.

Micro Habitat:
ACTIVE AND STABLE DUNE AREAS; ASSOCIATED WITH AMMOBROMA SONORAE, ASTRAGALUS LENTIGINOSUS BORREGANUS, ETC. 20-95 M.

Last Date Observed: 1931-03-15
Last Survey Date: 1931-03-15
Owner/Manager: BLM
Presence: Presumed Extant
Occurrence Type: Natural/Native occurrence
Occurrence Rank: Unknown
Trend: Unknown

Location:
25 MILES WEST OF YUMA.

Detailed Location:
MAPPED BY CNDDB AS BEST GUESS 25 MILES WEST OF YUMA ON HWY 80 (NOW I-8).

Ecological:
ON SAND HILLS.

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1931 ALEXANDER & KELLOGG COLLECTION. NEEDS FIELDWORK TO DETERMINE IF THIS IS ACTUALLY CONNECTED TO OR A PART OF EO #1.

PLSS: T17S, R19E, Sec. 03, N (S)
Accuracy: non-specific area
Area (acres): 79
UTM: Zone-11 N3620636 E685952
Latitude/Longitude: 32.70782 / -115.01609
Elevation (feet): 145

County Summary:
Imperial

Quad Summary:
Midway Well (3211561)

Sources:

MUN31S0001	MUNZ, P. - MUNZ #11968 UC 1931-03-15
NIE77U0021	NIEHAUS, T. - CNPS STATUS REPORT 1977-XX-XX

Occurrence Report

California Department of Fish and Wildlife

California Natural Diversity Database

Map Index Number: 46724
EO Index: 46724
Key Quad: Midway Well (3211561)
Element Code: PDLNN02020
Occurrence Number: 53
Occurrence Last Updated: 2001-12-07

Scientific Name: *Pholisma sonorae*
Common Name: sand food

Listing Status: **Federal:** None
State: None
Rare Plant Rank: 1B.2
Other Lists: BLM_S-Sensitive
SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden

CNDDB Element Ranks: **Global:** G2
State: S2

General Habitat:
DESERT DUNES, SONORAN DESERT SCRUB.

Micro Habitat:
LOOSE, DEEP SAND DUNES, USUALLY ON THE MORE STABLE, WINDWARD FACE. 0-125 M.

Last Date Observed: 1954-04-11
Occurrence Type: Natural/Native occurrence
Last Survey Date: 1954-04-11
Occurrence Rank: Unknown
Owner/Manager: UNKNOWN
Trend: Unknown
Presence: Presumed Extant

Location:
25 MILES WEST OF YUMA ON HIGHWAY 80.

Detailed Location:
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB 25 MILES WEST OF YUMA ALONG INTERSTATE 8 (FORMERLY HWY 80).

Ecological:

Threats:

General:
ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1954 COLLECTION BY ADDOR. LOCATION MENTIONED IN 1986 ARTICLE BY YATSKIEVYCH & MASON ALSO ATTRIBUTED TO THIS SITE. NEEDS FIELDWORK.

PLSS: T17S, R19E, Sec. 03, N (S)
Accuracy: non-specific area
Area (acres): 79
UTM: Zone-11 N3620636 E685952
Latitude/Longitude: 32.70782 / -115.01609
Elevation (feet): 140

County Summary:
Imperial

Quad Summary:
Midway Well (3211561)

Sources:

ADD54S0001	ADDOR, E. - ADDOR #2 ASU DBG (CITED IN WAR87R0001) 1954-04-11
YAT86A0001	YATSKIEVYCH, G. & C. MASON - A REVISION OF THE LENNOACEAE, ARTICLE IN SYSTEMATIC BOTANY 1986-XX-XX

Attachment C.5 IPaC Resource List

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Imperial County, California

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
Southwestern Willow Flycatcher Empidonax traillii extimus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered
Yuma Ridgway's Rail Rallus obsoletus yumanensis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3505	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Flowering Plants

NAME	STATUS
Lassics Lupine Lupinus constancei There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7976	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

There are no documented cases of eagles being present at this location. However, if you believe eagles may be using your site, please reach out to the local Fish and Wildlife Service office.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your

list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jun 1 to Aug 31
Gila Woodpecker Melanerpes uropygialis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5960	Breeds Apr 1 to Aug 31
Western Grebe aechmophorus occidentalis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743	Breeds Jun 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

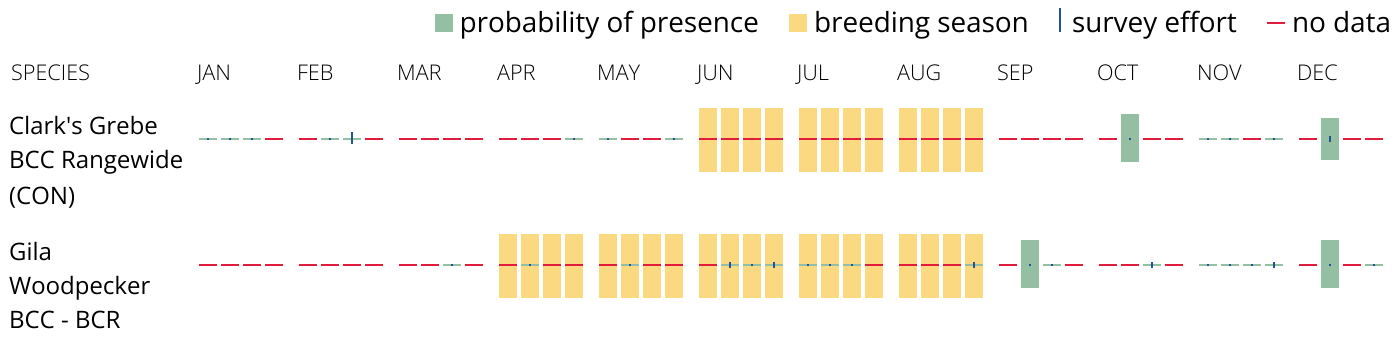
Breeding Season (▬)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

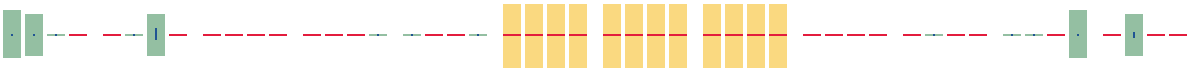
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Western Grebe BCC Rangewide (CON)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird

on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key

component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1B
- PEM1C

FRESHWATER FORESTED/SHRUB WETLAND

- PSS1B
- PSS1J
- PSS1A
- PSS1C

FRESHWATER POND

- PUBHx
- PUSJ
- PUBKx
- PUBFx

LAKE

- L1UBHx

RIVERINE

- R2UBHx
- R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Group	Species	Federal Status	State Status	CNDBB State	CNDBB Global	Date	Collected location	Distance from Project	Collector	Latitude	Longitude	Notes
Birds	Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	Endangered	Endangered-S3	-	G5T2	1996 & 2004	Taylor Lake	34.4 miles NE of Project	1996- Arizona Game and Fish Department; 2004 SWCA	33.02673	-114.63531	1 resident pair detected on 23 May, 21 june, 1 & 5 July 1996. 1 detected on 15 June, 2004.
	Clark's Grebe (*Aechmophorus clarkii*)	-	-	-		2024	New River, El Centro, Imperial County	27 miles from project site	eBird	32.764037	-115.702171	nearest observation from Fig Lagoon, 2024 (eBird). Breeds Jun 1 to Aug 31
	Gila Woodpecker (*Melanerpes uropygialis*)	-	Endangered-S1	-	G5	2003	~1.2 miles WNW of Clyde	16 miles NE from project	Steward, D. (BLM)	32.92479	-114.99093	Eastern Edge of Imperial Sand Dunes Recreation Area. About 1.2 miles WNW of Clyde. Breeds Apr 1 to
	Western Grebe (*Aechmophorus occidentalis*)	-	-	-		2018	New River, El Centro, Imperial	27 miles from project	eBird	32.764037	-115.702171	Breeds Jun 1 to Aug 31
Insects	Monarch Butterfly (*Danaus plexippus*)	Candidate	-	S2	G4T1T2Q	2014	General Roca Park, Chula Vista, San Diego County	108 miles West of project		32.64892	-117.0897	10 individuals last observed in 2014.

Attachment C.6 Resumes for Biologists Conducting Resource Surveys or Aquatic Resources Delineations

Anthony Chasar

Senior Biologist

Education

- MS. Ecology and Systematic Biology, San Francisco State University, CA
- BS. Biological Sciences, Florida State University, Tallahassee, FL

Trainings & Certifications

- Surveying, Sampling & Handling Techniques training in Cameroon (2004-2005). Then supervised and trained many assistant researchers on same techniques (2006-2014)
- Desert Tortoise training on Procedures for Translocations of the Desert Tortoise (Crimson CA; April15, 2023)
- Certification for commercial and residential installation of photovoltaic systems
- CPR and First Aid (March 10, 2023)
- PADI advanced scuba certification

Professional Summary

Mr. Chasar has many years of experience as a Wildlife Biologist in diverse environments. Mr. Chasar specializes in avian sampling techniques, including mist-netting and survey sampling. He also has experience with other threatened, endangered, or sensitive species such as the threatened desert tortoise (gopherus agassizii) and Burrowing owl (Athene cunicularia). He has a comprehensive background in managing and mitigating impacts to biological resources as a Staff Associate Researcher with the Institute of Environment at the University of California of Los Angeles (UCLA). During this time Mr. Chasar carried out the monitoring of avian influenza and blood parasites by building high-performing research teams and carrying out sample collections of blood, feathers, cloacal and tracheal swab samples and epidemiological data from migratory birds, waterfowl, and domestic fowl/ducks from the Congo Basin region in Africa and the Nile Delta region in Egypt. Gathered and analyzed avian influenza surveillance data by utilizing scan sampling and human questionnaire surveys. He also has experience with the Clean Water Act, Streambed Alteration Program (LSA) agreements from CDFW and the National Environmental Policy Act (NEPA). Mr. Chasar has first-authored two scientific papers and coauthored 8 additional papers.

Project Experience

Arica, Victory Pass, and Oberon Solar Projects, Desert Center, CA 2023-2024. Biological Monitoring, Ironwood Consulting. Provide Endangered Species Act (ESA) reporting, documentation, and monitoring for several projects. Conducted surveys for breeding birds, with emphasis on special status species such as LeConte's thrasher (*Toxostoma lecontei*) and burrowing owl (*Athene cunicularia*) before and during construction activities. Conducted linear desert tortoise (*Gopherus agassizii*) and desert kit fox (*Vulpes macrotis*) surveys prior to construction activities. Oversaw construction activities through biological monitoring and biological report writing. Facilitated informed and effective decision making by assessing, monitoring, and documenting any identified endangered species and all nesting birds. Assured clients complete adherence to environmental Best Management Practices (BMPs) for all phases of construction. Engaged independently as a Field Biologist with active construction crews in Oberon, Victory Pass and Arica solar array construction sites out of Desert Center. Carried out 30 meter transect surveys in multiple locations in California and Arizona using GPS, ESRI Field Maps and survey 123 to collect and manage relevant data.

Biologist, Tetra Tech, Redding, CA, 2022-2022. Carried out biological surveys including nesting bird surveys. Oversaw construction activities through biological monitoring and biological report writing, as well as performed biological site assessments of end-use facilities. Facilitated informed and effective decision making by assessing, monitoring, and documenting any identified endangered species and all nesting birds.

Property Manager, (Ranch), Piercy, CA, 2014 – 2022. Directed and oversaw all facets of a 424-acre ranch, including maintenance and P&L accountability. Enabled complete adherence to CEQA compliance by collecting data and assisting in compiling necessary information. Coordinated and supervised property maintenance, development, and construction. Conducted annual avian surveys for land use events as required by Humboldt County permitting department. Attained permits and generated data reports for all property water permits for the State Water Resources Control Board. Collected, submitted and successfully secured four Lake and Streambed Alteration Program (LSA) agreements from CDFW.

Staff Associate Researcher, Institute of the Environment and Sustainability, UCLA, Los Angeles, CA 2009 – 2014. Monitored avian influenza and blood parasites by building high-performing research teams and carrying out sample collections of blood, feathers, cloacal and tracheal swab samples and epidemiological data from migratory birds, waterfowl, and domestic fowl/ducks from the Congo Basin region in Africa and the Nile Delta region in Egypt. Gathered and analyzed avian influenza surveillance data by utilizing scan sampling and human questionnaire surveys:

- Gained funding and carried out field research on the migration routes of Black-casqued and White-thighed hornbills.
- Trained faculty staff to adhere to all U.S. Fish and Wildlife Service Declaration for Importation or Exportation regulations.
- Offered excellent support in proposal writing and successfully secured funding for various avian studies in Cameroon, Congo, and Egypt.
- Prepared and organized all paperwork and permits needed for importation and cold chain transfer of biological shipments from Sub-Saharan Africa to the University of California LA, United States.

Ironwood Consulting

Adam Walters

Senior Biologist

Education

- BS, Biology, University of Utah (2004)

Trainings & Certifications

- California Scientific Collecting Permit (for desert tortoise and Mohave ground squirrel under MOU SC-004708
- Desert Tortoise Handling Workshop
- Desert Tortoise Health Assessment Training
- Flat-Horned Lizard Certificate of Training
- Experienced with surveys for burrowing owl, nesting birds, rare plants, small mammal trapping

Professional Summary

Mr. Walters is a wildlife biologist with 17 years' experience, including over 12 years in the Mojave Desert and adjacent communities. He has been authorized to work with the desert tortoise (*Gopherus agassizii*) and Mohave ground squirrel (*Xerospermophilus mohavensis*) and has worked throughout the California and Nevada deserts. He is experienced conducting surveys, trapping, monitoring, and handling the species. Mr. Walters is also experienced with burrowing owl (*Athene cunicularia*), nesting birds, small mammal trapping with other species, and rare plant surveys.

Project Experience

Mohave ground squirrel (MGS) Technical Advisory Group, volunteer trapping for Phil Leitner, San Bernardino County and Kern County, California, 2014–Ongoing. Independent trapper for several MGS grids within the species range that have data gaps or need additional genetic information. Ran grids independently and coordinated volunteers' efforts, collected genetic material in Searles Valley, the "Bowling Alley" near Kramer Junction, Hinkley, and Naval Air Weapons Station China Lake.

Southern California Gas Pipeline Remediation Activities, Riverside County and San Bernardino County, California, 2017–2019. U.S. Fish and Wildlife Service/Bureau of Land Management authorized biological monitor to handle desert tortoises, conduct pre-construction surveys, and nesting bird surveys. Ensured compliance with the Biological Opinion and Lake and Streambed Alteration Agreement. Conducted environmental compliance training and delineated work areas to avoid potential disturbance to streambed and enforced Storm Water Pollution Prevention Plan.

Bandicoot Basin and Lenwood Basin, San Bernardino County Public Works, Barstow, California, 2017. Served as project manager and senior biologist. Conducted protocol live-trapping for Mohave ground squirrel and protocol surveys for rare plant, burrowing owl, and desert tortoise.

Desert Sunlight, Stateline Solar Project, Silver State Solar Project, Desert Quartzite Solar, First Solar, California, 2012–2016. Coordinated management of mammal resources associated with multiple projects, including Mohave ground squirrel and other small mammal trapping grid surveys, lagomorph population estimates, and desert kit fox (*Vulpes macrotis*) and American badger (*Taxidea taxus*) population surveys and monitoring. Designed protocol and authored management plans. Also acted as an authorized desert tortoise biologist to handle and re-transmitter tortoises when needed, assist with health assessments, conduct surveys, and construction monitor.

Protocol Trapping Grids for proposed Solar Farms and Mitigation, San Bernardino County, California, 2014–2015. Independent trapper for a grid near Phelan, 2014, and grids near Tehachapi, 2015.

Fort Irwin Wildlife Surveys, Southern California Edison, San Bernardino County, California, 2015. Served as lead field biologist. Oversaw field management for protocol desert tortoise surveys and Mohave ground squirrel surveys Ensured that data collection was carried to client satisfaction. Coordinated project needs with junior staff.

Small Mammal and forestry Research, United States Forest Service, Davis, California, 2011. Served as small mammal, forestry biological Science technician, and project manager. Completed work as project manager for small mammal and forestry research for the Pacific Southwest Research Station- Northeastern States Research Cooperative in the experimental forests of Stanislaus, Tahoe, and Lake Tahoe Basin Management Unit National Forests. Trained crews on how to survey for small mammal population demographics data and field identification of flora and forestry survey techniques to be used for the analysis of ecological response in association with a fire management optimal spacing study. Coordinated logistics for a vegetation crew and three separate small mammal crews, including hiring and all preparatory work for the season. Conducted field surveys as needed to assure the completion of the work.

Colorado Plateau Rangeland Reassessment Study, Bureau of Indian Affairs, Utah, 2010–2012. Conducted point-intercept botany transects on the Colorado Plateau in association with a rangeland reassessment study for the Biological Impact Assessment. Identified all found plants to the species level. Coordinated with other consultants to complete the work.

Eastern Colorado Avian Surveys, Cheyenne, Wyoming, 2008. Conducted bird surveys in and around a wind farm in eastern Colorado. Surveys included mountain plover (*Charadrius montanus*) and raptor nest searching but focused primarily on mortality searches along transects under set turbines. Mortality surveys were conducted on an ATV, and data was collected with a variety of specialized equipment.

Bea Vizcarra

Principal Bat Biologist

Education

- MS. School of Forestry and Engineering Sciences, Northern Arizona University, Flagstaff, Arizona
- BS. School of Science and Engineering., Northern Arizona University, Yuma, Arizona.
- AA. General Studies, Arizona Western College, Yuma, AZ

Trainings & Certifications

- Microsoft Excel Intermediate 2010, Scottsdale, AZ, June 2015
- NEPA Regulations, March 2014
- Communication Training I, Landmark Worldwide, Scottsdale, AZ, August 2014
- Communications training II, Landmark Worldwide, Scottsdale, AZ, August 2014
- Leadership, Landmark Worldwide, Scottsdale, AZ, December 2014
- National Marsh Bird Survey Training Workshop, Yuma, AZ, March 2006
- Bat Acoustic Monitoring Workshop, June 2006
- Four-wheel drive training, Arizona Game and Fish Dept., Phoenix, AZ, May 2005
- Bat Survey and Management Training Workshop, June 2005

Professional Summary

Bea Vizacarra has twenty years of bat experience with mist netting, acoustic surveys, exit counts, trap surveys, and swabbing for white-nose syndrome. She has experience identifying bats by hand in the state of PA, NY, VA, West VA, IN, CA, AZ, NV, HI, and in El Golfo de Santa Clara, Mexico. She has had extensive involvement with the Lower Colorado River and from her Master's thesis (Evaluating Use of Habitat by Bats Along the Lower Colorado River) and with the Lower Colorado River Multi-species Conservation Program.

Professional Experience

Vizcarra Biological Consulting, Vail, Arizona, January 2023-Present. In this position, Bea provides bat inventory and monitoring surveys in the Coronado, Chiricahuas, and Organ Pipe National Monuments. This included Bat Inventory and Monitoring surveys in Coronado National Monument, Chiricahuas National Monument, Organ Pipe National Monument; Reviewing Literature and Summary of Previous Bat Investigations at Saguaro National Park; Bat Conservation Education at Kartchner Caverns State Park

Yuma Crossing National Heritage Area, Yuma, Arizona, October 2020-February 2021. Bea served as a natural resources program manager during this time. Responsibilities included:

- Supervising field staff, volunteers, and contracted staff.
- Presenting safety and awareness training and identifying issues to address through training programs.
- Managing the development of short- and long-range operations and maintenance plans, annual work plans, budgets, and programmatic development, for wetland and riparian projects.
- Leading, coordinating, and implementing projects and programs to preserve, protect, and restore wetland and riparian habitat and community outdoor recreational areas.
- Establishing effective working relationships with a wide range of partners and stakeholders, including landowners, state, federal and local agencies, local tribes, conservation groups, subcontractors, and other constituents.
- Planning and scheduling conservation area operations and maintenance projects, including repair and maintenance of equipment, trails, irrigation canals and pumps, signage and other organizational infrastructures and assets.
- Identifying and monitoring invasive species and determined best management practices for control and eradication.

- Planning, organizing, and scheduling daily, weekly, monthly, and annual operational work plans to ensure project deliverables and overall program goals; and meeting regularly with field staff to discuss and resolve priorities, workload, resources allocation, equipment, and technical issues.
- Collaborating with grant managers to develop state, federal, and local grant applications to directly support habitat management and restoration.
- Ensuring project deliverables and grant goals are met on a weekly, monthly, quarterly, and annual basis.
- Collecting, reviewing, and approving project financial expenses; maintained budgets, and budget records.
- Reviewing and preparing requests for proposals, written bids, contracts, permit applications, budgets, reports, schedules, and maps related to project, program, and grant management.
- Planning and organizing volunteer events and education and outreach programs in coordination with public, local colleges and school districts.
- Monitoring work sites to ensure safety rules and regulations are followed.

Western Ecosystems Technology, Inc, Cheyenne, Wyoming, May 2017-Sept. 2017. Bea was the crew leader during this time. Responsibilities included:

- Conducting acoustic presence/absence surveys for bats at proposed development projects. Duties included deployment of ultrasonic bat detectors, data organization and transfer, and supervision of one crew member.
- Hiking to acoustic survey sites with 10 to 30 pounds of field equipment.
- Exercising good judgment to stay safe, work efficiently, and maintain safe working conditions for crew members, following all company safety protocols.

Northern Arizona University, Yuma, Arizona, January 2017-May 2017. Bea was an associate professor at the university during this time. Responsibilities included:

- Teaching evolution to senior biology majors.
- Creating lesson plans.
- Grading student work and uploading their score to school database.
- Writing and proctoring exams.

Tonto National Forest, Phoenix, Arizona, February 2014-March 2016. Bea was a Wildlife Lead Planner during this period, where she served in several leadership roles, including collateral duty safety officer, procurement specialist, and Speleological Society Partnership Program Manager. Additional roles and responsibilities include:

- Wildlife Lead Planner:
  - Acting as the lead author for the wildlife and endangered species sections of the revised *Tonto National Forest Management Plan*.
  - Developing the species of conservation concern list based on *2012 Planning Rule*.
  - Providing interdisciplinary support on forest wildlife ecology and rangeland planning.
  - Consulting with the US Fish and Wildlife Service for protection, management, and improvement of wildlife habitat within the framework draft current conditions, and desired conditions assessment of *Forest Plan Revision*.
  - Serving as a facilitator during public meetings.
  - Planning future wildlife management procedures with state agencies, universities, conservation advocacy societies, and private/non-profit organizations.
  - Maintaining responsibility for ecological sustainability analyses.
  - Developing list of species of conservation concern and social and economic wildlife and plant contribution assessment reports.
  - Identifying and prioritizing areas for protection and restoration based on the ecological requirements of wildlife communities.

  - Determining wildlife species threats and trends and developing strategies to modify the forest management activities to ensure the persistence of wildlife species.
- Speleological Society Partnership Program Manager.
  - Representing the Tonto National Forest interests and values.
  - Writing and developing a challenge cost-share agreement under the Forest Service policies and procedures.
  - Managing the communication and coordination between Forest Service specialists, chairperson, and members of the Speleological Society.
  - Managing meetings between the Forest Service and the Speleological Society and overseeing the partnership and advancing contracts and agreements.

Colorado State University, Pohakuloa Training Center, Hilo, Hawaii, March 2012-January 2014. Bea served as the bat program coordinator in this position. Responsibilities included:

- Developing a study protocol for acoustic monitoring of bats on Army lands.
- Developing acoustic filters to analyze Anabat call data and train staff.
- Monitoring petrel populations utilizing Wildlife Acoustics Song Meter (SM2).
- Developing protocols for compliance of biological opinions established by NOAA and/or US Fish and Wildlife Service.
- Assisting in the training and supervision of military personnel for compliance with the Endangered Species Act to effectively balance the requirement of military training mission with Hawaiian goose, Hawaiian hoary bat, and Hawaiian petrel.
- Conducting surveys for forest birds using the US Fish and Wildlife Service Hawaiian Forest Bird variable circular-plot survey methods.
- Conducting research projects using scientific and experimental design.
- Analyzing bat habitat preferences using acoustic detectors and occupancy modeling.
- Preparing annual and final reports.

Gowan Company, Yuma, Arizona, December 2010-April 2012. In this position, Bea served as a regulatory scientist. Responsibilities included:

- Ensuring the compliance of issued biological opinions and coordinating with federal agencies in addressing mitigations for threatened and endangered species.
- Ensuring the company's products complied with the Environmental Protection Agency regulations.
- Developing and writing clear arguments and explanations for new product registration and registration renewals.
- Preparing submissions for registrations to EPA.
- Planning and developing product trials and interpreting trial data.
- Advising scientists and manufacturers on regulatory requirements.
- Advising project managing teams of colleagues involved with the development of new products.
- Specifying storage, labelling, and packaging requirements.
- Filing and tracking regulatory submissions in the U.S.

Arizona Game and Fish Department, Phoenix, Arizona, February 2007-December 2010. In this position, Bea served as a wildlife specialist. Responsibilities included:

- Cultivating research project using scientific experimental design.
- Developing grant proposals.
- Analyzing bat habitat preferences using acoustic detectors and occupancy modeling.
- Preparing annual and final reports.
- Developing and assisting workshops to aid local biologists with implementation of monitoring protocols.

- Conducting acoustic analysis for 12 species of bats found along the Lower Colorado River.
- Developing acoustic filters for analyzing Anabat call data.
- Developing a protocol for acoustic monitoring of bats along the Lower Colorado River.
- Scheduling, prioritizing, and organizing fieldwork for myself and technicians.
- Developing recommendations for bat research and management based on study results.
- Surveying bats using mist-nets, traps, and acoustic (Anabat) techniques; identifying species, sex, and age; marking individuals with tattoos and banding.
- Conducting exit counts at bat roosts.
- Presenting scientific results in national conferences and to schools and community groups.
- Creating and maintaining the department project webpage.
- Assisting with bat management and research workshops, including leading teams to conduct mist netting, and teaching them to identify bats.
- Assisting with mine evaluations and exclusions.

Sanders Environmental Inc, Bellefonte, Pennsylvania 16823, May 2007-August 2007. In this position, Bea served as a field technician. Responsibilities included:

- Scouting and selecting survey sites for bats.
- Installing and operating harp traps for bats.
- Setting and operating mist-nets for bats, including three high net sets.
- Conducting mortality surveys
- Removing bats from nets and traps and identify species and sex.
- Assessing environmental conditions at bat survey sites.
- Taking bat wing punches for genetic analysis.

Arizona Game and Fish Department, Yuma, Arizona, May 2004-January 2007. Bea was a student intern in this position. Responsibilities included:

- Surveying bats using mist-netting, traps, and acoustic (Anabat) techniques and identifying species, sex, and age. Additional tasks included:
  - Marking individuals with tattoos and banding.
  - Conducting exit counts at bat roosts.
  - Entering data into Access database.
- Surveying flat-tailed horned lizards and assisting with radiotelemetry.
- Surveying marsh birds using the National Marsh Bird Protocol.

Charlie Primuth

Field Biologist

Education

- BS, Environmental Science, Wheaton College 2021

Professional Summary

Charlie Primuth is a field biologist with experience in the California deserts. He has been a part of surveys and has been a part of complex compliance monitoring projects.

Project Experience

Arica, Victory Pass, and Oberon Solar Projects, Desert Center, CA 2022-2024.
Biological Monitoring, Ironwood Consulting. Provide Endangered Species Act (ESA) reporting, documentation, and monitoring for several projects. Conducted surveys special status species such as burrowing owl (*Athene cunicularia*) before and during construction activities. Conducted linear desert tortoise (*Gopherus agassizii*) and desert kit fox (*Vulpes macrotis*) surveys prior to construction activities. Oversaw construction activities through biological monitoring and biological report writing. Facilitated informed and effective decision making by assessing, monitoring, and documenting any identified endangered species and all nesting birds. Assured clients complete adherence to environmental Best Management Practices (BMPs) for all phases of construction. Assisted with wildlife camera setup and monitoring. Conducted weed surveys and seed collection.

Lab/Data Intern Geoscience Support Services INC., June 2019-August 2019.

Lab experiments testing gravel pack solubility. Labeled and organized well lithologies in well log data base.

Ironwood Consulting

Emily Siffrin

Staff Biologist

Education

Bachelor of Science in Ecology And Evolutionary Biology
California State University
Northridge, CA 2020

Trainings & Certifications

Field Techniques for the Mojave Desert Tortoise Workshop,
Desert Tortoise Council

Professional Summary

Emily Siffrin is a biologist with experience in construction monitoring, burrowing owl surveys, San Joaquin kit fox surveys, and Swainson's hawk surveys. She has experience working on energy projects, including solar facility, pre-construction surveying, and the high-speed rail development.

Project Experience

Arica, Victory Pass, and Oberon Solar Projects, Desert Center, CA, 2022-2023. Emily was responsible for monitoring construction activities in support of EDF's solar photovoltaic (PV) and transmission gen-tie project developed on BLM-administered public lands in Riverside County, CA. As a Biological Construction Monitor, she conducted the following:

- Ensured integrity of site perimeter fencing.
- Surveyed excavations, stored materials, machinery, and infrastructure for trapped or sheltering wildlife.
- Identified compliance issues, such as right-of-way violations, hazardous material spills and unsecured trash.
- Installed ESA perimeters and performed observations of onsite desert kit fox dens and burrowing owl burrows.
- Provided burrowing owl burrow enhancements as needed.
- Assisted with passive relocation of desert kit fox and burrowing owl.
- Conducted weed surveys and removed invasive weeds**.**

Maverick (Palen) Solar, EDF Renewables, Desert Center, CA, 2022 - 2023. Emily was responsible for monitoring operations and maintenance activities in support of EDF's solar photovoltaic (PV) and transmission gen-tie project developed on BLM-administered public lands in Riverside County, CA. As a Biological Construction Monitor, she conducted the following:

- Ensured integrity of site perimeter fencing.
- Identified compliance issues, such as right-of-way violations, hazardous material spills and unsecured trash.
- Conducted weed surveys and removed invasive weeds**.**

High Speed Rail, Pasadena, CA, 2021-2022. Emily worked as a biological resources coordinator, her responsibilities included:

- Overseeing biological and environmental compliance on numerous construction projects.
- Undertaking permitting and provided construction monitoring on projects to ensure compliance with CEQA/NEPA guidelines.
- Wrote reports, data entry, and assisted in project management for large-scale projects.
- Worked with BNLL, SWHA, and SJKF for the CP-4 portion of the California High Speed Rail Project.

Antelope Valley Animal Hospital - Palmdale, CA 2015 - 2016. Emily worked as a Veterinary Technician, her responsibilities included:

- Induced anesthesia by inhalation or intravenous, intramuscular, or subcutaneous injection for operations and surgeries.
- Euthanized terminally ill patients.
- Administered prescribed injectable controlled substances, tranquilizers, sedatives, and injectable or inhalant anesthetics.
- Prepared estimates for care, and presented invoices and collected payment from clients.
- Implanted subcutaneous identification microchips into animals.
- Cleaned, restocked and organized examination rooms.
- Utilized x-ray to perform imaging and interpret results.
- Collected and prepared tissues, cellular or microbiological samples by skin scraping, impressions and other non-surgical methods.
- Maintained daily progress records, surgery logs, x-ray logs, Drug Enforcement Administration logs and routine records.
- Administered oral or topical medications to boarding patients as specified by veterinarian in animal's medical record.
- Fed, walked and bathed animals.
- Interacted with clients regarding animal health, questions and concerns, education on treatment protocol and general procedures.
- Assisted veterinarian during immunologic, medical, surgical and diagnostic procedures.

Acton Veterinary Clinic - Acton, CA 2014 - 2015. Emily worked as a veterinary assistant; her responsibilities included:

- Cleaned kennels, examination and operating rooms and animal loading and unloading facilities.
- Relieved boredom and stress of living in a shelter environment by walking, playing and tending to dogs. Recorded activity and noted any unusual behavior or medical issues.
- Collected body tissue, feces, blood, urine or other body fluids for examination and analysis.
- Cared for a wide range of animals, including rodents and exotic birds.
- Administered medication, immunizations, and blood plasma to animals.
- Provided pet owners with excellent customer service and compassionate care for their pets.

Ironwood Consulting

Evan Tucker
Field Biologist

Education

- BS, Biology, Minor in Educational Studies, Rhodes College 2017

Research

- Memphis Zoo: Designed, conducted, and presented two unique studies on African elephant behavior and movement under Dr. Sarah Boyle
- Teton Science School: Designed and conducted a study on raptor species richness and density.

Professional Summary

Evan Tucker is a field biologist with experience in the California deserts. He has been a part of surveys and has been a part of complex compliance monitoring projects.

Project Experience

Staff Biologist I, Ironwood Consulting, Redlands, CA, 2022 - Present. In this position, Charlie works on several Ironwood biological studies and surveys, which focused on threatened and endangered plants and wildlife species with special emphasis on the Mojave Desert tortoise (*Gopherus agassizii*). His responsibilities have included:

- Sensitive species surveys on solar projects in Desert Center and El Centro, CA.
- Compliance monitoring on solar projects in Desert Center, CA.

Lead Temporary Field Technician, National Ecological Observatory Network, June 2021-Oct 2021, Feb 2022-Oct 2022

- Promoted to Lead after 2021 field season
- Conducting ecological field work by following protocols to gather a wide variety of data.
- Hiking up to 12 miles a day in the field, working as a team (of up to four) to complete work in difficult field conditions; leading teams of up to six technicians in completing lab work, and following a protocol precisely in order to do so.
- Trained in a wide variety of field data collection techniques: beetle, mosquito, and small mammal trap deployment, soil coring, leaf litter indices, stream sediment collection and lab processing techniques for those protocols: microscopy, carabid identification, soil sieving, pH analyses, and more.
- Taught new employees protocols for strong data collection, lead teams in the field and in the lab, and lead tours of the lab by interested outside parties, including NSF board members and National Lab staff members.

Lead North Pacific Groundfish Observer, Alaskan Observers Inc, February 2020-May 2021

- Promoted to Lead after two deployments
- Deployed on multiple commercial fishing vessels to gather data on species composition, volume of catch, sex/length data, and for specific research projects (ie; Pacific Sleeper Shark Age Analysis).
- Trained by and reported data to the National Marine Fisheries Service (part of NOAA), and acted as a liaison between fishermen and NOAA, helping to both translate the regulations for crew as well as documenting compliance, and taking accurate field notes to do so.
- Responsible for maintaining a positive observer-crew relationship to ensure that data was not compromised by fishing operations, and fishing operations were not compromised by data collection.
- Designing sampling techniques and frequency for my team of two on each vessel, incorporating input from NMFS officials, my co-observer, and fishing crew to do so effectively.
- Lead North Pacific Groundfish Observer, Alaskan Observers Inc, February 2020-May 2021

Ironwood Consulting

Gabriela Chio

Biologist

Education

- BS. Zoology, University of New Hampshire, Durham, NH

Trainings & Certifications

- DOI USFWS Off-Road Utility Vehicles Training: ATV, UTV, Dec 2020
- Adult First Aid/CPR/AED, June 2020
- IACUC – Seasonal Technicians Working with Rats, Mice, Fish, and Amphibians in Research, May 2018

Professional Experience

Desert Bighorn Scientific Aide, California Department of Fish and Wildlife – Desert Bighorn Sheep Program Based in Bishop, CA, fieldwork in Mojave Desert, October 2021 - Present. Responsibilities included:

- Assisted with abundance estimation, demographic, and spatial analyses of desert bighorn sheep.
- Utilized radio telemetry and optical equipment to locate bighorn sheep in the field and record physical attributes associated with each animal (i.e., health, symptoms of disease, behavior).
- Participated in a large bighorn sheep fecal sample collection project in collaboration with Oregon State University.
- Set-up and maintained remote cameras at various water sources in the desert.
- Surveyed bighorn sheep and determined group composition and monitored survival.
- Assisted and occasionally led basecamp processing efforts to deploy radio-collars, assess health, and collect biological samples from bighorn sheep captured by netguns and transported by helicopter.
- Maintained and organized field equipment, vehicles, data recording sheets, and computer files.
- Kept accurate and updated records of all bighorn surveys made; entered data onto Survey123 and Access database.
- Retrieved remotely dropped GPS collars and downloaded and managed GPS data.
- Hiked to and checked out bighorn mortalities and conducted biological assessments when possible.
- Managed hunter check-outs during bighorn hunting season; collected and recorded biological data from harvested rams.
- Occasionally communicated with landowners to access property to conduct bighorn sheep fieldwork.

Biological Science Technician, Student Conservation Association, U.S. Fish and Wildlife Service - Ocelot Research, Monitoring, and Recovery Program - Laguna Atascosa National Wildlife Refuge, TX, October 2020 - October 2021. Responsibilities included:

- Hiked to remote sites with a 50-lb. pack to set up and maintain remote cameras on USFWS land and easements.
- Conducted wildlife surveys and monitoring using remote cameras and image sorting.
- Set and checked traps for ocelots and bobcats as part of a post-road construction project to monitor wildlife underpass usage.
- Handled sedated ocelots and bobcats to collect tissue samples (blood, oral swabs, fecal, hair, semen sample), take morphological measurements, perform health assessments, evaluate body condition, and attach radio or GPS collars.
- Utilized radio and GPS telemetry to track and monitor ocelots and bobcats.
- Remotely downloaded and released GPS collars and performed collar retrievals.
- Entered data into MS Excel and Access and mapped ocelot and bobcat GPS collar points onto ArcMap to monitor habitat range and road usage.
- Prepared Monthly Internal Reports on ocelot and bobcat activities.
- Conducted general equipment, vehicle, and pigeon coop maintenance and prepared field supplies.

- Responded to ocelot mortality calls, travelled to mortality site, and performed mortality evaluations at any point of the day.
- Brought ocelot mortalities to lead veterinarian at Gladys Porter Zoo for necropsy and further assessments.
- Interacted and collaborated with landowners to obtain land access for ocelot and bobcat tracking.
- Organized office and computer files and maintained inventory.

Field Technician, Battelle - National Ecological Observatory Network (NEON), Domain 17 - Fresno, CA, May 2020 - August 2020. Responsibilities included:

- Participated in a continental-scale, long-term ecological project monitoring environmental impacts of climate change in the Sierra National Forest, emphasizing the availability of open-access data.
- Adhered to Standard Operating Procedures for collecting and processing field samples and recording soil, carabid beetle, mosquito, tick, and small mammal data onto data tablets.
- Measured soil temperature and litter depth; collected organic horizon samples utilizing soil corer for lab processing and analyses.
- Trained in pitfall trap set up, carabid and bycatch sorting, carabid identification, mosquito catch-cup trap set up, small mammal trap set up, and small mammal identification.
- Carried, moved, and lifted field supplies with pack weighing up to 40 lbs. and navigated to assigned field site (diverse and uneven terrain in Sierra National Forest) using compass, maps, and rangefinder.
- Helped develop a bank of supporting safety training module presentations; assessed carabid beetle misidentification data to evaluate reasons for misidentifications and develop solutions; assisted in the creation of a carabid beetle ID guide specific for Domain 17.
- Reported issues with implementation of procedures and coordinated resolution with manager and other technicians.
- Wrote daily bout reports for each site visit.

Animal Care Worker – Seasonal, City of Austin Government – Animal Services, Austin Animal Center, Austin, TX, July 2019 - September 2019. Responsibilities included:

- Handled and cared for a variety of domestic and exotic animals including snakes, lizards, dogs, cats, rabbits, small rodents, and bird.
- Cleaned and prepped kennels, cages, and other animal enclosures daily.
- Monitored animal behavior and reported any behavioral and health abnormalities to veterinarians and supervisor.
- Inputted and modified information for animals in computer database.
- Kept assigned animal section clean and organized; kept inventory of supplies and communicated any malfunctioning equipment to supervisor; restocked supplies when needed.
- Interacted with the public and facilitated interactions between animals and the public.
- Coordinated volunteers and facilitated interactions during animal center events.

Outdoor and Environmental Educator – Seasonal, Arrowhead Ranch Outdoor Science School - Lake Arrowhead, CA, February 2019 – May 2019. Responsibilities included:

- Taught outdoor natural sciences to youth following a curriculum outlined by the California State Board of Education.
- Conducted classes and taught in non-traditional environments through nature hikes and large group activities.
- Coordinated and implemented creative and engaging lesson plans for trail teams.
- Maintained positive relations with the visiting school personnel.
- Supported and reinforced all policies and procedures.
- Ensured the cabin group followed the set schedule, leading students to the proper places at the right times.
- Taught emergency procedures regarding fires, earthquakes and heavy smoke or fog.

Insect Behavior Research Assistant, University of New Hampshire (UNH) – Behavioral Ecology Lab – Durham, NH, February 2016 - December 2018. Responsibilities included:

- Taught outdoor natural sciences to youth following a curriculum outlined by the California State Board of Education.
- Conducted classes and taught in non-traditional environments through nature hikes and large group activities.
- Coordinated and implemented creative and engaging lesson plans for trail teams.

- Maintained positive relations with the visiting school personnel.
- Supported and reinforced all policies and procedures.
- Ensured the cabin group followed the set schedule, leading students to the proper places at the right times.
- Taught emergency procedures regarding fires, earthquakes and heavy smoke or fog .

Aquaculture Research Lab Volunteer, UNH – Aquaculture Research Lab – Durham, NH, February 2017 - April 2017.
Responsibilities included:

- Assisted on an ornamental fish and aquaculture project.
- Fed clownfish, assessed water quality (salinity, pH), and performed general fish tank maintenance.

Aquaponics Farm Lab Volunteer, UNH – Aquaponics Farming Project– Durham, NH, October 2016 - December 2016.
Responsibilities included:

- Carried out basic aquaponic and greenhouse maintenance.
- Conducted basic water quality assessments (pH, temperature, nitrate, nitrite, and ammonia levels).

Hattie Oswald

Senior Wildlife Biologist

Education

- BS Ecology, Behavior and Evolution, University of California, San Diego, 2000

Trainings & Certifications

- Adult First Aid/CPR/AED certification. completed on 3/4/2022, expires on 3/4/2024

Professional Summary

Ms. Oswald has worked for the National Ecological Observatory Network for eight years as a Senior Field Ecologist and for over 12 years as a seasonal field biologist for a variety of agencies and organizations throughout the western U.S. She has gathered inventory and monitoring data on a diverse range of wildlife including carnivores, ungulates, small mammals and birds. She has worked with a diverse array of rodents, including heteromyids such as kangaroo rats and pocket mice, numerous species of cricetid and murid mice, rats and voles, as well as many species of tree and grounds squirrels. Ms. Oswald is proficient at identifying potential habitat for various species of rodents and is highly skilled at live-trapping small mammals using mark-recapture techniques, collecting specimens and samples, and setting up and establishing large-scale trapping grids. Ms. Oswald has also worked on several bat projects that included surveying caves and abandoned mines, along with conducting habitat surveys and emergence counts for the endangered lesser long-nosed bat. Point-count surveys, nest-searching, establishing breeding territories, radio telemetry, capturing, handling, banding, and taking various biological samples were all part of her songbird work. Her other relevant wildlife work involved large mammal surveys, such as cougars, bears, and ungulates, as well as surveying, monitoring, capturing, and handling several raptor, aquatic, and game and songbird species, such as Mexican Spotted Owls, California Spotted Owls, Northern Goshawks, Burrowing Owls, Ferruginous Hawks, Willow Flycatcher and Greater Sage-Grouse. Ms. Oswald's field experience is within the Sonoran and Chihuahuan deserts of southwestern Arizona and New Mexico. Her experience in desert ecosystems extends to the Great Basin and Colorado Plateau areas of Utah and Colorado. She has also worked in forested ecosystems within California including the Plumas National Forest.

Project Experience

Senior Biologist, Ironwood Consulting, Redlands, CA., April 2022-Present. Performing raptor surveys (including California Spotted Owls and Northern Goshawks) along with breeding bird surveys (including Willow Flycatchers) for long-term restoration work on the Plumas National Forest in California. Setting up and maintaining camera traps for mammal surveys to inform restoration decision making. Performing Sierra Nevada yellow-legged frog visual encounter surveys, desert tortoise clearance surveys, biological monitoring on construction sites, wildlife surveys (including Burrowing Owls) and habitat assessments for solar implementation. Assisting with handling and tracking desert tortoises and rare plant and weed surveys.

National Ecological Observatory Network (NEON) Program, Battelle Memorial Institute Desert Southwest field office (Domain 14), Tucson, Arizona, August 2017-April 2022. Oversaw planning, scheduling, and implementation of terrestrial protocols, including the collection of flora, fauna, soils, aquatics, and instrumentation (tower) data at three sites in Arizona and New Mexico. Directed field data collection of NEON small mammal trapping, identification, measuring, marking, and collecting blood and other biological samples, as well as beetle, tick, mosquito and soil sampling protocols. As the Senior Field Ecologist, Fauna Lead, project roles included recruiting seasonal technicians; training, guiding, and supervising a crew of up to 12 seasonal technicians and two permanent field technicians; directing field crews; managing field logistics; processing and shipping the inventory of field samples to a variety of biorepositories and laboratory testing facilities; and management and quality control of a complex and diverse database.

National Ecological Observatory Network (NEON) Program, Battelle Memorial Institute Great Basin/Utah field office (Domain 15), February 2014-August 2017. Managed the collection of field data for all terrestrial faunal protocols for the Utah field office, which included field sites in northern Utah and near Moab. Coordinated and performed small mammal trapping, along with identifying, measuring, marking, and taking blood and other biological samples. Assisted with tower maintenance, vegetation sampling, aquatic sampling activities, as well as performing NEON plot establishment. As the Field Ecologist and Fauna Lead, the project roles involved recruiting seasonal staff and training, guiding, and supervising seasonal field technicians. Collected field data at two logistically challenging field sites, processing and shipping a large inventory of biological samples, and maintaining equipment and supplies.

Mesa Verde National Park, Colorado, April 2013-October 2013, and April 2012-November 2012. Performed monitoring and survey work on many species of raptors, songbirds, small mammals, carnivores, and ungulates. Work included performing bird point count and reproductive status surveys, small mammal trapping, monitoring raptor nests, monitoring populations of large mammals (including elk, deer, feral horses and cattle, bears, and other carnivores), building and repairing wildlife fencing along the park boundary, vegetative surveys, data entry, and writing reports. Project role: Biological Science Technician (Wildlife), GS-404-05.

Oregon State University, H. J. Andrew Experimental Forest, Oregon, October 2013-November 2013, and October 2011-November 2011. Trapped small mammals for a large-scale Northern Spotted Owl prey-base study. Captured a variety of small mammals, including various species of squirrels, mice, voles, pikas, hares, and rabbits. Project role: Small Mammal Trapping Technician.

Colorado Division of Parks and Wildlife, Little Hills State Wildlife Area, Colorado, December 2011-April 2012. Performed winter track surveys on Greater Sage-grouse, as well as captured, banded, processed, attached GPS/radio transmitters to birds, and tracked and monitored individuals in northwestern Colorado throughout the winter. Participated in a nearby CPW mule deer study, assisting with capturing, handling, measuring, and monitoring health conditions of deer populations. Project role: Biological Science Technician.

Hayden-Wing Associates Inc., LLC, Laramie, Wyoming, March 2011-September 2011. Surveyed and monitored wildlife on oil and gas development sites throughout Wyoming, Colorado, and Montana. Included surveys for various species of small mammals, ungulates, raptors, songbirds, and game bird species. Project role: Seasonal Wildlife Biologist.

National Park Service, Grand Canyon National Park, Arizona. August 2010-February 2011. Designed and conducted a cave and abandoned mine bat study, which included internal surveys of caves and mines for bats, as well as capturing, handling, and identifying bats. Analyzed data, wrote progress reports, wrote wildlife portions of NEPA documents, and completed a final report summarizing results and conclusions. Project role: Biological Science Technician (Wildlife), GS-404-06.

University of Arizona, School of Natural Resources, Tucson, Arizona. May 2010-August 2010. Assisted a graduate student studying lesser long-nosed bats in Arizona and Mexico. Recorded and monitored emergences, performed live counts of emergences, surveyed flowering and fruiting cacti and agaves, and organized and entered data. Project role: Seasonal Wildlife Biologist.

National Park Service, Grand Canyon National Park, Arizona, October 2009-May 2010. Designed and conducted a cave and abandoned mine bat study that included internal surveys of caves and mines for bats, as well as capturing, handling, and identifying bats. As the Biological Science Technician (Wildlife), GS-404-06, the project role included analyzing data, writing progress reports, writing wildlife portions of NEPA documents, and completing a final report that summarized the results and conclusions.

Glacier National Park, Montana. June 2009-October 2009. Monitored eagle nests, surveyed for Common Loons, Harlequin Ducks, mountain goats, Rocky Mountain bighorn sheep, and bears (both grizzly and black bears). Surveyed the park's abandoned mines for human safety hazards and for bats and other wildlife. Wrote summary reports of the mine surveys and made management recommendations based on the results. Project role: Biological Science Technician (Wildlife) GS-404-05

Bat Conservation International, Tucson, Arizona. August 2008-May 2009 (Intermittently). Surveyed abandoned mines and caves for bats throughout Arizona and Death Valley National Park, California. Assisted with organizing, analyzing, and summarizing the data collected; writing reports; writing wildlife portions of NEPA documents; and making management recommendations to federal, state and local land management agencies. Project role: Subterranean Specialist.

National Park Service, Grand Canyon National Park, Arizona. February 2008-January 2009. Surveyed caves and abandoned mines internally for bats and other wildlife, surveyed for and monitored Mexican Spotted Owls, and performed point counts and nest-searched for songbirds. Captured, handled, and attached radio transmitters to desert bighorn sheep and mountain lions, and tracked and collected location data on marked animals. Project role: Biological Science Technician (Wildlife), GS-404-05.

National Park Service, Grand Canyon National Park, Arizona. March 2007-November 2007. Surveyed caves and abandoned mines internally for bats and other wildlife, surveyed for and monitored Mexican Spotted Owls and performed point counts and nest-searched for songbirds. Captured, handled, and attached radio transmitters to desert bighorn sheep and mountain lions, and tracked and collected location data on marked animals. Project role: Biological Science Technician (Wildlife), GS-404-05.

New Mexico Department of Game and Fish, New Mexico. October 2006-March 2007. Monitored and radio-tracked three re-introduced populations of desert bighorn sheep in southwestern New Mexico. Kept detailed field notes of population data, health conditions and behavior, as well wrote concise monthly reports. Assisted with capturing, handling, monitoring, measuring, and attaching radio-collars to sheep. Project role: Desert Bighorn Sheep Monitor

National Forest Service, Rocky Mountain Research Station, Lincoln National Forest, New Mexico. April 2006-September 2006. Surveyed for Mexican Spotted Owl occupancy, determined nesting status for a study of forest thinning treatments on owl populations, and associated ecological linkages. Captured and banded owls, tracked birds using radio-telemetry, nest-searched, performed vegetative surveys, and entered data. Project role: Biological Science Technician (Wildlife) GS-404-05

Humboldt State University, Plumas National Forest, California. May 22, 2004-August 20, 2005. Worked on a project studying the effects of Off Highway Vehicles (OHVs) on Northern Goshawk reproductive success. I surveyed for territory occupancy, nest-searched, recorded behavioral observations, captured, handled, banded and attached radio transmitters and took blood samples from hawks. I also tracked birds, ran ATV and hiker disturbance experiments, and entered and analyzed data. Project role: Biological Technician

University of Arizona, Fort Huachuca Army Base/Sierra Vista, Arizona. March 2004-May 2004. Worked on a graduate project studying how undocumented immigrant foot traffic affects grassland small mammal communities. Captured, handled, identified and tagged small mammals, did vegetative surveys, and set up trapping grids. Project role: Field Technician.

Oregon State University, Black's Mountain Experimental Forest, California. October 1, 2004-November 7, 2004; August 1, 2003-November 14, 2003. Captured, handled, identified, and tagged small mammals for a project studying the effects of various logging and prescribed burning treatments on small mammal populations. Project role: Biological Technician.

Jones Technologies, Inc., Fort Hood Army Base, Texas. March 2002-July 2002. Worked on a graduate project concerned with the endangered Golden-cheeked Warbler. Captured and banded birds, re-sighted and established territories of color-banded birds, performed behavioral observations, nest-searched, did vegetation surveys, and sampled and identified arthropods. Project role: Field Biologist

University of Maryland, Wallaby Creek, NSW, Australia. September 2001-December 2001. Worked on research associated with Satin Bowerbirds in Australia. Trapped, banded, measured, and took blood from birds. Located bower sites, established and maintained camera equipment at bower sites, hiked established routes twice daily to record bower decorations and bower quality, performed decoration choice experiments, performed behavioral observations, and entered data. Project role: Field Technician.

Avian Research and Conservation Institute, Everglades National Park, Florida. April 2001-August 2001. Worked on a re-introduction project for Eastern Bluebirds and Brown-headed Nuthatches. I captured, banded and measured birds, nest-searched and monitored nests, re-sighted and established territories of color-banded birds, transferred birds to new territories, radio-tracked birds, did vegetation surveys, and entered data. Project role: Field Technician**.**

Ironwood Consulting

John Chikezie

Field Technician II

Education

- BS. Environmental Science, University of California, Riverside, California

Trainings & Certifications

- Basic Wetland Delineation Training, 2024

Professional Summary

John Chikezie is a field biologist with experience in the California deserts. He has been a part of surveys and complex compliance monitoring projects.

Project Experience

Biological Monitoring, Ironwood Consulting, Arica, Victory Pass, and Oberon Solar Projects, Desert Center, Riverside, California, 2022–2024. Provide Endangered Species Act reporting, documentation, and monitoring for several projects. Conducted surveys for special status species such as burrowing owl (*Athene cunicularia*) before and during construction activities. Conducted linear desert tortoise (*Gopherus agassizii*) and desert kit fox (*Vulpes macrotis*) surveys prior to construction activities. Oversaw construction activities through biological monitoring and biological report writing. Facilitated informed and effective decision making by assessing, monitoring, and documenting any identified endangered species and all nesting birds. Assured clients' complete adherence to environmental best management practices for all phases of construction. Assisted with wildlife camera setup and monitoring. Conducted weed surveys and seed collection.

Professional Experience

Environmental Associate, Pro Energy Services, Sacramento County, California, July 2021–Present.

- Tracked and audited construction crews
- Monitored PAR yards and performed facility inspections
- Tracked environmentally-sensitive work orders online and via excel
- Monitored construction coordinators and all environmental communication
- Performed field crew audits and visits
- Developed risk mitigation training materials for PAR/Pro Energy construction crews
- Implemented risk mitigation and environmental training with field employee

Field Biologist Creel Surveys, Dudek, San Bernardino County, California, October 2020–January 2022.

- Surveyed anglers at Silverwood Lake about the type and number of fish they caught
- Hiked throughout the lake to reach anglers in remote locations

Agricultural Technician 1, California Department of Food and Agriculture, Riverside and San Bernardino Counties, California, June 2020–July 2021.

- Inspected cargo planes in Ontario Airport for Japanese beetles
- Serviced Traps for Beetles and other invasive species
- Drove state vehicle and used maps to navigate from trap to trap
- Wrote daily reports for all planes inspected, traps serviced, and species found
- Searched citrus trees for the Asian citrus psyllid across southern California

Research and Field Assistant, Spasjovic Ecology Lab and Vernal Pool Research Lab, University of California, Riverside, Riverside County, California, January–November 2019.

- Reviewed data for quality assurance/control; processed and evaluated data using "R"
- Tracked endangered Vernal Pool plant species and mapped them on GIS
- Cored trees in Idyllwild and prepared them for lab processing

Jesse Goodyear

Wildlife Biologist |

Education

- M.S. Suranaree University of Technology, Korat, Thailand
- B.S. University of South Florida, St. Petersburg, FL, USA
- A.A. Hillsborough Community College, Brandon, FL, USA

Publications

- First record of male-male combat in *Xenopeltis unicolor*. Herpetological Bulletin, 2018.
- Record of Red Giant Flying Squirrel (*Petaurista petaurista*) from Sakaerat Biosphere Reserve, Thailand. Tropical Natural History, 2018.
- Predation of Xenopeltis unicolor (*Serpentes: Xenopeltidae*) on Kaloula pulchra (*Anura: Microhylidae*) in Bangkok, Thailand. Tropical Natural History, 2019.
- Novel foraging behaviors of Scolopendra dehaani (*Chilopoda: Scolopendridae*) in Nakhon Ratchasima, Thailand. International Journal of Tropical Insect Science, 2021.
- Brumation of the Clouded Monitor Lizard Varanus nebulosus in north-eastern Thailand. The Herpetological Bulletin, 2022.

Professional Summary

Jesse has extensive experience living and conducting ecological research in the tropics and the American Southwest. Jesse has completed a 2-year research study on Clouded Monitor Lizards in Northeast Thailand and now looking for a challenging position to further build his experience and skillsets.

Project Experience

Arica, Victory Pass, and Oberon Solar Projects, Desert Center, CA 2022-2024.
Biological Monitoring, Ironwood Consulting. Provide Endangered Species Act (ESA) reporting, documentation, and monitoring for several projects. Conducted surveys special status species such as burrowing owl (*Athene cunicularia*) before and during construction activities. Conducted linear desert tortoise (*Gopherus agassizii*) and desert kit fox (*Vulpes macrotis*) surveys prior to construction activities. Oversaw construction activities through biological monitoring and biological report writing. Facilitated informed and effective decision making by assessing, monitoring, and documenting any identified endangered species and all nesting birds. Assured clients complete adherence to environmental Best Management Practices (BMPs) for all phases of construction. Assisted with wildlife camera setup and monitoring. Conducted weed surveys and seed collection.

Sakaerat Environmental Research Station, Project Coordinator (2019-2021)

- Lead researcher
- Designing and conducting an ecological study
- Overseeing data collection by interns in the field
- Capture and tracking monitor lizards
- Data analysis and visualization

Sakaerat Environmental Research Station, Lead Snake Handler (2017-2018)

- Radio tracking king cobras through tropical montane habitats
- Snake capture and handling
- Morphometric data collection
- Snake handling workshops with local rescue teams

Florida Fish and Wildlife (FWC) Research Intern (2015-2017)

- Radio tracking invasive Tegu lizards in Hillsborough County, Florida.
- Pit tagging
- Performing necropsies

Florida Fish and Wildlife Research Institute (FWRI) Internship (2015)

- Cataloging, preserving, and classifying marine invertebrate samples.

Croc Encounters Education Program assistant (2006-2008)

- Safely captured and transported nuisance alligators in Hillsborough County, Florida.
- Lectured and participated in reptile educational outreach programs
- Building and maintaining enclosures/ponds
- Feeding and caring for snakes, crocodilians, lizards, and turtles at the facility.

Ironwood Consulting

Joli Stavish

Biologist

Education

- BS. Zoology, North Carolina State University

Trainings & Certifications

- Wilderness First Responder Certification

Professional Experience

Biological/Botanical Field Technician, SWCA Environmental Consulting, Utah, Wyoming, Colorado, Nevada, Montana, April - October 2021 and June - July 2022. Responsibilities included surveys for noxious weeds, migratory birds, raptors, Wyoming pocket gophers, white-tailed prairie dogs, desert tortoises, and burrowing owls.

Desert Tortoise Telemetry Technician, Great Basin Institute , Las Vegas, Nevada, February 28 - June 3, 2022. Responsibilities included:

- Radio telemetry of Mojave desert tortoises.
- Permitted to handle tortoises.

Gila Monster/Herpetological Field Technician, University of Arizona, Hachita, New Mexico, August 23 - September 2, 2021. Responsibilities included:

- Walking and road surveys for reptiles and amphibians.
- Location, weather, and species data taken for all herps, full morphometric processing and PIT tagging for snakes and Gila monsters.

Field Technician, Clemson University Pine Snake Project, Dallas, GA, August 1 - 31, 2020. Responsibilities included:

- Radio tracking pine snakes and eastern king snakes.
- Checking traps, processing reptiles and amphibians in the field, ID all animals caught.

Research Assistant, Sakaerat Conservation and Snake Education Team, Udom Sap, Thailand, May - November 2019. Responsibilities included:

- Radio tracking Burmese pythons daily.
- Hiking and road cruising surveys for pythons and other reptiles.
- Setting camera traps and processing photos.
- Morphometric data collection, data cleaning/management.

Lab Technician, Honeybee Lab, Raleigh, NC, December 2015 - December 2016. Responsibilities included running immune assays and collecting samples from the field.

Husbandry Volunteer, Panama Amphibian Rescue and Conservation, Gamboa, Panama, June - August 2016. Responsibilities included:

- Feeding frogs.
- Setting up mating tanks and observing mating behavior.
- Rearing insects.

Swabbing new individuals for Bd.

Jacqueline White

Project Coordinator / Staff Biologist

Education

- BA, Environmental Studies and Planning, Concentration: Biological Resource Conservation, Biology minor, Sonoma State University

Trainings & Certifications

- Experienced with surveys for Western burrowing owl, Desert tortoise, Desert kit fox, Sierra Nevada red fox, mule deer, Sierra Nevada bighorn sheep, Rocky Mountain elk, California spotted owl, Willow flycatcher, Northern goshawk, Sierra Neveda yellow-legged frog, Flat-tailed horned lizard, invasive plants and forestry.
- Experienced with wildlife camera trapping.
- Introduction to Desert Tortoise Training
- Wire Strike Training
- Wilderness First Responder
- Necropsy Training
- Winter Skills Safety Course

Professional Summary

Jacqueline White has 9 years of experience in the biological field. She is experienced with a variety of species-specific protocol surveys for state and federally threatened and endangered species including the Mojave desert tortoise (*gopherous agassizii*), Western burrowing owl (*Athene cunicularia*), Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*), Sierra Nevada red fox (*Vulpes vulpes necator*), Sierra Nevada yellow-legged frog (*Rana Sierrae*), Willow flycatcher (*Empidonax traillii*), and the soon to be listed California spotted owl (*Strix occidentalis occidentalis*). She has worked specifically within the Sierra Nevada Mountains and the Mojave Desert and has a thorough understanding of the biological resources present within these ecosystems. As a field biologist for most of her career, Jacqueline has conducted many surveys including vertebrate and invertebrate inventories and camera trapping studies. She has a strong knowledge of mitigating impacts to biological resources through construction monitoring. She also has experience in implementing and managing data collection, survey protocols, preparing biological resources technical reports, biological assessments, and management plans. She has worked in the capacity of scientific aid, research assistant, staff biologist, crew lead, biologist and as project coordinator managing staff members.

Project Experience

Plumas Corporation Wildlife Surveys, Plumas County, California 2023-ongoing. Project coordinator for a multifaceted restoration project. Working with stakeholders to develop a survey design for the implementation of a restoration effort on Plumas National Forest. During the 2023 summer field season, Jacqueline prepared and conducted species-specific wildlife surveys for California spotted owl, Willow flycatcher, and Sierra Nevada yellow-legged frogs. Implemented wildlife camera traps and protocol for targeting large mammals, specifically ungulates and carnivores. Conducted habitat assessments for California spotted owl, Northern goshawk, and Willow flycatchers. Oversaw staff throughout the field season and, currently, analyzing data and writing a biological resource technical report.

California Department of Fish and Wildlife, Inyo County, California, 2017-2021. Worked as a Scientific Aid collecting and processing data for desert bighorn sheep and ESA listed endangered Sierra Nevada Bighorn Sheep. Participated in biannual meetings for management planning. Spent four years hiking in remote areas to track, survey, and collect data on home range, occupancy, parturition, and density of species. Identified and recorded data on habitat, age class and health as well as participating in biannual captures and GPS collaring events to track populations. Programed and deployed hundreds of GPS collars on bighorn sheep and mule deer. Assisted in telemetry fixed wing flights to locate species and collect and store data. Visited mountain lion GPS cluster sites for potential bighorn sheep mortalities and conducted necropsies in the field of bighorn sheep to determine the cause of mortality. Jaqueline has assisted in desert bighorn sheep helicopter surveys by locating and counting individuals from a helicopter; and has prepped and injected bighorn sheep and taken pertinent measurements of species during health processing. Collected and prepped fecal samples of bighorn sheep for genetic processing.

East Mesa Solar Project, Imperial County, California 2023. Assisted in Flat-tailed horned lizard and Colorado Desert fringe-toed lizards surveys by walking transects and closely inspecting the ground. Locating tracks and following the tracks to the individual to find the species buried under the sand. Jacqueline located four Flat-tailed horned lizards during survey efforts.

Plumas Corporation Giant Sequoia Plots, Tulare County, California 2022. Assisted in a research project involving timber cruising for Giant Sequoias (*Sequoiadendron gigateum*). Used submeter GPS unit to accurately record plot center. Collected data on tree species, height, diameter at breast height, cone numbers, and measuring crown cover and fuel bed layers. Diligently collected data in difficult terrain and conditions.

USGS Desert Tortoise Plots, Clark County, Nevada, 2022-Onoging. Assisted in survey efforts via walking transects to locate and record Desert tortoise sign for a mark-recapture study that is an ongoing research coordination effort for the USGS. Jackie located one desert tortoise during survey efforts.

Crimson Solar Project, Riverside County, California, 2021-Ongoing. Assisted with desert tortoise health assessments and telemetering under an approved biologist. Radio tracked and collected data for desert tortoises throughout the site**Easley Solar and Green Hydrogen Project, Intersect Power, Riverside County, California, 2021–Ongoing.** Assisted in field surveys for an over 7000-acre renewable energy project, which included desert tortoise surveys, burrowing owl surveys, and rare plant surveys. Mapped soils and vegetation communities. Assisted with preparing Biological Technical Report, Habitat Assessment, and Report Memo.

Oberon Renewable Energy Project – Field Surveys and Construction Monitoring, Riverside County, California, 2021–Ongoing. Biologist. Conducted compliance monitoring and pre-construction field surveys for desert tortoise, desert kit fox and burrowing owls. Ensured compliance with the Biological Opinion.

U.S. Forest Service Sequoia Weed Surveys, Plumas Corporation, Kern County, California, 2021-2022. Assisted with weed surveys and identifying plants along dozer and hand lines of the Castle Fire burn area. Documented observations of special status plant species and removed weeds that occurred within the surveyed areas. Assisted with the preparation of the Early Detection Rapid Response Final Report.

Arrow Canyon Wildlife Surveys, EDF Renewables, Clark County, Nevada, 2021. Conducted clearance survey for desert tortoise (*Gopherus agassizii*), desert kit fox (*Vulpes macrotis*), and burrowing owl (*Athene cunicularia*). Excavated burrows according to U.S. Fish and Wildlife Service protocols. Participated in health assessments and translocations of desert tortoise. Monitored desert tortoises post translocations through radio tracking and fence line checks. Also, monitored camera traps within fenced burrows for desert tortoise activity.

Black Mountain Phase III – Wildlands, San Bernardino County, California, 2021. Assisted with 28 camera traps on a parcel for Phase III of the project targeting Mohave ground squirrel (*Xerospermophilus mohavensis*). Also, conducted surveys for rare plants, desert tortoises, and human disturbances. Reviewed and organized photos of species associated with camera traps.

Trinity River Restoration Program, Trinity County, California 2023-ongoing. Assisted in preparation of regulatory documents including environmental assessments and biological studies including a wildlife biological evaluation for a watershed-wide restoration project that would be implemented for 10-20 years.

Kenneth Bender

Staff Biologist I

Education

- BA. Environmental Science and Policy, California State University Long Beach, California

Trainings & Certifications

- Field Techniques for the Mojave Desert Tortoise Workshop, Desert Tortoise Council, 11/2021
- Introduction to the Mojave Desert Tortoise Webinar, Desert Tortoise Council, 11/2020

Professional Summary

Kenneth Bender is a biologist with five years of experience in construction monitoring, burrowing owl surveys, desert tortoise surveys, and desert plant surveys. He has extensive experience working on energy projects, including solar facility and gen-tie construction monitoring, pre-construction surveying, and transmission line marker ball installation monitoring.

Project Experience

Kawich Solar, Indian Springs, Nevada, May 2024. Kenneth conducted 10 meters (m) desert tortoise surveys per agency protocol for the proposed solar project site and serving as crew lead when needed.

Silver State Solar, Primm, Nevada, April 2024. Kenneth conducted 5-m desert tortoise clearance surveys per agency protocol on fully constructed/operational solar site as well as:

- Identifying and improving translocation burrows for adult and juvenile desert tortoises.
- Penning and monitoring hatchling tortoises found during surveys.
- Performing checks and repairing compromised perimeter fence.
- Radio-tracking tortoises affixed with temporary transmitters pending translocation.

Mosey Solar, Pahrump, NV, April 2024-May 2024. Kenneth conducted 10-m desert tortoise surveys per agency protocol for the proposed solar project site.

Sagittarius Community Solar, Panorama, Lucerne Valley, California, March 2024-present. As field lead, Kenneth conducted 10-m burrowing owl surveys per agency protocol for the proposed 34-acre solar project site. His responsibilities included assisting with MGS camera trapping.

Aquarius Community Solar, Panorama, Lancaster, California, March 2024-present. As Field Lead, Kenneth's responsibilities included:

- Conducting 10-m burrowing owl surveys per agency protocol for the proposed 75-acre solar project site.
- Assisting with MGS Sherman trapping.

Rice Airfield, Rice, California, November 2023. During this project, Kenneth's responsibilities include conducting 10-m desert tortoise, desert kit fox, and burrowing owl surveys per agency protocol for the proposed event site.

Galaxy (EDSAN 5) Solar, Mojave, California, September 2023. During this project, Kenneth's responsibilities include conducting 10-m desert tortoise, desert kit fox, and burrowing owl surveys per agency protocol for the proposed solar project site.

Perkins Solar, Holtville, California, March 2023-present. Kenneth conducted flat-tailed horned lizard, desert kit fox, burrowing owl, and rare plant surveys for the proposed solar project site. His responsibilities include:

- Following-up burrowing owl burrow checks, per protocol.
- Monitoring of geo-technical work.

Crimson Solar, Blythe, California, February 2023-present. During this project, Kenneth conducted periodic radiotracking and transmitter changes for resident desert tortoise population.

Arica & Victory Pass Solar, Desert Center, California, March 2022-November 2023. Kennth monitored construction activities in support of Clearway's solar photovoltaic (PV) and transmission gen-tie projects developed on BLM-administered public lands in Riverside County, California. Responsibilities include:

- Monitoring installation of perimeter fencing and ensured fence integrity after installation.
- Performing desert tortoise clearance surveys.
- Monitoring removal of vegetation by heavy machinery.
- Surveying excavations, stored materials, machinery, and infrastructure for trapped or sheltering wildlife.
- Identifying compliance issues, such as right-of-way violations, hazardous material spills, and unsecured trash.
- Installing environmentally sensitive area (ESA) perimeters and performing observations of onsite desert kit fox dens and burrowing owl burrows.
- Excavating den complexes and burrows confirmed to be inactive.
- Performing active relocation of other wildlife found in work areas.
- Conducting nesting bird surveys during nesting season.

Oberon Solar, Desert Center, California, March 2022-November 2023. Kenneth monitored construction activities in support of Intersect Power's 2,600-acre, 500-megawatt (MW) solar PV and transmission gen-tie project developed on Bureau of Land Management (BLM)-administered public lands in Riverside County, California. Additional duties included:

- Monitoring installation of perimeter fencing and ensured fence integrity after installation.
- Performing desert tortoise clearance surveys.
- Radio-tracking transmittered tortoises found on project.
- Monitoring removal of vegetation by heavy machinery on site and in open habitat megavolt line corridors.
- Surveying excavations, stored materials, machinery, and infrastructure for trapped or sheltering wildlife.
- Identifying compliance issues, such as right-of-way violations, hazardous material spills, and unsecured trash.
- Installing ESA perimeters and performed observations of onsite desert kit fox dens.
- Assisting with passive relocation of desert kit fox.
- Performing active relocation of other wildlife found in work areas.
- Excavating den complexes and burrows confirmed to be inactive.
- Conducting nesting bird surveys during nesting season.

Southern California Edison (SCE) Big Creek System, Big Creek, California, 01/2022-03/2022. On this project, Kennith worked as the Lead Biologist, monitored the reconductoring of transmission lines from Big Creek #1 Power Plant to SCE Rector Substation. Responsibilities include:

- Emailing POD to construction crew, project managers, and other SCE personnel on a daily basis.
- Performing spot- and full-time monitoring, depending on construction activity and resource presence.
- Surveying for California condor during helicopter operations.
- Installing and maintaining ESAs for wetlands, California tiger salamander habitat, and cultural sites.

- Performing observations of bird nests and California tiger salamander habitat to determine whether active or inactive.
- Submitting daily monitoring reports, habitat event updates, and bird nest event updates via SCE's Field Reporting Environmental Database (FRED).

SCE Banducci Project, Tehachapi, California, October 2021-November 2021. As Lead Biologist, Kenneth monitored the removal and anchoring of wood electrical poles outside Banducci Substation. Responsibilities include:

- Emailing POD to construction crew, project managers, and other SCE personnel on a daily basis.
- Performing pre-construction survey of affected poles and surrounding work area.
- Providing Worker Environmental Awareness Program training to all on-site crew members.
- Submitting daily monitoring logs via SCE's FRED, including descriptions of work performed, species observed, and compliance violations.

Maverick (Palen) Solar, EDF Renewables, Desert Center, California, September 2020-October 2021. Kenneth monitored construction activities in support of EDF's 3,400-acre, 500-MW solar PV and transmission gen-tie project developed on BLM-administered public lands in Riverside County, California. Responsibilities include:

- Ensuring integrity of site perimeter fencing.
- Surveying excavations, stored materials, machinery, and infrastructure for trapped or sheltering wildlife.
- Identifying compliance issues, such as right-of-way violations, hazardous material spills, and unsecured trash.
- Installing ESA perimeters and performed observations of onsite desert kit fox dens and burrowing owl burrows.
- Providing burrowing owl burrow enhancements as needed.
- Assisting with passive relocation of desert kit fox and burrowing owl.
- Performing active relocation of other wildlife found in work areas.
- Conducting weed surveys and removed invasive weeds.

Antelope Pardee Marker Ball Project (TRTP Seg 1-3), Southern California Edison, Santa Clarita, California, August 2021. Kenneth monitored helicopter-assisted marker ball installation. Responsibilities include:

- Conducting daily wildlife clearance sweeps of helicopter landing zone and marker ball staging areas.
- Surveying project transmission towers and spans for raptor presence and nesting activity.
- Providing daily reporting of all sites swept, species observations, nesting bird behaviors, and crew compliance.

Stagecoach Solar Project, Avangrid Renewables, Lucerne Valley, California, April 2021. Kenneth conducted protocol desert tortoise and burrowing owl surveys for the proposed solar project mitigation site.

Bullhead Solar Project, EDF Renewables, Rosamond, California, April 2021-October 2021. Kenneth conducted focused biological technical surveys for proposed solar project consisting of nearly 2,000 acres and over 30 miles of linear corridors in the western Mojave Desert. Responsibilities:

- Conducting focused desert tortoise surveys.
- Conducting breeding season burrowing owl surveys, which resulted in detection of several borrowing owl pairs and hundreds of potential burrowing owl burrows.
- Identifying and recording desert kit fox dens.
- Mapping Joshua trees.
- Collecting and transmitting all data associated with the special status species observed in support of the completion of the Biological Technical Report, which will be used by Kern County to prepare the environmental impact report for the project.

Desert Harvest Solar Project, EDF Renewables, Desert Center, California, January 2020-September 2020. Kenneth monitored construction activities in support of EDF's 1,200-acre, 150-MW solar PV and transmission gen-tie project on BLM-administered public lands. Responsibilities included:

- Monitoring gen-tie construction from Desert Harvest site to Red Bluff substation for desert tortoise, desert kit fox, burrowing owl, and nesting birds.
- Ensuring integrity of site perimeter fencing.
- Surveying excavations, stored materials, machinery, and infrastructure for trapped or sheltering wildlife.
- Identifying compliance issues, such as right-of-way violations, hazardous material spills, and unsecured trash.
- Installing ESA perimeters and performed observations of onsite desert kit fox dens.
- Assisting with construction of desert kit fox artificial dens.
- Assisting with passive relocation of desert kit foxes.
- Performing active relocation of other wildlife found in work areas.
- Conducting weed surveys and removed invasive weeds.

Machado Lake Ecosystem Rehabilitation Project, City of Los Angeles, Harbor City, California, April 2019 – August 2019. Kenneth performed trapping and removal of brown-headed cowbirds during nesting season. Responsibilities included:

- Providing daily counts for brown-headed cowbirds and other incidentally captured species.
- Servicing traps daily to maintain adequate supply of food, water, and bait birds, and releasing incidental species.
- Repairing traps after acts of vandalism.

Ironwood Consulting

Kendra Gietzen

Senior Biologist

Education

- M.Sc. Biology, University of Regina

Professional Experience

- Implementation of solutions and strategies that help to overcome problems that arise on the job site.
- Monitoring all construction phases for sensitive biological/botanical species during project development; To include all restoration activities such as seeding/watering.
- Perform Section 7 and Section 10 mitigation in accordance with the protocols set forth by USFWS Biological Opinions and Habitat Conservation Plans.
- Perform Zone of Impact and Zone of Influence surveys and clearances for special status plants and wildlife.
- Ability to locate and document all signs of the special status species, including nests, scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, and shell and egg fragments.
- Perform compliance inspections of wildlife exclusionary fencing.
- Perform site inspections and characterizations.
- Ability to use a probing camera to effectively excavate animal burrows.
- Able to use a dichotomous key to identify unrecognizable flora and fauna of the southwest, with emphasis on the Mojave Desert.
- Provide environmental worker education programs.

Project Experience

Southern California Edison-Routine Line Clearance, 05/2021 - present. *Lead Environmental Coordinator/Senior biologist*. Led a small team in meeting the environmental requirements for tree trimming across Southern California, as well as staffing qualified biologists at locations with special status species, nesting birds, and jurisdictional waters in accordance with the Migratory Bird Treaty Act, Endangered Species Act, and Clean Water Act.

Southern California Edison-Deteriorated pole, 05/2021-present. *Senior biologist*- Preform pre-construction nesting bird (including woodpeckers) and BUOW surveys of poles in southern California.

Nextera Java Solar Project, Biological Refresh and Pre-construction surveys, 08/2021 and 11/2021). *Senior Wildlife Biologist*. Acted as lead biologist on biological refresh and preconstruction surveys for all potential species of special concern on project footprint to include nesting birds, BUOW, western snowy plover, peregrine falcon, American white pelican, white-faced ibis, Swainson's hawk, northern harrier, American badger, San Joaquin kit fox, Fresno and Tipton kangaroo rat, blunt nosed leopard lizard and special status plants. Lemoore, CA.

GenOn., Cool Water site, 07/2021. *Senior Wildlife Biologist*. Conducted habitat assessment for presence or absence of DETO, BUOW, and special status plants. Daggett, CA**.**

Barnard Construction Co., West of Devers (WoD), Transmission Line, 11/2019 - 02/2021. *Approved nesting bird and DETO monitor*. Provided biological consultations to protect sensitive biological resources on-site; acted as a compliance monitor including performing clearance sweeps for nesting birds, least bell's vireo (LBVI), California gnatcatcher (CAGN), golden eagle (GOEA), Swainson's hawk, white-tailed kite, American peregrine falcon, burrowing owl (BUOW), Coachella valley fridge-toed lizard, DETO, Nelson's bighorn sheep, desert kitfox, American badger, ringtail, Los Angeles pocket mouse, San Diego desert woodrat, and special status plants. Provide guidance to construction contractors to ensure compliance with avoidance and minimization measures for restoration activities, SWPPP mitigation, DETO, water resources, special status plants such as Yucaipa onion (*Allium marvinii*), smooth tarplant (*Centromadia pungens*), white-bracted spineflower (*Chorizanthe xanti*), and Parry's spineflower (*Chorizanthe parryi*), and ensure compliance with the Raven Management Plan. Responsible for site-wide venomous snake removal. Southern California.

Department of Defense, Fort Irwin NTC, Multi-Purpose Range Clearance, 11/2019. *Wildlife Biologist*. DETO and BUOW presence absence surveys.

Northern Corridor Project Inventory Survey, St George Utah, 03/2020. *Wildlife Biologist*. Conducted survey for presence or absence survey of protected species within project footprint to focus on DETO, Gila monster, desert kitfox, BUOW, GOEA, special status plants such as dwarf bear-poppy (Arctomecon humilis), and Holmgren milkvetch (*Astragalus holmgreniorum*).

Pacific Gas & Electric Company (PG&E), Topock Remediation, California. *Wildlife Biologist*. Provided biological consultations to protect sensitive biological resources on-site; acted as a compliance monitor completing clearance sweeps for DETO, Mexican gartersnake, Nelson's bighorn sheep, and nesting bird surveys including, southwestern willow flycatcher (SWFL), western yellow-billed cuckoo (YBCU), and Yuma clapper rail, and special status plants: small-flowered androstephium (*Androstephium breviflorum*), and spiny-flowered blazing star (*Mentzella tricuspis*). Provide guidance to construction contractors to ensure compliance with avoidance and minimization measures for SWPPP mitigation, and biological resources to include riparian and culturally significant plants such as blue palo verde (*Parkinsonia florida*), screwbean mesquite (Prosopis pubescens) and arrow weed (*Pluchea serecia*), and aquatic species such as the razorback sucker and bonytail. Visual and noise monitoring for special status bat roosts such as western red bat and western yellow bat. Responsible for site-wide venomous snake removal. Topock, CA (6/2017 - 12/2017 and 5/2019 - 9/2019).Mist-netting for special status bats under senior bat biologists. (H.T. Harvey & Associates, 8/2016)

Pacific Gas & Electric Company (PG&E), Hinkley Remediation, Hinkley, CA, 3/2014 - 12/2017. *Wildlife Biologist*. Provided biological consultations to protect sensitive biological resources on-site; to include: acted as a compliance monitor for all agricultural-related projects; preformed nesting bird surveys, and clearance sweeps for DETO, Mohave ground squirrel (MGS), BUOW, Loggerhead shrike, GOEA, Mojave fringe-toed lizard, Townsend's big-eared bat, and desert kitfox, and special status plants such as desert cymopterus (*Cymopterus deserticola*), Beaver Dam breadroot (*Pediomelum castoreum*), Crowned muilla (*Muilla coronate*), Mojave spineflower (*Chorizanthe spinose*), Mojave indigo-bush (*Psorothamnus arborescens*), and Mojave fish hook cactus (*Sclerocactus polyancistrus*). Provided environmental education training to all onsite staff and attended meetings with clients.

Pacific Gas & Electric Company (PG&E), Trona Tap V-180, 9/2014 - 11/2014). *Lead Wildlife Biologist*. Lead protocol level survey for presence and sign of protected species including the desert tortoise, MGS, and BUOW, and to recommend best management practices (BMP) to reduce risk to these species and maintain compliance with the maintenance activities on the Pacific Gas and Electric Company Gas pipeline system in California. Kramer Junction, CA

Terra-Gen Power, Alta Mojave Wind Phases 7&9, 3/2012 - 9/2012. *Designated Desert Tortoise, Bakersfield Cactus Biologist, and Compliance Manager*. Lead compliance management and designated biologist activities in accordance with the incidental take permit and mitigation measures. This includes DETO, nesting bird, California condor, GOEA, BUOW, Swainson's hawk, bats, desert kitfox, American badger, and Bakersfield cacti mitigation and clearance surveys, compliance monitoring, environmental education training and attending meetings with clients. Mojave, CA.

ECI, VEA Stirling Mountain to Northwest Transmission Line, Johnnie, NV to N. Las Vegas, NV, 01/2011 - 3/2012. *Senior Biologist/DETO authorized biologist (DETO AB).* Provide ESA Section 7 mitigation, DETO focused pre-construction and clearance surveys, compliance monitoring, environmental worker education trainings, coordination and mobilization of biologists to meet the client's needs, and attend project meetings.

Holly Energy Partners, UNEV Pipeline, St. George, UT to Apex, NV., 3/2011 - 2/2012. *Senior Biologist/DETO AB*. Provide ESA Section 7 mitigation, overseeing compliance with protective stipulations for listed species, to include pre-construction and clearance surveys, environmental worker education presentation, attend project meetings. Listed wildlife species included DETO, chuckwalla, gila monster, California condor, BUOW, bats, desert kitfox, Nelson's bignorn sheep; special status plant species include Baird's camissonia (*Camissonia bairdii*), Nevada willowherb (*Epilobium nevadense*), pinyon penstemon (*Penstemon pinorum*), Las Vegas bearpoppy (*Arctomecon californica*), Sticky buckwheat (*Eriogonum viscidulum*), and threecorner milkvetch (*Astragalus geyeri*).

Arcadis, Mountain Pass Pipeline Removal and Impacted Soil Mitigation Project, Mountain Pass, CA, 2/2011 - 9/2011. *Biologist II/AB*. Provide ESA Section 7 mitigation, overseeing compliance with protective stipulations for DETO, and other listed species.

Tetra Tech, Duke Energy Searchlight Wind Project, Searchlight, NV, 4/2011 - 5/2011. *Biologist I/DETO AB*. Conduct Inventory on a 3600-acre proposed wind farm walking transects spaced 15m apart. Species inventoried include: DETO, gila monster, chuckwalla, bats, BUOW, GOEA, and desert bighorn sheep.

Ironwood Consulting

Kent Hughes

Senior Biologist V

Education

- BS, Botany, mycology minor, University of Utah

Trainings & Certifications

- U.S. Fish and Wildlife Service Certified Mexican Spotted Owl surveyor (expires 2025)
- Desert Tortoise Council Desert Tortoise Field training 2021
- Applying the NEPA Process and Writing Effective NEPA Docs 2021
- State of California Scientific Collecting Permit including authorizations for desert tortoise handling and telemetry
- Wetlands and Jurisdictional Water Training, The Wetlands Institute
- Line Distance Sampling Training, U.S. Fish and Wildlife Service
- Surveying, Monitoring, and Handling Techniques Workshop, Desert Tortoise Council
- Union Pacific and Burlington Northern Santa Fe Contractor Training
- Emergency Response, First Aid, and CPR
- Horizontal Directional Drilling Inspector Training; Certified HDD Inspector, Western Missouri State College

Professional Summary

Kent Hughes has over 30 years of professional experience in ecology with plant identification, analysis, and restoration as well as conducting surveys for various sensitive wildlife species. He has over 15,000 hours of vegetation survey field experience in the Mojave and Sonoran Deserts, the Great Basin, and coastal and central California. Kent also has over 2,000 hours of field experience conducting surveys for desert tortoises and, as a permitted handler, has handled more than 110 tortoises. In addition, he is also experienced in small mammal trapping and in performing burrowing owl, fringe-toed lizard, and flat-tailed horned lizard surveys. He has also performed restoration compliance inspections, assisted in the implementation of mitigation programs for large projects, conducted reconnaissance-level and focused wildlife surveys, investigated environmental impacts in terms of biological resources, field-supervised more than 30 biological monitors, and conducted wetlands and jurisdictional waters delineation surveys.

Professional and Project Experience

Emergency Pole Replacements, Remediation and Maintenance – Southern California Edison, CA. Senior Biologist/Botanist/Monitor. Various locations in Los Angeles, Kern, San Bernardino, and Riverside Counties, 2011-present. Conducted pre-construction surveys for special status wildlife species, nesting birds, rare plants, and potential jurisdictional waters. Acted as construction monitor and authorized biologist for desert tortoise to ensure that permit conditions were followed, work areas were properly delineated to prevent any disturbance to native habitat as well as to sensitive species where prohibited.

Arica, Victory Pass and Oberon Solar Projects, Desert Center, California, 2019-2023. Monitored construction activities in support of solar photovoltaic (PV) and transmission gen-tie projects developed on BLM-administered public lands in Riverside County, California. Responsibilities included monitoring installation of perimeter fencing and ensured fence integrity after installation, monitoring removal of vegetation by heavy machinery, surveying excavations, stored materials, machinery, and infrastructure for trapped or sheltering wildlife, identifying compliance issues, such as right-of-way violations, hazardous material spills, and unsecured trash, and installing environmentally sensitive area (ESA) perimeters and performing observations of onsite desert kit fox dens and burrowing owl burrows.

Fort Irwin Reliability Project – Southern California Edison, San Bernardino County, CA. Field Biologist/Authorized Biological Monitor, 2018-2020. Conducted pre-construction surveys for desert tortoise, nesting birds, burrowing owl, Mohave ground squirrel and rare plants on 16-mile linear project. Also acted as backup authorized biologist for desert tortoise during construction for compliance monitoring, assisting with WEAP training and ensuring permit compliance.

Lockheed Martin Facility. Los Angeles County, CA. Field Biologist, 2019. Conducted protocol surveys for burrowing owl, desert tortoise, rare plants and assisted with Mohave ground squirrel trap checks. Handled more than 10 antelope ground squirrels under supervision of a permitted Mohave ground squirrel biologist.

Field Biologist, Trapping for Mohave Ground Squirrel Technical Advisory Group. Various locations in San Bernardino, Los Angeles and Kern Counties, California. 2003-present. As a volunteer field biologist, Kent participated in 28 small mammal trapping surveys under the direction of a permitted Mohave ground squirrel biologist. He assisted in installing and removing trapping grids, conducting scheduled inspections of the traps to determine occupancy, and have handled approximately 60 individuals of various non-listed species recording data (e.g., size and weight measurements, determining sex and approximate age class and, if female, gravid or nursing) as directed.

Senior Biologist/Botanist/Monitor, Emergency Pole Replacements, Remediation and Maintenance Project, Southern California Edison, California. Various locations in Los Angeles, Kern, San Bernardino, and Riverside Counties, 2011-present. In this position, Kent works as Senior Biologist/Botanist/Monitor. He conducts pre-construction surveys for special status wildlife species, nesting birds, rare plants, and potential jurisdictional waters. He acts as a construction monitor and authorized desert tortoise biologist to ensure permit conditions are followed and work areas are properly delineated to prevent any disturbance to native habitat and sensitive species where prohibited.

Field Biologist/Authorized Biological Monitor, Fort Irwin Reliability Project, Southern California Edison, San Bernardino County, California, 2018-2020. Kent conducted pre-construction surveys for desert tortoise, nesting birds, burrowing owl, Mohave ground squirrel and rare plants on a 16-mile linear project. His responsibilities also included acting as a backup authorized biologist for desert tortoise during construction for compliance monitoring, assisting with WEAP training, and ensuring permit compliance.

Field Biologist, Lockheed Martin Facility. Los Angeles County, California. 2019. Kent conducted protocol surveys for burrowing owl, desert tortoise, rare plants and assisted with Mohave ground squirrel trap checks. He handled more than 10 antelope ground squirrels under supervision of a permitted Mohave ground squirrel biologist.

Designated Biologist, High Desert Power Project, Adelanto, California, 2007. Kent monitored surface preparation and imprinting for a 30-mile restoration project, monitored imprinting, surveyed for tortoise presence ahead of working crews, increased crew awareness of desert tortoise issues, surveyed work vicinity for presence of other sensitive species. He established reference transects for successful comparison of plants. Conducted twice-yearly monitoring surveys to ensure compliance with permit specifications and restoration success criteria.

Lead Botanist and Authorized Biologist and Monitor, Desert Sunlight Solar Farm–First Solar, Riverside County, Desert Center, California, 2008-2012. Kent conducted initial surveys for desert tortoise, sensitive plants, and invasive weeds. He helped to author the integrated weed management plan for the project.

Biologist, Vegetation Survey, proposed powerline corridor, Blythe to San Bernardino, California, 2005-2012. Kent surveyed a 160-mile proposed powerline corridor for vegetation communities, burrowing owls, desert tortoises, and Coachella fringe-toed lizards. He assessed potential for the occurrence of special status plant species.

Restoration Biologist, Duarte - Vulcan Materials, 2011. Kent monitored and directed the implementation of a revegetation plan on the decommissioned area of gravel mine. He also conducted twice-yearly surveys to ensure restoration goals were be met.

Biologist, Sensitive Plant Species Focused Surveys, Ivanpah Valley, California, 2008-2009. Kent led focused surveys with a team of four botanists for 17 plant species on 7,000-acre site near Primm, Nevada in the Ivanpah Valley.

Biologist, Sensitive Plant Species Focused Surveys, Big Bear Lake, California, 2009. Kent conducted focused surveys for sensitive species, including pebble plain endemics, on a 400-acre site near Big Bear Lake, California.

Biologist, Baseline Vegetation and Sensitive Plant Surveys, State Route 395, Adelanto, California, 2009. Kent conducted floristic and sensitive plants survey for eight sensitive plant species in California Department of Transportation right-of-way along 16 miles of State Route 395 near Adelanto, California

Biologist, Baseline Vegetation and Sensitive Plant Surveys, State Route 18, Lucerne Valley, California, 2008. Kent conducted floristic and sensitive plant surveys for 6 sensitive plant species in California Department of Transportation right-of-way along 3 miles of State Route 18 near Cushenbury, California.

Biologist, Baseline Vegetation, Vegetation Mapping, and Sensitive Plant Surveys, Rialto, California, 2007. Kent conducted initial floristic surveys, vegetation community mapping, and subsequent focused surveys for 7 sensitive plant species on a 60-acre site in Rialto, California

Biologist, Biological Reconnaissance Survey, Pasadena – Los Angeles Department of Public Works, 2006. Kent performed reconnaissance-level vegetation surveys of proposed parkland restoration area in the Lower Arroyo area of Pasadena, California.

Biologist, Desert Tortoise Nutrition Study – Smithsonian National Zoological Park, 2004. Kent conducted protocol transect vegetation surveys to determine frequency of high nutrition plant species in 4 areas of the east Mojave Desert.

Ironwood Consulting

Lois Neff

Staff Biologist III

Education

MS. Biology, Northern Arizona University

Professional Summary

In 2020 Lois received a master's degree in biology at Northern Arizona University. She did some field work in support of her master's project, which contributed to systematic knowledge of the genus Nemacladus. She learned to use botanical keys, herbaria, and to perform various lab techniques. She gained survey experience beginning in 2022 and had extensive training and experience in various projects, both biological and strictly botanical. She has gained knowledge of desert plants, habitats, animals, and the tools and protocols used for field survey.

Project Experience

Ten-Meter Biological Surveys, Redonda Solar Project, California, Ironwood Consulting, March 2024. As part of a multidisciplinary team, Lois performed duties as the botanist, and helped other team members in searching for wildlife and their sign. Other team members consulted and assisted Lois regarding plant observation and identification. Lois also created and submitted a general plant list. The rare plant list included *Eriastrum harwoodii, Johnstonella costata*, and *Astragalus insularis* var. *harwoodii.*

Twenty-Meter Rare Plant Surveys, Calypso II Solar Project, California, Ironwood Consulting, April 2024. As part of a botany team, Lois surveyed desert and desert dune areas for rare plants, in particular *Johnstonella Costata* and *Eriastrum harwoodii.* She contributed to the floristic inventory of the area.

Thirty-Meter Rare Plant Surveys, Arida 2B Solar Project, NV, Ironwood Consulting, May 2024. As part of a botany team, Lois surveyed rare plants and contributed to the floristic inventory. She also did data entry for the AIM plots surveyed at this project.

Thirty-Meter Rare Plant Surveys, Mosey Solar Project, NV, Ironwood Consulting, Spring, 2024. As part of a botany team, Lois surveyed numerous rare plants including *Eriogonum bifurcatum* and *Eriogonum contiguum.* Lois also compiled and authority checked the floristic inventory of the area. She also did data entry for the AIM plots surveyed at this project.

Blue Diamond Cholla Surveys, Clark County Desert Conservation Program, NV, Ironwood Consulting, November 2022 and April 2023. As a member of a botany team, Lois surveyed Blue Diamond Cholla (Cylindropuntia multigeniculata) in order to expand the known range of this species.

Cactus, Yucca, Agave, Desert Tree and Weed Survey, Pimlico Solar, AZ, Ironwood Consulting, January and June 2023. Lois surveyed assigned transects and recorded plant locations in Survey 123. The project assignment was to identify and record cactus species and several desert trees on 10 percent of the proposed solar project area.

Twenty-Meter Weed and Plant Surveys for Initial Biological Surveys, Perkins Renewables Project, California, Ironwood Consulting, March 2023. As part of a multidisciplinary team, Lois performed duties as the botanist, and helped other team members in searching for wildlife and their sign. Other team members would consult Lois about plants to identify. Lois also created a floristic inventory. The team searched for two lizard species and their scat, burro deer sign, and burrowing owls and dens.

Rare Plant Intuitive Surveys, Clark County Desert Conservation Program, Nevada, Spring, 2023. As a member of a botany team, Lois surveyed desert, spring, and riparian areas for rare plants and contributed to a floristic inventory. Included in the sensitive species of the Clark County project was Astragalus geyeri var. Triquetra.

Wildlife Camera Maintenance and Placement, Spotted Owl calling, Willow Flycatcher Habitat Assessment, and Rare Plant Intuitive And Transect Surveys, Plumas National Forest, California, Ironwood Consulting, July and August 2023. Lois was a junior member of a two-person crew managing wildlife cameras and conducting Spotted Owl calling. She was part of a two-person Willow flycatcher habitat assessment team, then continued the work alone. She created a protocol that helped make data collected more objective, in various wetland areas. She then taught two other staff members her process. She was able to find reference and other populations of several target rare plants and shared many of those locations with the botany team and on Field Maps. Lois participated in team intuitive surveys of locations designated as critical for restoration work to begin in 2024. Lois collected weed data and contributed to the floristic inventory. Sensitive and watch list plants included *Astragalus lentiformis, Carex sheldonii, Ivesia sericoleuca,* and *Trifolium lemmonii.*

Twenty-Meter Biological And Botanical Surveys, Easley and Sapphire solar projects, California, Ironwood Consulting, April 2022. Lois was trained to survey, distinguish burrows, and use survey technology. She identified plants and animals.

BLM AIM Protocol Assessment and Rare Plant Intuitive Surveys, Bonanza Solar, Nevada, Ironwood Consulting, April 2022. Using compass and measuring tools, Lois participated in surveys measuring density and size of plants. Lois also looked for rare plants and created a floristic inventory.

Cactus Plots and Intuitive Surveys, Arida Solar, Nevada, Ironwood Consulting, April 2022. As a team member Lois surveyed, and identified various cactus species and kept the floristic inventory. Additionally, there was an intuitive survey for rare plants and a floristic inventory made of the areas between plots.

Rare Plant Intuitive Surveys, Rough Hat Solar, Nevada, Ironwood Consulting, April 2022. As a member of a team of biologists and botanists, Lois surveyed desert and riparian areas at a potential solar project area, contributing to a floristic inventory and searching for rare plants.

Nevada Rare Plant Surveys, Lincoln County, Nevada, Ironwood Consulting, May 2022. As a member of a botany team, Lois surveyed desert and riparian areas for rare plants and contributed to a floristic inventory.

Rare Plant and Weed Intuitive Surveys, John Wesley Powell National Conservation Area, Utah, Ironwood Consulting, June 2022. As a member of a botany team, Lois surveyed desert and riparian areas for rare plants and weeds and contributed to a floristic inventory.

Ironwood Consulting

Leigh Rouse
Ecologist

Education

- MS, Botany, Arizona State University, 1998
- BA, Biology, University of Colorado, 1990

Trainings & Certifications

- 2012 U.S. Army Corps of Engineers Wetland Delineation Training Program
- 2020 Introduction to Desert Tortoises and Field Techniques
- Certified to survey for Mexican spotted owl

Credentials & Publications

- Vegetation Dynamics of Great Basin Springs: Potential Effects of Groundwater Withdrawal. Duncan T. Patten, Leigh Rouse, and Juliet Stromberg. Published in *Aridland Springs in North America: Ecology and Conservation*
- Isolated Spring Wetlands in the Great Basin and Mojave Deserts, USA. Potential Response of Vegetation to Groundwater Withdrawal, D.T. Patten, L. Rouse, and J.C. Stromberg. Environmental Management Volume 41.

Professional Summary

Leigh has 18 years' experience assisting clients with National Environmental Policy Act (NEPA) compliance and has assisted in preparing several Environmental Assessments (EA) and Environmental Impact Statements (EIS) by collecting baseline data, maintaining schedules, coordinating with clients and agencies, providing subject matter expertise at public meetings, and preparing technical reports and final NEPA documents. Leigh's experience managing multi-disciplinary projects has given her knowledge of a wide range of resource areas analyzed in EAs and EISs. Her attention to detail and knowledge of the issues and regulations aid in providing successful project management, preparing and reviewing technical reports, performing field studies, managing schedules and personnel, preparing budgets, and coordinating with agencies and subcontractors to help clients navigate the environmental review process. Leigh also has over 20 years' experience with Clean Water Act compliance and specializes in wetland issues, including wetland delineations, Section 404 permitting, and compensatory mitigation, as well as annual monitoring and reporting for mitigation projects. As part of a project's due diligence process, Leigh provides recommendations on Section 404 permitting issues for residential and commercial developments, pipeline and road construction projects, and stream restoration and improvement projects. She assists clients with Endangered Species Act compliance by preparing Biological Assessments and conducting surveys for rare, threatened, or endangered plant species, as well as for raptors and other birds.

Project Experience

Northern Integrated Supply Project EIS, Larimer and Weld counties, Colorado, 2008–Ongoing. Served as the third-party contractor project manager and assistant project manager for the Northern Integrated Supply Project EIS, a water supply project led by the U.S. Army Corps of Engineers (USACE). Assisted the USACE by managing a team of biologists and subcontractors, as well as preparing technical reports on Wetlands and Other Waters, Vegetation Resources, Threatened and Endangered Species, and Recreation. Prepared natural resource sections of the EIS and identified and recommended mitigation measures for each resource. Reviewed and edited all chapters and sections of the Supplemental Draft EIS and Final EIS. Coordinated with federal and state agencies to ensure compliance with NEPA, Section 106 of the National Historic Preservation Act, Section 7 of the Endangered Species Act, and Section 404 of the Clean Water Act. Assisted in preparing presentation material for public meetings and attended public meetings as the wetland subject matter expert. From October 2018 through 2022, provided project management assistance to the third-party contractor as an independent contractor, prepared a Biological Assessment and responses to public and agency comments, assisted the USACE in developing the Record of Decision and in preparing the administrative record database.

Southern Delivery System EIS, Pueblo County, Colorado, 2004–2008. Assisted in project management of the biological resources team for the Southern Delivery System EIS, led by the U.S. Bureau of Reclamation. Coordinated and managed team members to conduct field work, including wetland delineations, vegetation mapping, rare plant surveys, and habitat assessments for threatened or endangered species. Provided environmental input into the scoping process to help determine the range of alternatives. Attended scoping meetings and prepared scoping report. Researched, analyzed data, and evaluated project effects on wetlands, vegetation, noise and vibration, and air quality to prepare technical reports and EIS sections.

Lazy Glen Wastewater Treatment Plant Improvement Project EA, Pitkin County, Colorado, 2018–2019. Prepared an EA on behalf of the Lazy Glen Homeowners Association required to obtain a federal loan through the U.S. Department of Agriculture's (USDA) Rural Utilities Services to improve its wastewater treatment. Prepared sections on biological resources, land use, visual aesthetics, transportation, noise, and cumulative effects. Reviewed and incorporated information from the client and the project engineer and all other data and information into a final EA for the USDA.

Rock Creek Mining Project EIS, Kootenai National Forest, Montana, 2015–2017. Assisted in preparing an EIS for a mining project in western Montana by preparing EIS sections on wetlands, preparing the 404(b)(1) analysis, responding to public and agency comments on wetlands, and coordinating with the Environmental Protection Agency (EPA) and USACE on Section 404 issues.

Montanore Mining Project EIS, Kootenai National Forest, Montana, 2012–2015. Assisted in preparation of an EIS for a proposed copper-silver mine beneath a designated wilderness in western Montana by attending public meetings as the wetland subject matter expert, preparing EIS sections on wetlands and vegetation, preparing the 404(b)(1) analysis, responding to public and agency comments on wetlands and vegetation, and coordinating with the EPA and USACE on Section 404 issues.

Arkansas Valley Conduit EIS, Pueblo, Otero, Bent, and Prowers Counties, Colorado, 2011–2013. Assisted in preparation of an EIS by coordinating field surveys and evaluating vegetation, wetlands, and noxious weeds for construction of 135 miles of new pipeline in the Arkansas River basin.

City of Evans Consolidated Wastewater Treatment Plant EA, Evans, Colorado, 2016–2017. Conducted wetland delineations, assessed habitat for federally listed species, mapped vegetation and wildlife habitat and compiled collected information into a complete EA for submittal to the Colorado Department of Public Health and Environment on behalf of the City of Evans.

Lafayette Water Supply and Transmission Improvement Project, Lafayette, Colorado, 2013–Ongoing. Assisted the City of Lafayette with preparing Boulder County's 1041 Permit by conducting field surveys, delineating wetlands, compiling all information into the final document, responding to comments, and attending public meetings. Coordinated with the USACE on an approved jurisdictional determination and Section 404 permitting. Provided pre-construction surveys and monitored a bald eagle (*Haliaeetus leucocephalus*) nest during construction and provided compliance documentation to the U.S. Fish and Wildlife Service. Continue to support the client with wetland delineations, pre-construction surveys for Boulder County special status species, a pre-construction notification for Section 404 verification, reclamation plans, Endangered Species Act compliance, a weed management plan, and post-construction monitoring.

Lafayette Water Reclamation Facility Improvements Project, Lafayette, Colorado, 2020–Ongoing. Served as project manager and determined the scope of environmental evaluations for the project. Analyzed impacts on wetlands and threatened and endangered species and prepared a pre-construction notification to ensure compliance with Section 404 of the Clean Water Act and Section 7 of the Endangered Species Act. Coordinated with cultural resources team members to ensure compliance with Section 106 of the National Historic and Preservation Act. Conducted burrowing owl (*Athene cunicularia*) survey prior to ground disturbance and assisted with black-tailed prairie dog (*Cynomys ludovicianus*) relocation.

Mother Lode Mine, Nye County, Nevada, 2021. Conducted pre-project presence/absence desert tortoise (*Gopherus* agassizii) surveys to determine abundance and distribution in action area. Walked between 8 and 12 miles in rugged terrain in the northern portion of the range following U.S. Fish and Wildlife Service survey protocols.

Eagle Shadow Mountain Solar Project, Clark County, Nevada, 2020. Worked as part of a team of biologists walking transects for clearance surveys for desert tortoise to comply with conditions in the Record of Decision. Surveyed for Bureau of Land Management rare plants (Gemini and Battle Born project areas.)

Black Hawk Central City Sanitation District Wetland Mitigation, Black Hawk, Colorado, 2007–Ongoing. Designed wetland areas for compensatory mitigation and water treatment for a joint project for the Sanitation District, the EPA, and the State of Colorado. Continuing to assist the Sanitation District with restoring wetlands following beaver (*Castor canadensis*) activities by preparing and implementing planting plan and providing recommendations on surface water flows and beaver management.

Tarryall Creek Road Improvement Project EA, Park and Teller Counties, Colorado, 2001–2002. Served as wetland subject matter expert for the Tarryall Road (Colorado Route 77) for a Federal Highways EA to ensure compliance with Section 404 of the Clean Water Act. Delineated wetlands within the right-of-way for a 40-mile segment of road improvements and conducted raptor surveys. Prepared wetland delineation report and wetland section of the EA.

Matthew Atkinson-Adams

Field Biologist

Education

- MSc, Ecology, University of Alberta, 2015
- BS. Organismal Biology, Montana State University, 2010
- BS, Environmental Biology, Montana State University, 2010

Trainings & Certifications

- Desert tortoise surveying, monitoring, and handling techniques training

Professional Summary

Matthew has 10 plus years' experience working in fish and wildlife research. He led his own research project during his time at the University of Alberta from 2012–2015, and otherwise worked primarily in the field collecting ecological data in support of wildlife research projects. His professional and volunteer experience has included surveying for, capturing, marking, and tracking birds, reptiles, amphibians, and fish, as well as measuring variables associated with their habitats. Matthew first worked in the Mojave Desert in 2010 on a desert tortoise (*Gopherus agassizii*) translocation study, and has worked in the Mojave seasonally since 2018 as a field worker on projects related to desert tortoises and other wildlife and plant species of conservation concern.

Project Experience

Plumas Tributary Restoration, Plumas County, CA 2023–Ongoing. Post-wildfire headwater wetlands restoration project. Conducted surveys for foothill yellow-legged frogs and California spotted owls. Spotted owl detections involved daytime follow-up visits and mousing. Conducted habitat assessments for several sensitive wildlife species, including the northern goshawk, California spotted owl, grey wolf, wolverine, elk, and yellow-legged frog. Opportunistically removed bullfrogs encountered during yellow-legged frog surveys.

Sequoia National Forest Sequoia Grove GSER Assessments, Fresno, Tulare, and Kern Counties, California 2023– Ongoing. Used modified CSE protocols to assess fire effects, fire risk, and general stand health for specified giant sequoia groves within the Sequioa National Forest. Special attention was given to monarch trees within the groves.

Sequoia National Forest Post-Fire Sequoia Grove Assessments Fresno, Tulare, and Kern Counties, California 2022–2023. Used modified CSE protocols to assess fire effects, fire risk, and general stand health for specified giant sequoia groves within the recent wildfire footprint in the Sequioa National Forest. Special attention was given to monarch trees within the assigned groves.

Pemlico Rare Plant Surveys, Maricopa County, Arizona, 2022–2023. Proposed solar development. Surveyed belt transects for sensitive plant species, including saguaro cactus.

Clark County Rare Plant Surveys, Clark County, Nevada, 2022–2023. Surveyed probable habitat to detect new, or expand known, populations of rare or sensitive plants within Clark County. Conducted additional surveys in the county's "disposal" areas, which have a higher likelihood of land development.

Clark County Blue Diamond Cholla Surveys, Clark County, Nevada, 2022–2023. Surveyed areas modeled as high-quality habitat to detect new, and expand known, populations of the Blue Diamond cholla (*Cylindropuntia multigeniculata*) for Clark County.

John Wesley Powell NCA Rare Plant and Weed Surveys, Uintah County, Utah, 2021–2022. Surveyed BLM land undergoing a change in conservation status for rare and sensitive plants and noxious weeds. Populations were documented using Utah Natural Heritage Program protocols.

Cima Logistics, San Bernardino County, California 2023. Surveyed a private parcel for sensitive plants and to ground-truth desert tortoise sign detected by aerial drone.

370 Alabama Street, Suite A; Redlands, CA 92373; Ironwoodbio.com; madams@ironwoodbio.com

Sequoia National Forest BAER Surveys, Kern County, California, 2022. Surveyed for noxious weeds in areas that experienced ground-disturbance during recent wildfire control efforts. Features surveyed were predominately dozer lines, hand lines, staging areas, roads, and trails. All weed populations detected were mapped.

Lycan Solar Project, Riverside County, California 2022. Proposed solar development. Conducted preliminary sensitive species surveys, including surveys for desert tortoise, desert kit fox, and Couch's spadefoot toad.

Chuckwalla Solar Project, Clark County, Nevada, 2022. Proposed solar development. Radio tracked tortoises marked during preliminary surveys. Assisted in finding missing tortoises and documented one juvenile tortoise mortality.

Arrow Canyon Solar Project, Clark County, Nevada 2022. Conducted intuitive surveys for desert tortoises ahead of clearance efforts. Monitored fence construction activities for environmental compliance. Radio-tracked tortoises that had been found during pre-clearance survey efforts.

Desert Quartzite solar project, Riverside County, California, 2022–Ongoing. Monitored construction activities for environmental compliance, conducted nesting bird surveys, monitored kit fox activity using game cameras.

Sapphire Solar Project, Riverside County, California, 2022–Ongoing. Conducted general sensitive species surveys. Monitored desert kit fox and burrowing owl burrows for activity. Mapped ephemeral waterways.

Easley Solar Project, Riverside County, California, 2022–Ongoing. Conducted general sensitive species surveys**.** Mapped ephemeral waterways. Mapped dry wash woodland boundaries.

Arica/Victory Pass Solar Projects, Riverside County, California, 2020–Ongoing. Authorized biologist (AB). Conducted preliminary sensitive species surveys. Supervised tortoise clearance surveys and burrow excavations. Conducted nesting bird surveys, and monitored progress of active nests. Monitored construction activities for environmental compliance.

Oberon Solar Project, Riverside County, California, 2020–Ongoing. Authorized biologist (AB). Conducted preliminary sensitive species surveys. Supervised tortoise clearance surveys and burrow excavations. Conducted nesting bird surveys, and monitored progress of active nests. Monitored construction activities for environmental compliance.

Southern California Edison Pole Brushing, Los Angeles and San Bernardino Counties, CA 2021–Ongoing. Surveyed power poles ahead of brushing crews to detect active bird nests and sensitive plant and wildlife species ahead of ground disturbance.

Athos III Solar Project, Riverside County, California 2020. Conducted surveys for Mojave fringe-toed lizards within the active sand transport portion of the site footprint.

Bonanza Solar Project, Inyo County, California, 2020. Field lead on this proposed solar development. Lead field crews to conduct surveys for sensitive wildlife species, with a focus on American badger and Mojave desert tortoise. Also detected a rare plant in the genus *Ephedra.*

Ft. Irwin National Training Center WTATS, San Bernardino County, California, 2020. Study site proposed as recipient site for tortoises translocated in the event of future army base expansion. Surveyed randomly generated 300-meter x 300-meter plots across the Western Training Area Translocation Site for tortoise sign in coordination with the U.S. Geological Survey (USGS). Recorded carcasses, active tortoise burrows, live tortoises, and vegetation data. Affixed transmitters to all tortoises large enough to carry a transmitter.

University of Nevada – Reno Genetic Connectivity Study, Riverside County, California, 2020. Study collecting genetic data across the Chuckwalla Valley to detect possible barriers to tortoise gene flow. Surveyed large areas within the Chuckwalla Valley for live tortoises, fresh tortoise scat, and fresh carcasses. Collected blood from live individuals, fresh scat, and fresh tissue from carcasses for genetic analysis.

Athos Solar Project, Riverside County, California, 2020. Proposed solar development. Surveyed aeolian sand deposits within the project footprint for Mojave fringe-toed lizard (*Uma scoparia*). Surveyed project footprint for desert tortoise, desert kit fox, burrowing owl, and other sensitive animal and plant species.

Desert Harvest/Almisol Solar Projects, Riverside County, California, 2019–Ongoing. Solar developments. Conducted pre-construction sensitive species surveys, nesting bird surveys, and clearance surveys. Monitored construction activities for environmental compliance, performed fence and trench checks, monitored known bird nests, burrowing owl (*Athene cunicularia*) burrows, and kit fox (*Vulpes macrotis*) natal dens.

Crimson Solar Project, Riverside County, California, 2018–Ongoing. Proposed solar development. Surveyed the project footprint and surrounding areas for adult tortoises. Transmittered tortoises found in initial survey effort, currently radiotracking and assisting with health assessments and re-transmittering of transmittered individuals.

USGS Plots, Clark County, Nevada, 2018–Ongoing. Study assessing genetic connectivity, movement, and statistical methods for estimating population metrics for desert tortoise. Conducting mark-resight surveys for desert tortoise within fixed 1km^2 study plots.

Porthos Solar Project, Clark County, Nevada, 2019. Proposed solar development. Surveyed portion of project footprint for desert tortoise and burrowing owl sign.

San Diego Zoo and USGS Radiography Study, San Bernardino and Kern County, California, 2019. Study assessing the role of environmental variables in tortoise head-start success. Volunteered at the Ward Valley study site to survey for adult females, affix transmitters, and conduct health assessments.

Ironwood Consulting

Marscilla Bueno

Biologist

Education

- BA. Environmental Studies. California State University, San Bernardino, San Bernardino, CA
- BA. Geography, California State University, San Bernardino, San Bernardino, CA
- AA. Liberal Arts with an emphasis in Math and Science, Copper Mountain College, Joshua Tree, CA

Trainings & Certifications

- Desert Tortoise Council Desert Tortoise Field training 2021
- Applying the NEPA Process and Writing Effective NEPA Docs 2021
- U.S. Fish and Wildlife Service Certified Mexican Spotted Owl surveyor, Expires 2025

Professional Summary

Marscilla is an authorized Desert Tortoise biologist with experience in research, performing health assessments, and collecting blood and tissue samples on Mojave desert tortoises (Gopherus agassizii). Her experience includes:

- Ability to follow and execute research data collection protocols
- Ability to identify flora and fauna within the Mojave and Colorado Deserts
- Experience working on military installations
- Experience working with utility construction crews
- Experience with ArcGIS Collector, Survey 123, database management, and QA/QC

Project Experience

Biological Science Technician (wildlife), U.S. Geological Survey, Western Ecological Research Center, Boulder City, NV, July 20, 2020 - January 30, 2023:

Desert Tortoise Tracking and Monitoring

- Performed clinical health assessments on juvenile and adult tortoises following USFWS protocols:
  - Handling of all tortoises; weighing and recording mass; measuring carapace and plastron using calipers; assessing body condition score, eyes, nares, skin, shell, cloaca, mouth and oral mucosa, and abnormalities.
  - Authorized to collect oral swabs, fecal samples, and blood sample on adult and juvenile tortoises via subcarapacial venipuncture.
  - Processed blood samples in lab and field.
- Tracked and monitored tortoise movement and behavior:
  - Tracked tortoises using radio telemetry equipment; collected data on behavior, movement, burrow type, vegetation cover, and location coordinates; recorded all data into ArcGIS Survey 123 and datasheets.
- Removed and attached VHF transmitters onto juvenile and adult tortoises.
  - Handled tortoises and observe carapace scutes for best placement of transmitter; attach with epoxy or quick steel and ensure secure fit; record all information onto datasheets.
  - Added, removed, and/or replaced ID tags.
- Rehydrated juvenile tortoises that voided during health assessments or handling events.
- Assisted with pre-translocation and translocation of 40 juvenile tortoises to research study site on BLM land.
- Assisted in perennial and annual plant surveys at multiple research study sites.

Juvenile Desert Tortoise diet study research

- Project lead on a diet study to determine the effects of exotic forage on nutrition, physiology, and gut microbiota on Mojave desert tortoises. Planned, coordinated, and implemented study which included: monthly health assessments, biological sample collections, planting, and monitoring of forage pots, set up and maintenance of wildlife cameras, organized and compiled biological data.
- Provided animal husbandry for 29 juvenile captive tortoises.
- Conducted juvenile foraging observations on captive and wild tortoises to better understand foraging behavior and forage selection:
    - Identify plant foraging species and record bite count.

Additional Tasks/Skills

- Performed literature research utilizing online databases to support ecological background and species of interest in permit reports.
- Contributed to annual permit reports for USFWS.
- Utilized software programs: Word, Excel, Filemaker Pro, ArcGIS
- Inputted and organized tracking, handling, and health assessment data in database; QA/QC

Field Biologist, University of California Riverside Center for Conservation Biology, Palm Desert, CA, February 3, 2020 - May 6, 2020. Worked as a member of a team of four field biologists conducting biological field research in support of a land condition trend analysis study on the Twentynine Palms Marine Corps Air Ground Combat Center (MCAGCC):

- Surveyed, collected, and recorded data on wildlife and vegetation following research protocols to monitor species richness and abundance over varying habitats and levels of military disturbance to document long-term effects of disturbance with emphasis on Mojave desert tortoise habitat.

Wildlife Surveys

- Conducted herpetofauna surveys following established protocols.
    - Duties performed: identify and record all reptile species seen within randomly selected four-hectare plots with emphasis on the Mojave desert tortoise.
- Conducted field bird surveys following established protocols:
    - Duties performed: identify and record every bird species by sight and/or sound at various points along a 1.5km line; record any active bird nests.
- Recorded coordinates and observations of all sightings or evidence of wildlife species of interest: Mojave desert tortoise, Desert bighorn sheep, Mojave ground squirrel, American Badger, Burrowing owl, and various bird species.

Vegetation Surveys

- Conducted 100-meter vegetation transect line surveys and recorded all intercepting: perennials, annuals, military ordnance, and other military disturbance.
    - Duties performed: locate plot using GPS unit; set transect line with measuring tape; identify, measure, and record all perennials and annuals that cross transect line; collect, dry, and weigh plant biomass samples; identify and record plot coordinates, bearing, and slope. Utilized taxonomic key as needed.

Additional Tasks/Skills

- Monitored and surveyed rare, endangered, and threatened plant species on protected conservation lands in the Coachella Valley.
- Ability to navigate through rough terrain in 4WD vehicles.

Biological Science Intern (Wildlife), Joshua Tree National Park, Joshua Tree, CA, Division of Science and Resource Stewardship, October 2, 2018 - January 29, 2020.

- Monitored the Mojave desert tortoise via radio telemetry and used ArcGIS Collector to record data on movement and behavior.
- Assisted wildlife biologist with replacing radio transmitters on desert tortoises and general health assessments.

- Conducted small mammal surveys:
    - Setting and baiting Sherman traps, removing mammal from the trap and handling; identifying species; record measurements and observations; release mammal.
- Raptor nest surveying and monitoring near high trafficked rock-climbing routes to determine if route closure is needed during nesting season:
    - Duties performed: identified raptor species and nest utilizing binoculars; document observations and coordinates onto datasheet; installed signage for any rock-climbing route closures.
- Worked with wildlife biologists on conducting pre-mine closure bat surveys:
    - Performed: identify presence of guano; built bat exclusion fence and place overmine opening; surveyed all bats exiting mine for two hours after dusk utilizing night vision optics.
- Collaborated with management and staff from other agencies on tasks and climate change research projects: surveying, measuring, and monitoring Joshua Tree (*Yucca brevifolia*) and California juniper (*Juniperus californica*).

Land Stewardship Volunteer, Mojave Desert Land Trust, Joshua Tree, CA. January 31, 2019 - July 30, 2019. Assisted the Land Stewardship department with land and habitat assessments, and OHV restoration projects:

- Conducted land assessments for land acquisitions within Mojave and Colorado Deserts for habitat preservation and conservation.

Southern California Edison (SCE), Planning Assistant, Yucca Valley, CA. January 2013 - January 2018. Worked as a team member in the planning department to provide new or upgraded electrical services to residential and commercial customers:

- Researched, monitored, and communicated status of projects to crew foreman, construction crews, home builders, city inspectors, solar agencies, troublemen, field service representatives and Transmission Distribution Business Unit personnel.
- Received and processed new meter requests and inspections for city, counties, and other internal/external organizations.
- Created, updated, and monitored: reports, customer service accounts, and work orders.

Ironwood Consulting

Marina Lavender

Field Biologist

Education

- BA, Sustainable Development, English minor, Gordon College, 2015

Training & Certifications

- First aid and CPR 2023
- DTC Desert tortoise Introductory training 2020
- DTC Desert Tortoise Field training 2021
- Basic Wetland Delineation training 2021

Professional Summary

Marina is a biological field technician with a wide variety of biological consulting experience in the Colorado and Mojave deserts. Marina has experience radio-tracking, helping with health assessments, and radio transmittering Mojave Desert tortoises. Marina has also conducted plant inventories and rare plant surveys, as well as nesting bird, burrowing owl, and Mojave fringe toed lizard surveys. Marina has extensive experience monitoring construction work in desert tortoise and Mojave ground squirrel habitat, along with establishing and monitoring ESA's, documenting impacts, and writing detailed reports.

Project Experience

Crimson Solar Project, Blythe, CA, fall 2019-Present. Radio-tracked 38 desert tortoises to collect health and distribution data and establish a baseline for health in the region and to identify the home range and core use areas of the resident population. Monitored construction crews to ensure environmental compliance and wrote daily reports.

Easley Solar & Green Hydrogen Project, fall 2021-Present. Conducted plant inventories for summer and fall plants. Completed 10-meter surveys collecting data on nesting birds, desert tortoise, desert kit fox, burrowing owl, and other species of interest.

Clark County Rare Plant Surveys, Clark County, NV, spring 2020-Present. Conducted both free form intuitive and 10–20-meter surveys in over 20 areas modeled for select rare plants throughout Clark County. Rare plants included *Penstemon albomarginatus*, *Cylindropuntia multigeniculata*, *Eriogonum bifurcatum*, and others. Collected data on species population density and distribution with sub-meter GPS, collected herbarium specimens, and created EO's; compiled and reviewed EO data.

Sequoia National Forest EDRR surveys, summer 2021-fall 2021. Performed Early Detection Rapid Response (EDRR) surveys for the Castle Fire Burned Area Emergency Response (BAER) program. Surveyed for and mapped target invasive weed species and rare plants and removed invasive weeds. Surveyed existing polygons of invasive weeds to ground truth their presence and density. Reviewed data collected and wrote report. Acted as field manager coordinating survey teams and locations, communicating with project managers and agencies, and securing crew lodging. Project role: Associate Biologist.

Spring Mountain Raceway, spring 2021. Conducted intuitive free-form as well as five-meter desert tortoise clearance surveys, excavate all burrows. Assisted with tortoise health assessments and translocate seven tortoises. Created artificial burrows and monitor desert tortoises in pens. Tracked translocated desert tortoises.

Palen Solar Project, Desert Center, CA, fall 2019-Present. Conducted clearance surveys for Mojave Desert tortoise and completed additional surveys for desert kit fox, burrowing owl, Mojave fringe toed lizard, and other species of special concern. Monitored project equipment and activities and performed desert tortoise fence inspections. Trained and supervised other biologists on monitoring duties. WEAP trained construction workers new to the project site. Conducted nesting bird surveys and monitor species of special concern, such as burrowing owl and kit fox. Constructed enhanced burrows and shade structures for burrowing owls. Completed burrowing owl and desert kit fox observations. Helped to establish and maintain ESAs within project boundary. Collected data on invasive weeds and removed species of concern such as *Brasssica tournefortii*. Monitored for and collected data on avian fatalities and raven subsidies and standing water. Conducted annual O&M vegetation and weed monitoring surveys and write vegetation reports. Coordinated with agencies, botanical gardens, and restoration contractors to implement O&M restoration plan. Project role: Associate Biologist.

Desert Harvest Solar Project, Desert Center, CA, fall 2019-Present. Conducted clearance surveys for Mojave Desert tortoise and completed additional surveys for desert kit fox, burrowing owl, Mojave fringe toed lizard, and other species of special concern. Monitored project equipment and activities and performed desert tortoise fence inspections. Conducted nesting bird surveys and nest observations and monitored species of special concern such as burrowing owl and kit fox. Helped to establish and maintain ESAs within project boundary. Collected data on invasive weeds and removed species of concern such as *Brasssica tournefortii*. Monitored for and collected data on avian fatalities and raven subsidies and standing water. Conducted annual O&M vegetation and weed monitoring surveys and write vegetation reports. Coordinated with agencies, botanical gardens, and restoration contractors to implement O&M restoration plan. Project role: Associate Biologist.

Arica and Victory pass, Desert Center, CA, fall 2019-Present. Conducted plant inventories for fall, spring, and summer plants. Collected data on nesting birds, desert tortoise, desert kit fox, burro deer, coyotes, and other species of interest. Completed 10-meter surveys collecting data on burrowing owls and their burrows and monitored burrowing owl burrows and other canid burrows. Used game cameras to monitor proposed project footprint and collect data on incidental land use by species of special interest.

Oberon, Desert Center, CA, fall 2019-Present. Conducted plant inventories for fall, spring, and summer plants. Collected data on nesting birds, desert tortoise, desert kit fox, burro deer, coyotes, and other species of interest. Completed 10-meter surveys collecting data on burrowing owls and their burrows and monitored burrowing owl burrows and other canid burrows. Used game cameras to monitor proposed project footprint and collected data on incidental land use by species of special interest.

Desert Quartzite Solar Project, Field Biologist. Monitored geotechnical crew in open desert tortoise habitat. Escorted crew through open habitat and performed pre-construction surveys in work areas. Took compliance data and write monitoring reports.

Arrow Canyon, Moapa River Indian Reservation, NV, Spring 2020-fall 2021. Conducted free form intuitive and 10-meter surveys to locate and transmitter desert tortoises on proposed solar project footprint. Worked on a team to transmitter six desert tortoises. Assisted in conducting health assessments on eight tortoises and completed notching on two juveniles too small for transmitters. Collected data on desert tortoise health and population distribution and density. Walked five-meter clearance surveys and translocate two desert tortoises. Radio-tracked 10+ translocated tortoises. Monitored construction crews to ensure environmental compliance and wrote daily reports.

Fort Irwin, Fort Irwin Western Expansion, CA, fall 2020. Surveyed 300 x 300-meter randomized plots for desert tortoises and their sign. Assisted in transmittering tortoises. Tracked tortoises and completed 24-hour tortoise transmitter checks. Proofed tortoise and plot data.

Bonanza Peak Solar Project, Charleston view, CA, fall 2020. Performed 10-meter desert tortoise presence/absence surveys. Collected data on all desert tortoise, desert kit fox, burrowing owl, nesting bird, and American badger sign. Took plant and animal inventories for all incidental species.

Valley of Fire Solar Project, Moapa River Indian Reservation, NV, fall 2020. Completed 10-meter desert tortoise presence/absence surveys. Collected data on all tortoise sign, including live individuals, burrows, pallets, scat, carcasses, and mating/fighting rings. Collected data on desert tortoise health and population distribution and density.

Chuckwalla Solar Project, Moapa River Indian Reservation, NV, fall 2020. Completed 10-meter desert tortoise presence/absence surveys. Collected data on all tortoise sign, including live individuals, burrows, pallets, scat, carcasses, and mating/fighting rings. Collected data on desert tortoise health and population distribution and density.

Athos III, Blythe, CA, 5/22/2020-5/23/2020. Collected data on Mojave fringe-toed lizard and burrowing owl population density, distribution, and habitat. Conducted burrowing owl burrow checks.

SBCo Road Grading & Maintenance, Twentynine Palms, CA, spring 2020. Conducted pre-construction clearance surveys for desert tortoise and nesting birds in designated work zones and buffers. Established and monitored ESAs to protect nesting birds in work areas. Monitored construction activities, documented temporary and permanent disturbance, and completed daily monitoring logs. Presented desert tortoise awareness training to seven construction workers.

Bighorn Desert View Water Agency Biological Survey, Landers, CA, 6/16/2020-6/17/2020. Conducted 25-meter transects in proposed project areas and collected data on burrowing owl burrows, population density, distribution, and habitat.

SWCA SCE On-Call: EC008_TD1028069_IO#338876, Baker, CA, 6/22/2020-6/23/2020. Conducted pre-construction clearance surveys for desert tortoise and Mojave ground squirrel. Monitored construction activities, documented temporary and permanent disturbance, and completed daily monitoring logs.

SWCA SCE Large Cap, Barstow, CA, December 2019. Conducted pre-construction clearance surveys for desert tortoise and other species of special concern. Monitored construction activities, document temporary and permanent disturbance, and complete daily monitoring logs.

SWCA SCE on-call: EC008_TD1337139_Dist86_IO30405 precon MQSQ BLM Ridgecrest Downs, Ridgecrest, CA, 5/11/2020-5/19/2020. Conducted pre-construction clearance surveys for desert tortoise and nesting birds in designated work zones and buffers. Monitored construction activities, document temporary and permanent disturbance, and complete daily monitoring logs. Presented desert tortoise awareness training to 15 crew members.

Maggie Pasanen
Staff Biologist I

Education

BS. Conservation Biology, State University of New York College of Environmental Science and Forestry (SUNY-ESF), Syracuse, NY

Trainings & Certifications

Desert Tortoise Council Introductory Course, Fall 2023

- CPR First Aid, 2022

Permits

Mojave desert tortoise, Fort Irwin, CA with USGS TE-63428D-0.4.3

Professional Summary

Maggie has extensive experience handling and identifying wildlife, as well as conducting field research. She is knowledgeable about the collection, organization, statistical analysis, and management of data.

Project Experience

Crescent Dunes Solar Facility, Tonopah, Nevada 2021-present. Maggie performs as an avian biologist with the Great Basin Bird Observatory. Her responsibilities include:

- Conducting bird mortality surveys and point count surveys at a working solar facility.
- Preparing daily monitoring logs and mortality reports for clients.
- Establishing trail cameras as part of a carcass persistence study.
- Collecting and transporting injured birds to the closest rehabilitation center. Additionally, surveys for golden eagles (*Aquila chrysaetos*) in the area around the solar facility.

Kawich and Mosey Solar Projects, Pahrump, NV and Indian Springs, Nevada. Spring 2024. Before the permitting of a solar project, Maggie helped perform 10-meter (m) presence / absence surveys for Mojave desert tortoise (*Gopherus agassizii*). Her responsibilities included the collection of data on live individuals, burrows, carcasses, and scat.

Redonda and Bajada Solar Projects, Desert Center, California Spring 2024. Maggie was the Lead avian biologist on pre-construction 10-m surveys, conducting an inventory of all birds on site. Additional responsibilities included:

- Conducting linear desert tortoise (*Gopherus agassizii*), burrowing owl (*Athene cunicularia*), Mojave fringe-toed lizard (Uma scoparia) and desert kit fox (*Vulpes macrotis*) surveys before construction activities.
- Collecting data on rare plants such as *Eriastrum harwoodii*, *Johnstonella costata*, *Astragalus insularis* var. *harwoodii*, and all cactus and ocotillo.
- Preparing daily monitoring logs and sharing them with the client.

Crimson Solar Project, Blythe, California. 2023-2024. Magge assisted with Mojave desert tortoise (*Gopherus agassizii*) transmitter changes and collected morphological measurements. Additional responsibilities included:

- Conducting common raven (*Corvus corax*) use surveys
- Preparing sensitive species reports for loggerhead shrike (*Lanius ludovicianus*).
- Preparing daily monitoring logs and sharing them with the client.

Desert Quartzite Solar Project, Blythe, California, Spring 2024. Maggie performed as an avian biologist responsible for conducting nesting bird surveys in open habitat pre-construction and during construction. Nesting birds included the California sensitive species loggerhead shrike and the LeConte's thrasher. She also prepared daily monitoring logs and sensitive species reports and sharing them with the client.

Easley Solar Project, Desert Center, California. Spring 2024. Biological Monitoring, Ironwood Consulting. Maggie served as a biological monitor during this project. Her responsibilities included:

- Overseeing construction activities through biological monitoring and biological report writing.
- Assuring client adherence to environmental best management practices (BMPs) for all phases of construction.
- Preparing daily monitoring logs and sharing them with the client.

Silverstate Solar Project, Primm, Nevada. Spring 2024. Maggie performed clearance surveys for Mojave desert tortoise (*Gopherus agassizii*) at a functional solar facility that had a fence breach due to flooding. She also prepared daily monitoring logs and sharing them with the client.

Sagittarius and Aquarius Solar Projects, Lancaster, California and Victorville, California. Spring 2024. Maggie was the lead avian biologist on pre-construction 10-m surveys. Additional responsibilities included:

- Taking an inventory of all birds on site
- Conducting sensitive plant and animal species surveys
- Focusing on the desert kit fox (*Vulpes macrotis*), burrowing owl (*Athene cunicuaria*), and Joshua tree (*Yucca brevifolia*).
- Preparing daily monitoring logs and sharing them with the client.

Arica, Victory Pass, and Oberon Solar Projects, Desert Center, California 2023-2024. Maggie performed as an Ironwood biological monitor. Her responsibilities included:

- Providing Endangered Species Act (ESA) reporting, documentation, and monitoring for several projects.
- Conducting surveys on special status species such as burrowing owl (*Athene cunicularia*) during construction activities.
- Overseeing construction activities through biological monitoring and the biological report writing.
- Facilitating informed and effective decision making by assessing, monitoring, and documenting any identified endangered species and all nesting birds.
- Assuring client adherence to environmental best management practices (BMPs) for all phases of construction.
- Assisting with wildlife camera setup and monitoring.

USGS Contracted Habitat Assessment Plot Surveys, Clark County, Nevada. Fall 2023. Maggie assisted with USGS research by conducting 5-m presence/absence surveys for Mojave desert tortoise (*Gopherus agassizii*).

Perkins Solar Project, El Centro, California. Spring and Fall 2023. Maggie was the lead avian biologist on pre-construction 10-m surveys, taking an inventory of all birds on site. Additional responsibilities included:

- Conducting 10-meter transect surveys for sensitive species such as flat-tailed horned lizard (*Phrynosoma mcallii*), Mojave fringe-toed lizard (*Uma scoparia*), Burrowing Owl (*Athene cunicuaria*), and desert kit fox (*Vulpes macrotis*).
- Marking the cactus and ocotillo found onsite.
- Preparing daily monitoring logs and sharing them with the client.

Maui Cat Count, Maui, Hawaii, Summer-Winter 2022. Maggie served as a project manager in this position. Her responsibilities included:

- Managing staff to survey for feral cats around the island of Maui. Surveys were conducted visually and with trail cameras.
- Authoring reports, organizing volunteers, and meeting with the client to discuss project details and progress.

US Geological Survey (USGS) Desert Tortoise Translocation and Habitat Assessment, Fort Irwin, California 2022. Maggie was an authorized biological science technician and permitted to handle Mojave desert tortoises (*Gopherus agassizii*). Her responsibilities included:

- Radio tracking transmitter tortoises, G sub0 tracking, changing radio transmitters and GPS loggers, taking morphological measurements, rehydrating using epicelomic methods, and attaching ID tags to carapace.
- Performing vegetarian surveys using AIM protocols
- Collecting rain gauge data.

Owen's Valley Willow Flycatcher, Bishop, California 2021. Maggie served as a biological field technician with the Great Basin Bird Observatory. She conducted point count surveys along the Owen's River and call playback for southwestern willow flycatcher (*Empidonax traillii extimus*). Additional responsibilities included:

- Performing nest checks of found SWFL nests and assisting with banding nestlings and adults.

Barred Owl Removal Project, Cle Elum, Washington 2020. Maggie was a biological science technician, United States Geological Survey. Responsibilities included using call playback to locate barred owls (*Strix varia*) and spotted owls (*Strix occidentalis*) for an occupancy survey.

Nevada Bird Count, Nevada State. Spring-Summer 2019. Maggie was a biological field technician with the Great Basin Bird Observatory. Her responsibilities included performing point count and vegetation surveys around rural Nevada to assist in the annual bird count and the Nevada Breeding Bird Atlas.

Vernal Pool Surveys, New York State. Spring 2019. Maggie performed as a senior research support specialist with the New York Natural Heritage Program. Her responsibilities included collecting vernal pool data around the state of New York to assist wetlands protection legislation. Data included vegetation surveys, GPS mapping, water quality surveys, herpetofauna egg mass counts, and herpetofauna adult inventory.

Mandy Wegmann

Field Biologist

Education

- BA, Environmental Studies, Warren Wilson College, NC, 2012
- AA, Biology, San Jacinto College, TX, 2010

Trainings & Certifications

- CDFW approved level II blunt-nosed leopard lizard protocol surveyor
- CDFW designated biologist for Swainson's hawk
- Desert Tortoise Conservation Biology Workshop, 2019.
- California Tiger Salamander Biology and Management Workshop, 2018
- Central Valley Sensitive Species Training, 2018
- Desert Tortoises Council Introduction and Field Techniques Workshop, 2016
- First aid and CPR, 2015
- Wilderness first responder, 2009
- Search and rescue, 2009
- Wildland firefighting, 2009

Professional Summary

Ms. Wegman has 6 years of experience working in the field with multiple species. She has extensive experience conducting biological studies, focused threatened and endangered species surveys, and compliance monitoring. Species she has worked with include desert tortoise (*Gopherus agassizii*), blunt-nosed leopard lizard (*Gambelia sila*), San Joaquin kit fox (*Vulpes macrotis*), California tiger salamander (*Ambystoma californiense*), Swainson's hawk (*Buteo swainsoni*), San Joaquin antelope ground squirrel (*Ammospermophilus nelson*), giant kangaroo rat (*Dipodomys ingens*), Tipton's kangaroo rat (*Dipodomys nitratoides nitratoides*), burrowing owl (*Athene cunicularia*), flat-tailed horned lizard (*Phrynosoma mcallii*), and nesting birds. She also has experience working within California Department Fish and Wildlife (CDFW) as well as Arizona Department of Game and Fish as a field technician.

Project Experience

I-15 Express Lanes Project, Skanska/Ames Joint Venture, Corona/Norco, California, 2020. Served as field biologist for median freeway widening on I-15 from Cajalco Road to State Route 60 in Riverside County, California. Project closed in the median over Santa Ana River in Norco, California, which is critical habitat for least Bell's vireo (*Vireo bellii pusillus*), and Santa Ana sucker (*Catostomus santaanae*). Monitored construction activities and nesting birds, including least Bell's vireo, on how they were reacting to construction activity and determining buffer distances in conjunction with the designated biologist.

Desert Harvest, Palen, and Crimson Solar Projects, Riverside County, California, 2019–Ongoing. Conducted clearance surveys for desert tortoise and construction monitoring for large scale solar farms and their connecting gen-tie lines. Ensured the crews were compliant were project permits and did not injure or harm desert tortoises or nesting birds. Also assisted with health assessments and radiotelemetry of transmittered desert tortoises.

California High Speed Rail Project, Soar Environmental, Fresno, California, (2018–2019). Designated biologist and general biological monitor performing biological monitoring of sensitive species, biological surveys, and technical report writing. Species include San Joaquin kit fox, Swainson's hawk, blunt-nosed leopard lizard, and California tiger salamander. Understood, applied, and ensured application of mitigation measures and permit conditions associated with the project.

Lokern Ecological Reserve, Pixley Wildlife Refuge, Carrizo Plains National Monument, Soar Environmental, California, 2018. Participated in small mammal trapping. Species handled include giant kangaroo rat, short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*), and Heermann's kangaroo rat. Also conducted spotlighting surveys for San Joaquin kit fox.

Various Small Projects, Vandero Group, Barstow, California, Vandero Group, 2017. Conducted 100% coverage surveys for desert tortoises, including smaller sized tortoises, tortoise burrows, and sign. Records of all tortoises and tortoise sign (e.g., burrows, scats, carcasses) were recorded. A Desert Tortoise Habitat Assessment was performed within the desert tortoise research survey area. Data collected included percent cover, species, vegetation type, vegetation condition, soil type, soil slope, soil aspect, level of anthropogenic habitat disturbance, and other parameters deemed relevant to desert tortoise habitat quality.

Park Ranger, Santa Barbara County Parks Department, California, 2017. Tasks included performing grounds keeping and maintenance duties such as weeding, pruning, identifying, and reporting lawn and plant problems, as well as collecting and removing brush. Checked visitors into park, collected fees, issued permits, and provided visitor information regarding park services, features, and fees.

Various Projects, Dudek, Bakersfield, California, 2016. Performed surveys for special status wildlife and botanical surveys including but not limited to blunt-nosed leopard lizard, San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, western burrowing owl, and Le Conte's thrasher (*Toxostoma lecontei lecontei*). Tasks included working in teams, walking transect lines, recording data, data entry, database management, and coordinating with sub-contractors to create schedules. Wrote the final reports for blunt-nosed leopard lizard surveys.

Scientific Aide, CDFW, Santa Barbara, California, 2015–2016. Conducted a variety of steelhead trout (*Oncorhynchus mykiss*) surveys including redd, snorkel, and habitat assessment. Assisted with fish rescue/relocations using methods such as electrofishing, seining, handling fish, operating flow meters, and recording field data. Administrative duties included data entry, database management, and monthly activity reports.

Wildlife Technician, Arizona Game and Fish Department, Ajo, Arizona, 2013 –2013. Monitored a Sonoran pronghorn (*Antilocapra americana sonoriensis*) captive breeding program where over 100 pronghorn were observed and cared for in the breeding pen and then released into the wild. Surrounding populations were monitored and provided with supplemental food and water stations. Tasks included daily observations of behavior, breeding, health, radio telemetry for wild pronghorn, trail camera monitoring, maintenance of irrigation systems, and electrical fences. Documented accurate records of field data, wrote reports such as weekly and monthly updates, and other documents as directed.

Inter, Arizona Game and Fish Department, Yuma, Arizona, 2012. Conducted flat-tailed horned lizard surveys to determine the presence or absence within the proposed project area. Additional surveys included Sonoran Desert tortoise, saguaro nest cavity, and vegetation surveys. Kept clear organized data records, created, and maintained database. Worked in extreme summer desert conditions.

Ironwood Consulting

Nathan Labieniec

Senior Biologist I

Education

- BA. Natural History. Prescott College, Prescott, AZ
- Sustainable Agriculture, Natural History, Sterling College, Craftsbury, VT

Professional Summary

Nathan is proficient at conducting biological studies and surveys that focus on threatened and endangered plants and wildlife species, with an emphasis on the Mojave Desert tortoise, *Gopherus agassizii*. His Ironwood project experience includes the following:

- **Desert Quartzite Solar Project (spring 2022-present)**. Conducting desert tortoise clearance surveys.
- **Arrow Canyon Solar Project (fall 2021-fall 2022)**. Radio tracking of translocated animals; authorized biologist on site during construction phase; oversight of project compliance.
- **Chuckwalla Solar Project (fall 2021-present)**. Radio tracking of project animals. Transmitter attachments and removals, health assessments assists, presence/absence surveys on project site.
- **USGS Connectivity Plots (fall 2021-fall 2022)**. Mark/recapture survey protocol for desert tortoise in partnership with USGS.
- **Fort Irwin, fall 2021 (spring 2022)**. Survey for desert tortoise, transmitter attachment, health assessment assist, rehydration, radio tracking.

Professional Experience

Founder, Senior Biologist, Nlab Environmental Services LLC, Las Vegas, Nevada, November 2018 - Present. Specializing in environmental compliance throughout a number of industries impacting the Southwest and beyond. NLab Environmental helps construction companies meet federal and state requirements for working near threatened and endangered species as well as within their habitats:

- **Yellow Pine Solar Project Clearance Survey (March-May 2021)**. USFWS-authorized biologist for Yellow Pine Solar Project preconstruction surveys for Desert Tortoise. Crew lead for presence absence surveys including transmitter attachment, health assessment assists, and radio telemetry.
- **Critical Habitat Breadth for Gopherus tortoises – A New Paradigm for Managing Threatened and Endangered Species in a Non-Stationary World (February 2021)**. USFWS-authorized biologist managing field staff collecting data for the University of Nevada, Reno; oversight of desert tortoise surveys, health assessments of study animals, and the attachment of radio transmitters; QA/QC for data and database management.
- **Eagle Shadow Mountain Gen-tie Construction (October 2020-February 2021)**. USFWS-authorized biologist for Eagle Shadow Mountain Solar gen-tie construction; field lead supervising 5-10 biologists working with the construction crews. Duties included monitoring, clearance surveys, fence checks, tracking, WEAP training and coordinating and managing staffing needs.
- **Yellow Pine Solar Project (September-October 2020)**. USFWS-authorized biologist for Yellow Pine Solar Project preconstruction surveys for Desert Tortoise; crew lead for presence absence surveys including transmitter attachment, health assessment assists, and radio telemetry.

- **Battle Born Presence/Absence (May 2020)**. USFWS Authorized Biologist for Battle Born presence/absence surveys for Desert Tortoise and Burrowing Owl (*Athene cunicularia*) for solar development in Overton, NV. Surveyed for animals within project boundaries, including access roads and gen-tie. Data was recorded using the Fulcrum and Gaia apps.
- **Eagle Shadow Mountain Translocation (April 2020)**. USFWS-authorized biologist for Eagle Shadow Mountain clearance and translocation of Desert Tortoise for solar development in Moapa, NV; surveyed for animals, assisted with health assessments, attached and removed radio transmitters, tracked animals via radio telemetry, cleared burrows using robotics, and conducted ultrasounds on potentially gravid females.
- **Eagle Shadow Mountain Presence/Absence (October 2019)**. Conducted Desert Tortoise and Burrowing Owl presence/absence surveys for Eagle Shadow Mountain solar development.
- **Red Flat Solar Presence/Absence (October 2019)**. Conducted Desert Tortoise presence/absence surveys for Red Flats solar development.
- **Rand Mine Presence/Absence (September 2019)**. Crew lead for presence/absence surveys for Desert Tortoise on the Rand Mine, Randsburg, CA.
- **Harry Allen/Eldorado Transmission Line (November-December 2018, August 2019)**. Construction Monitoring on a high voltage transmission line between Harry Allen Generating Station and the Eldorado Substation. Duties included escorting vehicles, conducting pre-construction clearance surveys, equipment monitoring, environmental compliance, and daily reports.

USFWS-Authorized Biologist and Field Lead, University of Nevada Reno & USGS, Las Vegas, NV, April-October 2019. Working alongside UNR PhD student, Margarete Walden, to collect various data on Desert Tortoise. For graduate study *Critical Habitat Breadth for Gopherus tortoise: A New Paradigm for Managing Threatened and Endangered Species in a Non-stationary World*:

- Taking morphological measurements, sexing, health assessments and tissue samples.
- Attachment and removal of radio transmitters and GPS units.
- Gravid female and nest management: Ultrasound scanning potential gravid female tortoises, excavating and caging of nests, and weighing and measuring eggs.
- Health assessments on adults and hatchlings, including coelomic cavity palpations, blood draws, blood processing and necropsies both in the field and in a lab setting.

Associate Biologist, Habitat Management Incorporated, Farmington, NM, June-August 2018. Conducted presence/absence surveys for pollinator species including Dakota Skippers (*Hesperia dacotae*), and Poweshike Skipperling (*Oarisma Poweshiek*) as a method for mapping habitat delineations:

- Usage of sub meter GPS devices and ArcPad on potential build sites for wind turbines in South Dakota.
- Mapping wetlands on potential build sites using ArcMap and GIS technologies.

Desert Tortoise Research Associate - AmeriCorps member, Great Basin Institute, Las Vegas, NV, March-May 2018. Research project investigating the ecology and demographics of desert tortoise (*Gopherus agassizii*) and to determine the status of existing populations in the Mojave Desert (NV):

- Extensive training for handling desert tortoise in the wild with particular attention paid to disease control.
- Taking morphological measurements of desert tortoise including carapace length, sex, and body condition scoring.
- Identifying and classifying the condition of desert tortoise sign including scat, tracks, burrows, and pallets.
- Walking 10-15km/day in challenging terrain and rapidly changing desert conditions.

Manager of the Jerome Historical Society Archives, Jerome Historical Society, Jerome, AZ, 2016-2018. Responsible for overseeing the acquisition, accessioning, and proper storage of artifacts, photographs and documents related to the town's history:

- Creator and editor of Jerome Historical Society quarterly newsletter.
- Oversight of volunteer researchers.

Park Ranger, Arizona State Parks, Jerome & Sedona, AZ, 2013-2016. Ranger incorporated into two state parks – a nature preserve and a historic building/museum:

- Oversight of volunteer crews as they worked as docents of the museum, conducted historical walks, and worked on general maintenance throughout the park.
- Extensive building and ground maintenance, vehicle repair and upkeep.
- Administrative tasks, including bank deposits, park usage reports, weekly financial recap reports.

Minerals Resource Technician, Great Basin Institute, Winnemucca, NV, April-September 2015). Worked directly with district geologists to complete a survey of all expired 3809 mining notices:

- Collected intensive data and photographs of all mapped sites.
- Wrote official letters on behalf of the Bureau of Land Management to claim owners informing them of their responsibilities.
- Daily use of ArcMap and handheld GPS devices. Logged thousands of miles of high clearance and 4x4 roads in rural Nevada.

Associate Biologist- AmeriCorps Member, The Nature Conservancy, Arizona Chapter, 2011. AmeriCorps member working beside preserve managers throughout the state to complete numerous tasks with a focus on the identification and eradication of invasive species as well as restoring native plant populations and preventing the destruction of habitat:

- Data collection including those related to population studies of local flora and fauna.
- Daily use restorative tools including chainsaws, hand tools and UTVs.

Ironwood Consulting

Rudy Badia

Senior Biologist IV

Education

- MA. Ecology & Natural Resource Management, Norwegian University of Life Sciences
- BS. Wildlife Biology, State University of New York College of Environmental Science and Forestry

Project Experience

Biological resource support to the Project Manager and compliance monitoring at several solar farm facilities during different stages of construction, Ironwood Consulting, Current. Performed desert tortoise telemetry, desert kit fox, nesting bird surveys, and monitoring in relation to construction activities. Trained in spotted owl broadcast surveys.

Arica, Victory Pass, and Oberon Solar Projects, Desert Center, CA 2022-2024. Biological Monitoring, Ironwood Consulting. Provide Endangered Species Act (ESA) reporting, documentation, and monitoring for several projects. Conducted surveys special status species such as burrowing owl (Athene cunicularia) before and during construction activities. Conducted linear desert tortoise (Gopherus agassizii) and desert kit fox (Vulpes macrotis) surveys prior to construction activities. Oversaw construction activities through biological monitoring and biological report writing. Facilitated informed and effective decision making by assessing, monitoring, and documenting any identified endangered species and all nesting birds. Assured clients complete adherence to environmental Best Management Practices (BMPs) for all phases of construction. Assisted with wildlife camera setup and monitoring. Conducted weed surveys and seed collection.

Marine Protected Area Ornithologist – Institute of Marine Research, Norway, Sept 2022 - Mar 2023. Performed literature review of marine conservation, seabirds, mapping diet, and field surveys; Lobster reserves data quality check; and stereo-video recordings analysis, regurgitation, lost fishing gear, and the impact on seabirds at Raet NP.

Biological Restoration – Agder Fylkeskommune (Agder County Municipality), Feb 2022 - June 2022. Implementing Norwegian regulation of watercourse laws, worked with farmers to mitigate river degraded by unsustainable practices, herbivores, and erosion. The goal was restoration (salmon and pearl mussels) of ecological services and farmers livelihood. Mapped Red-listed and invasive species reported along the river.

Volunteer Researcher – Universidade Federal da Bahia, Apr 2021 - Oct 2021. Identifying and mapping of the Roadside Hawk (*Rupornis magnirostris*) subspecies using “citizens science” data.

Collaborating Ecologist – University of Southeastern Norway and NMBU, Aug 2017 - Aug 2021. Collected data on vegetational, mycorrhizae, invertebrate and soil composition at the 2016 lightning site that killed 323 Reindeer (Rangifer tarandus). Conducted avian foraging observations at the site. Scientific publications: Badia et al. (2019), Reindeer carcasses provide foraging habitat for alpine tundra Norwegian passerine. Stayeart et al. (2018), Special delivery: scavengers direct seed dispersal towards ungulate carcasses.

Assistant/Norwegian Language Practice – Læringsverkstedet Slaabervig Naturbarnehage, Nov 2020 - Mar 2021. Played, fed, and cared for children at daycare while helping with everything they needed.

Senior Ornithologist – Operation Wallacea, June 2017 - July 2017. Established an ornithological framework while simultaneously guiding and teaching high school and college students about field data collection for conservations purposes in Krka National Park, Croatia.

Avian Surveyor – Great Basin Bird Observatory, Mar 2014 - June 2014. Territory mapping using Arc GIS of breeding birds on the lower Colorado River, southwest U.S.

Contract Biologist – Department of Marine & Wildlife Resource, Pago, American Samoa, Apr 2013 - Sept 2013. Established, coordinated, and carried out daily avifaunal point counts and vegetational surveys at those sites.

Field Biologist – Institute for Bird Pop's/Department of Marine & Wildlife Resources, American Samoa, July 2012 - Dec 2012. Constant effort bird ringing for aging and sexed landbirds; banded ~400 birds.

Bat Biologist – Bat Conservation & Management Inc, Mid Atlantic States, May 2012 - July 2012.

Transported, installed, and removed harp traps and operated mist netting equipment. Extracted bats from mist nets and conducted vegetational surveys; handled ~100 bats.

Wildlife Mortality Surveyor – West, Inc. Kingsville, Texas, Sept 2011 - Oct 2011.

Surveyed wind farms for avian and bat mortality caused by turbines in southern Texas. Described vegetational characteristics of field sites. Position was also held from Mar 2012 - May 2012.

Field Biologist – Instituto Venezolano de Investigaciones Científicas-IVIC, Caracas, Venezuela, Mar 2010 - Apr 2010. Conducted avian surveys at the Gran Sabana, southern Venezuela.

Ornithologist/Bander in Charge – Cooper, Beauchesne and Associates, British Columbia, Canada, May 2009 - Sept 2009.

Wetland avian survey mapping unprotected important habitat and at logging, mining, wind farm, and heavily disturbed sites to determine population distribution and density. Banding, and bleeding of birds: Banded ~1800 birds. The position was also held from May - September 2010.

Avian Surveyor – Texas Tech University, Lubbock, TX, Feb 2009 – Apr 2009.

Banded, processed, bled, and radio-tagged Lesser Prairie Chicken (*Tympanuchus Pallidicinctus*) at leks. Monitored movement, habitat usage and recorded vocalization & behavior at leks.

Volunteer Biologist – LIFENET, Las Tangaras Reserve Mindo, Ecuador 2008-08 - 2008-09.

Target netted Andean Cock-of-the-Rock (*Rupicola peruvianus*) and noted behavior at leks; banded ~100 birds.

Biological Surveyor/Bander – USGS, Western Ecological Research Center, Sacramento, CA 2008-05 - 2008-08.

Monitored endangered Bell's Vireo (*Vireo bellii*), and Willow Flycatcher (*Empidonax traillii*) in Southern California. Surveyed historical and located potential sites at coastal riparian habitats for mapping. Banded riparian birds at the Camp Pendleton Military Installation; banded ~350 birds.

Telemetry Surveyor –ITS, Victorville, CA, Fieldwork: Hattiesburg, MS, Aug 2007 - Sept 2007.

Operated video surveillance and sound recording to monitor threatened Gopher Tortoises (*Gopherus polyphemus*) in proximity to burrows at Camp Shelby Military Training Center. Located tortoises via telemetry; removed transmitters & light/temperature sensitive data loggers.

Field Biologist – USGS Northern Prairie Wildlife Research Center-USGS, ND, May 2007 - Aug 2007.

Monitored Piping Plover (*Charadrius melodus*) and Least Tern (*Sterna antillarum*) by determining incubation, success of clutch, and fledge date in North Dakota; color banded ~280 fledgling.

Field Assistant – Instituto Venezolano de Investigaciones Científicas-IVIC, Caracas, Venezuela, June 2006 - Sept 2006.

Inventory and monitoring throughout Venezuela to determine distribution and abundance of neotropical fauna. Collected and processed Scarabaeidae beetles with pitfall traps and Lepidoptera butterflies by aerial net sweeping.

Avian Field Assistant – Smithsonian Migratory Bird Center, Washington DC, Fieldwork – Michigan, May 2006 - June 2006.

Color-banded and bleed breeding endangered Kirtland's Warbler (*Setophaga Kirtlandii*) KIWA; banded 51 birds. Resighted color-banded birds for spot-mapping and GPS on those sites.

Biological Technician – Puerto Rico Conservation Foundation, Site: Eleuthera, Bahama, Jan 2006 - May 2006.

Determined biology of migrants and resident birds in habitat occupied by wintering KIWA. Banded ~3,400, and bled ~1000 birds, collected fecal sample for diet composition. Avian foraging observations for diet use and movements of fruits and arthropods

seasonal changes. Foliage bagging vegetation, ground leaf litter for arthropods composition and monitoring fruit phenology. With telemetry defined home ranges of KIWA. Job also held from October to May 2006/2007and 2007/2008.

Research Experience for Undergraduate (REU) – CEDO Intercultural, Puerto Peñasco, Sonora, Mexico, Sept 2005 - Nov 2005.
Assessed land cover change and degradation at two wetlands critical for wildlife with potential development. Avian marsh surveys, plant phenology, invertebrate composition, soil, and water quality assessment.

Biological Field Assistant – West Virginia University, WV, Aug 2005.

Wood Thrush (*Hylocichla mustelina*) mapping of post-breeding telemetry movements and vegetation sampling. Mist-netting, skulling, aging, sexing, and biometric measurements of birds: processed ~70 birds.

Biological Field Assistant – West Virginia University, WV, Apr 2005 – July 2005.

Located CEWA habitat, set plots for spot mapping, and monitored nest CEWA foraging behaviors.

Field Assistant – UNAM, Mexico, Field site: Balsas River Drainage, Western Mexico, June 2004 – July 2004.

Assisted on tropical dry forests fieldwork collecting Bursera tree species and coleoptera beetles. Mist netted birds to help determine avian composition; processed ~100 birds.

Volunteer Intern – Santa Ana National Wildlife Refuge (SANWR), Alamo, Texas, May 2003 – Aug 2003.

Wetland surveys, monitored water levels, data collection of shorebirds and reptiles. Eradicated invasive vegetation for native tree and grassland species propagation.

Biological Assistant – SUNY-ESF Huntington Wildlife Forest-Adirondack Ecological Center, Newcomb, NY, May 2001 - Aug 2001.

Quantified shoots to determine the effect of light by deer herbivory on American Beech (*Fagus grandifolia*). Master thesis assistant: Hardwood crown loss and subsequent rebuilding following 1998 ice storm.

Urban Park Ranger Intern – Partners in Ecological Research (PIER), NYC, NY, Sept 1995 - Sept 1999.

Tested water salinity, pH, visibility, oxygen level and conducted breeding bird surveys at NYC parks. Removed invasive plants for propagation of native wildflowers to attract birds and butterflies in Central Park.

Sadie R. DeCurtis

Staff Biologist I

Education

- BS. Wildlife and Conservation Biology, University of Rhode Island, Kingston, Rhode Island

Trainings & Certifications

- Wilderness First Aid Certified, 2021

Professional Summary

Sadie is proficient at conducting biological studies and surveys that focus on threatened and endangered plants and wildlife species, with an emphasis on Mojave Desert Tortoise *Gopherus agassizii*. Sadie's Ironwood project experience includes the following:

- **Arrow Canyon Solar Project, Moapa Valley, Nevada (Spring 2024):** 10-meter (m) presence/ absence and pre-clearance surveys
- **Kawich Solar Project, Indian Springs, Nevada (Spring 2024):** 10-m presence/ absence surveys.
- **Mosey Solar Project, Pahrump, Nevada (Spring 2024):** 10-m presence/ absence surveys.
- **Silver State Solar Project, Primm, Nevada (Spring 2024): 5-m clearance survey,** assistance with translocations.
- **Redonda Solar Project, Desert Center, California (Spring 2024): 10**-m presence/absence surveys, field lead for gen-tie survey.
- **Bajada Solar Project, Desert Center, California (Spring 2024**): 10-m presence/ absence surveys.
- **Oberon Solar Project, Desert Center, California (Spring 2022-Present):** Conducting 5-m desert tortoise clearance surveys, 10-m presence/ absence surveys, burrow excavations, radio tracking of project animals, participation in the translocation of project animals and construction monitoring.
- **Clark County Rare Plant surveys (Fall 2023):** Surveys for Blue Diamond cholla, (Cylindorpuntia multigeniculata).
- **East Mesa Solar Project, El Centro, California (Spring 2023-Present):** 20-m presence/ absence surveys for Flat-tail Horned Lizard (Phrynosoma macallii). Acting field lead
- **Maverick - Palen and Desert Harvest, Desert Center, California (Fall 2023-Present**): Operation and maintenance.
- **Arica - Victory Pass Solar Project, Desert Center, California (Spring 2022-Present):** 10-m presence / absence surveys, burrow excavations, and construction monitoring.
- **Crimson Solar Project, Chuckwalla Valley, California (Spring 2023):** Radio Tracking for project tortoises, radio transmitter attachment, health assessment assist.
- **Eagle Shadow Railroad, (Spring 2023):** Compliance monitoring.
- **Desert Quartzite Solar Project, Blythe, California (Spring 2022-Present):** 5-m clearance surveys, nesting bird surveys, construction, and Gen-Tie construction.
- **Sequoia NF BARER weed and rare plant surveys, Sequoia National Forest, California (Summer 2022):** Post-fire plant surveys.
- **Arrow Canyon Solar Project, Moapa, Nevada (Spring 2022):** 5-m desert tortoise clearance surveys.

- **USGS Connectivity Plots, NV (Fall 2022, Fall 2023):** Mark/ Recapture 5-m survey protocol for desert tortoise in partnership with USGS and UNR.
- **Fort Irwin, Barstow, California (Spring 2022):** survey for desert tortoise, collection morphological data on individuals, epicelomic rehydration assistance, radio tracking.

Professional Experience

Wildlife Scientific Aid, California Department of Fish and Wildlife (R5), San Diego, California, 2021. Saide conducted wildlife surveys on a wide range of species as well as habitat evaluations and management. Her duties included:

- Managing statewide data for California Least Tern (*Sternula antillarum*).
- Conducting surveys on species of special concern, such as snowy plovers and California least terns; additional surveys, including small mammals, bats, amphibians, and vegetation.
- Locating historic species occurrence information and other geography-based data sources, managing databases, and conducting literature searches.

Desert Tortoise Research Associate - AmeriCorps member, Great Basin Institute, Las Vegas, Nevada, 2021. During this research project, Sadie helped to investigate the ecology and demographics of desert tortoise, Gopherus agassizii, and to determine the northern most range of desert tortoise in the Mojave Desert (Nevada). Her project participation included:

- Extensive training for handling desert tortoises in the wild, with particular attention paid to disease control.
- Taking morphological measurements of the desert tortoise, including carapace length, sex, and body condition scoring.
- Identifying and classifying the condition of desert tortoise sign, including scat, tracks, burrows, and pallets.
- Walking 10-15 kilometers per day in challenging terrain and harsh and rapidly changing desert conditions.

Fish and Wildlife Scientific Aid, California Department of Fish and Wildlife (R2) , Rancho Cordova, California, 2020-2021. Sadie conducted amphibian monitoring and restoration work throughout the northern Sierra Nevada's focusing on the endangered Sierra Nevada yellow-legged frog, *Rana sierrae*. Her responsibilities involved:

- Conducting visual encounter surveys of Sierra Nevada yellow-legged frog populations.
- Capture-mark-recapture using PIT-tagging to monitor population growth and success of yellow legged frogs.
- Monitoring and assessing the resources of backcountry fisheries throughout the northern Sierra Nevada.
- Using gill nets and backpack electrofishing units to remove non-native trout for aquatic habitat restoration.
- Multi-day backpacking trips that consist of packing in 30 pounds (lbs) of gear and equipment over ~10 miles at 6,000 - 8,500 feet (ft) in elevation.

Division of Forest Environment-Seasonal technical support intern, Rhode Island Department of Environmental Management, Exeter, Rhode Island, 2019-2020. Sadie assisted Rhode Island's state forester in fieldwork and administrating the state land forestry program. Additional responsibilities include:

- Marking trees with the intent to harvest in accordance with a management plan.
- Taking forest inventory data, such as tree identification and tree state.

Lead Herpetologist, Operation Wallacea, Buton, Indonesia, 2019. Sadie assisted with a biodiversity survey that was conducted through an assessment of species richness and diversity of herpetofauna within the region of Buton. The aim of this long-term study was to provide data on the impacts of anthropogenic and climate flux on herpetofauna diversity. In this position, Sadie executed the following:

- Conducting routine surveying methodologies such as pitfall trapping and opportunistic nighttime spotlight surveys.

- Leading small groups of students in the field to teach them the fundamentals of herpetology, as well as different surveying methods and the costs and benefits of those techniques.
- Accurately identifying individuals by species and took morphological measurements such as weight, body/tail length, sex, and age.

Research Technician - Jemez Mountains Salamander, *Plethodon neomexicanus*, University of Rhode Island, Jemez Springs, NM, 2018. Sadie used a method called the "Artificial Log," which was designed and created as a non-invasive way for detecting the endangered Jemez Mountains Salamander, *Plethodon neomexicanus*. In this position, Sadie executed the following:

- Conducting mark- recapture study on P. *neomexicanus* in Valles Caldera National Preserve.
- Continuously packing in 40 lbs. of equipment and supplies over two miles at 8,500-10,000 ft. elevations.

Research Assistant - Eastern Red backed salamander, *Plethodon cinereus*, University of Rhode Island, West Greenwich, Rhode Island, 2017-2018. Sadie participated in a long-term mark and recapture study that focused on how the change in snowfall cover due to climate change affects the Eastern red back salamander, *Plethodon cinereus*, populations. In this position, Sadie performed the following:

- Conducting mark- recapture study on *P. neomexicanus* in Valles Caldera National Preserve.
- Continuously packing in 40 lbs. of equipment and supplies over two miles at 8,500-10,000 ft. elevations.

Research Assistant - Eastern Red backed salamander (*Plethodon cinereus*), University of Rhode Island, West Greenwich, Rhode Island, 2017-2018. Sadie participated in a long-term mark and recapture study that focused on how the change in snowfall cover due to climate change affects the Eastern red back salamander (*Plethodon cinereus*) populations. In this position, Sadie performed the following:

- Using a visual implant elastomer to mark more than 400 salamanders.
- Taking morphological measurements of individuals such as age, sex, reproductive status, and body length.

Collecting and analyzing soil samples.

Ironwood Consulting

Tracy Ridlinghafer
Botanist

Education

- B.S. Biology; Northern Arizona University, Flagstaff, AZ 86001, Botany emphasis, May 2016

Trainings & Certifications

- AIM/NRCS Certificate, 03/03/17
- Software: ArcGIS Pro, basic ArcGIS Online, basic ArcMAP, basic R
- GIS: Raster analysis, remote sensing techniques, digital cartography, spatial analysis using basic SQL queries, Trimble GPS, Garmin GPS, QAQC of spatial data, Arc Collector, Survey 123, Backcountry Navigator
- Office Applications: Microsoft office: Word, Excel, PowerPoint, Access

Project Experience

Assistant Crew Lead (Botanist), Tucson Audubon Society, Tucson, AZ, July 2018- February 2020.

- Collaborated with National Park Service, and Pima County employees to establish and revisit permanent long-term vegetation monitoring plots
- Assisted crew lead with planning and organizing backcountry logistics
- Facilitated safety meetings and gear preparation for 4-8 day front/backcountry hitches
- Taught field crew members plant identification skills using morphological traits, technical floras, plant keys, and SEINet,
- Collected and identified plant specimens for vouchers housed at the University of Arizona Herbarium.
- Compiled riparian, streams, and upland vegetation data for reports and presentations
- Prepared in writing vegetation community and ecological site description
- Participated in multiple natural resource field surveys i.e., vegetation maps, wildlife cameras, and springs
- Supervise field technicians and interns/volunteers with spatial and non-spatial data QA/QC checks
- Assisted with laboratory testing methods of soil PH, electrical conductivity, organic matter, and water chemistry
- Used ArcMap, Collector, and Backcountry Navigator to establish transect boundaries, navigate to plots, and create polygons for exotic plant species in the office and field.

Research Scientist 1, University of New Mexico LTER, Albuquerque, NM, August 2017- July 2018.

- Collaborated with professors and PhD students researching the effects of climate change on grassland communities of the Sevilleta National Wildlife Refuge
- Collected percent cover, height, phenology, and line-intercept data for plant species on multiple research projects
- Trapped, ear tagged, and identified small mammals to species using dichotomous keys
- Assisted in laboratory testing methods using pipettors, capillary tubes, and centrifuge
- Vouchered plant specimens collected in the field to be housed at field station herbarium
- Identified species using morphological traits and technical floras i.e., Manual of Grasses for North America, and the Flora Neomexicana
- Conducted QAQC checks for all data collected in the field and uploaded to LTER Server

- Worked with R-statistical analysis program, excel and Microsoft office
- Mentored and developed research questions for undergraduate student participating in the Sevilleta REU program.

Biological Science Technician, United States Forest Service, Kaibab National Forest, Williams, AZ, May 2017- August 2017.

- Conducted field surveys for populations of sensitive, threatened, and endemic plant species using Tremble and Garmin GPS
- Determined species identity, population characteristics, environmental conditions, and factors affecting the vigor and extent of the species and their habitat
- Collected and mounted plant specimens encountered at different stages of development for herbarium vouchers
- Compiled and summarized data obtained from surveys, inventories, biological evaluations, and monitoring
- Used computer systems and associated software for recording, organizing, storing, and analyzing data i.e. ArcGIS, Word, and Excel

Field Botanist, Great Basin Institute, Needles, CA, February 2017- May 2017.

- Conducted vegetation sampling, species inventory, canopy, herbaceous and woody heights
- Identified soil textures, stability, and established plots using ecological site data
- Determined plant ID using photographs, herbarium resources, and SEINet
- Implemented quality control and quality assurance checks to detect measurement errors
- Used computer and tablet software for collecting, organizing, storing, and analyzing data for botanical species and plant habitat within the Bureau of Land Management California Desert District
- Collected data determining human impact on Mojave Desert tortoise habitat

Field Botanist, EnviroSystems Management Inc., Bluff, UT, September2016- October 2016.

- Collected ecological site data i.e.: associated species, slope, aspect, and geology
- Measured vegetation data for biomass production, population characteristics, environmental conditions, and plant occurrence
- Determined plant species using dichotomous keys and morphological traits
- Used topographical maps, aerial photos, and GPS units to locate study sites
- Collected data for determining grazing impacts on the Navajo reservation for establishing future allotments

Field Botanist, Ecological Restoration Institute, Northern/Eastern AZ, May 2016- December 2016.

- Gained experience with GPS units, topographical maps, and compasses
- Exercised skills of plant ID using dichotomous keys, Arizona flora, Jepson Manual, etc.
- Collected specimens in the field for herbarium vouchers
- Coordinated with other botanist throughout Northern Arizona to make collections of native Arizona plants for use in new treatments in Vascular Plants of Arizona
- Contacted employer on a daily basis to inform them of progress or delays and also for data review to detect any measurement errors
- Used computer and tablet software for collecting, organizing, storing, and analyzing data for botanical species and plant habitat within the Kaibab, and Apache-Sitgreaves National Forests

Assistant Curator, Deaver Herbarium, Northern Arizona University, Flagstaff, AZ, April 2014-May 2016.

- Established relationship with National Park Service to preserve museum specimens
- Input data to SEINet and Excel to compile data collected in-field surveys and inventories
- Identified rare native Northern Arizona plants to species using keys and herbarium resources

- Collected and mounted specimens at many stages of development
- Insured that mounted specimens had correct ecological site data
- Trained volunteers how to input data, mount herbarium specimens, and file paperwork
- Used computer and tablet software for collecting, organizing, storing, and analyzing data for botanical species and plant habitat for all state and federal lands throughout the southwest
- Coordinated specimen loans to and from herbaria around the world

Wendy McBride

Senior Botanist

Education

- MS, Botany, Northern Arizona University, 2016.
- BS, Rangeland Ecology (Restoration Ecology conc.), Colorado State University, 2007.

Trainings & Certifications

- California Bumble Bee Identification and Field Course, Western Section of the Wildlife Society, 2023.
- Wilderness First Responder Certification, NOLS, 2023.
- Wetland Delineation Training, Wetland Training Institute, 2021.

Publications

- K. Christie, J. Doan, W. McBride, and S. Strauss. *Asymmetrical Reproductive Barriers in Sympatric Jewelflowers: Are Floral Isolation, Instrinsic Incompatibilities, and Trait Displacement Connected?* Biological Journal of the Linnean Society. 2021.
- W. McBride, A. Prince, S. Holiday, T. Ridlinghafer, S. Skibicki, S. Scott, T. Ayers. *Hydrangeaceae Treatment.* Canotia, 15. 2019.

Presentations & Service

- Deaver Herbarium Affiliate, Northern Arizona University, 2018-Present.
- Ad Hoc Advisory Committee Member for the Arizona Dept. of Agriculture for proposed changes to the State's Native Plant Administrative Rules, 2023-Present.
- trini
- Speaker, 16th Biennial Conference of Science and Management on the Colorado Plateau & Southwest Region, 2022.
- Speaker, Clark County, NV Desert Conservation Program Annual Symposium, 2022 & 2023.

Professional Summary

Wendy has 18 years of experience working in botany, ecology, and rangeland disciplines in the Western United States. Wendy specializes in surveys for comprehensive plant inventories, rare plant presence/absence, rare plant habitat assessment, and rare plant research. She has received several U.S. Fish & Wildlife Section 6 funding awards to study federally threatened or endangered plants and other sensitive species occurring in Arizona. Project study objectives include long-term life history plots (*Oreocarya semiglabra*), population genetics (*Actaea arizonica*), pollination ecology (*Erigeron rhizomatus* and *Sphaeralcea gierischii*), and seed germination trials (*Actaea arizonica*). Wendy has also completed surveys for a wide variety of rare plants across the Western U.S. through her work with various entities, including the Colorado Natural Areas Program.

Project Experience

Seeps and Springs Inventory and Delineation, National Park Service (NPS) Northern Colorado Plateau Network, Colorado and Utah, 2021 – Present. Senior botanist, field lead, report co-author, and assistant project manager to complete comprehensive seep, springs, and wetland inventories across seven national parks and monuments in Western Colorado and Utah using the Groundwater Dependent Ecosystem Level II (GDE Level II) inventory protocol. Identified wetlands associated with seeps and springs using vegetation cover characteristics (wetland obligate and facultative species dominance). Mapped GDE features using sub-meter GPS and collected detailed data. Compiled data in a relational database that includes GIS data, plant cover data, spring/seep source and wetted area, presence of wildlife sign and habitat, and substrate characteristics. Collected data on rare species when encountered.

Blue Diamond Cholla Surveys in Clark County, Nevada, 2023 – 2024. Senior botanist and field lead for county-wide surveys to expand the known range of Blue Diamond cholla (*Cylindropuntia multigeniculata*) across Clark County, NV.

Rare Plant Survey, Clark County Desert Conservation Program, Nevada, 2020 – 2023. Senior botanist, field lead, and assistant project manager for ongoing data collection and field surveys for four high-profile but poorly documented rare plants. Surveys follow the Bureau of Land Management and Nevada State Heritage Program rare plant protocols.

Rare Plant Surveys for the John Wesley Powell National Conservation Area (NCA), Vernal Field Office of the Bureau of Land Management, Uinta County, UT, 2021 – 2022. Senior botanist, assistant project manager, and report co-author for completing rare and BLM sensitive plant surveys and noxious weed surveys across the newly-established 25,000 NCA. Surveys include review of habitat models and geological maps, identification of areas where habitat is likely to be present, and intuitive controlled and focused surveys for target species using the Utah Natural Heritage Program and BLM sensitive plant protocols. Seeps, springs, wetlands, and suitable sensitive plant species habitat were documented. During Phase I of the surveys in 2021, documented previously unknown rare and BLM sensitive species populations of Hamilton's milkvetch (*Astragalus hamiltonii*), park rockcress (*Boechera fernaldiana* ssp. *vivariensis*), Goodrich's stickweed (*Cleomella hillmanii* var. *goodrichii*), Ackerman's green gentian (*Frasera ackermaniae*), and grass milkvetch (*Astragalus chloodes*).

Mesa Verde Cactus Surveys, Navajo Natural Heritage Program, New Mexico, 2021 – 2022. Project principal, field lead, and technical report author for demography surveys for Mesa Verde cactus (*Sclerocactus mesae-verdae*) on the Navajo Nation.

Southern Colorado Plateau Inventory and Monitoring Network Long-term Vegetation Monitoring of Upland Ecosystems, National Park Service, Arizona and New Mexico, 2018. Contributing botanist to collect upland vegetation and soil data to monitor vegetation condition and soil stability to track long-term changes in ecosystem integrity.

U.S. Fish and Wildlife Section 6 Research on Threatened and Endangered Plants, Arizona Department of Agriculture, Arizona, 2014 – Present. Principal botanist, project lead, and report author for ongoing rare plant research on threatened and endangered Arizona plants, including Arizona bugbane (*Actaea arizonica*), Zuni fleabane (*Erigeron rhizomatus*), Pipe Springs Cryptantha (*Oreocarya semiglabra*) and Gierisch's globemallow (*Sphaeralcea gierischii*). Developed protocols, analyzed data, and authored technical reports to contribute to existing knowledge about and facilitate management of these rare and federally listed species. The various project objectives included life history (*Oreocarya semiglabra*) and population genetic (*Actaea arizonica*) studies, pollination ecology (*Erigeron rhizomatus* and *Sphaeralcea gierischii*), and seed germination trials (*Actaea arizonica*). Ongoing collaboration with federal land managers and plant conservation experts to meet project expectations and provide clear, informative deliverables.

Vegetation Surveys, U.S. Geological Survey, Flagstaff, Arizona, 2020. Contributing botanist for riparian vegetation surveys for long-term riparian monitoring along the Colorado River within Grand Canyon National Park.

Botanical Surveys and Habitat Assessments, Lookout Mountain and Cross Mountain Natural Areas, Colorado Natural Areas Program. 2014 – 2015. Field botanist for surveys and mapping of rare plant populations in Northwestern Colorado, including debris milkvetch (*Astragalus detritalis*), tufted cryptantha (*Oreocarya caespitosa*), Yampa penstemon (*Penstemon yampaensis*), and Ownbey's thistle (*Cirsium ownbeyi*).

Grazing Allotment Studies, Navajo Nation, Arizona, New Mexico, and Utah, 2013 – 2014. Contributing botanist to a long-term, landscape-scale botanical study across Navajo Nation lands to inform rangeland management and allotment of grazing permits.

Floristic Inventory and Rare Plant Surveys for Multiple Solar Development Projects, southern California and southern Nevada, 2012 – Present. Compiled floristic inventories and rare plant surveys within solar project footprints. Mapped, photographed, and documented all rare plant populations within the project areas. Survey methodologies followed California Native Plant Society (CNPS) and/or Bureau of Land Management (BLM) established protocols.

- Maricopa County, AZ: Pimlico Energy Center (2023).
- Imperial County, CA: East Mesa/Perkins (2023).
- Riverside County, CA: Arica (2019-2020), Athos (2018-2019), Blythe Solar (2012), Desert Harvest (2018), Easley (2022), Lycan (2022), Oberon (2019-2020), Palen (2018), and Quartzsite (2013).
- San Bernardino County, CA: Stateline (2012).
- Clark County, NV: Arrow Canyon (2021), Battle Born (2020), Gemini (2020), and Silver State (2012).
- Nye County, NV: Bonanza (2021).

Reclamation Monitoring, Barrick Gold Corporation, ColoWyo Mine, Newmont Corporation, and Talen Energy; western United States, 2006 – 2010. Contributing botanist and rangeland ecologist while performing field surveys, data analysis, and report preparation for various reclamation compliance monitoring and range condition projects.

Attachment C.7 Bird and Bat Conservation Strategy

BIRD AND BAT CONSERVATION STRATEGY

Perkins Renewable Energy Project

Prepared for

Intersect Power

IP Perkins, LLC and
IP Perkins BAAH, LLC
subsidiaries of Intersect Power, LLC

October 2024

Agency Review Status
Bureau of Land Management
U.S. Fish and Wildlife Service
California Department of Fish and Wildlife

CONTENTS

TABLES

ATTACHMENTS

LIST OF ACRONYMS

APLIC	Avian Power Line Interaction Committee
BCC	Birds of Conservation Concern
BBCS	Bird and Bat Conservation Strategy
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CEQA	California Environmental Quality Act
ESA	Federal Endangered Species Act
Gen-tie	Generation tie line
MW	Megawatt
MBTA	Migratory Bird Treaty Act
NBMP	Nesting Bird Management Plan
NEPA	National Environmental Policy Act
O&M	Operation and maintenance
PV	Photovoltaic
ROD	Record of Decision
ROW	Right-of-way
TAG	Technical Advisory Group
USFWS	U.S. Fish and Wildlife Service

1. INTRODUCTION

1.1. Project Summary

IP Perkins, LLC, and IP Perkins BAAH, LLC (Applicants or Proponents), subsidiaries of Intersect Power, LLC, propose to construct, operate and decommission the Perkins Renewable Energy Project (Project), a utility-scale solar photovoltaic (PV) electrical generating and storage facility, and associated infrastructure to generate and deliver renewable electricity to the statewide electricity transmission grid. The approximately 7,400-acre Project site is located in Imperial County east of El Centro, California (see POD [Plan of Development] Appendix A, Figure 1).

The proposed Project area includes a combination of Bureau of Land Management (BLM)-managed lands, Bureau of Reclamation (BOR)-managed lands, and private lands. The Project 500 kilovolt (kV) loop-in transmission lines will traverse BOR lands. (see POD Appendix A, Figure 2). BLM public lands within the Project area are designated as Development Focus Area (DFA) by the Desert Renewable Energy Conservation Plan (DRECP) and associated Record of Decision (ROD), and thus, have been targeted for renewable energy development. Because the proposed Project is partially located on federal land under management of the BLM, the BLM is the lead agency under the National Environmental Policy Act (NEPA), 42 U.S.C. section 4321 et seq. California Energy Commission (CEC) will serve as the lead agency under the California Environmental Quality Act (CEQA).

The Project would generate and store approximately 500 to 1,150 megawatts (MW) of renewable electricity via arrays of solar photovoltaic (PV) panels, battery energy storage system (BESS), and appurtenant facilities. The Project would construct a new gen-tie line that would connect the project substation(s) to a new high-voltage breaker and a half (BAAH) switchyard. From the BAAH switchyard, two new 500 kV loop-in transmission lines would be constructed to interconnect to the existing SDG&E 500 kV transmission line that travels east-west just south of the Project site, crossing BOR lands and terminating at the Imperial Valley Substation (Substation), southwest of El Centro. The transmission lines would span the All-American Canal prior to terminating at the SDG&E transmission line. No construction would occur within the reduced utility corridor along the Project site's southern and western boundaries. For a complete Project description and summary of the Project location, refer to the POD main text.

1.2. Purpose

IP Perkins, LLC and IP Perkins BAAH, LLC, is voluntarily proposing this Bird and Bat Conservation Strategy (BBCS) to set forth the measures it will implement to avoid, minimize, or mitigate for potential adverse effects of the Project to birds and bats. Accordingly, IP Perkins, LLC and IP Perkins BAAH, LLC, will collect and evaluate data during the construction, operations and maintenance (O&M), and decommissioning phases of the Project and will implement adaptive management measures as necessary and appropriate to minimize or mitigate impacts to birds and bats. IP Perkins, LLC, does not anticipate that construction, operations, or decommissioning of the Project will cause unauthorized take or prohibited disturbance of bird or bat species; however, some level of injury and/or mortality to species covered under the Migratory Bird Treaty Act (MBTA) may occur.

This BBCS was prepared according to guidelines recommended by the U.S. Fish and Wildlife Service (USFWS, 2010a and 2010b). The BBCS describes the proposed Project components; summarizes baseline data regarding birds and bats in the Project vicinity; assesses potential risks to those species that could result from Project construction, operation, and decommissioning; and describes conservation measures to be implemented to minimize those risks.

For the purposes of this plan, the Project site refers to the area surveyed in Spring 2023 (Ironwood, 2023); the Project development area refers to the area inside the Project site that will be developed (including

access roads and the gen-tie route), which excludes the designated utility corridors noted above. The Project area refers to all land immediately surrounding the Project site, and the Project vicinity refers to the Imperial Valley region, including multiple land uses on public and private lands.

1.3. Regulatory Setting

This BBCS was prepared to ensure Project compliance with state and federal statutes protecting native birds, as well as NEPA and CEQA requirements to disclose environmental effects of the Project and provide public opportunity for comment. Applicable statutes include:

Federal Regulations

Endangered Species Act of 1973. The Endangered Species Act (ESA) (16 USC 1531 et seq.) and subsequent amendments protect endangered and threatened species and the ecosystems upon which they depend. Section 9 prohibits the take of any fish or wildlife species listed as endangered and most species listed as threatened, and defines *take* to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Section 7 requires federal agencies, in consultation with the U.S. Fish and Wildlife Service to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered wildlife species or result in the destruction or adverse modification of critical habitat for these species.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (16 U.S.C. §§ 703, et seq.; MBTA) is a treaty signed by the United States, Canada, Mexico, and Japan that prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., hunting waterfowl or upland game species). Under the MBTA, *migratory bird* is broadly defined as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds. Directs federal agencies to review the effects of actions and agency plans on migratory birds according to NEPA or other established environmental review processes, with emphasis on species of concern (Section 6 of the order) and identify unintentional take reasonably attributable to agency actions, focusing first on species of concern, priority habitats, and key risk factors and to develop and use principles, standards, and practices to lessen the amount of unintentional take (Section 9).

Desert Renewable Energy Conservation Plan (DRECP), Land Use Plan Amendment to the California Desert Conservation Area Plan. The purpose of the DRECP is to conserve and manage plant and wildlife communities in the desert regions of California while facilitating the timely permitting of compatible renewable energy projects (BLM, 2015). The Project site is within the Colorado Desert ecoregion subsection of the DRECP area, and the project site is located within a designated Development Focus Area (DFA). The DRECP Land Use Plan Amendment (LUPA) identifies a series of Conservation Management Actions (CMAs) to be implemented on BLM lands including CMA LUPA BIO-17, which requires renewable energy projects to develop and implement a Project specific BBCS.

1.3.2. State Regulations

California Endangered Species Act. The California Endangered Species Act (CESA) prohibits take of wildlife listed as threatened or endangered and defines "*take*" as any action or attempt to "hunt, pursue, catch, capture, or kill." CESA mandates that state agencies not approve projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. Approval requires minimization and full mitigation of projected impacts.

Native Birds (California Fish and Game Code, §§ 3503, 3503.5 and 3513). California Fish and Game Code § 3503 prohibits take, possession, or needless destruction of bird nests or eggs except as otherwise provided by the Code; § 3503.5 prohibits take or possession of birds of prey or their eggs except as otherwise provided by the Code; and § 3513 provides for the adoption of the MBTA's provisions (above). Except for a few non-native species (e.g., European starling (*Sturnus vulgaris*)), the take of any bird or loss of active bird nests or young is regulated by these statutes.

California Fully Protected Species. Prior to enactment of CESA and the federal ESA, California enacted laws to "fully protect" designated wildlife species from take, including hunting, harvesting, and other activities (Fish and Game Code § 3511). Unlike the subsequent CESA and ESA, there was no provision for authorized take of designated fully protected species.

2. AGENCY COORDINATION

IP Perkins, LLC, will initiate coordination with state and federal resource agencies (BLM, BOR, USFWS, and California Department of Fish and Wildlife [CDFW]) to discuss environmental review of the Project, including review of potential impacts to native birds and bats, and minimization or mitigation of those impacts through the CEQA and NEPA processes. The results of coordination will be incorporated into the CEQA and NEPA documents, as drafted.

3. SITING

3.1. Project Site Vegetation and Habitat

Sonoran creosote bush scrub is the dominant natural vegetation community. Desert dry wash woodland/ microphyll woodland and alkali goldenbush desert scrub are found in thin strips near the central portion of the western Project site and in the southern portion of the transmission corridor. Arrow weed thickets and common reed marsh are located within the southern portion of the transmission corridor, along the edges of the All-American Canal. Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S3 (CDFW 2024a). Vegetation communities on the Project site are described in further detail and mapped in the Project's Biological Resources Technical Report (BRTR; Ironwood, 2023) (see POD Appendix S).

4. BIRD AND BAT SPECIES OF THE PROJECT VICINITY

4.1. Information Complied to Date (Pre-Construction Surveys)

During all wildlife surveys for the Project, biologists recorded all wildlife species observed, regardless of status. The BRTR provides a detailed compilation of special-status wildlife with potential to occur in the Project vicinity, and evaluates probability of occurrence for each species, based on habitat, elevational and geographic ranges, and field survey results. The complete methods and results of the surveys are provided in the BRTR (Ironwood, 2024).

Noteworthy avian observations are depicted in Figure 10 in the BRTR and an Avian Count Summary is provided in Table C-5 in the BRTR (see POD Appendix S). Acoustic survey locations for bats are shown in Figure 13 in the BRTR and potential is presented in BRTR Appendix B.

Special-status criteria include:

- Officially listed, or candidate for listing, by California or the federal government as endangered, threatened, or rare under California Endangered Species Act (CESA) or federal Endangered Species Act (ESA) (CDFW, 2024c, 2024e)

- Birds listed in the USFWS's Birds of Conservation Concern 2021
- Birds or bats which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA)
- BLM Sensitive Species (BLM, 2014; CDFW, 2024b, 2024d)
- Birds or bats identified by CDFW as Species of Special Concern (CDFW, 2024b, 2024d)
- Birds or bats included in the CDFW lists of Special Plants or Special Animals (CDFW, 2024b, 2024d)
- Birds or bats protected under other statutes or regulations (e.g., Bald and Golden Eagle Protection Act, etc.)
- Special-status species considered in local or regional plans, polices, or regulations

Most of the birds in the Project vicinity have no special conservation status, but all native birds are protected under the federal MBTA and California Fish and Game Code. All special-status birds or bats with potential to occur in the vicinity of the Project are included in Table 1, which summarizes the natural history, listing status, and occurrence probability on the site for each species. Detailed descriptions of each species is provided in the BRTR in Section 4.1 (See POD Appendix S).

Table 1. Special-status Birds and Bats with Potential to Occur in the Project Area

Species	Habitat Requirements	Conservation Status	Potential to Occur on Project Site
BIRDS			
Western burrowing owl *Athene cunicularia hypugaea*	Typically found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nesters that are dependent upon burrows made by other animals for nest shelters.	Federal: BLM S, BCC, FOC State: SC (ST)	▪ Present ▪ Six live individuals were observed during surveys. Thirteen active burrows were observed. Two carcasses were observed.
Swainson's hawk *Buteo swainsoni*	Require large areas of open landscape for foraging, including grasslands and agricultural lands that provide low-growing vegetation for hunting and high rodent prey populations. Swainson's hawks typically nest in large native trees such as valley oak, cottonwood, walnut, and willow, and occasionally in nonnative trees, such as eucalyptus within riparian woodlands, roadside trees, trees along field borders, isolated trees, small groves, and on the edges of remnant oak woodlands.	Federal: BLM S (Nesting), FOC State: ST	▪ Foraging – Present migration season ▪ Nesting – Low ▪ Two observations of flyovers were documented during surveys. There are no CNDDB records in Imperial County, but historical observation from 1978 in area (Ebird 2023).
Northern harrier *Circus hudsonius*	This species does not commonly breed in desert regions of California, where suitable habitat is limited, but winters broadly throughout California in areas with suitable habitat. Northern harriers forage in open habitats including deserts, pasturelands, grasslands, and old fields.	Federal: BCC (nesting) State: SSC	▪ Nesting – Low ▪ Wintering or migration – Moderate ▪ Not observed. No CNDDB observations in Imperial County, but observations recorded recently in area (Ebird 2023).
Prairie falcon *Falco mexicanus*	Occurs in annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Typically nests cliffs and bluffs.	State: WL (nesting)	▪ Nesting – Low ▪ Foraging – Moderate ▪ Not observed. Nearest record approximately 30 miles east of Project site (CNDDB 2023) and observed in area 2021 (Ebird 2023).

Species	Habitat Requirements	Conservation Status	Potential to Occur on Project Site
American peregrine falcon *Falco peregrinus anatum*	Rare in the arid southeast, occur and are suspected to breed in the lower Colorado River Valley. Peregrine falcons require open habitat for foraging and prefer breeding sites near water. Nesting habitat includes cliffs, steep banks, dunes, mounds, and some human-made structures.	State: ,CDF-S (nesting)	▪ Nesting – Low ▪ Foraging – Moderate ▪ Not observed. No CNDDB records in Imperial County but observed recently in 2011 within area (Ebird 2023)
Loggerhead shrike (Nesting) *Lanius ludovicianus*	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats.	State: SSC (nesting)	▪ Present ▪ Thirteen observations on Project site during surveys.
Black-tailed gnatcatcher *Polioptila melanura*	A year-round resident in southwestern United States and central and northern Mexico, in California the black-tailed gnatcatcher is found in the southeast desert wash habitat from Palm Springs and Joshua Tree National Park south, and along the Colorado River. It is now rare in eastern Mojave Desert north to the Amargosa River, Inyo County. This species nests primarily in wooded desert wash habitat, but also occurs in creosote scrub habitat during the non-breeding season.	State: WL	▪ Present ▪ Nesting – Moderate ▪ Nine observations were recorded during surveys.
California black rail *Laterallus jamaicensis coturniculus*	Small populations occur in the freshwater marshes of the Colorado River.	Federal: BLM S State: CFP	▪ Moderate ▪ Nesting – Low ▪ Not observed. Occupied habitat in freshwater marsh 2,000 east of transmission corridor. (CNDDB 2023). They may fly over the Project site; however suitable nesting habitat within transmission corridor where is crosses the All-American Canal, and foraging habitat is marginal.
Ridgway's [Yuma Ridgway's] rail *Rallus obsoletus yumanensis*	In California, nests in freshwater marshes and wetlands along the lower Colorado River, the Coachella Canal, the Imperial Valley, and the upper end of the Salton Sea at the Whitewater River delta and Salt Creek.	Federal: FE State: ST, CFP	▪ Moderate ▪ Nesting – Low ▪ Not observed. Occupied habitat in freshwater marsh 2,100 ft southeast of southern transmission corridor (CNDDB 2023). They may fly over the Project site; however, no suitable nesting habitat occurs within transmission corridor where it crosses the All-American Canal, and foraging habitat is marginal.
Bank swallow *Riparia riparia*	A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. Uses holes dug in cliffs and riverbanks for cover. Will also roost on logs, shoreline vegetation, and telephone	Federal: BLM S State: ST	▪ Nesting – Low ▪ Migration – Moderate ▪ Not observed. No CNDDB records in Imperial County, but observed in the area in 2014 (Ebird, 2023). No suitable nesting habitat.

Species	Habitat Requirements	Conservation Status	Potential to Occur on Project Site
	wires.		
Southwestern Willow Flycatcher *Empidonax traillii extimus*	Found primarily in dense riparian habitats with cottonwood/willow and tamarisk vegetation. Saturated soils, standing water or nearby streams, pools, or cienegas are a component of nesting habitat.	Federal: FE State: SE	▪ Nesting – low ▪ Migration – moderate ▪ Not observed. Nearest record 34 miles from the Project site in 2004 (CNDDB).
Gila Woodpecker *Melanerpes uropygialis*	Strictly arid environments, deserts and dry forests of the southwestern U.S. and adjacent Mexico, usually below elevations of 3,300 feet. Most common in low swales and arroyos, including riparian corridors with cottonwood, willow, and mesquite. Nesting pairs in Arizona use giant saguaro cactus.	Federal: BLM S State: SE	▪ Nesting – low ▪ Migration – moderate ▪ Not observed. Nearest record 16 miles from the Project site in 2003 (CNDDB).
BATS			
Pallid bat *Antrozous pallidus*	Colonial species, roosting in small groups of 20 or more individuals in rock crevices and in caves, mines, rock piles and tree cavities. Occur from southern British Columbia through Montana through the Pacific Northwest to California and central Mexico.	Federal: BLM S WBWG: H	▪ Roosting – low ▪ Foraging – moderate ▪ Not observed. Potentially detected in acoustic surveys. Nearest record is approximately 20 miles from the Project site.
Western yellow bat *Lasiurus xanthinus*	Recorded below 600 m (2000 ft) in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. This species occurs year-round in California.	Federal: BLM S, BCC, FOC State: SSC WBWG: H	▪ Roosting – low ▪ Foraging - moderate ▪ Not observed or detected in acoustic surveys. Several CNDDB records within 10 to 20 miles east of the Project site. Nearest record 10 miles from the Project site. One iNaturalist record 15 miles north in the Imperial Valley.
California leaf-nosed bat *Macrotis californicus*	Use buildings and bridges as night roosts, depend on mines or caves for roosting and overwintering. Forage in vegetation along dry washes and in marsh, mesquite shrublands, cottonwoods, willows and fan palm vegetation equally. Occur in Sonoran and Mojave desert scrub in southeastern California, southern and western Arizona, southern Nevada, and northwestern Mexico.	Federal: None State: SSC WBWG: H	▪ Roosting – low ▪ **Present** - foraging ▪ Not observed, but detected in acoustic surveys. Nearest record is approximately 17 miles from the Project site.
Arizona myotis *Myotis occultus*	Seasonally migratory, predominately found in Sonoran desert scrub with creosote bush, brittlebush, palo verde, and cacti. Roost in caves, tunnels, mine shafts, under bridges, and sometimes in buildings within a few miles of water.	State: SSC	▪ Roosting - No ▪ Foraging - low ▪ Not observed. There is one record in Imperial County from 1910 and is typically only confirmed if observed or with genetic sampling. Likelihood of occurrence is low.
Yuma myotis *Myotis yumanensis*	Rarely roosts in caves or mine shafts, prefers cliffs and rocky walls, buildings, and abandoned cliff swallow mud nests. Colonies as high as 10,000 individuals.	Federal: BLM S WBWG: M	▪ Roosting - No ▪ Foraging - moderate ▪ Not observed, but potentially detected in acoustic surveys.

Species	Habitat Requirements	Conservation Status	Potential to Occur on Project Site
	Active in proximity to standing water to forage for flies, moths, and termites.		Nearest record is approximately 35 miles from Project site.
Cave myotis *Myotis velifer*	In California, range is limited to lowlands of the Colorado River and nearby mountain ranges in San Bernardino, Riverside, and Imperial Counties. Habitats include desert scrub, desert succulent shrub, desert wash, and desert riparian areas. Forages near riparian vegetation; roosts in caves and mines, occasionally in buildings.	Federal: BLM S WBWG: H	▪ Roosting – No ▪ Foraging - moderate ▪ Not observed, but potentially detected in acoustic surveys. Nearest record is approximately 20 miles from the Project site.

Conservation Status
Federal:
FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
BCC = Fish and Wildlife Service: Birds of Conservation Concern
FOC = DRECP Focus and Planning Species
CAN= Candidate for listing as threatened or endangered

State:
SSC = State Species of Special Concern
CFP = California Fully Protected
ST = State listed as threatened
SC = State Candidate
WL = State watch list
CDF-S = California Department of Forestry & Fire Protection Sensitive

Western Bat Working Group (WBWG):
H = imperiled or at high risk of imperilment
M = warrant closer evaluation, more research, and conservation actions
L = most of the existing data support stable populations

5. RISK ASSESSMENT

5.1. Collision

New anthropogenic facilities such as PV solar facilities have created new risks for bird and bat populations as they cover large parts of the landscape.

For bats, PV solar facilities present large areas of smooth surfaces, which may be perceived as water and attract bats to approach and attempt to drink (Szabadi et al., 2023; Tinsley et al., 2023). Bats perceive horizontal, smooth surfaces as water due to similar echo-acoustic properties, which seems to be widespread and innate among echolocating bats (Szabadi et al., 2023). Further, bats perceive vertical smooth surfaces as open flyways, which may result in collision, mortality, and injury, and sometimes collide with 45-degree smooth surfaces (Szabadi et al., 2023). One study indicated that other PV components (i.e. metal constructions at the back of the panels) may provide sufficient cues for bat orientation (Szabadi et al., 2023), which may avoid collisions.

Species-specific differences in bat activity were detected (Szabadi et al., 2023; Tinsley et al., 2023). One study found a considerable amount of bat activity for several species at solar farms; typically bat species that persist in urban landscapes were found in abundance (Szabadi et al., 2023). Solar farms were shown to be less valuable for species that require suitable roosts and woody vegetation, including *Myotis* species, which are known from the Project area (Szabadi et al., 2023; Tinsley et al., 2023).

Szabadi et al. (2023) found that bats both commute over and forage over solar farms and that herbaceous vegetation and undergrowth may be suitable to support insect prey. The smooth surfaces, with a polarization pattern similar to water, may also attract an abundance of aquatic insects. While this may be hypothesized to be advantageous for bats, it may also result in collision with PV panels. Tinsley et al.

(2023), however, indicated that panels may increase reflective temperatures at night after hot weather, altering microclimate and potentially reducing availability of attractant invertebrate prey.

Bird collisions with structures typically occur when the structures are not visible (e.g., bare power lines or guy wires at night), deceptive (e.g., glazing and reflective glare), or confusing (e.g., light refraction or reflection from mist). Transmission lines, including the proposed gen-tie and loop-in lines, present collision hazards to birds. During the construction, O&M, and decommissioning Project phases, the Project component of greatest potential concern that would pose lethal collision risk to birds are the 500 kV loop-in transmission and gen-tie lines. In the case of solar panels, birds may collide with the panels that reflect the sky and clouds and are misconstrued as safe passage (USGS, 2016). Some have hypothesized that the collision risk may be linked to a "false-lake effect," wherein birds may mistake PV panels for water bodies, and consequently be attracted to them. Lower risks would be posed by other components during any of the three phases. These include any above-ground distribution lines, meteorological station(s), guy wires that may support meteorological instruments, and large equipment such as cranes that would be in use during the construction and decommissioning phases. The structures that have been empirically demonstrated to result in elevated collision risk at various types of facilities (e.g., tall buildings, communication towers, wind turbines, or concentrating solar thermal towers) would not be required at the solar facility for the Project, which consists of low-height PV arrays.

Injuries from collisions with panels may result in immediate death due to fatal blunt trauma, or stranding (the inability of a bird to take flight) (USGS, 2016). Stranding can occur when an individual crippled by collision impact is unable to take off, or when a water bird (that can reach take-off velocity only after running on the surface of a water body) lands safely but, without a sufficiently large body of water, cannot take off and may succumb to starvation or heat exhaustion.

While bird fatalities may occur due to collisions with Project facilities and equipment, the risk of significant impact to avian populations is minimal. A collection of 13 fatality monitoring studies at PV solar facilities in three bird conservation regions (BCRs) in California and Nevada have shown the highest percentage of fatalities across all studies were common species including mourning dove, horned lark, house finch, and western meadowlark. Passerines (55.0%) and doves/pigeons (17.0%), on average, are the most common detections (Kosciuch et al., 2020). Water associated (6.3%) and water obligate species (7.8%) each compose less than 10% of the detections. Raptors are very uncommon detections (less than 1.0%) (Kosciuch et al., 2020). Carcasses of water-associated birds (e.g., herons and egrets) and water obligate birds (e.g., loons and grebes) have been found at PV solar facilities in the Sonoran and Mojave Deserts, primarily at sites within 60 miles of the Salton Sea (the Project is approximately 38 miles from the Salton Sea). The study concluded that most fatalities were feather spots with unknown cause of mortality, most evidence was from common ground-dwelling birds, no large mortality events were detected, and most carcasses were detected in fall (Kosciuch et al., 2020).

Kosciuch (2021) studied aquatic bird occurrences at PV solar facilities in Southern California. Detections of aquatic bird species at the three studied solar facilities (Blythe, Highlander II, Seville 1 and 2) included mallard (carcass), tree swallow, great egret, northern rough-winged swallow, yellow-headed blackbird, cliff swallow, great blue heron, blue-winged teal (carcass), and common loon (carcass). Monitoring from the study found that live aquatic birds occurred at PV solar facilities but did not find flocks approaching the sites or landing behavior, which may be expected if aquatic birds across taxa are attracted to the solar sites. The study showed that aquatic birds were infrequently observed at desert scrub and grassland study sites and showed no evidence of landing attempts and circling behaviors. The study concluded that there is limited evidence of aquatic birds being broadly attracted to solar facilities. The findings indicate that PV solar facilities are unlikely to provide a signal of a lake to all aquatic birds at all times and that attraction is likely context dependent (based on bird species, its health status (ill or exhausted birds land randomly on a landscape), and causal mechanism of attraction).

Kagan et al (2014) identified bird remains recovered from the three solar facilities in Southern California, Ivanpah, Genesis Solar, and Desert Sunlight. These birds comprised 71 species representing a broad range of ecological types from strictly aerial feeders (e.g. swifts and swallows), strictly aquatic feeders (pelicans and cormorants), ground feeders (roadrunners), to raptors (hawks and owls). The species were equally divided among resident and non-resident species. Both nocturnal and diurnal species were represented. As part of this study, the carcass of one federally endangered Yuma Ridgway's rail was found on the Desert Sunlight Solar Project in 2013 (Kagan, 2014). However, older solar facility sites, such as Desert Sunlight, differ from recent solar facilities in that they used fixed-tilt panels without anti-reflective coating, which could mimic water bodies. More modern solar PV facilities use single axis tracking technology which allows the panels to tilt towards the angle of the sun, and anti-reflective coatings that reduce glint and glare reflected by the panels and allow the panels to absorb more sunlight. Harrity and Conway (2020) suggest that rails, which migrate long-distances primarily at night, may benefit from orienting solar panels more perpendicular to the ground overnight in order to minimize potential lake effect. The Ivanpah and Genesis solar projects, also presented in Kagan et al (2014), use concentrating solar that creates a concentrated solar flux and singe mortality of birds, an effect not found at solar PV facilities.

The California Energy Commission (CEC) released a study (2024) that investigated the lake effect hypothesis by simulating visual cues birds use to locate water bodies. Imagery of two solar panels used in large solar facilities show that they polarize light in a way that mimics natural water bodies from a range of angles, elevations, and distances that birds would experience. Descent of birds was notably more common for south-bound birds (possibly migrating) and peaked near midday, suggesting the birds were seeking water or shelter in the arid landscape and that PV panels in less arid areas may be less attractive to birds (CEC, 2024). The study indicated that the lake effect may hold for some species in some landscapes, but that it cannot be readily generalized to all aquatic habitat birds in all landscape contexts. The report concludes that birds are more attracted to highly polarized sources of visible light and that solar panels polarize light in a manner similar to water; however, the study concludes that the "lake effect" is likely a complex process subject to species type, condition of the individual, behavioral motivation, extrinsic conditions, and geometry of the individual's location with respect to the sun and PV panels (CEC, 2024). Additionally, the study noted that thin-film panels, such as those proposed for use for the Project, likely are not as attractive to birds flying north and that thin-film panels therefore may reduce exposure to lake-effect related collisions during spring migration.

Argonne National Laboratory is completing a study at seven PV solar facilities in four regions in the U.S. by installing cameras to monitor bird activity. The camera system has documented 17,608 instances of bird activities in and around solar PV facilities but has recorded zero collision events (Hamada et al., 2024). Birds were observed flying above, flying through, and perching on solar panels during the study, but not colliding with panels, supporting conclusions from the fatality monitoring studies that collisions are rare.

While the causes of avian injuries and the fatality monitoring studies at commercial-scale solar projects are being evaluated, uncertainty remains because: (1) mortality data has been collected over a relatively short period and still is being evaluated; (2) in many cases, the cause of death is not clear; and (3) mortality information from one Project location is not necessarily indicative of the mortality information that might be found at another Project location.

The Project would use thin-film panels with anti-reflective coating, the panels would be mounted on a tracking system, and panels would be stowed at max tilt overnight, which would reduce the risk of "lake effect" and bird and bat collisions. The Project will construct all loop-in and gen-tie transmission lines and above ground collection and distribution lines according to Avian Power Line Interaction Committee (APLIC) guidelines to minimize the risk of avian and bat collision. Note that as proposed, the majority of collection and distribution lines will be installed underground.

Consistent with LUPA-BIO 16, the Project will design the gen-tie lines between the Project substation and the BAAH without the use of guy wires to the greatest extent feasible, and where guy wires are unavoidable, it will demarcate them using the best available methods to minimize hazards to birds and bats.

5.2. Electrocution Potential

Large birds can be electrocuted by transmission lines if a bird's wings simultaneously contact conductors, or a conductor and a ground wire or grounded hardware. This happens most frequently when a bird attempts to perch or take off from a structure with insufficient clearance between these elements. Distribution lines that are less than 69 kV but greater than 1 kV generally have less spacing than transmission lines, thus posing an electrocution hazard for perching raptors. Configurations less than 1 kV or greater than 69 kV typically do not present an electrocution potential, based on conductor placement and orientation (APLIC 2006). The 500 kV transmission loop-in and gen-tie lines would have minimal electrocution potential and the majority of the Project's 34.5-kV level collection lines would be installed underground.

IP Perkins, LLC and IP Perkins BAAH, LLC will design and construct the 500 kV transmission loop-in lines, the gen-tie, collector, and distribution lines to avoid potential for electrocution and minimize potential for roosting on the structures or colliding with them. These measures would effectively minimize or mitigate adverse effects of electrocution to the extent feasible.

5.3. Territory Abandonment

The majority of the dominant vegetation community, creosote bush scrub, would be revegetated post-construction and desert dry wash woodland would be avoided during construction (including a 200-foot buffer in accordance with DRECP CMA LUPA-BIO-13); therefore, large swaths of native habitat will be available for use by wildlife post construction. However, construction activities would cause most mobile avian species to temporarily leave the site. Avian species dispersing from the site would be subject to further adverse effects, including potential mortality. They would be at increased risk of predation as they flush from cover during site clearing. After leaving their home territories, displaced animals may be unable to find suitable food or cover in new, unfamiliar areas. They may attempt to return to their home ranges, possibly resulting in increased predation risk or other effects. If they find food and other resources at new locations off site, these may be within the occupied territory of another individual of the same or similar species, resulting in competition for resources. Impacted desert habitat may not recover quickly, displacing avian species until habitat has reestablished to a suitable condition. These displacement effects would apply to common avian species and to special-status species. Consistent with CMA LUPA-BIO-2 (Biological Resources), LUPA-BIO-3 (Resource Setback Standards), LUPA-BIO-4 (Seasonal Restrictions), LUPA-BIO-6 (Subsidized Predators Standards), LUPA-BIO-13 (General Siting and Design), and LUPA-BIO-14 (Biology: General Standard Practices) IP Perkins, LLC and IP Perkins BAAH, LLC will implement measures to survey for and avoid wildlife in work areas, avoid sensitive seasonal wildlife windows, preserve buffer habitats for wildlife refuge, and protect wildlife from increased predation and workplace hazards.

5.4. Nest and Roost Site Disturbances

During construction vegetated PV panel areas will be mowed and grubbed, and subsequently revegetated post construction (see Project Restoration and IWMP, POD Appendix Y). Substation, BAAH, BESS, roadway and O&M facility areas will be permanently cleared. Many adult birds and foraging bats would flee from equipment during initial vegetation clearance for Project PV construction. However, bird nestlings and eggs would be vulnerable to impacts during Project construction. If initial site grading or brush removal were to occur during nesting season, then it likely would destroy bird nests, including eggs or nestling birds. One special-status species, the burrowing owl, is unlikely to flee the site during construction, due

to its characteristic behavior of taking cover in burrows. Potential Project impacts and avoidance for burrowing owl are summarized below.

Bats are not expected to roost on the project site; however, some birds will likely nest in the Project area during construction and O&M phases, even after initial site preparation. Depending on the species, birds may nest on the ground close to equipment; within the open metal framework of the panel support structures; on buildings, foundations, structures, or construction trailers; or on idle vehicles or construction equipment left overnight or during a long weekend. In areas where construction is phased (e.g., footings, or tower structures) birds may quickly use these features as nest sites between active construction phases. The species most likely to nest in the Project area during construction are common raven, house finch, and mourning dove, as they construct nests in a variety of locations and on anthropogenic structures, and they are common birds that are likely to be found around the construction site. These species are protected by the MBTA and Fish and Game Code Sections 3503 and 3513 but have no other special conservation status.

IP Perkins, LLC and IP Perkins BAAH, LLC will conduct pre-construction surveys for active nests throughout the entire Project site and adjacent off-site habitat areas, beginning January 1 for raptors and humming-birds and February 1 for other species, and continue through August 15. Pre-construction nest surveys will occur no more than seven days prior to scheduled activities at any given site and will be repeated as needed if activities are delayed. At each active nest, the qualified biologist will delineate and mark buffer areas of various sizes depending upon the species. The qualified biologist will also document baseline environmental conditions and construction activity levels. If an active nest or nest of a sensitive species or raptor would be removed for any reason during the nesting season (while following all regulations in F&G code 3503 and 3503.5), IP Perkins, LLC, will notify BLM, BOR, USFWS, CEC, and CDFW and retain written documentation of the correspondence. Nests would only be removed if they are inactive, or if an active nest presents a hazard (i.e., being built where it could be harmed). Due to the high probability that birds may nest on site during construction, IP Perkins, LLC and IP Perkins BAAH, LLC, will conduct monitoring of the work area throughout the breeding season, so that all active work sites and equipment are monitored at least weekly. During bird breeding season, surveys for active nests will occur no more than 7 days prior to ground disturbance at any work site. Please refer to the Project Nesting Bird Management Plan (POD Appendix V) for additional information.

Impacts to burrowing owl are discussed in detail below in Section 6 due to the species-specific impacts and avoidance requirements resulting from the sensitivity of nesting to human activity and their continued presence in burrows during both nesting and non-nesting seasons.

5.5. Habitat Loss and Fragmentation

Habitat Loss. Disturbance in the Project site would result in loss of habitat over a large area and displace-ment of resident shrubland species, including loggerhead shrike and burrowing owl. The facility would be designed and constructed as a low-impact facility where the majority of the site would be mowed, instead of cleared of vegetation. Mass grading would not be required. Project construction would result in permanent and long-term impacts to habitat types from permanent facilities constructed on-site, including the substation, switchyard, BESS, roads, and the O&M facility. The solar facility would be revegetated in accordance with the Restoration and Integrated Weed Management Plan (POD Appendix Y).

The site would not be restored to pre-disturbance habitat values; however, temporary disturbance areas will be revegetated to stabilize soils; maximize the likelihood of vegetation recovery over time; and minimize soil erosion, dust generation, and weed invasions. Vegetation and habitat conditions following construction would likely remain suitable for common species such as common raven, house finch, and

mourning dove. Native vegetation will re-establish beneath the arrays and conditions may become suitable for birds and for bats foraging on insect prey.

Habitat Fragmentation. Wildlife, including birds and bats, are often restricted to specific habitat types or elevations. Their habitats may be contiguous over extensive areas, or they may be scattered in patches in a landscape. For species with patchy distributions, dispersal between habitat patches may be important in colonizing (or recolonizing) areas or in supplementing demography or genetic makeup in isolated populations.

Desert scrub is present in the Project site and in the surrounding area to the south, east, and north, serving as stopover and foraging habitat for migratory and wide-ranging non-migrant bird species and foraging habitat for bats. The water in the All-American Canal, which spans 82 miles from the Colorado River to the Imperial Valley and borders the Project site to the south, is also an attractant and stopover location for migratory birds and foraging bats. Disturbance in the Project site would fragment desert scrub habitat; however, bird and bat species could continue to use surrounding open space areas and the canal. Native vegetation in the solar facility will reestablish per the Restoration and Integrated Weed Management Plan (POD Appendix Y) and loss of habitat would not permanently prohibit use of the site by birds and bats.

5.6. Disturbance Due to Ongoing Human Presence at the Facility

In general, the Project site is void of infrastructure requiring human presence to operate. The site is authorized for offroad vehicle use and is used during the evenings for border related activities. Construction noise would be a substantial increase over existing background noise levels at the Project site. If construction activities were to occur at night, lighting would be required. Noise and lighting during construction could affect wildlife in adjacent habitats by disrupting foraging, breeding, sheltering, and other activities; it could also cause animals to avoid otherwise suitable habitat surrounding the site. The effects of construction noise include annoyance, which could lead to nest or den abandonment; interference with sleep and other activities; and interference with acoustic communication by masking important sounds or sound components, such as territorial calls, contact calls, or alarm calls (Dooling and Popper, 2007). Lighting can affect behavior and physiology and may also increase the risk of predation of wildlife because they may be more detectable to nocturnal predators. Lighting could attract abundance of nocturnal insects and, in turn, foraging bats; possibly including special-status bats. IP Perkins, LLC and IP Perkins BAAH, LLC, will minimize the impacts of noise and lighting by ensuring that lighting is focused only on work areas, and by adhering to noise restrictions to be identified in the Project's EIR and EA. To minimize impacts, lighting would be focused and directed downward only where needed. Project lighting would be implemented in accordance with the BLM's Night Sky and Dark Environments BMPs (Sullivan et. al., 2023).

During operation, some birds would re-occupy the solar field site once construction activities are completed, where ongoing O&M noise and lighting may affect them. Noise and lighting may also affect avian species in the nearby off-site habitat. These effects would be of lesser magnitude compared to the description of construction phase effects of noise and lighting. IP Perkins, LLC and IP Perkins, BAAH, LLC, will minimize these impacts as described above. In addition, per CMA LUPA-BIO-13, night lighting used for security and emergency night work would be directed and shielded downward, and motion sensor lighting will be used at the substation, BAAH, BESS and O&M facilities to avoid interference with the navigation of night-migrating birds and to minimize the attraction of insects as well as insectivorous birds and bats to project infrastructure.

5.7. Additional Risk Factors

Predator subsidies. Project construction, operation, and decommissioning activities could provide subsidies in the form of trash, litter, or water, which attract unnaturally high numbers of predators such as common ravens. This influx of predators could cause unnaturally high predation pressure on wildlife in

the vicinity and lead to increased observation of bird mortality. Ravens are opportunistic omnivores, and they prey on the eggs and nestlings of native birds, among many other food sources (Zeiner et al., 1990. Ravens habituate to human activities and are subsidized by food (trash, road killed animals) and water (irrigation or dust control overspray). For ravens, new perching, roosting, and nesting sites, such as transmission line and other structures, would be introduced or augmented by human encroachment. IP Perkins, LLC and IP Perkins BAAH, LLC, will require management of all potential predator subsidies (i.e., food trash, pooled water, roosting/nesting sites, shelter), monitoring of raven presence and abundance, and predator control measures as needed.

- **All-American Canal.** The 500 kV transmission loop-in corridor is located south of the Project solar site and crosses the All-American Canal (see POD Appendix A, Figure 2). The Canal holds water yearlong, providing a subsidy for birds. A hydroelectric dam and associated infrastructure are operated in the canal nearby, which provides perching opportunities for common raven.

6. CONSERVATION MEASURES

IP Perkins, LLC and IP Perkins BAAH, LLC will adopt conservation measures to avoid and minimize impacts to avian species. The measures that relate to bird and bat conservation are listed and briefly summarized below.

Biological Monitoring. IP Perkins, LLC and IP Perkins BAAH, LLC will assign biological monitors to the Project. Duties of the biological monitors will include, but are not limited to, nesting season bird monitoring and reporting, conducting clearance surveys, and removing inactive nests (except for special status species nests).

Avian Species Protection. IP Perkins, LLC and IP Perkins BAAH, LLC, will avoid or minimize impacts to avian species specifically by containing all food-related trash in containers inaccessible to ravens or other birds; regularly inspecting and maintaining bird deterrent netting; securing Project excavations and covering or capping all pipes to prevent avian entrapment; and reporting all dead or injured special-status bird species to CDFW.

Burrowing Owl Avoidance and Relocation. Burrowing owl protection and relocation will be implemented per the Wildlife Protection and Translocation Plan (see POD Appendix U) and in accordance with any Incidental Take Permit (ITP) obtained from CDFW. Pre-construction surveys for burrowing owls, possible burrows, and sign of owls (e.g., pellets, feathers, whitewash) will be conducted throughout each work area no more than 30 days prior to construction. If burrowing owl or active burrows are found within the solar facility, avoidance and set-back distances will be implemented within the solar facility. Disturbance of owls or occupied burrows during the breeding season from February 1 through August 31 will be avoided. As permitted by the ITP, unoccupied burrows will be excavated and filled in under the supervision of the Lead Biologist prior to site preparation. Passive relocation will occur only during the non-breeding season, generally September 1 to February 1, but will be adjusted during the late summer months (August and September) if breeding activities are not observed at any occupied burrows and as detailed in the Wildlife Protection and Translocation Plan.

Bird and Bat Habitat. Revegetation of native habitats will be implemented to promote the recovery of habitat for birds and foraging bats. Weed infestations will be managed to promote re-establishment of native vegetation and soils will be protected from erosion.

500 kV Transmission Loop-In and Gen-tie lines. IP Perkins, LLC and IP Perkins BAAH, LLC, will design the 500 kV transmission loop-in and gen-tie support structures and other facility structures in compliance with APLIC guidelines and current standards and practices to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices). Mechanisms to visually warn birds, such as permanent markers or bird flight diverters, will be placed on the transmission loop-in and gen-tie lines at regular

intervals to prevent birds from colliding with the lines (APLIC, 2006). To the extent practicable, the use of guy wires shall be avoided because they pose a collision hazard for birds and bats. Necessary guy wires will be clearly marked with bird flight diverters to reduce the probability of collision. Shield wires will also be marked. Transmission loop-in and gen-tie lines will maintain sufficient distance between all conductors and grounded components to prevent potential for electrocution of the largest birds that may occur in the area (e.g., red-tailed hawk and Swainson's hawk). They will utilize non-specular conductors and non-reflective coatings on insulators.

7. MONITORING AND REPORTING

This section summarizes the contents of a Nesting Bird Management Plan (NBMP) (POD Appendix V) and a standardized approach to document and report incidental bird and bat injuries and mortalities that occur during the construction and O&M phases of the Project.

The post-construction monitoring methods are based on the standards, guidelines, and proposed methods developed for renewable energy industries to quantify fatality estimates for birds and bats due to interactions with energy-related infrastructure development and maintenance (Anderson et al., 1999; APLIC, 2005, 2006 and 2012; CDFG and CEC, 2007; USFWS, 2010a and 2012; Kosciuch et al., 2020; Desert Harvest Solar Project, 2013). Details on the methodology for monitoring during construction and O&M phases (post-construction), procedures for handling and reporting injured or deceased wildlife, agency reporting, and adaptive management are provided below.

IP Perkins, LLC and IP Perkins BAAH, LLC, will implement a wildlife reporting system to identify and document incidentally found bird and bat fatalities. The site manager will lead the program and site personnel will be trained to follow the wildlife reporting system procedures and complete the wildlife reporting form. O&M monitoring will be conducted by facility operators and field engineers during normally scheduled activities with support from a qualified on-call avian biologist as needed (e.g., to identify dead or injured bird species).

Employees and subcontractors of the Project are required to comply with all environmental laws and regulations. Birds and bats occurring in the vicinity are afforded varying levels of protection under state and federal law and agency policy (see Section 1.1). MBTA and other regulations prohibit collection or possession of birds or other special-status species, including handling and disposition of injured or dead birds, unless otherwise permitted by the respective jurisdictional agencies.

7.1. Bird and Bat Monitoring Requirements

Several of the protocols referenced above specify monitoring and reporting requirements. The Lead Biologist will be responsible for monitoring and reporting on biological resources for Project activities, beginning with pre-construction surveys and continuing through the construction and O&M Project phases. Specific monitoring requirements related to bird and bat conservation are listed below.

Construction Phase Only:

- Biologists will conduct pre-construction surveys of work areas prior to the start of construction (time varies for different species).
- Worker Environmental Awareness Training would be given to all personnel working at the Project.
- Biologists will ensure biologically sensitive resources are clearly marked for avoidance.
- Biologists will conduct monitoring of construction activities for compliance with agency permits and other Project requirements.

Construction and O&M Phases:

- Lead Biologist, the primary point of contact regarding all biological resources and compliance, will be responsible for all agency reporting, communication, and submittals.
- Biologists and qualified on-site staff will conduct required ongoing monitoring and reporting during O&M activities. An on-call biologist will assist site personnel with incidental discoveries and species identification, as needed.
- Within nesting bird season, the Lead Biologist will survey for nesting birds prior to vegetation clearance or construction activity that may affect active nests.
- Active nests will be monitored to ensure that measures are being employed to minimize disturbance to nesting birds. The Lead Biologist must keep updated records of all active nests, buffers, buffer reductions, and nest outcomes (Attachments B, C: Avian Nest Reporting Form).

7.2. Post-Construction Bird and Bat Monitoring Approach

Incidental bird and bat injuries and mortalities that occur during the O&M phases of the Project would be documented and reported. Incidental injury and mortality monitoring and reporting will continue for a 2-year period beginning at the onset of Project O&M, per the Avian/Bat Incident Reporting Form (Attachment A). After the 2-year period, avian surveys and counts would be performed to compare with pre-construction surveys. Monitoring data will provide a measure of plan efficacy and inform adaptive management decisions. Results of the monitoring will guide adaptive management decisions regarding any additional practical impact reduction measures to further avoid, minimize, and/or mitigate impacts to bird and species during the Project O&M period. Adjustments to the observation and reporting requirements may be made during the monitoring period, as described in Section 8.0 Adaptive Management, if observed bird and bat injuries and mortality do not meet the goals of the Project.

7.3. Injury and Mortality Reporting Procedures

This section details procedures to be employed in the event of any reportable incident of bat or bird mortality, as defined above. As part of this process, a Special Utility Permit (SPUT) will be obtained from the USFWS, which authorizes the collection, transport and temporary possession of migratory birds. No birds, bats, or carcasses will be handled except as allowed under the SPUT. A “bird kit” with handling supplies such as bags and gloves will be onsite at all times. The kit will include:

- Copies of Avian/Bat Incident Reporting Forms
- Avian/Bat Injury and Mortality Log binder for retaining forms
- Project personnel and agency contact information
- Camera
- Zip-top bags (to be used if carcasses or parts must be retained at agency direction)
- Garbage bags or similarly sized bags with zip fasteners (for larger carcasses)
- Latex or protective disposable gloves
- Large forceps
- Leather gloves
- Pin flags and flagging
- Permanent markers, pencils, and pens
- 3x5 index cards

All bird and bat injuries and fatalities discovered during, or incidental to, the standard carcass surveys will be documented according to the requirements and standards reflected in the USFWS Avian/Bat Incident Reporting Form (Attachment C).

If a dead or injured bird or bat is found, the following procedures will be followed:

1. Project personnel will immediately report observations of injured birds or bats to the site manager responsible for implementing the BBCS. When an injured bird or bat is found, Project personnel will maintain a large enough distance so as not to further disturb or distress the animal. Personnel will follow the procedures for reporting and care of injured wildlife found in step 2 below. If a bat is hanging, head down, in a concealed or semi-concealed location, personnel will not disturb it, but will re-check later. If a bird or bat is confirmed dead, Project personnel will continue to step 3 below.
2. Project personnel will, in turn, report to the applicable agency contact as required by the SPUT. Injury or fatality of a sensitive species will be reported immediately. No live animal will be handled or harassed in any way by unauthorized personnel. Only qualified personnel who are trained to implement BBCS injury procedures and appropriately permitted as applicable will be authorized to handle dead or injured animals.
   - The Project site manager will contact CDFW for further instructions and to determine whether a rehabilitator should come and pick up the injured animal. If the injured animal is found after normal business hours, the site manager will leave a message (if possible) and report it again the next available working day.
   - If Project personnel cannot reach the appropriate agency contact with the initial phone call, they will phone the USFWS Division of Law Enforcement and request further instruction.
   - Project personnel will fill out an Avian/Bat Incident Reporting Form and place the form in the Project Avian/Bat Injury and Mortality Log maintained for the facility.
3. For dead bats or birds, Project personnel will flag the location of the carcass while data is being taken. Carcasses present a potential human health hazard and may attract scavengers (bird and mammal) to Project facilities and work areas, further increasing the risk of wildlife mortality on the Project site. Carcasses of eagles or other raptors, state or federally listed species, and sensitive species require special consideration described under step 8. Unless otherwise directed (see step 8), other carcasses will be covered with an open crate or similar container to prevent scavenging. Scavenged or scattered carcasses (e.g., bones, feathers), will be left in place or removed based on agency feedback (Number 7 below), and the location documented so that they are not reported again during subsequent facility inspections.
4. Project personnel will complete an Avian/Bat Incident Reporting Form (Attachment D). All reportable incidences discovered be recorded using the reporting form that identifies the type of animal (bird or bat), the species (if known), its condition (e.g., predated, injured) with evidence of collision or other injury, surrounding vegetation type or Project component, and the date, time, and location of the incident. Personnel will then determine whether the death appears to be related to Project construction or O&M activities. If the mortality apparently occurred through contact with equipment, the observer would also list the type of equipment and damage sustained by the equipment (if any).
5. Project personnel will record the date and time of the discovery and the observer's name on a 3x5 index card using a permanent marker. This card will be photographed with the bird or bat remains to ensure that photos and datasheets are correctly correlated to the incident.
6. Project personnel will photograph the bird or bat carcass as it was found. The carcass will be photographed from at least four angles: two close-up shots with the 3x5 index card next to the animal, and two more expansive views that include the area surrounding the animal.

7. After completing the Avian/Bat Incident Reporting Form and photographs, Project personnel will immediately contact the site manager responsible for implementing the BBCS. The site manager will take the appropriate steps listed below to report the mortality to the resource agencies. Based on feedback from the agencies, personnel will be instructed to take appropriate action (e.g., remove the carcass). These actions will be recorded on the Mortality Reporting Form and maintained in the Project Avian/Bat Injury and Mortality Log, copies of which will be provided to agency representatives on a quarterly basis. The site manager will be responsible for making sure the incident data is entered into the USFWS Bird Fatality/Injury Reporting Program (https://birdreport.fws.gov/). A record of all dead or injured bird or bat species will be maintained in the Project Avian/Bat Injury and Mortality Log, copies of which will be provided to agency representatives on request and as part of the quarterly report.
8. Carcasses will not be handled by Project personnel except under authorization of the Project SPUT permit. Carcasses will be temporarily stored on-site at the specific direction of USFWS, until they can be shipped to a specified laboratory or institute. If directed, Project personnel will place a large, open crate upside-down over the carcass, and secure the crate to the ground with stakes or other devices to reduce scavengers' access to the carcass until it can be appropriately handled under permit.

Annual reports will be provided to BLM, BOR, USFWS, and CDFW, thoroughly summarizing each year's findings. Quarterly reports will be brief and include a list of species found with associated spatial and temporal information. The annual report will provide a detailed summary of the previous year's monitoring results, including species found, time and location of finding, cause of mortality or injury, and copies of incident reporting forms; identify any major concerns or operational cause of injuries or fatalities; and recommend measures for adaptive management if necessary. The report will be provided to the Technical Advisory Group (TAG) which consists of, at least one member, of the BLM, BOR, USFWS, and CDFW, for review and revision, if necessary, and quarterly meetings will be held to discuss the annual effort. If a significant fatality event is discovered (e.g., listed bird species, more than three raptors in a single event, more than ten birds or bats in a single event) or if nesting attempts reach a nuisance level, the site manager will contact the USFWS and CDFW as soon as possible for coordination.

7.4. Injured Bird Rescue

Any injured or rescued birds located during surveys or monitoring will be recorded. A qualified biologist will determine if the injured bird should be transported to the nearest CDFW-permitted rehabilitation facility, or if the individual should be released. Injured raptors will be handled only by experienced, trained personnel and/or biologists and will be taken only to rehabilitation facilities that are permitted to handle raptors. The closest rehabilitation facilities to the Project area that are capable of handling injured birds are outlined in Table 4.[1] Rehabilitation facilities will be compensated by the Project ROW holder for costs associated with each bird put into their care.

Table 4. Wildlife Rehabilitation Facilities Near the Project Area

Wildlife Facility Name	Address	Contact	Specialty
Project Wildlife	5433 Gaines St. San Diego, CA 92110 (located in the San Diego Humane Society)	Phone: 619-299-7012 Hours: 9:00am-5:00pm	Wildlife Rescue Service
San Diego Humane Society's Ramona Wildlife Center	18740 Highland Valley Road, Ramona, CA 92065	Phone: 619-299-7012 Hours: 10:00am-5:00pm	Wildlife Rescue Service

[1] A list of CDFW-permitted wildlife rehabilitation facilities can also be found at https://wildlife.ca.gov/Conservation/Laboratories/Wildlife-Investigations/Rehab/Facilities

Wildlife Facility Name	Address	Contact	Specialty
Feathers 'n Fur Wildlife Rehab Team	3930 Lori Lane Twentynine Palms, CA 92277	Phone: 760-831-2544 Hours: 8:00am-8:00pm	Wildlife Rescue Service
Orange County Bird of Prey Center	25422 Trabuco Road #105-541 Lake Forest, CA 92630	Phone: 949-837-0786	Animal Rescue Service
Sunshine Haven Wildlife Rehabilitation	5370 Riverview Drive Jurupa Valley, CA 92509	Phone: 951-588-8811 Hours: 11:00am-3:00pm	Wildlife Rescue Center
International Bird Rescue	Los Angeles Center San Pedro, CA 90731	Phone: 310-514-2573 Hours: 8:00am-5:00pm	Waterbird Rescue, Mass Stranding Events

If a qualified biologist if not available, all stranded birds (injured or uninjured) will be taken to the nearest rehabilitation center that can care for water-associated birds (Table 4). Injured or exhausted water-associated birds should be taken to the International Bird Rescue.

If a mass-stranding event involving many water-associated birds occurs within the Project area, it will be determined if they are injured and if so, transferred to the nearest rehabilitation facility (Table 4). International Bird Rescue can also assist with these mass stranding events.

If a Project personnel identifies a dead bird or bat that is a special-status or listed species, for which handling is not specifically authorized under the SPUT permit, data will be collected, and photos taken as described for other fatalities. In addition, the personnel will flag the carcass, cover it with a protective surface such as a bucket, and leave it in place. If it is confirmed to be a special-status or listed species under the ESA or is a golden eagle, the Project personnel will need to immediately notify a USFWS Office of Law Enforcement special agent with 24 hours to determine appropriate next-step actions. CDFW will also be notified to prompt coordination between USFWS and CDFW.

8. ADAPTIVE MANAGEMENT

8.1. Adaptive Management Process

Adaptive management is an iterative process in which impact minimization and mitigation measures are continuously reevaluated to improve upon them to meet management objectives. As action is taken, the results are monitored, and future actions are modified accordingly if necessary. This is an especially useful strategy for managing resources where uncertainty surrounds appropriate management actions and their consequences. Bird and bat collision and mortality at PV solar facilities has been increasingly studied and the understanding of impacts has grown and found to be relatively low (see Section 5.1). Continued monitoring of incidental bird and bat mortalities at the Project site and research of will inform the effectiveness of proposed minimization measures and adaptive management needs.

Adaptive management specifically for bats may be necessary in the future as bats are generally understudied and more is currently known about how solar arrays affect birds. As the impact of solar facilities on bats is studied further and monitoring reports are compiled, there may be a future need for adaptive management specifically for bat populations. Adaptive management for bats may include additional monitoring using the best available science at the time and most up to date monitoring protocols or techniques (for example NA bat protocols) as determined by BLM, USFWS, CEC, and CDFW as appropriate. Monitoring could include acoustic data collection or offsite roost surveys. The following Conservation Management Actions (CMAs) from the Desert Renewable Energy Conservation Plan (DRECP) which include protections for bats will continue to be adhered to throughout the life of the project: LUPA-BIO-13, LUPA-BIO-16, LUPA-BIO-17, LUPA-BIO-BAT-1, LUPA-BIO-BAT-2, LUPA-BIO-COMP-2, DFA-VPL-BIO-BAT-1.

IP Perkins, LLC and IP Perkins BAAH, LLC is committed to incorporating adaptive management principles into its BBCS in coordination with the Project TAG based on the results of quarterly and annual monitoring reports, as presented in Section 7.3.

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Attachment A

AVIAN/ BAT INCIDENT REPORTING FORM

Avian/Bat Incident Reporting Form

Discoverer's Name _____

Phone Number _____ **Date of Discovery** _____

Date and Time of Incident/Discovery _____

Location, include Pole and GPS Coordinates (if available) _____

_____

Species (if known) _____

Type of Bird or Bat (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle)	Owl	Crow / Raven
Passerine (songbird)	Bat	Unknown / Other

Number of Individuals _____

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Surrounding Habitat (circle all that apply)

Agricultural	Chaparral/Shrubs	Desert Scrub
Disturbed/Developed	Grassland	Riparian

Type of Incident (circle one) Injury Mortality

Description of Incident. Include condition of bird, circumstances of incident and cause of injury or mortality (if known), and any damage to facilities._____

_____

_____

_____

_____

_____

_____

Please attach a picture of the bird or bat, if possible.

OPERATIONS MORTALITY REPORTING FORM FOR AVIAN AND BAT SPECIES

DATE: _____ TIME: _____ OBSERVER: _____

PROXIMAL TO PROJECT COMPONENT: _____

CARCASS POSITION

GPS COORDINATES (UTM NAD83) 11S East: _____ North: _____

BEARING (degrees) to PROJECT COMPONENT: _____

DISTANCE (meters) to PROJECT COMPONENT: _____

CARCASS DESCRIPTION

SPECIES: _____

SEX (*circle*): M F U AGE (*circle*): A J U Tag/Band Number: _____

CONDITION (*circle*): intact scavenged dismembered feather spot injured ESTIMATED TIME SINCE DEATH/INJURY (no. of days): >1 1 2 3 4 5 6 7 7+ CAUSE OF DEATH:

_____

_____

OBSERVABLE INJURIES:

_____

_____

SUBSTRATE/GROUND COVER (*at carcass location)*:_____

DISPOSITION OF CARCASS[1] (*circle*): left in place removed collected for trials collected for other: _____

SHIPPED TO:

[name of institution] _____

[physical address] _____

[phone/email] _____

WEATHER CONDITIONS

AIR TEMPERATURE (degrees Fahrenheit): _____

PRECIPITATON (last 24 hours, *circle*): none light rain rain heavy rain hail snow

CLOUD COVER (*circle*): clear mostly clear partly cloudy mostly cloudy cloudy

WIND DIRECTION: _____ SPEED (mph, *circle*): 0-10 10-20 20-30 30+ gusty

NOTES (describe noteworthy weather conditions since last search, including high wind, fog, precipitation, and storm events):

_____

_____

_____

_____

PHOTOGRAPHS[2]:

Close Up: Photo 1 _____ Photo 2 _____

Landscape: Photo 3 _____ Photo 4 _____

PHOTO NOTES:

_____

_____

NOTIFICATION[3]:

DATE: _____ TIME: _____

NAME: _____ AGENCY/ASSOCIATION: _____

NOTES:

_____

_____

_____

_____

_____

[1] Permit required to handle bird carcasses.

[2] At least four photographs should be taken. Two should be close-in shots of the carcass and should be taken from at least two different angles. Two should be shots taken farther away showing the landscape (project components, surrounding habitat, etc.) and should be taken from at least two different angles).

[3] Indicate who was notified of the event, date, time, etc.

Attachment B

O&M AVIAN NEST REPORTING FORM

Operational Phase – Solar Facility Avian Nest Reporting Form

Discoverer's Name _____

Phone Number _____ **Date of Nest Discovery** _____

Nest Location (circle one) Facility Equipment or Structure Tree Shrub Ground

Nest Coordinates _____

Other Location Information _____

Surrounding Habitat outside of Solar Array Fence (circle all that apply)

Agricultural	Desert Scrub	Riparian
Grassland	Disturbed/Developed	Bare

Nest Condition (circle one) Inactive Under Construction Active

Describe any Bird Signs around the Nest (feathers, whitewash, scat, prey remains)

_____

_____

Are Birds Present? (circle one) Yes No

Number of Birds Visible _____

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) _____

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle)	Owl	Crow/Raven
Passerine (songbird)	Unknown	

Risk to Solar Array and Equipment (circle one)

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments _____

_____

_____

Operation Phase – Transmission Line Avian Nest Reporting Form

Discoverer's Name _____

Phone Number _____ **Date of Nest Discovery** _____

Pole Number of Nest Location _____

Other Location Information

_____

Surrounding Habitat (circle all that apply)

Agricultural	Desert Scrub	Riparian
Grassland	Disturbed/Developed	Bare

Nest Condition (circle one) Inactive Under Construction Active

Describe any Bird Signs Around the Nest (feathers, scat, prey remains) _____

_____

Are Birds Present? (circle one) Yes No

Number of Birds Visible _____

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) _____

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle)	Owl	Crow/Raven
Passerine (songbird)	Unknown	

Risk to Electrical Equipment (circle one)

Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments _____

_____

_____

Attachment C

CONSTRUCTION PHASE AVIAN NEST REPORTING FORM

Project Construction Phase – Solar Facility Avian Nest Reporting Form

Discoverer's Name _____

Phone Number _____ **Date of Nest Discovery** _____

Nest Location (circle one) Tree Shrub Structure Ground

Nest Coordinates _____

Other Location Information _____

Surrounding Habitat (circle all that apply)

Agricultural Desert Scrub Riparian
Grassland Disturbed/Developed Bare

Nest Condition (circle one) Active Inactive, Intact
Inactive, Partial Deterioration Inactive, Heavy Deterioration

Describe any Bird Signs around the Nest (feathers, scat, prey remains) _____

_____

Are Birds Present? (circle one) Yes No

Number of Birds Visible _____

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) _____

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle) Owl Crow/Raven
Passerine (songbird) Unknown

Risk to Birds/Construction (circle one)

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments _____

_____

_____

Project Construction Phase – Transmission Line Avian Nest Reporting Form

Discoverer's Name _____

Phone Number _____ **Date of Nest Discovery** _____

Nest Location (circle one) Tree Shrub Structure Ground

Nest Coordinates or Closest Pole Location _____

Other Location Information _____

Surrounding Habitat (circle all that apply)

Agricultural	Desert Scrub	Riparian
Grassland	Disturbed/Developed	Bare

Nest Condition (circle one) Active Inactive, Intact
Inactive, Partial Deterioration Inactive, Heavy Deterioration

Describe any Bird Signs Around the Nest (feathers, scat, prey remains)

_____

_____

Are Birds Present? (circle one) Yes No

Number of Birds Visible _____

Age of Bird(s) (circle all that apply) Adult Juvenile Nestling Eggs Unknown

Bird Species (if known) _____

Type of Bird (circle one if species is unknown)

Diurnal Raptor (hawk, falcon, eagle)	Owl	Crow/Raven
Passerine (songbird)	Unknown	

Risk to Birds/Construction (circle one)

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

Additional Comments _____

_____

_____

Attachment C.8 Flat-Tailed Horned Lizard Management Plan

Flat-tailed Horned Lizard Management Plan

October 2024

Perkins Renewable Energy Project
Imperial County, California

Prepared for:

Aspen Environmental Group
5020 Chesebro Road, Suite 200
Agoura Hills, Ca 92373

Prepared by:

Ironwood Consulting
370 Alabama Street, Suite A
Redlands, CA 92373

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Acronyms

ac	acre
BLM	Bureau of Land Management
BM	Biological Monitor
BOR	Bureau of Reclamation
CDFW	California Department of Fish and Wildlife
MM	Mitigation Measure
MW	Megawatt
O&M	Operation and Maintenance
ROW	Right-of-Way
USFWS	United States Fish and Wildlife Service
Proponents	IP Perkins, LLC and IP Perkins BAAH, LLC
Intersect	Intersect Power, LLC
Project	Perkins Renewable Energy Project
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
ACEC	Areas of Critical Environmental Concern
PV	photo voltaic
BESS	battery energy storage system
BAAH	high-voltage breaker and a half
SDG&E	San Diego Gas and Electric
kV	Kilovolt
ABM	Authorized Biological Monitor
RMS	Flat-tailed Horned Lizard Rangewide Management Strategy

1. Introduction

1.1 Background

IP Perkins, LLC and IP Perkins BAAH, LLC (Proponents), subsidiaries of Intersect Power, LLC (Intersect) are proposing to develop the Perkins Renewable Energy Project (Project) east of El Centro, near Holtville, in Imperial County, California (Figure 1). The proposed Project site is located on a combination of Bureau of Land Management (BLM)-managed lands, Bureau of Reclamation (BOR)-managed lands, and private lands. The Project 500kV loop-in transmission lines will traverse Bureau of Reclamation (BOR) lands. The BLM-managed portion of the Project site is comprised of approximately 6255 acres. The BOR-managed portion of the site is approximately 962.8 acres, and the private land is approximately 515.04 acres. These areas, along with the gen-tie line is a 1.7-kilometer (1.06-mile) transmission line corridor, and use of existing access roads will be collectively referred to as the Project site unless otherwise described in their specific components.

1.2 Site Location

The Project site is located in Imperial County within the Sonoran Desert of Southern California. It is located east of an irrigated agricultural region, with the nearest towns of Date City and Holtville located west of the Project site. The Project site is approximately 36 miles southeast of the Salton Sea, 8 miles west of the Algodones sand dunes, and its southernmost boundary is just 1.3 miles north of the United States-Mexico border (Figure 1). The Project site is directly south of Interstate 8 and directly north of Highway 98. The transmission corridor is located south of the Project site and crosses the All-American Canal on its southern end. The Project occurs on two 7.5-minute USGS topographic quadrangles – Midway Well NW and Midway Well. Two 500 kV loop-in transmission lines would exit the BAAH switchyard and traverse the preserved utility corridor on BLM lands prior to crossing BOR lands where they would interconnect with the existing SDG&E Southwest Power Line, 500 kV Transmission Line.

The Project site occurs on a combination of BLM-managed lands, BOR-managed lands, and private lands. Public lands managed by the BLM are within the Desert Renewable Energy Conservation Plan (DRECP) Development Focus Area (DFA). Areas of Critical Environmental Concern (ACEC) are outside of but adjacent to the Project site (Figures 1, 2) – East Mesa ACEC is to the north and Lake Cahuilla ACEC is to the west. There is a small area of the project site that overlaps with an Important Bird Area (Audubon, California 2011) on its westernmost border. The Project site is also outside of any species-specific management areas.

1.3 Project Description

IP Perkins, LLC, and IP Perkins BAAH, LLC, propose to construct, operate, maintain, and decommission up to 1,150 megawatt (MW) solar photo voltaic (PV) panels and battery energy storage facility on a combination of BLM-administered public lands, BOR-administered public lands, and private lands in Imperial County east of El Centro, California (see Figure 1). The Project would deliver clean power to ratepayers in California, minimize environmental impacts and land disturbance associated with solar development, and bring living-wage jobs to Imperial County.

The Project would generate and store up to 1,150 MW of renewable electricity via arrays of solar PV panels, a battery energy storage system (BESS), and appurtenant facilities. The final Project capacity will be based on optimization of buildable acreage and solar PV technology at the time of procurement. The Project would construct a new gen-tie line that would connect the Project site substation(s) to a new high-voltage breaker and a half (BAAH) switchyard. From the BAAH switchyard, two new 500 kV loop-in transmission lines would be constructed to interconnect to the existing SDG&E 500 kV transmission line that travels in an east-west direction just south of the Project site, crossing BOR lands and terminating in the Imperial Valley Substation (Substation), southwest of El Centro.

Depending upon the timeline of the interconnection agreement, the Project site could be operational by as early as late 2027 and operate for up to 50 years. At the end of its useful life, the Project site would be decommissioned. Revegetation would be conducted in accordance with a Decommissioning and Revegetation Plan.

1.4 Plan Purpose

This Flat-tailed Horned Lizard Management Plan (Plan) conforms to the requirements of Conservation and Management Actions (CMAs) LUPA-BIO-IFS-10, LUPA-BIO-COMP-1, and DFA-BIO-IFS-1 from the DRECP BLM Land Use Plan Amendment (September 2016) requiring concurrence with the most recent Flat-tailed Horned Lizard Rangewide Management Strategy (RMS- ICC 2003). The primary purpose of this Plan is to provide measures to avoid and minimize adverse effects to the flat-tailed horned lizard (*Phrynosoma mcallii*), a BLM sensitive species and California species of special concern, during all phases of development, including construction, operation and maintenance, and decommissioning within or adjacent to the Project (Figure 2). The Plan includes:

- Background and baseline characterization of flat-tailed horned lizard occurrence;
- Approach to preconstruction take-avoidance surveys;
- Relocation procedures;
- Monitoring and continual site surveillance during construction; and
- Reporting requirements.

The Proponents seek BLM and CDFW concurrence with this Plan. Any unforeseeable actions required that are not anticipated by this Plan would be approved by BLM and CDFW prior to implementation. This would include any newly developed adaptive management measures not previously identified in this Plan.

1.5 Regulatory Background

Flat-tailed horned lizard is a BLM sensitive species and a California state species of special concern that has undergone several changes and efforts of listing status that is summarized in Table 1 below.

Table 1. Flat-Tailed Horned Lizard Listing Status Summary

Listing Actions for Flat-tailed Horned Lizard	Regulating Entity	Year
Designated a sensitive species in California	BLM	1980
Included as a Category 2 candidate for listing as threatened or endangered	USFWS (United States Fish and Wildlife Service)	1982

Listing Actions for Flat-tailed Horned Lizard	Regulating Entity	Year
Retained as a Category 2 candidate	USFWS	1985
Designated candidate for listing as an endangered species in CA	CDFW (California Department of Fish and Wildlife)	1988
Elevated to a Category 1 candidate	USFWS	1989
Commission voted against the proposed listing	CDFW	1989
Published proposed rule to list as a threatened species	USFWS	1993
Executive waiver, signed by President Clinton, allowed the Secretary of the Interior to again list species for protection under the Endangered Species Act.	Secretary of the Interior	1996
Rangewide Management Strategy (RMS) created	Interagency Coordinating Committee (ICC)	1997
Notice to withdraw the proposal to list issued	Secretary of the Interior	1997
The district court ordered the Secretary of the Interior to reinstate the 1993 proposed rule to list	Secretary of the Interior	2001
Proposal for listing as threatened species withdrawn	USFWS	2003
Rangewide Management Strategy (RMS) updated	ICC	2003
Reinstatement of 1993 proposed rule to list as threatened species	USFWS	2005
Withdrawal of the proposed rule to list as threatened	USFWS	2006
Coachella Valley Multiple Species Habitat Conservation Plan	Coachella Valley Association of Governments	2008
Withdrawal of the proposed rule to list as threatened	USFWS	2011
Priority 2 California Species of Special Concern	CDFW	2016

2. Background

This section provides general information regarding known flat-tailed horned lizard distribution and describes existing data from previous pedestrian surveys on the Project site.

2.1 Natural History

The flat-tailed horned lizard (FTHL), *Phrynosoma mcallii,* was first described by Hallowell in 1852 as *Anota mcallii* after U.S. Army Colonel George A. McCall who collected the type specimen (Johnson and Spicer 1985). FTHL is one of fourteen currently recognized species of horned lizard (eight of which occur in the U.S.) (ICC 2003).

FTHL has the most limited distribution of any horned lizard species in the U.S. (Stebbins 1985). It is found in the extreme southwestern corner of Arizona, the southeastern corner of California, and adjoining portions of Sonora and Baja California, Mexico (ICC 2003).

This lizard is restricted to areas of fine sand and sparse vegetation in desert washes and desert flats in central Riverside, eastern San Diego and Imperial Counties (Turner and Medica 1982). Its elevational range extends from below sea level to about 180 m (600 ft) (Stebbins 1985). It is most abundant in areas of creosote bush (Turner and Medica 1982) and is found in desert scrub, wash, succulent shrub, and alkalai scrub habitats (ICC 2003).

Fine sand for cover is a critical habitat element. Lizards burrow into the sand to avoid temperature extremes and remain for hours buried just below the surface (Stebbins 1985). They may be active any time of the year when temperatures are mild, but peaks of activity occur in spring, early-summer and in the fall. When daytime surface temperatures approach 120°F (50°C), individuals retreat into burrows (Rorabaugh 1994). Winter dormancy generally ranges from mid-November until mid-February (Muth and Fisher 1992).

Harvester ants are the most common food item though other arthropods are occasionally eaten (Pianka and Parker 1975, Turner and Medica 1982). Like other carnivorous desert lizards, FTHLs primarily use preformed water (water found in their food) to maintain proper water balance (Schmidt-Nielsen 1964).

2.2 Baseline Conditions

Ironwood Consulting conducted baseline surveys to assess flat-tailed horned lizard occupancy within the proposed Project site during the planning and siting phase. Surveys were performed in accordance with survey protocols described in the Flat-tailed Horned Lizard Range-wide Management Strategy, 2003 Revision. Survey recommendations for the flat-tailed horned lizard include surveys through the active season (April through September) covering a minimum of 10 hours of surveys per 260 hectares (ICC 2003). Flat-tailed horned lizard surveys on the Project site were conducted between May through July in 2023 and 2024 (see Figure 2)[1] and were modified with 30-meter belt transects throughout the entirety of the Project site, conforming to and exceeding requirements with a total of 520 hours of surveys and a larger area of coverage. All flat-tailed horned lizard sign [e.g., live individuals, carcasses, scat, tracks, and ant hills the species depend on for forage] were recorded.

Survey results in 2023-2024 included one hundred and three live individuals observed during surveys confirming occupancy on the Project site (see Figure 3). Six carcasses, two hundred and seventy-seven tracks, and one hundred and two hundred and one scat were observed. Eleven ant hills that could be forage for the species were recorded.

3. Plan Implementation

This section describes the detailed approach for FTHL protection and relocation/translocation throughout the construction phase of the Project. The intent of this Plan is to ensure that all ground-disturbing activities would minimize take of FTHL by on-site monitoring and relocation/translocation. The strategy to minimize take includes the following:

- Assign a Designated Lead Biologist and a qualified team of designated biological monitors with clear communication and reporting responsibilities to CDFW and BLM;
- Survey for FTHL within all areas of active construction, prior to start and during construction activities
- Identify, avoid, relocate, or translocate FTHL out of harm's way within construction areas;
- Monitor all construction activities for solar facility sites and associated Project site components;

[1] 2023 surveys were conducted on the BLM lands portion of the Project solar site, as well as the gen-tie corridor traversing BOR lands. 2024 surveys were conducted on the private and BOR lands within the solar site.

- Conduct pre-construction surveys prior to all construction activities as described in section 4.3
- Relocate FTHL as described in Section 3.3 and 3.4; and
- Conduct compliance monitoring and impact avoidance as needed throughout construction on the solar facility, gen-tie, and loop-in transmission lines.

3.1 Roles and Responsibilities

A Lead Designated Biologist will be assigned to the Project site to oversee all compliance regarding biological resources who will be the primary contact for correspondences to BLM and CDFW. The following team below will be responsible in the field and will have the authority and responsibility to halt activities that are in violation of this Plan:

- **Lead Designated Biologist:** will be selected and approved by BLM and CDFW prior to the start of construction and be responsible for:
    - Ensuring compliance with protective measures for FTHL and other sensitive biological resources and will act as the primary resource agency contact from the field;
    - Having the authority to halt activities that are in violation of terms and conditions outlined in this Plan;
    - Working with construction staff to ensure that all areas of work and access areas are clearly delineated;
    - Overseeing Biological Monitors on the Project site; and
    - Keeping a record of the extent of all areas permanently and temporarily disturbed by construction.
- **Biological Monitor (BM)**: BMs will be approved by BLM and CDFW and will be present in areas of active construction throughout the workday from initial clearing through habitat restoration (or completion of the Project). The BM will:
    - Have sufficient education and field training with FTHL;
    - Ensure that the Project site complies with these mitigation measures and will have the authority to halt activities if they are not in compliance;
    - Inspect the construction areas periodically for the presence of FTHLs and will inspect any open trenches or pits prior to backfilling;
    - Work with the construction crews or supervisors to take steps to avoid disturbance to the lizards and their habitat. If a lizard is discovered within an affected area, the lizard will be captured and relocated; and
    - In areas where the Project site is completely fenced, removal surveys have been completed, and vegetation has been removed, the BM may spot check a work area as needed.
- **Authorized BM (ABM):** will have the qualifications and approvals for a BM and additionally have sufficient training and experience with FTHL to be authorized by CDFW to handle and relocate FTHLs encountered.

3.2 Worker Education

A Worker Environmental Awareness Program (WEAP) will be prepared by the Lead Designated Biologist. All personnel involved with on-site construction, O&M, and decommissioning will participate in the WEAP and will be implemented by field staff in section 4.1. The program will include the following information concerning FTHL:

- Biology and status of the FTHL;
- Protection measures designed to reduce potential impacts to the species;
- Function of flagging designating authorized work areas;
- Reporting procedures to be used if a FTHL is encountered in the field; and
- Importance of exercising care when commuting to and from the Project site to reduce mortality of FTHLs on roads

3.3 Pre-Construction Surveys

Pre-construction surveys will be conducted to inform where FTHL are located prior to construction activities beginning. Construction is expected to progress in phases, and if areas and activities are divided, then these areas may be surveyed independently depending upon construction schedule. Time lapses between Project site activities may necessitate repeating preconstruction surveys.

Preconstruction survey transects will consist of 10-meter belt transects of the work area with a 150-meter buffer with additional raking around shrubs. During these pre-construction surveys, all FTHL encountered will be relocated within suitable habitat areas of the Project site not yet developed, areas outside the Project site in suitable habitat, or in areas outside the Project site designated by BLM and CDFW.

After pre-construction surveys are completed, daily sweeps of work areas will occur along access roads and within construction areas prior to construction to activities beginning.

3.4 FTHL Handling and Release

When FTHL are observed during pre-construction surveys or daily sweeps, they will be placed within an aerated container that will keep the individual(s) cool until it is transported to suitable habitat that is outside the work area within an undeveloped area within the Project site, just outside the Project site within suitable habitat, or within an area designated by CDFW and BLM outside the Project site. No effectiveness monitoring is expected for translocated FTHL.

Pre-construction surveys will not remove all FTHL from the Project site. Should additional FTHL be observed within the Project site after pre-construction surveys, an ABM will be available to relocate FTHLs out of the work area when ambient temperatures are 70-100 degrees Fahrenheit (21-38 degrees Celsius) during their active season.

If FTHL are detected outside of their normal active season (April to September), FTHL will be held in a cooler environment (not to exceed one week) and released when ambient temperatures are at minimum 65 degrees Fahrenheit (18 degrees Celsius) and at maximum 100 degrees Fahrenheit (38 degrees Celsius) in fresh shade within suitable habitat.

3.5 Compliance Monitoring

A BM will be present in each area of active surface disturbance throughout the workday from initial fencing and clearing activities through habitat restoration. Areas with active surface disturbance will be examined for the presence of FTHL at least hourly when surface temperatures exceed 85-degree Fahrenheit (approximately 30 degrees Celsius). In addition, BMs will also inspect:

- All hazardous sites (open trenches, holes, or other deep excavations) will be inspected for the presence of FTHL prior to backfilling.
- Any excavated holes (i.e., foundations) left open overnight, that cannot have an escape ramp, will be covered, and/or fencing will be installed to prevent FTHL and other wildlife species entrapment.
- Hazardous sites, if left over night, that cannot have a wildlife escape ramp, will be covered or fenced to prevent FTHL and other wildlife species entrapment
- Any pipes, culverts or similar structures that are stored on the Project site for one or more nights prior to use. Alternatively, structures can be capped or covered prior to storing on the Project site.

Additional relevant mitigation measures not already mentioned in previous sections, outlined in the RMS (ICC 2003) that are applicable to the Project site that BMs will monitor include:

- All movement of vehicles outside of the right-of-way will be restricted to pre-designated access, contractor acquired access, or public roads;
- All work sites and access roads shall be clearly marked or flagged at the outer limits prior to the onset of any surface disturbing activity. All personnel shall be informed that their activities must be confined within the marked or flagged area;
- Where feasible, newly created access routes shall be delineated with t-posts and ropes and appropriate signs, which will be maintained until habitat restoration is complete;
- The area of vegetation and soil disturbance shall be restricted to the smallest extent possible. When possible, equipment and vehicles should use existing surfaces or previously disturbed areas. Existing roads shall be used to the greatest extent possible for travel and staging areas; and
- Any workers who discover FTHLs shall avoid disturbing the animals and shall immediately notify their construction supervisor and a designated biological monitor. If the FTHL is not moving, authorized designated biological monitors will relocate the lizard offsite to the nearest available habitat.

4. Reporting

During the construction phase, BMs will prepare daily records of FTHL observations and site inspections in accordance with Project requirements.

Reporting regarding implementation of this Plan will be provided in weekly updates and quarterly reporting to BLM and CDFW. Annual and final reports will be submitted to BLM and CDFW as required. Summaries and accompanying figures of all compliance for pre-construction and removal surveys, relocation, and translocation of FTHL will be included in these reports.

5. Operations and Maintenance

FTHL observed within the fence line of the solar facility components during routine operation and maintenance activities or along the main access road by personnel leaving or entering the Project site will be avoided where possible. Any routine maintenance or emergency/unexpected repairs that require surface disturbance or heavy equipment will require that FTHL move out of harm's way on its own accord or will be relocated by an approved ABM that will be present for any surface disturbance activity.

6. Decommissioning

During the Project decommissioning and reclamation phase, FTHL conservation measures will be in place and decommissioning activities will be monitored by a BM or ABM for the presence of FTHL. If FTHL are located, then CDFW will determine if the translocation site(s) used during construction is still applicable as a translocation site for the species prior to activities beginning.

7. Adaptive Management

This FTHL Management Plan identifies the survey, handling, and release protocols, monitoring frequency and intensity, other mitigation strategies, and reporting requirements to minimize the impact of Project activities on FTHLs on the Project site. Based on survey and monitoring results, if the Project Lead Designated Biologist determines that measures identified in this Plan are no longer warranted at the intensity prescribed by the Plan, he or she may recommend to the BLM Authorized Officer that Plan requirements be reduced or cease entirely.

8. References

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Stebbins, R. C. 1985. A Field Guide to Western Reptiles and Amphibians. 2nd ed., revised. Houghton Mifflin, Boston. 336pp.

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Figure 1. General Vicinity

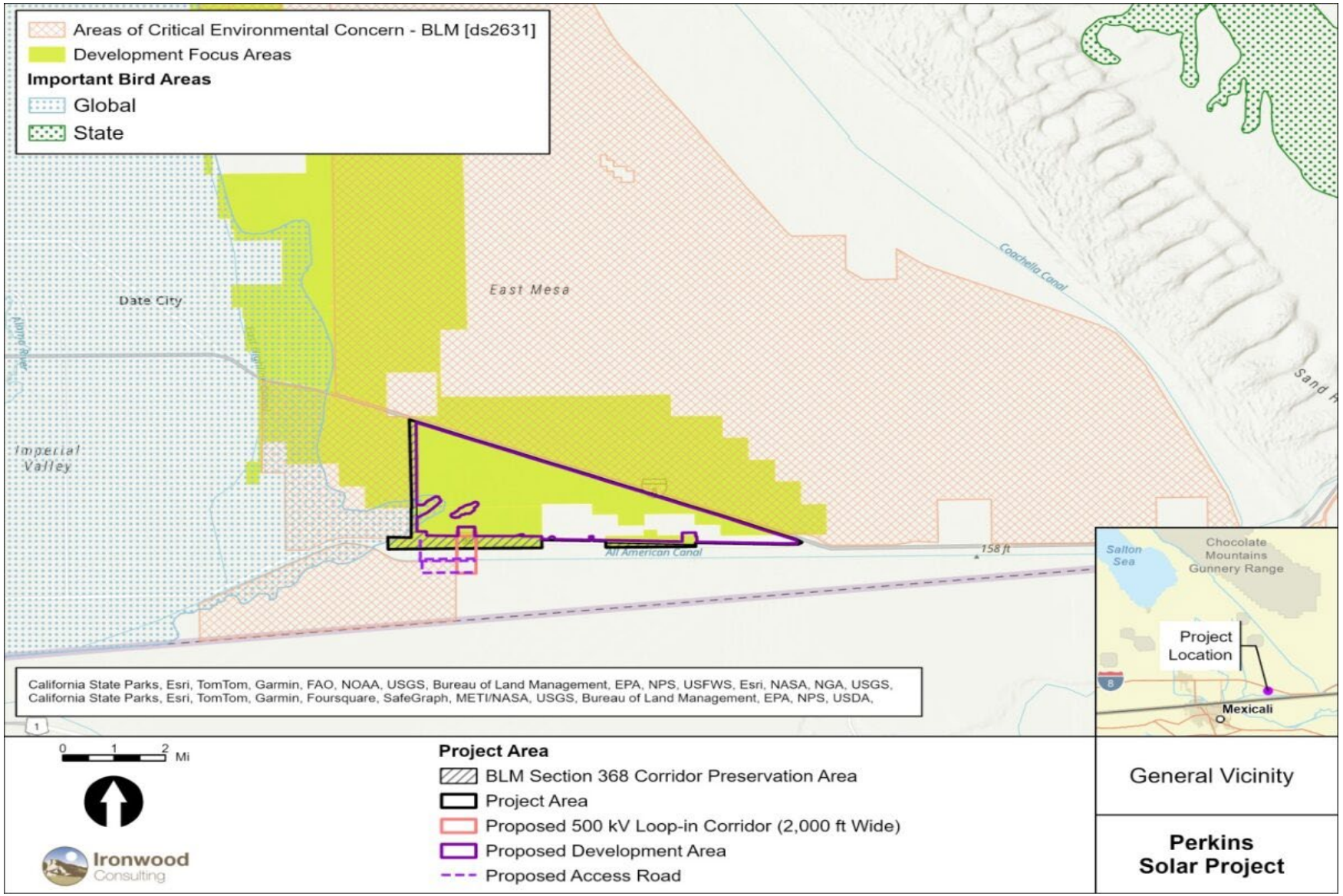


Figure 2. Study Areas

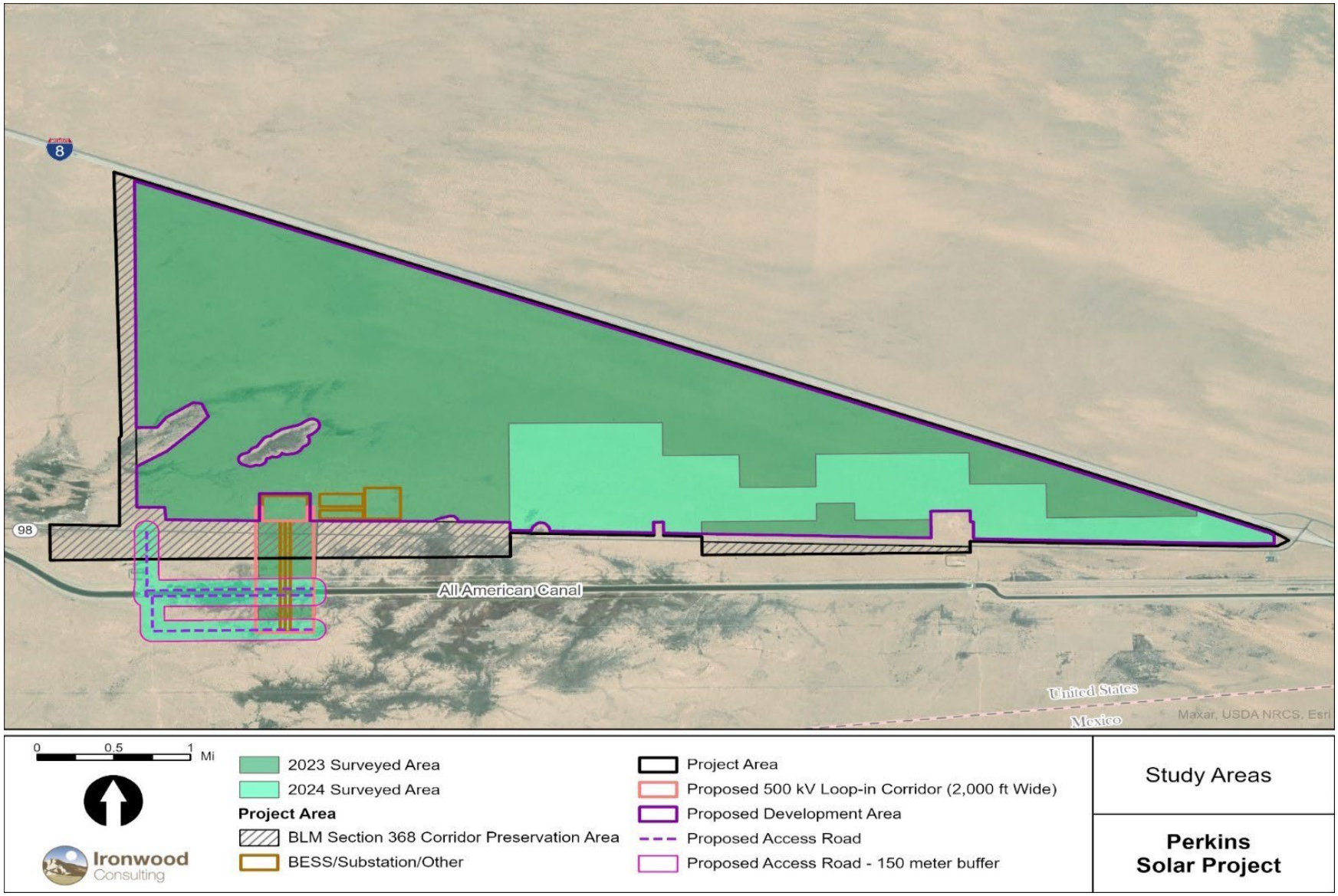
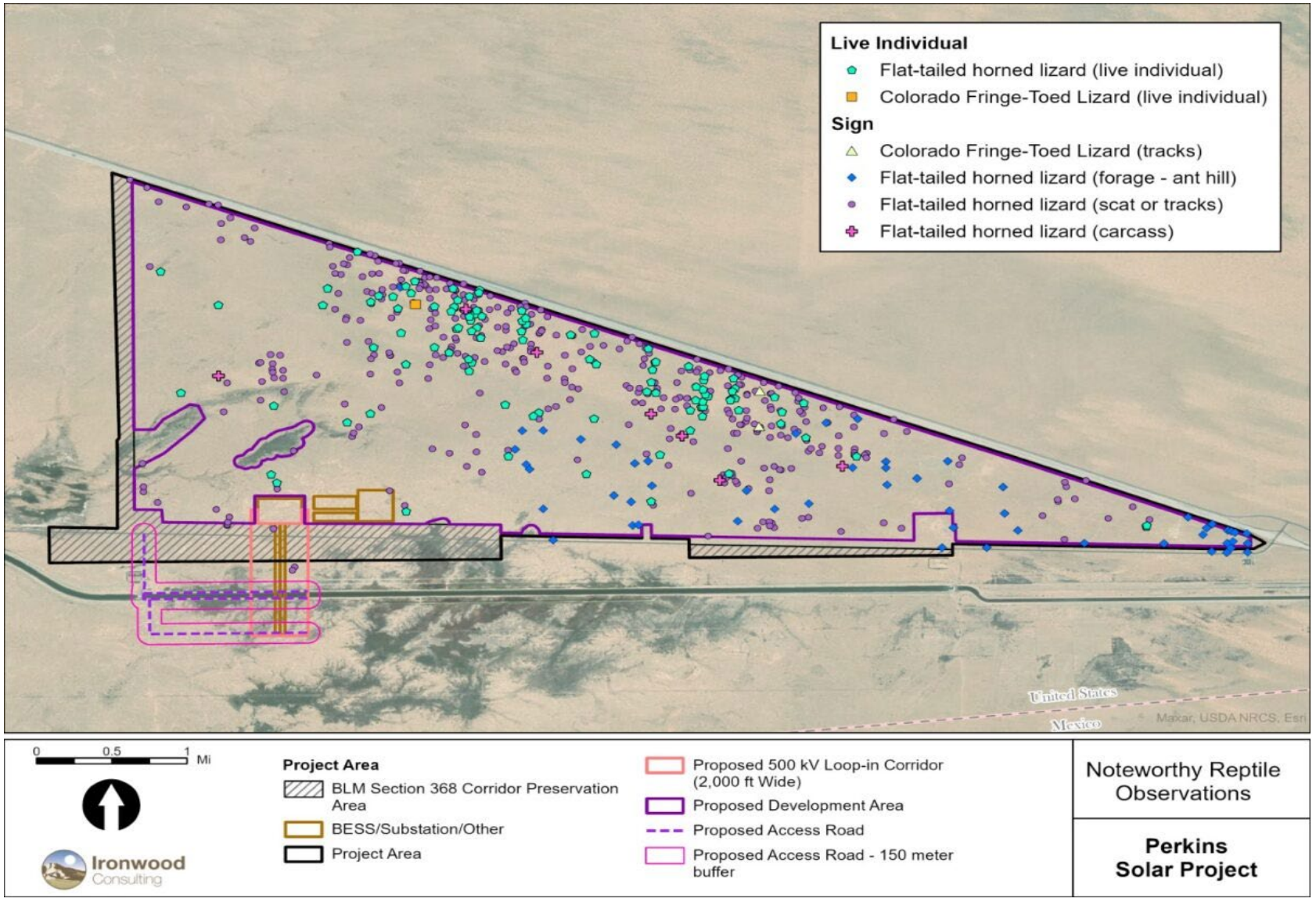


Figure 3. FTHL Observations



Attachment C.9 Updated Compensation Plan

PROPOSED MITIGATION CONSERVATION ANALYSIS

FOR

PERKINS SOLAR PROJECT

Prepared by:

Wildlands
6558 Lonetree Blvd.
Rocklin, CA 95765
Tel: (916) 435-3555
Fax: (916) 435-3556
Website: www.wildlandsinc.com

June 2024

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Preserve Information

This approximately 477-acres of Proposed Mitigation ("PM" or "Preserve") contains three sub-areas including APN's 007-010-086 ("SA-1"), 033-100-064 ("SA-2"), and 050-080-037 ("SA-3"), which are legally controlled by Wildlands and will be included as a portion of the final mitigation package. The proposed Preserve is a representation of the compensatory mitigation that will be proposed for the approximately 6,000-acre Perkins Solar Project ("Project") for loss of Flat-tailed horned lizard (*Phrynosoma mcallii*) ("FTHL") habitat and associated vegetative communities including Creosote Bush Scrub ("CBS") and Alkali Golden Desert Scrub ("AGDS"). In addition to the parcels included in this analysis, land acquisition of the remaining approximately 5,523-acres of compensatory mitigation is being developed. Ongoing negotiations with additional property owners as well as an evaluation of available private lands within the region, suggests that land acquisition for targeted mitigation values and acreage is achievable. This Conservation Analysis will demonstrate the suitability of a subset of parcels which will be included in the final overall mitigation package. This analysis represents how the PM will provide compensatory mitigation for FTHL habitat and sensitive vegetation communities. The Preserve was specifically selected for its ability to protect and preserve biologically sensitive open space habitat as compensatory lands for FTHL habitat and sensitive vegetation communities. Habitats at the Preserve, as well as its location and connectivity to other protected landscapes, make it appropriate to provide mitigation for Project impacts.

The Preserve is located in the Imperial Valley ("Valley") (**Figure 1**). The Valley was historically part of the Sonoran Desert/Colorado Desert ecosystem. Beginning in the late 1800's, the introduction of irrigated agriculture dramatically altered the natural wildlife setting. The Valley is dominated by cultivated crops including alfalfa, lettuce, carrots, melons, sugar beets, onions, citrus crops, wheat and other grains, and is dissected by a vast irrigation system. Generally, few species native to the Colorado Desert occur in the cultivated portions of the Valley. The Valley is host to a number of federal and state special status species, including the Flat-tailed horned lizard, a California Department of Fish and Wildlife species of special concern and a Bureau of Land Management ("BLM") sensitive species.

The Preserve is located in Imperial County, approximately thirteen miles northeast (SA-1) and thirteen miles southeast (SA-2) of Ocotillo Wells, and approximately two miles east of the old Holtville Airport (SA-3). SA-1 is in Township 10S, Range 09E, Section 13 of the Truckhaven (33115C8) United States Geological Survey 7.5-minute Quadrangle (**Figure 2a**). SA-2 is in Township 13S, Range 10E, Section 20 of the Harpers Well (32115A8) United States Geological Survey 7.5-minute Quadrangle (**Figure 2b**). SA-3 is in Township 15S, Range 17E, Section 16 of the Glamis SW (32115G2) United States Geological Survey 7.5-minute Quadrangle (**Figure 2c**). All three sub-areas are in the San Bernardino Meridian. Aerial photos of the Preserve can be found in **Figure 3**.

Geographic and Continuity Analysis

Wildlands used various geographically based filters to determine the potential suitability of conservation lands. In order to mitigate for impacts of the Project, Wildlands sought to find suitable open space habitat within areas identified as having ecological value and/or having occurrences of sensitive habitats and species. Wildlands also used the California Natural Diversity Database ("CNDDB") to identify areas with known species occurrences. In order to provide compensatory mitigation for impacts to the FTHL and

plant communities, Wildlands attempted to find suitable habitat within Creosote Bush Scrub habitat located in the Imperial Valley that satisfied the following mitigation criteria:

- Contain eolian sand dune or partially stabilized sand dune habitat with potential to contribute to FTHL habitat connectivity and build linkages between known populations of FTHL and preserve lands with suitable habitat;
- To the extent feasible, be connected to lands currently occupied by FTHL;
- To the extent feasible, 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;
- Provide quality habitat for FTHL, that has the capacity to regenerate naturally when disturbances are removed;
- Contain Creosote Bush Scrub plant community;
- Contain Alkali Golden Desert Scrub plant community;
- 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;
- Not contain hazardous wastes that cannot be removed to the extent the site is suitable habitat (see **Phase 1 Environmental Site Assessment** in submittal package);
- Not be subject to property constraints (i.e., mineral leases, cultural resources); and
- Be on land for which long-term management is feasible.

Wildlands utilized all available geographic data, interviews with species and habitat experts, and guidance from regulatory agencies to specifically target high priority areas for conservation and to identify areas with known species occurrences, as well as the necessary plant communities and landforms that meet all the above criteria.

Adjacency to Protected Lands

Lands having connectivity to larger blocks of lands that are already protected or planned for protection were prioritized. Lands adjacent to publicly or privately protected lands were specifically targeted. Contributing to this connectivity is essential to protect private lands in the area.

SA-1 is adjacent to State of California managed lands along its western boundary (**Figure 4a**). SA-2 is adjacent to privately conserved lands along its northern boundary and adjacent to Bureau of Land Management ("BLM") lands along its eastern boundary (**Figure 4b**). SA-3 is adjacent to privately conserved lands along its northern boundary and with BLM lands along its eastern, southern, and western boundaries (**Figure 4c**). The conservation value of the Preserve is enhanced by its connectivity to other high-quality habitats and its contributory value as a linkage corridor to similarly protected sites.

Areas of Critical Environmental Concern

Areas of Critical Environmental Concern ("ACEC") are an administrative designation made by BLM through a land use plan. This designation is unique to the BLM in that no other agency uses this designation. Private lands and lands administered by other agencies may be located within the ACEC boundaries 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, as 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 the BLM considers future management actions and land use proposals.

SA-1 is located approximately 7-miles northwest of the Salton Sea Hazardous ACEC (**Figure 5a**). SA-2 is located within the West Mesa ACEC (**Figure 5b**). SA-3 is located within the East Mesa ACEC (**Figure 5c**). The Preserve will add to conservation of private lands within these important management areas. Additional land acquisitions will prioritize private lands within ACEC's.

National Conservation Lands of the California Desert

In 2016, Phase I of the Desert Renewable Energy Conservation Plan was completed to protect the desert's natural resources while facilitating energy development. Some of the BLM lands managed for conservation purposes were designated as National Conservation Lands of the California Desert under the DRECP. These National Conservation Lands of the California Desert are closed to all energy development (BLM 2022). Similar to the ACECs, private lands within these designated areas are not subject to development restrictions. As a result, it is important to protect privately owned lands within the National Conservation Lands of the California Desert, as conservation of these lands contributes towards a more comprehensive, regional natural resource management regime.

SA-1 and SA-2 are within the Lake Cahuilla National Conservation Lands of the California Desert (**Figures 6a and b**). Establishment of the Preserve will protect potentially developable private in-holding from future development, adding to connectivity in this important conservation area. Additional land acquisitions will prioritize private lands within the National Conservation Lands of the California Desert.

FTHL Management Areas

FTHL Management Areas ("MA") are controlled by multiple agencies and may include private inholdings. MA were designed to include most FTHL habitat identified as key areas in previous studies, even though the absolute densities of FTHLs within the MA were not known. MA were proposed based upon accepted principles of good preserve design, utilizing the best information available at the time. MA included as large an area as possible, but avoided extensive, existing and predicted management conflicts (e.g., OHV open areas). Conflicts that are localized in nature (e.g., sand and gravel mines, military bombing targets) were accepted within some of the MA. The MA are the core areas for maintaining self-sustaining populations of FTHLs in perpetuity.

SA-1 is located approximately 2-miles north of the Ocotillo Wells FTHL MA (**Figure 7a**). SA-2 is located adjacent to the West Mesa FTHL MA (**Figure 7b**). SA-3 is located within the East Mesa FTHL MA (**Figure 7c**) and will increase conservation within these important MA. Additional land acquisitions will prioritize private lands within MA's.

FTHL Distribution Model

The Biogeography Lab at UC Santa Barbara has developed a FTHL species distribution model. This model is based on examination of species observation and data and consultation with biologists. Expert

opinion was used to exclude certain areas such as areas outside of the historic range. The model provides a mapping layer of predictable suitable habitat and distribution of the FTHL (Davis 2013).

A portion of SA-1 and the entirety of SA-2 and SA-3 are located within the FTHL species distribution model (**Figures 8a and b**). Numerous FTHL occurrences have been in the vicinity of the Preserve (**Figures 8a and b**).

Hydrology and Topography

SA-1 is located within the State West Salton hydrologic unit, SA-2 is located within the State Anza Borrego hydrologic unit, and SA-3 is located within the State Imperial hydrologic unit (**Figure 9**).

The Preserve receives local precipitation and SA-1 receives drainage from the Santa Rosa Mountains to the west (**Figures 2a-c**). Waterways within SA-1 are ephemeral, rainfall driven, and flow generally in a west to east direction. Elevations across the Preserve range between approximately 65 feet below mean sea level along the eastern boundary of SA-1 to 92 feet above mean sea level in the northeast corner of SA-3 (**Figures 2a-c**).

Biological Analysis

Desktop Analysis and Biological Field Reconnaissance

After identifying properties that fit the identified geographical criteria, a thorough aerial photography/ satellite imagery analysis was conducted to preliminarily identify the habitats on the Preserve and any existing or future threats to the quality and long-term sustainability of those habitats. **Figure 3** shows aerial photographs of the Preserve.

Landforms and Plant Communities

Landforms are geographic abiotic features of the earth defined by topographic relief, geology, and hydrologic connectivity. A plant community is a biotic feature of the ecosystem that 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.

The landforms identified on the Preserve can be grouped into three distinct categories: stabilized and partially stabilized dunes ("SPSD"), uplands, and 1602 resources. All landforms identified on the Preserve include vegetated areas mostly containing the plant community CBS (Holland Code 34110) (**Figures 10a-c**).

Stabilized and partially stabilized dune areas include deposits of eolian, or fine windblown sands typically associated with dunes, washes, margins of dry lakes, and sandy hummocks. Sand accumulations are shallow in depth and partially stabilized by evergreen and/or deciduous shrubs, scattered low annuals and perennial grasses. These dunes are found in areas typically higher than active dunes, and they retain water just below the sand surface allowing perennial vegetation to survive long drought periods. Total cover increases as the dunes are progressively stabilized. This habitat intergrades with Stabilized and Partially Stabilized Desert Sand Fields (Holland Code 22300) but is mostly correlated to sandier phases of CBS (Holland Codes 34110), or desert wash scrub (Holland Code 34250) (Holland 1986). This habitat type is

distributed throughout the desert in areas where sand accumulation occurs and provides quality FTHL habitat.

CBS (Holland Code 34110) is a shrub dominated habitat composed of 0.5-3 m tall, widely spaced shrubs, usually with bare ground in-between (Holland 1986). In some areas of the Preserve, the bare ground is sheets of eolian sand. CBS is very similar in appearance to Mojave Bush Scrub (Holland Code 34110), but with greater species and life form diversity including several succulents. The plants that make up the CBS on the Preserve include creosote bush, fourwing saltbush, white bursage, long-leaf ephedra, jojoba, and mesquite.

1602 Resources identified within the Preserve are relatively straight to slightly meandering ephemeral streams with well-developed bajada hydrology. As the ephemeral channels flow along the valley floors, they begin to demonstrate anastomosed morphology in the form of braided beds with regular incised compound channels and multiple relic channels that have since formed into ancillary and concomitant wash overstory. These 1602 resources are highly 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. CBS is the dominant plant community within the 1602 resources.

1602 Resources

24.18-acres of 1602 Resources were mapped on SA-1 of the Preserve (**Figure 11**). 1602 Resources on SA-1 are well above the projected mitigation requirements of the Project and additional 1602 Resources will be added to the Preserve as additional lands are identified.

CNDDB

The CNDDB shows twenty-one sensitive species (9 plants and 12 animals), including FTHL occurrences within close proximity to the Preserve (**Figures 12a-c**). Establishment of the Preserve will protect a potentially developable private in-holding from future development.

Conclusion/Summary

The approximately 477-acre Preserve contains diverse intact open space habitats appropriate to provide compensation for impacts from the Perkins Solar Project. Based upon the preliminary results of the regional analyses, the Preserve provides habitats essential for protecting sensitive species in the region including FTHL, CBS, and AGDS.

The Preserve contains suitable FTHL habitat and conserves sensitive vegetation communities based on the following indicators:

- Soil type found onsite supporting CBS and eolian sand suitable for FTHL habitat,
- Adjacency to public land (**Figures 4a-c**),
- Locations within the West Mesa and East Mesa ACEC's (**Figures 5b-c**),
- Within the Lake Cahuilla National Conservation Lands of the California Desert (**Figures 6a-b**),
- Locations within the West Mesa and East Mesa FTHL Management Area (**Figures 7a-c**),
- Locations within the FTHL Habitat Distribution Model (**Figures 8a-b**),

- Contains healthy CBS habitat throughout,
- Contains a mix of active and stabilized dunes,
- Proximity to known occurrences of special status species including FTHL (**Figures 12a-c**), and
- The presence of habitats associated with FTHL occurrences.

Based upon the results of the regional analyses, the Preserve provides suitable compensatory mitigation for FTHL, CBS, and AGDS habitats. Sub-areas of the Preserve will be included in the final mitigation package and provide a clear representation of the high-quality habitat available for the remaining approximately 5,523-acres of compensatory mitigation. Ongoing negotiations with additional property owners as well as an evaluation of available private lands within the region, suggests that land acquisition for targeted mitigation values and acreage is achievable.

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Figures

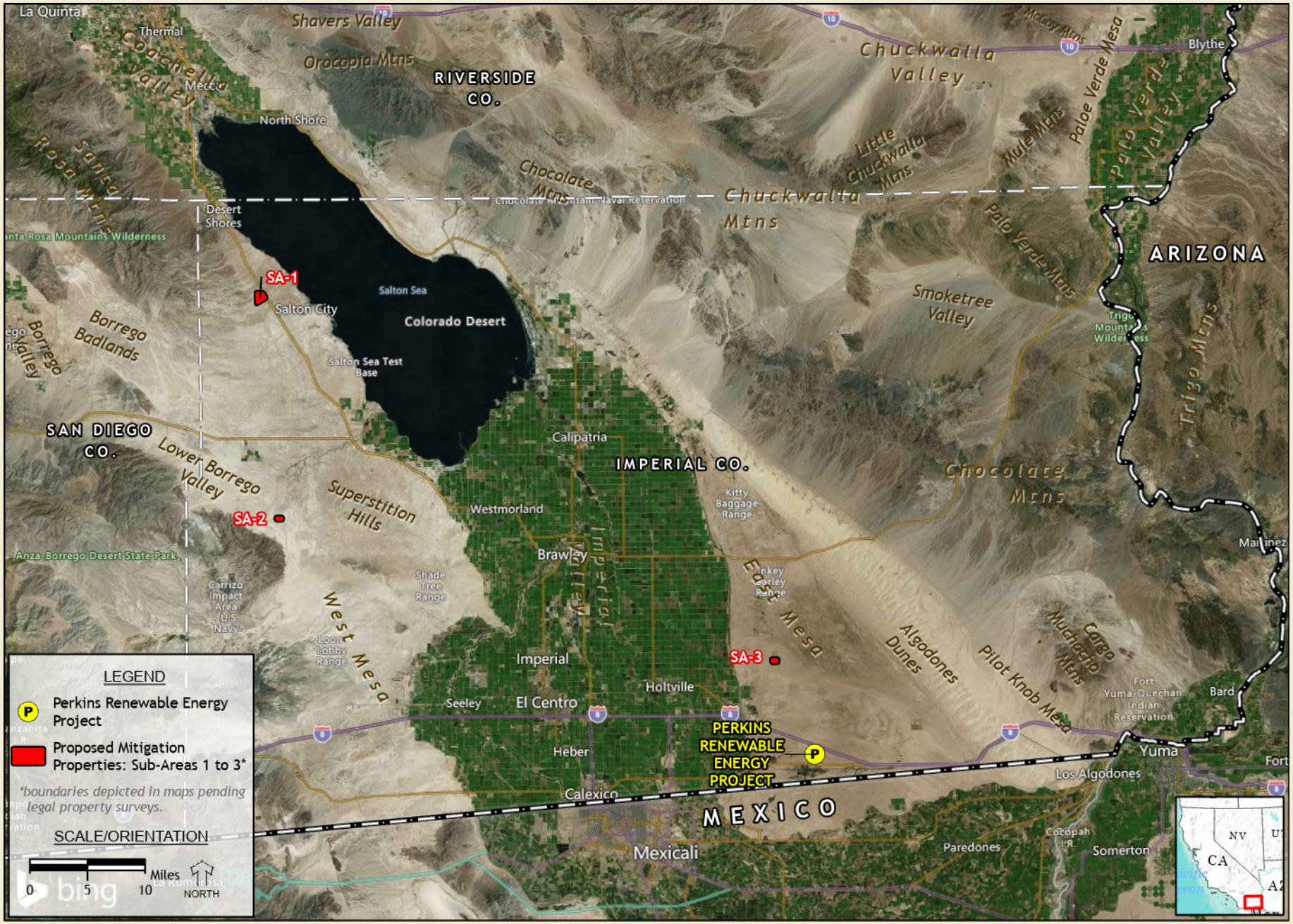

Figure 1 - Location Map
Proposed Mitigation Conservation Analysis

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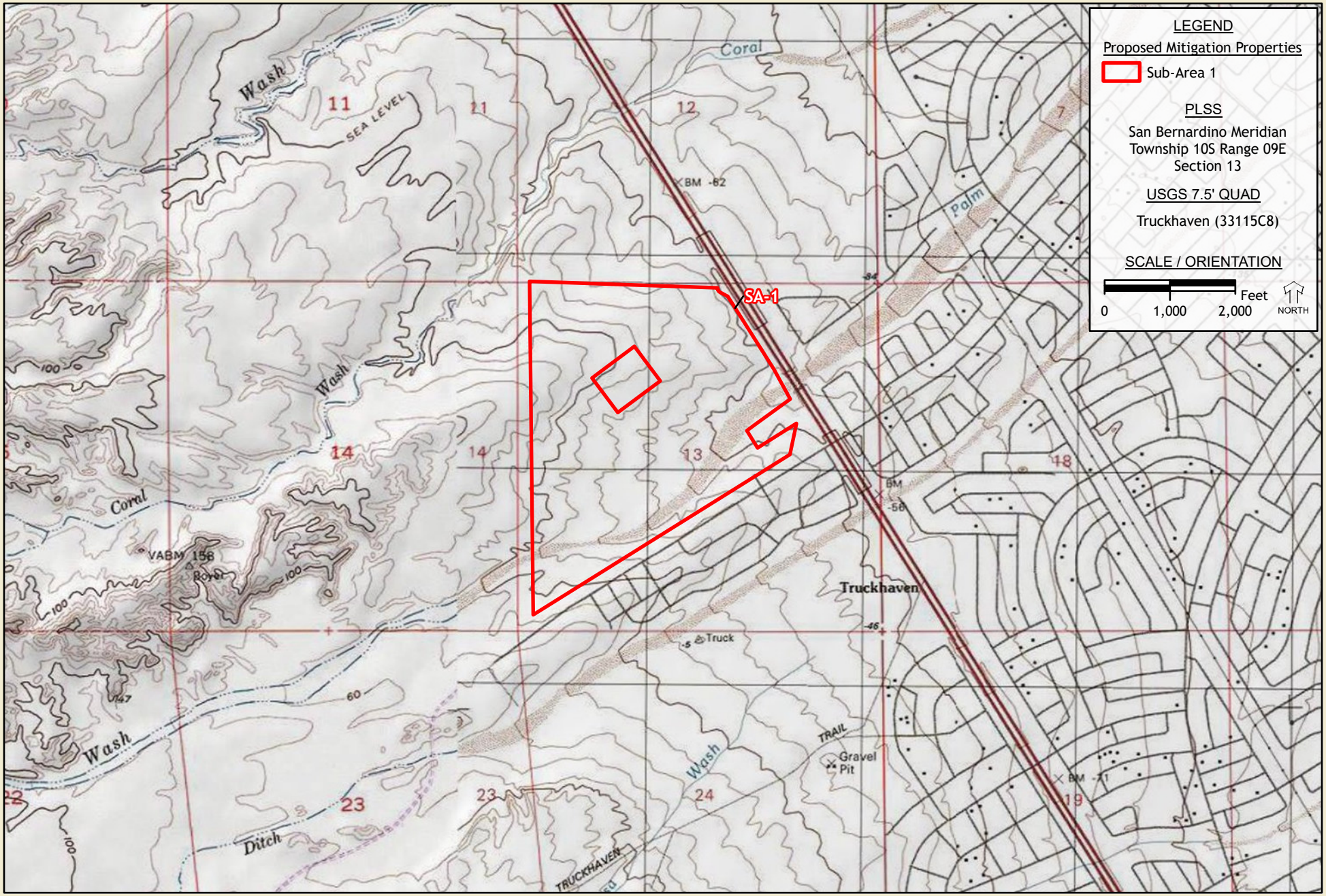

Figure 2a - USGS 7.5' Quadrangle, Sub-Area 1
Proposed Mitigation Conservation Analysis

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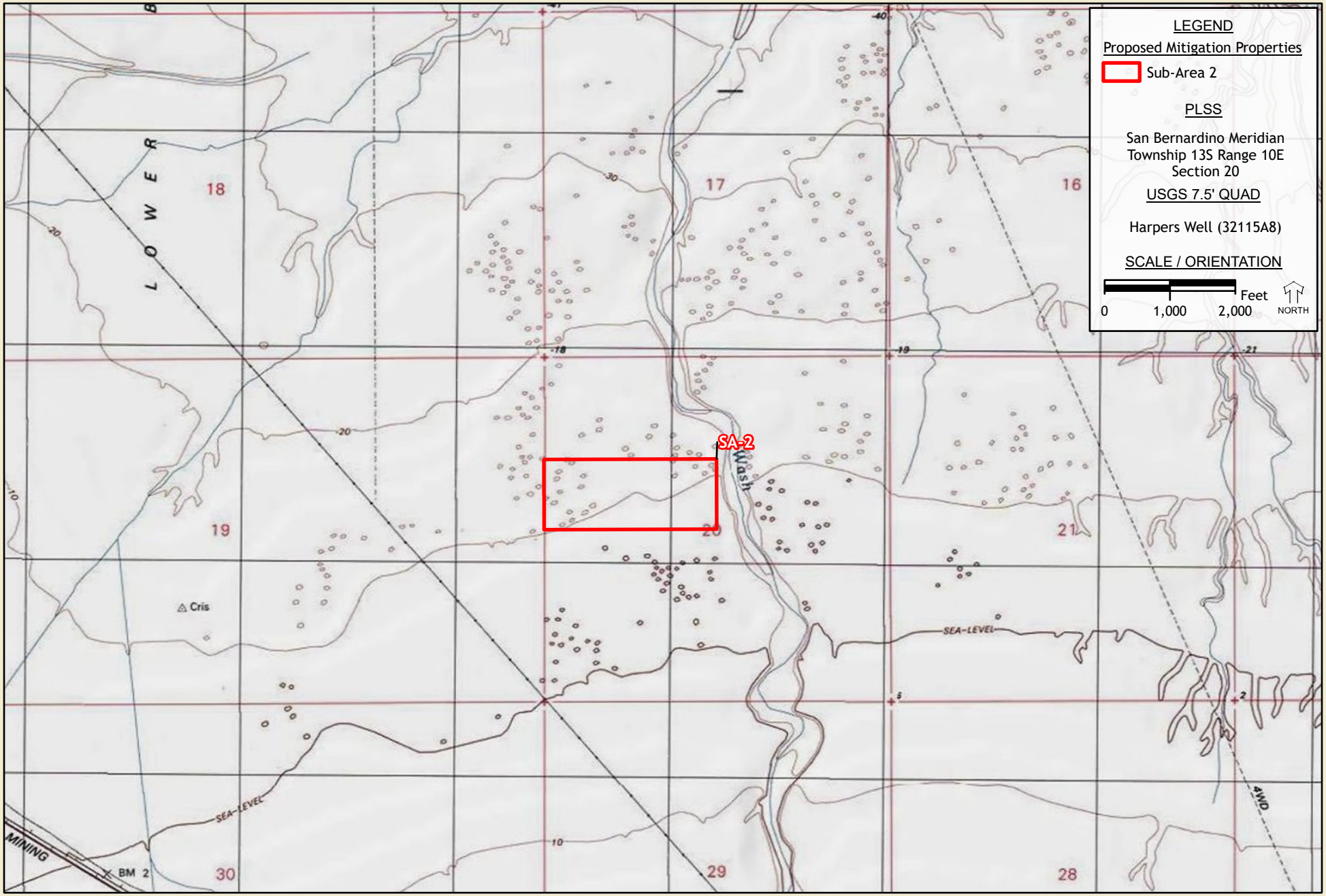

Figure 2b - USGS 7.5' Quadrangle, Sub-Area 2
Proposed Mitigation Conservation Analysis

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Figure 2c - USGS 7.5' Quadrangle, Sub-Area 3
Proposed Mitigation Conservation Analysis

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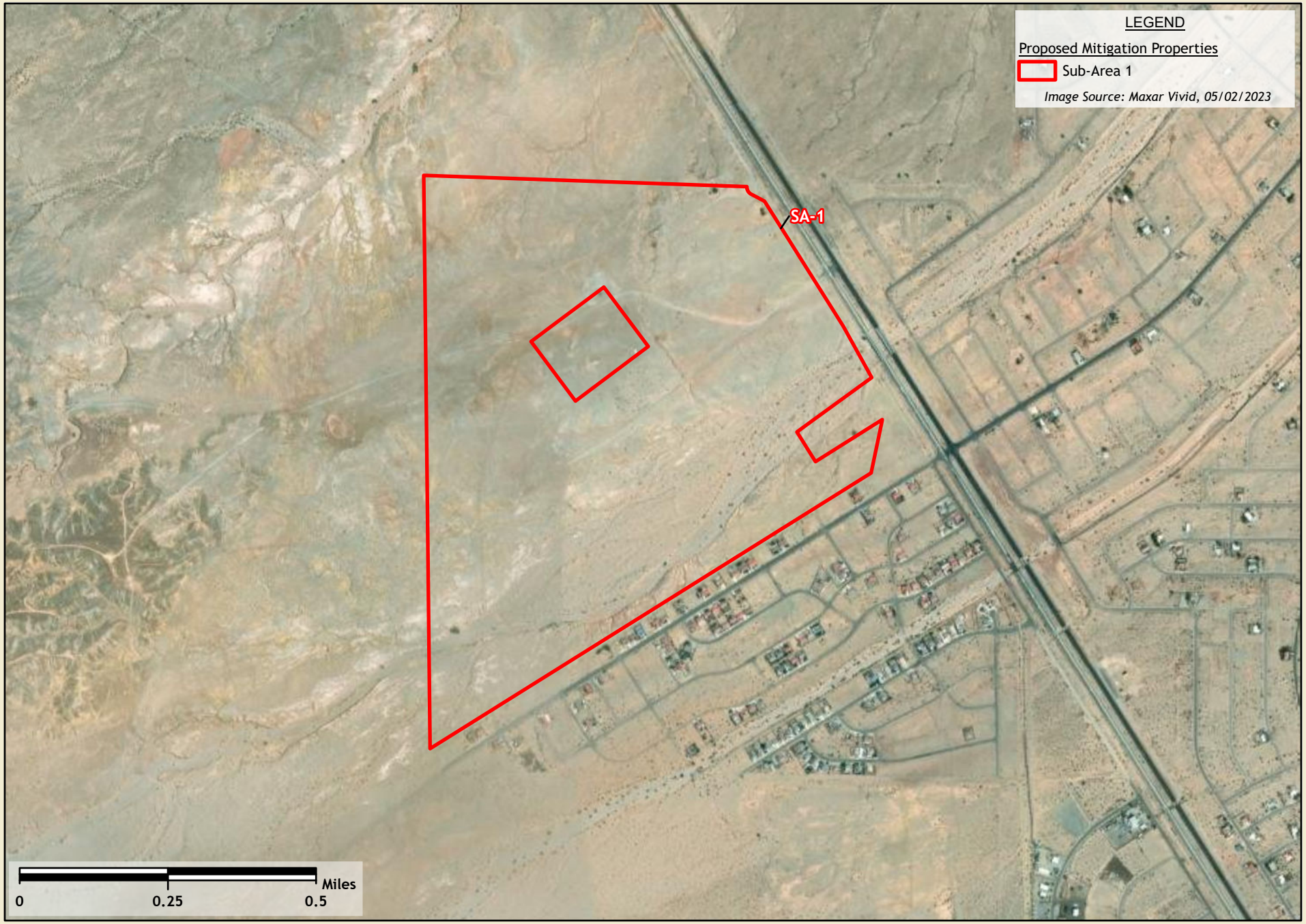

Figure 3a - Aerial Photo, Sub- Area 1
Proposed Mitigation Conservation Analysis

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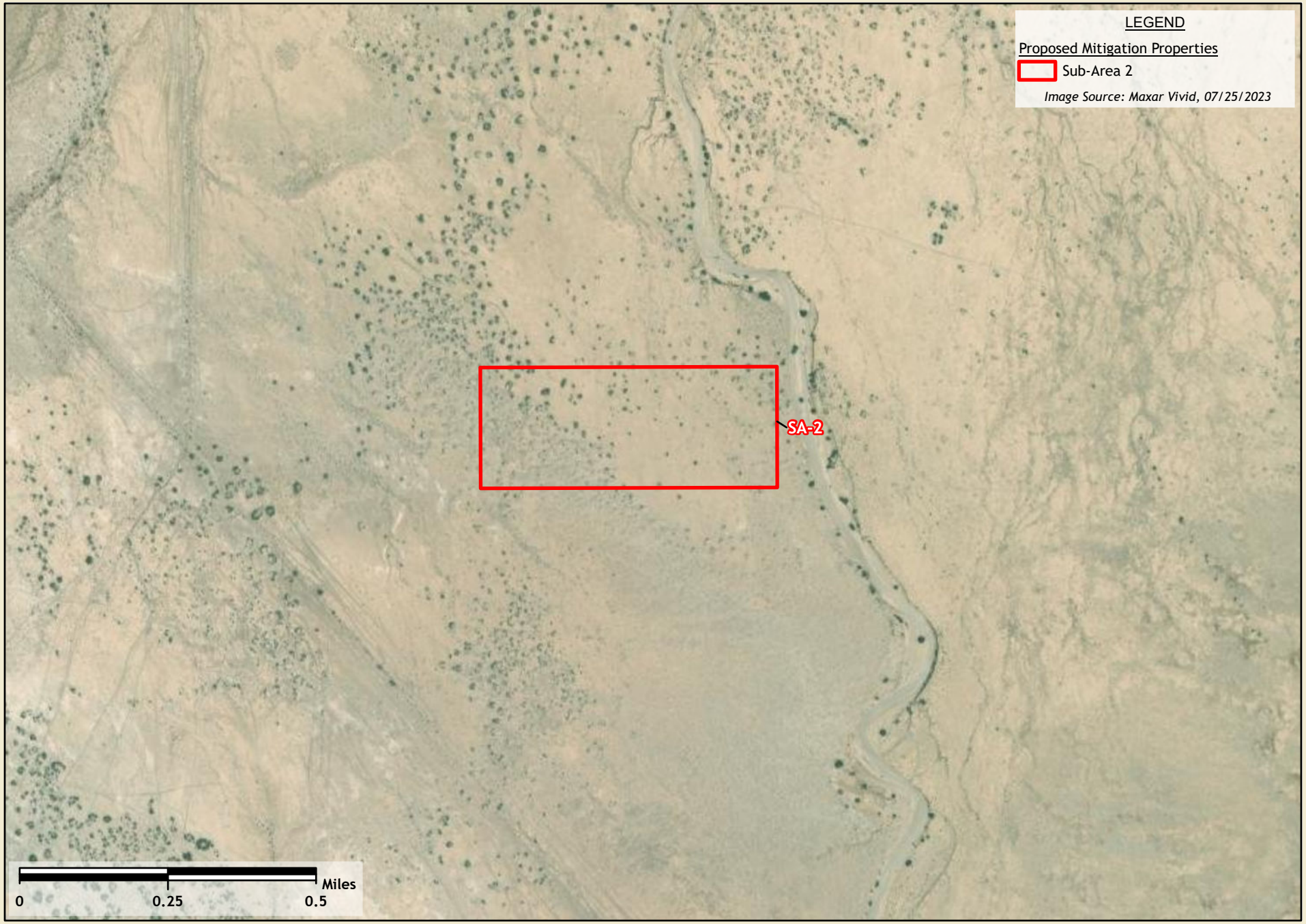

Figure 3b - Aerial Photo, Sub- Area 2
Proposed Mitigation Conservation Analysis

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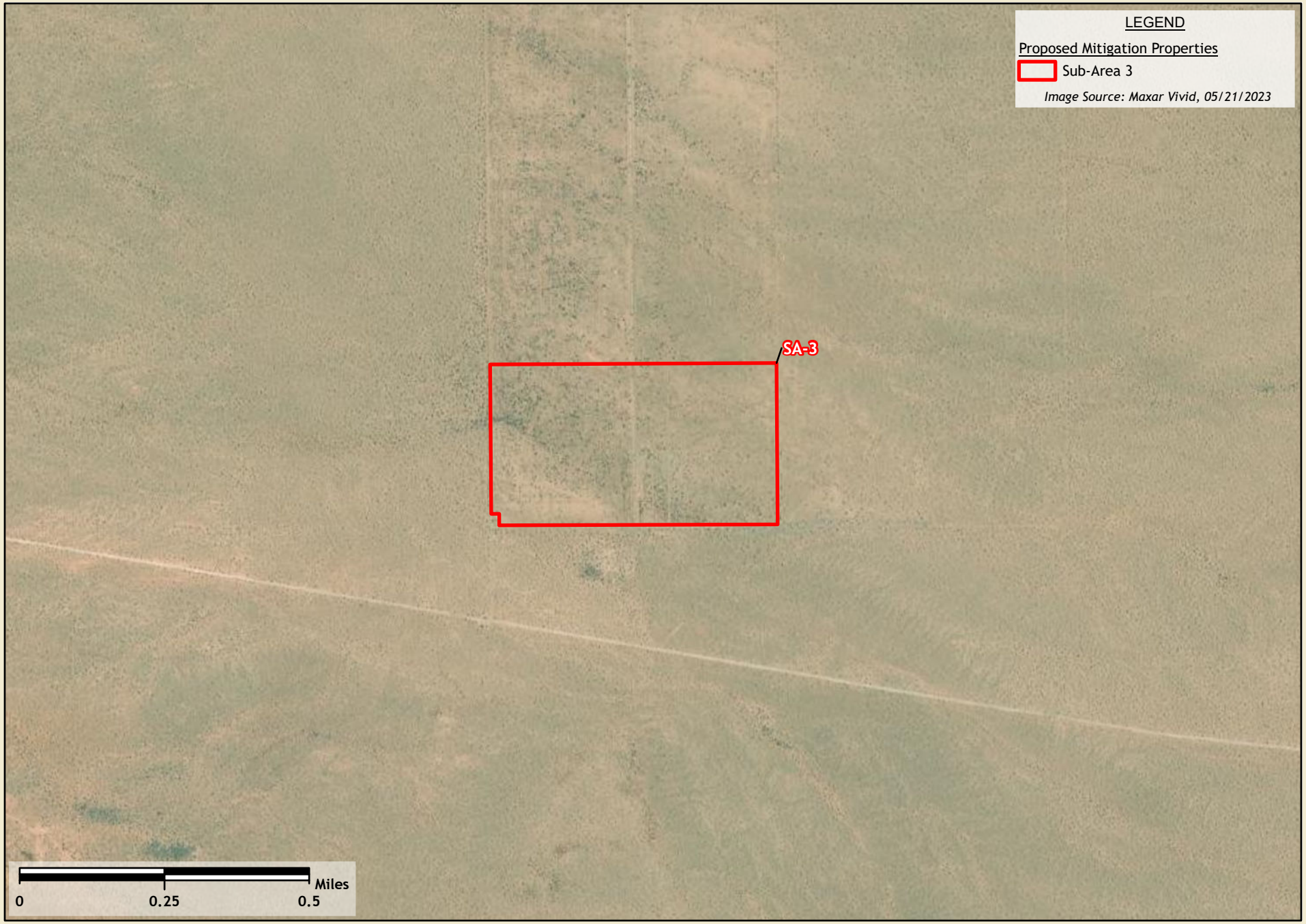

Figure 3c - Aerial Photo, Sub- Area 3
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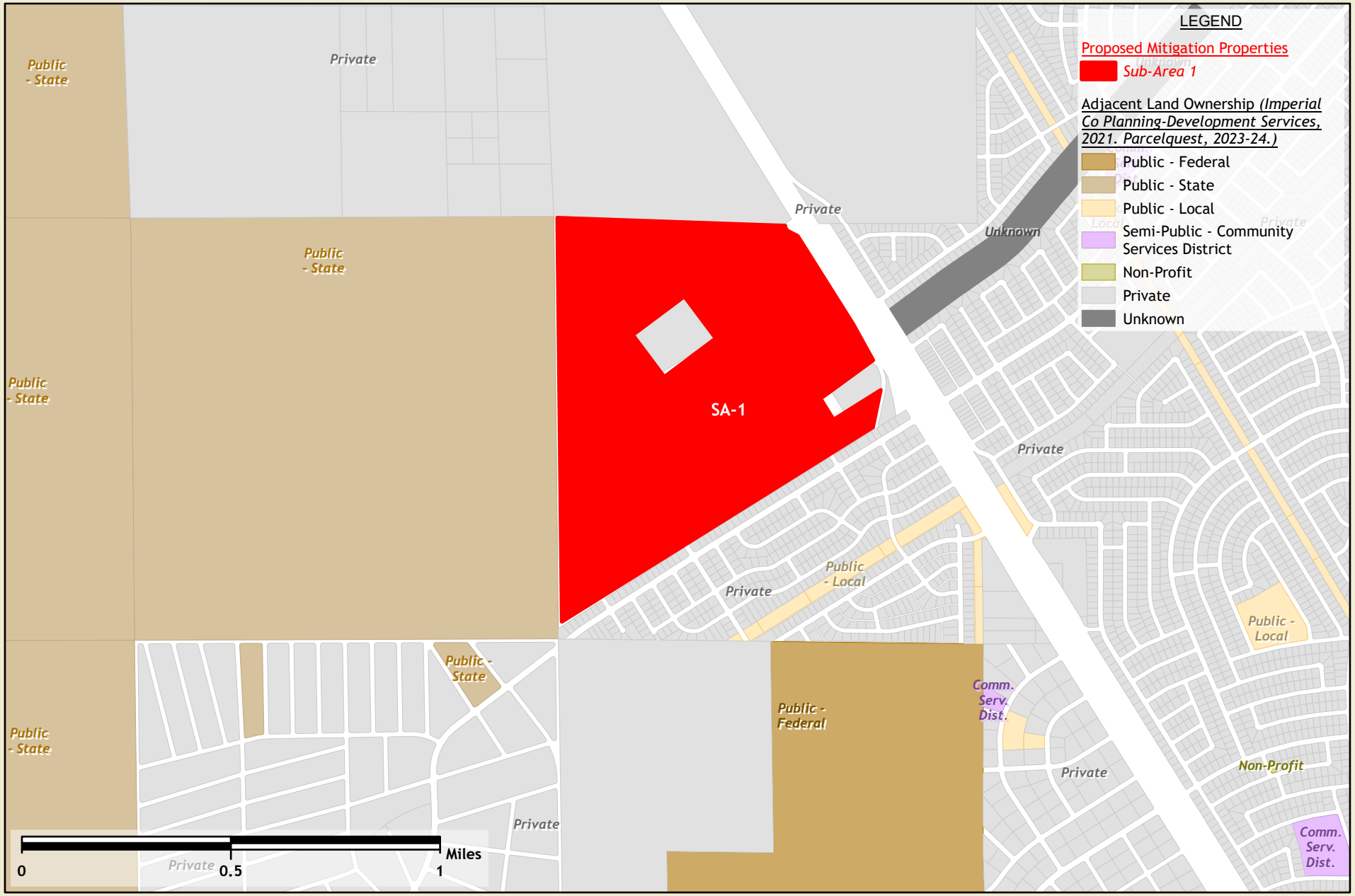

Figure 4a - Adjacent Ownership, Sub-Area 1
Proposed Mitigation Conservation Analysis

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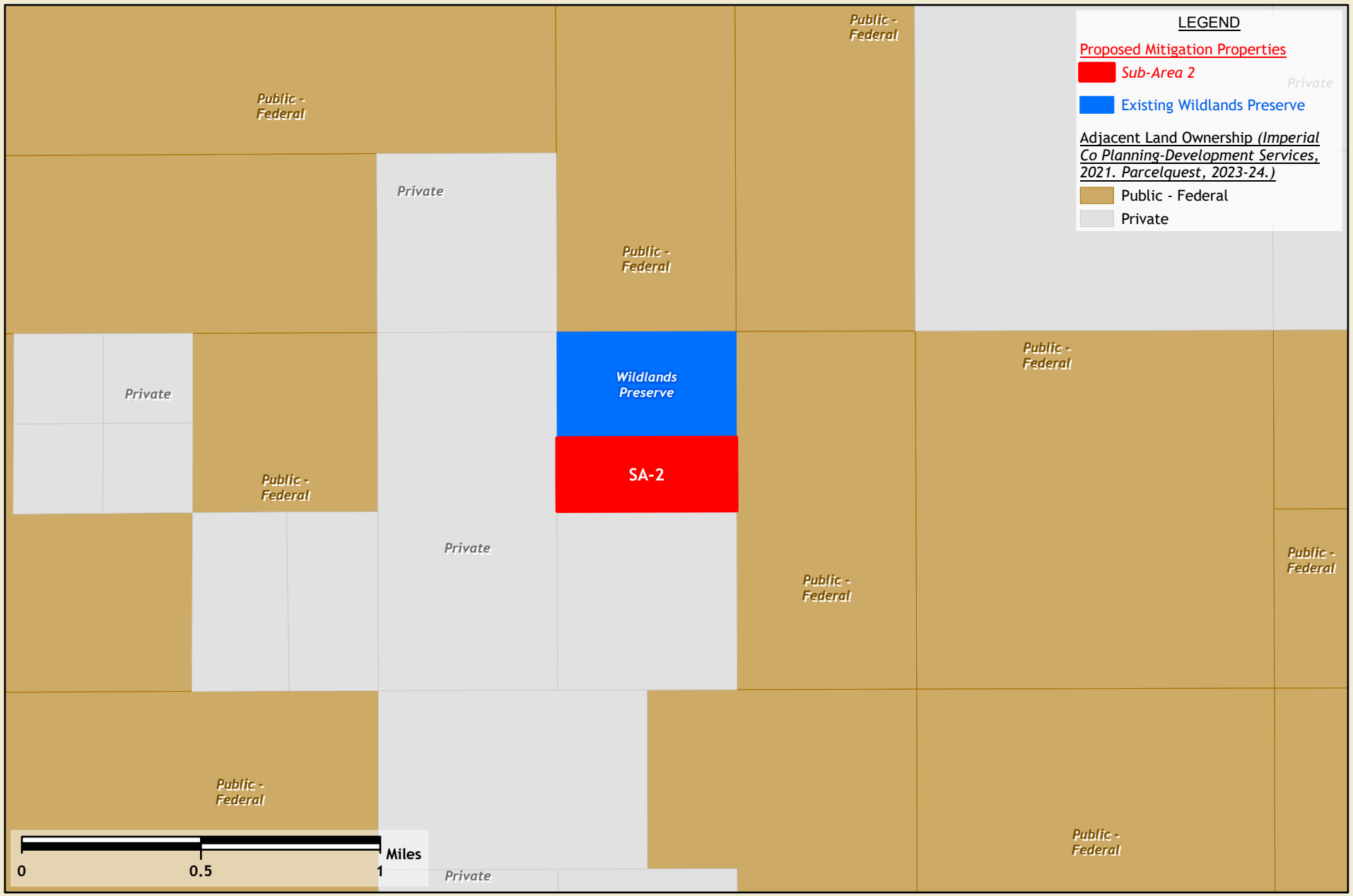

Figure 4b - Adjacent Ownership, Sub-Area 2
Proposed Mitigation Conservation Analysis

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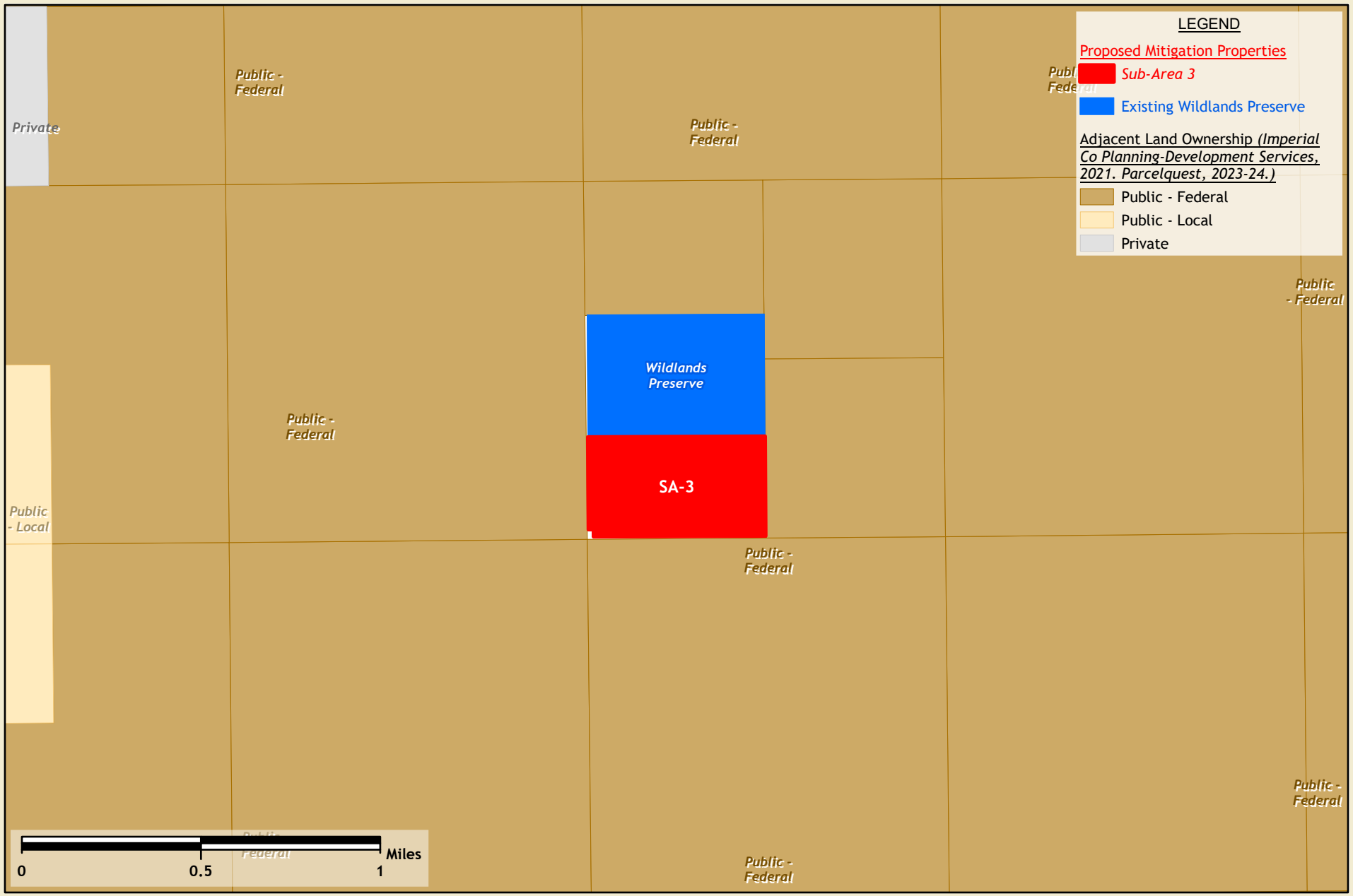

Figure 4c - Adjacent Ownership, Sub-Area 3
Proposed Mitigation Conservation Analysis

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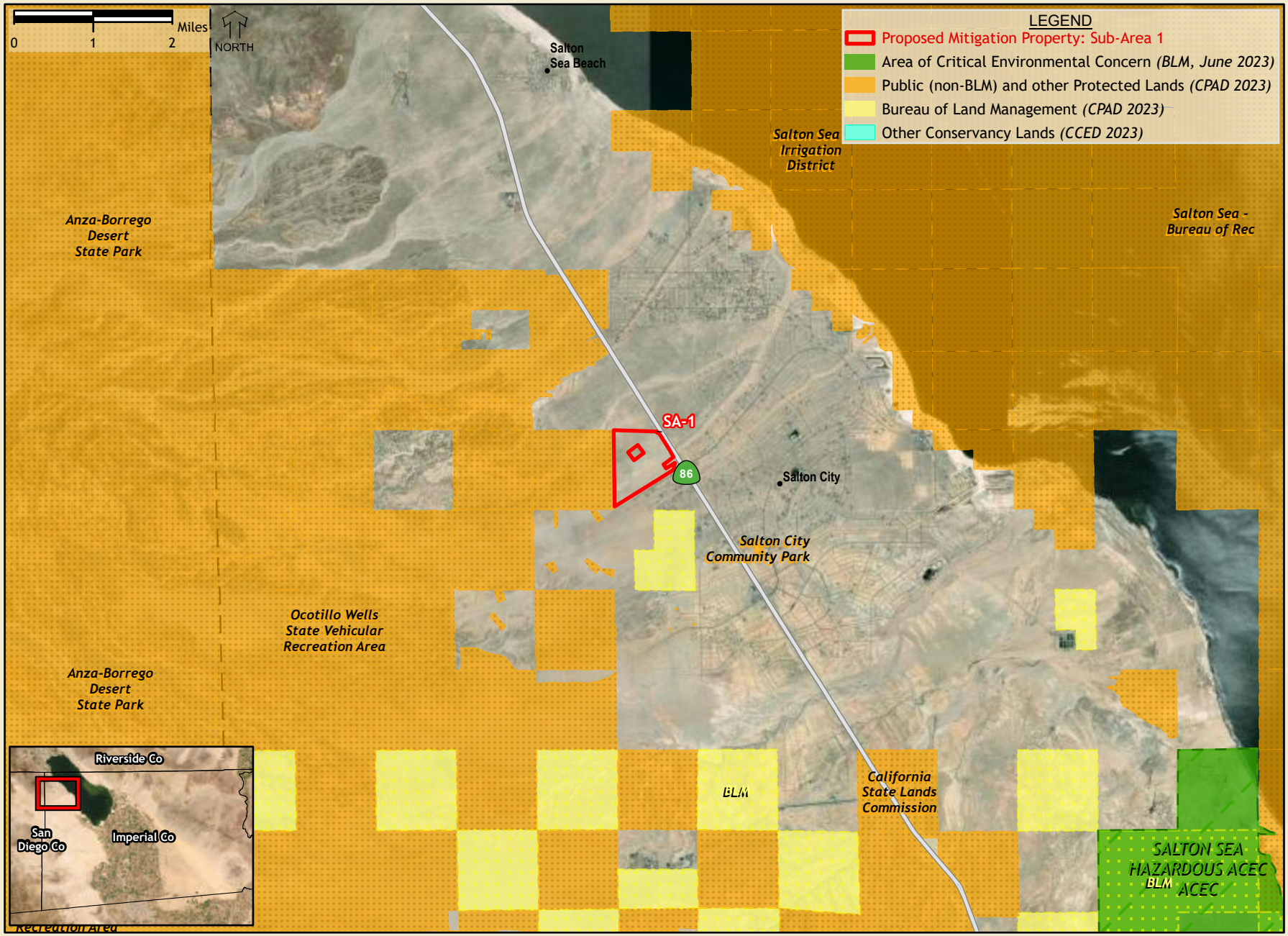

Figure 5a - Areas of Critical Environmental Concern (ACEC), Sub-Area 1
Proposed Mitigation Conservation Analysis

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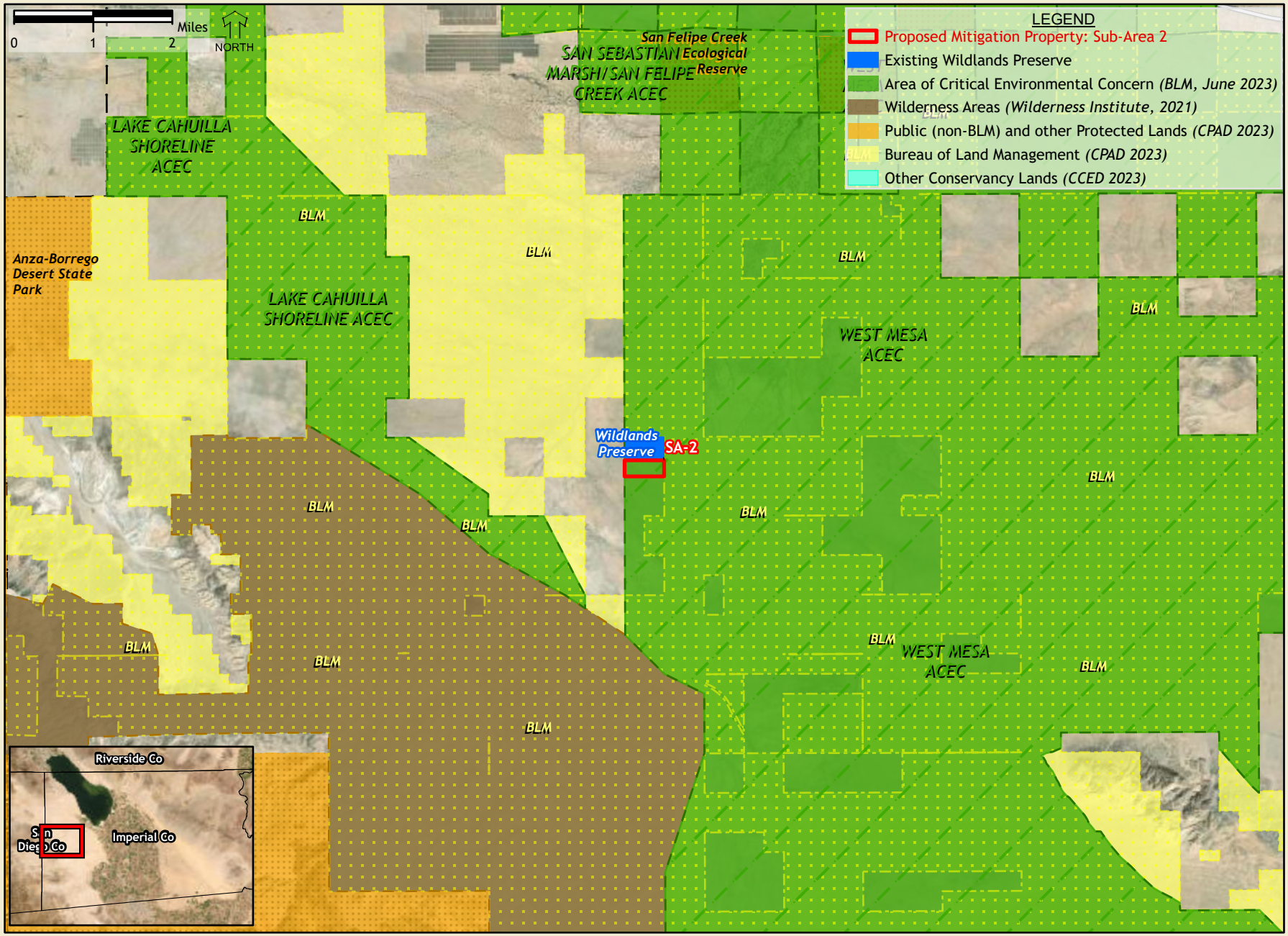

Figure 5b - Areas of Critical Environmental Concern (ACEC), Sub-Area 2
Proposed Mitigation Conservation Analysis

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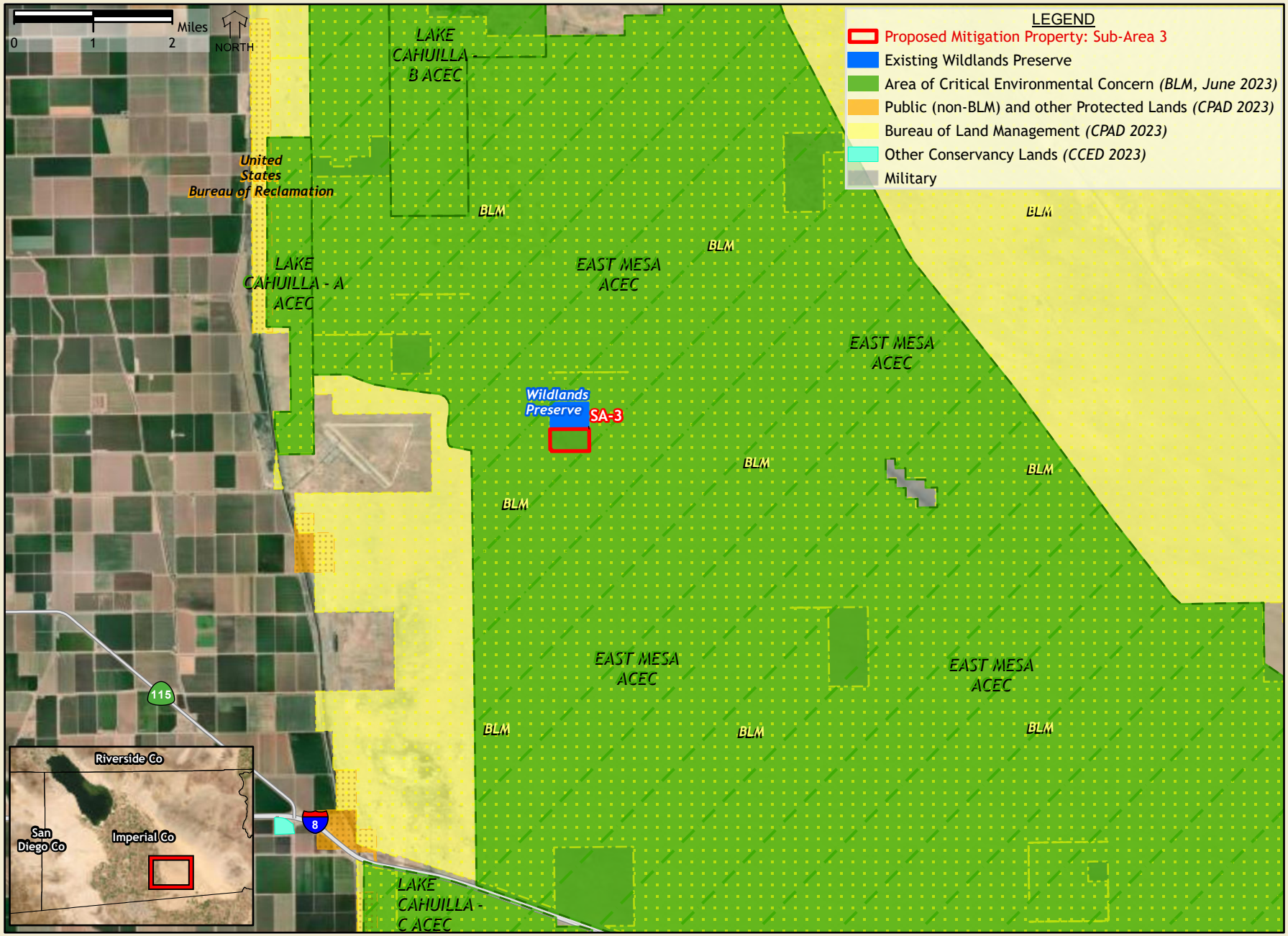

Figure 5c - Areas of Critical Environmental Concern (ACEC), Sub-Area 3
Proposed Mitigation Conservation Analysis

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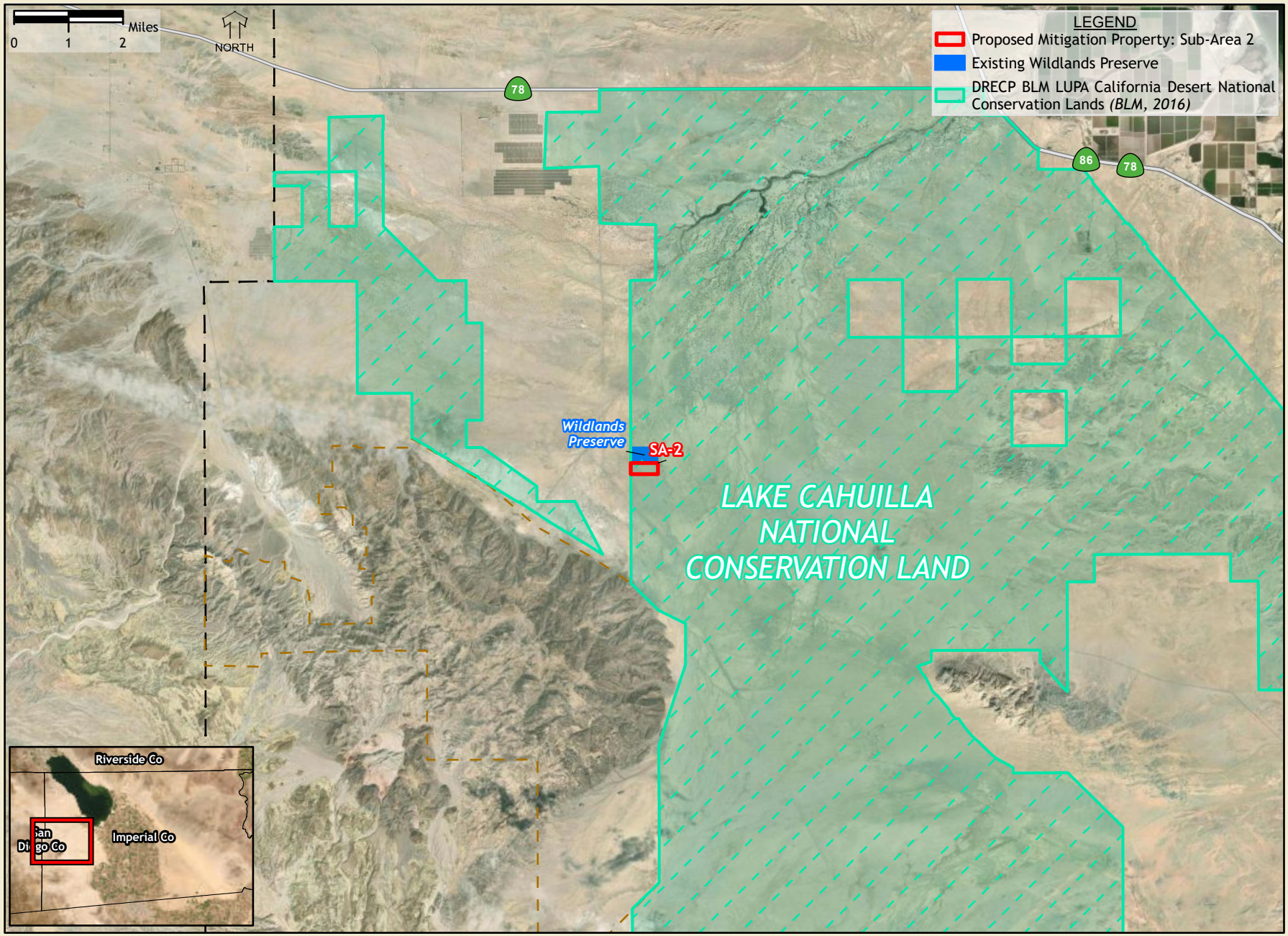

Figure 6a - California Desert National Conservation Lands, Sub-Area 2
Proposed Mitigation Conservation Analysis

WILDLANDS

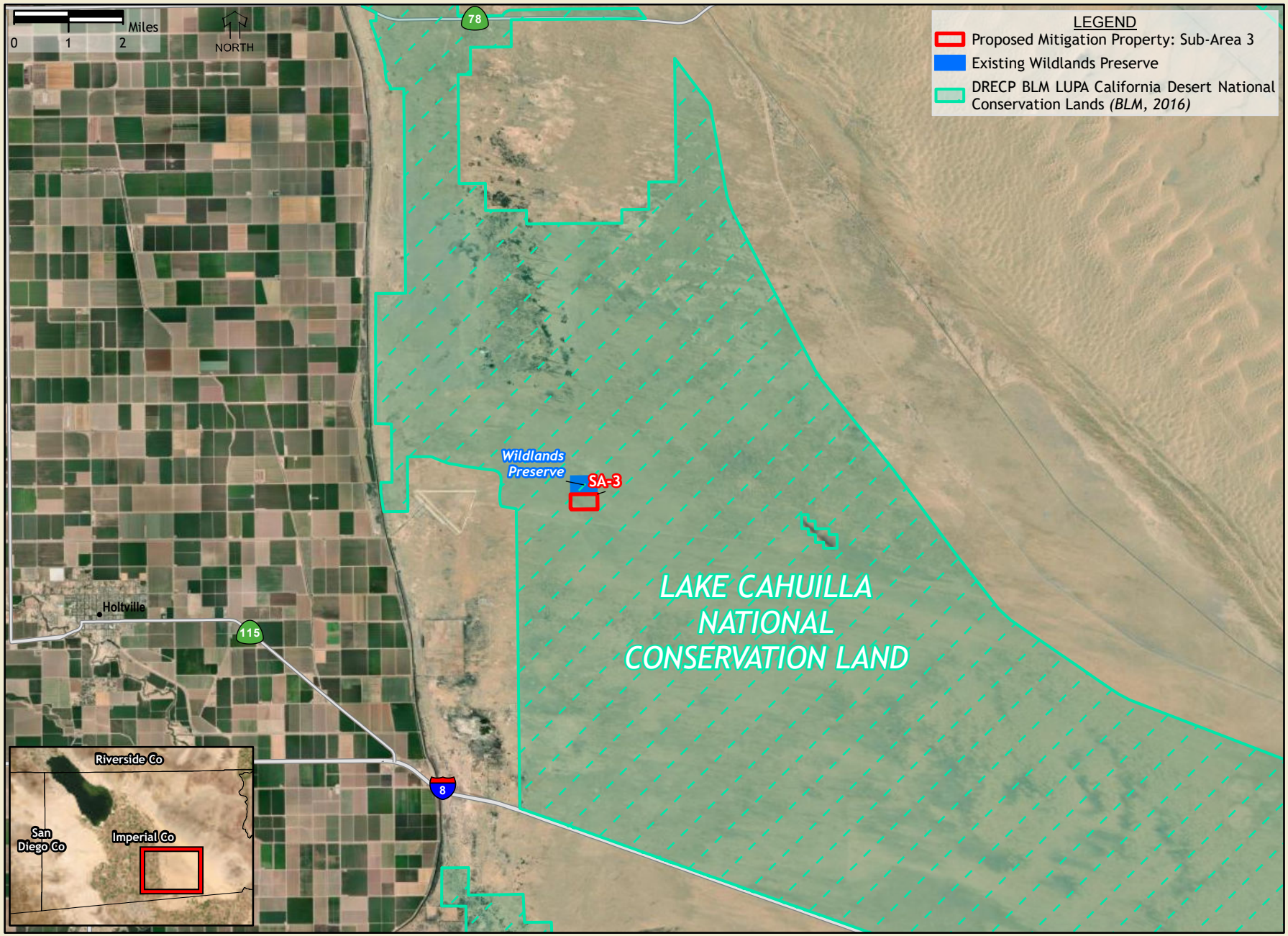

Figure 6b - California Desert National Conservation Lands, Sub-Area 3
Proposed Mitigation Conservation Analysis

WILDLANDS

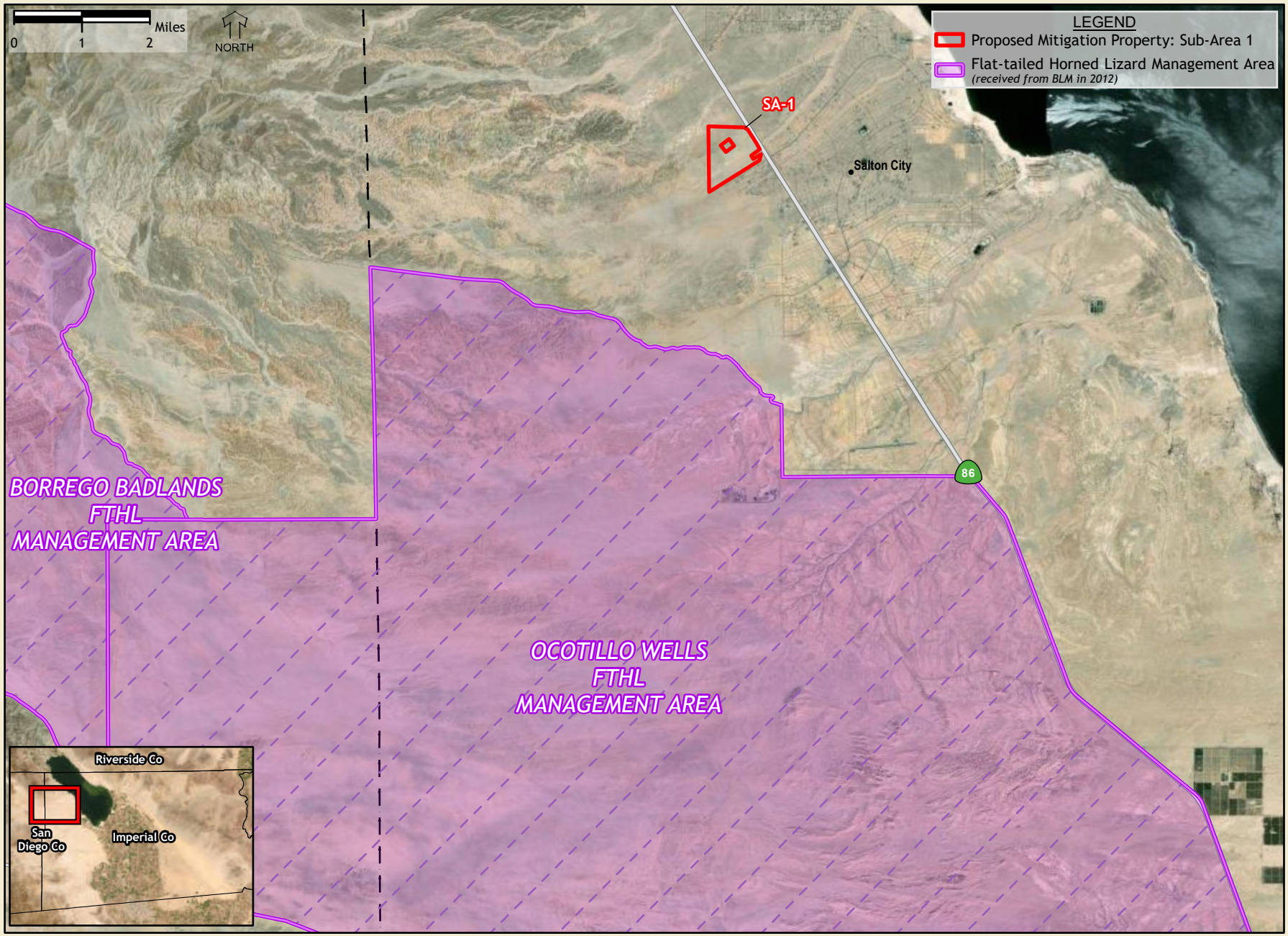

Figure 7a - Flat-tailed Horned Lizard Management Area, Sub-Area 1
Proposed Mitigation Conservation Analysis

WILDLANDS

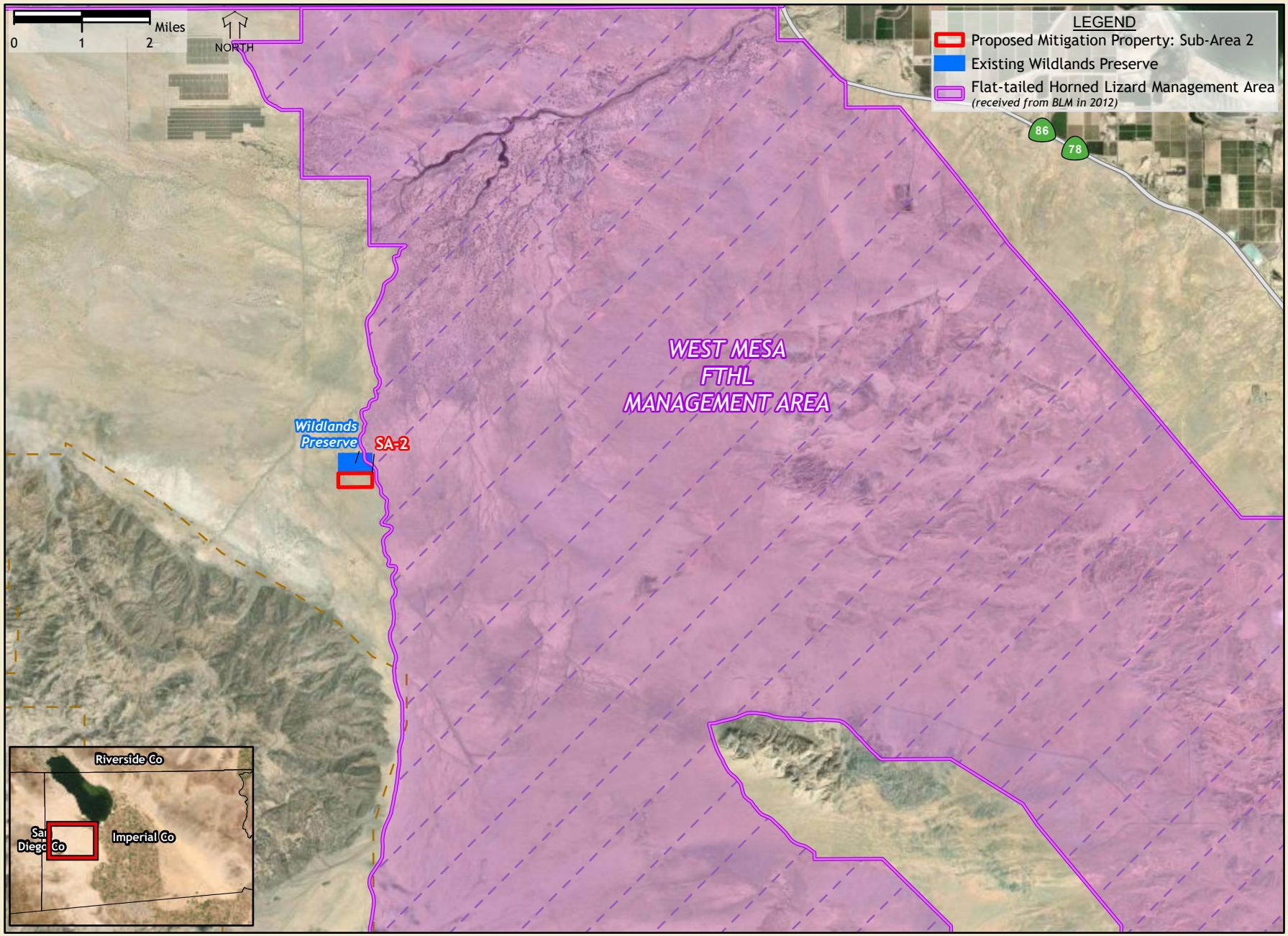

Figure 7b - Flat-tailed Horned Lizard Management Area, Sub-Area 2
Proposed Mitigation Conservation Analysis

WILDLANDS

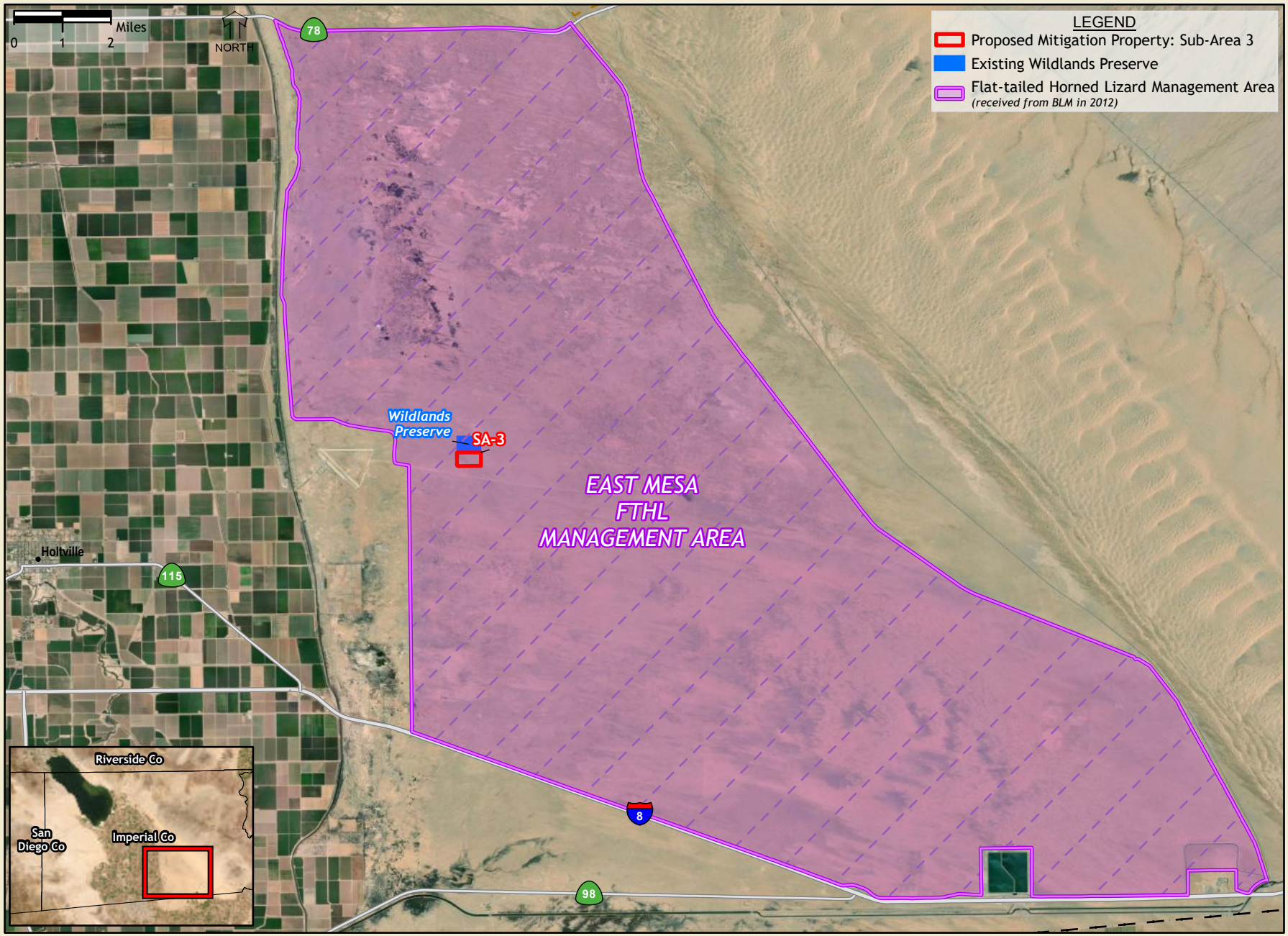

Figure 7c - Flat-tailed Horned Lizard Management Area, Sub-Area 3
Proposed Mitigation Conservation Analysis

WILDLANDS

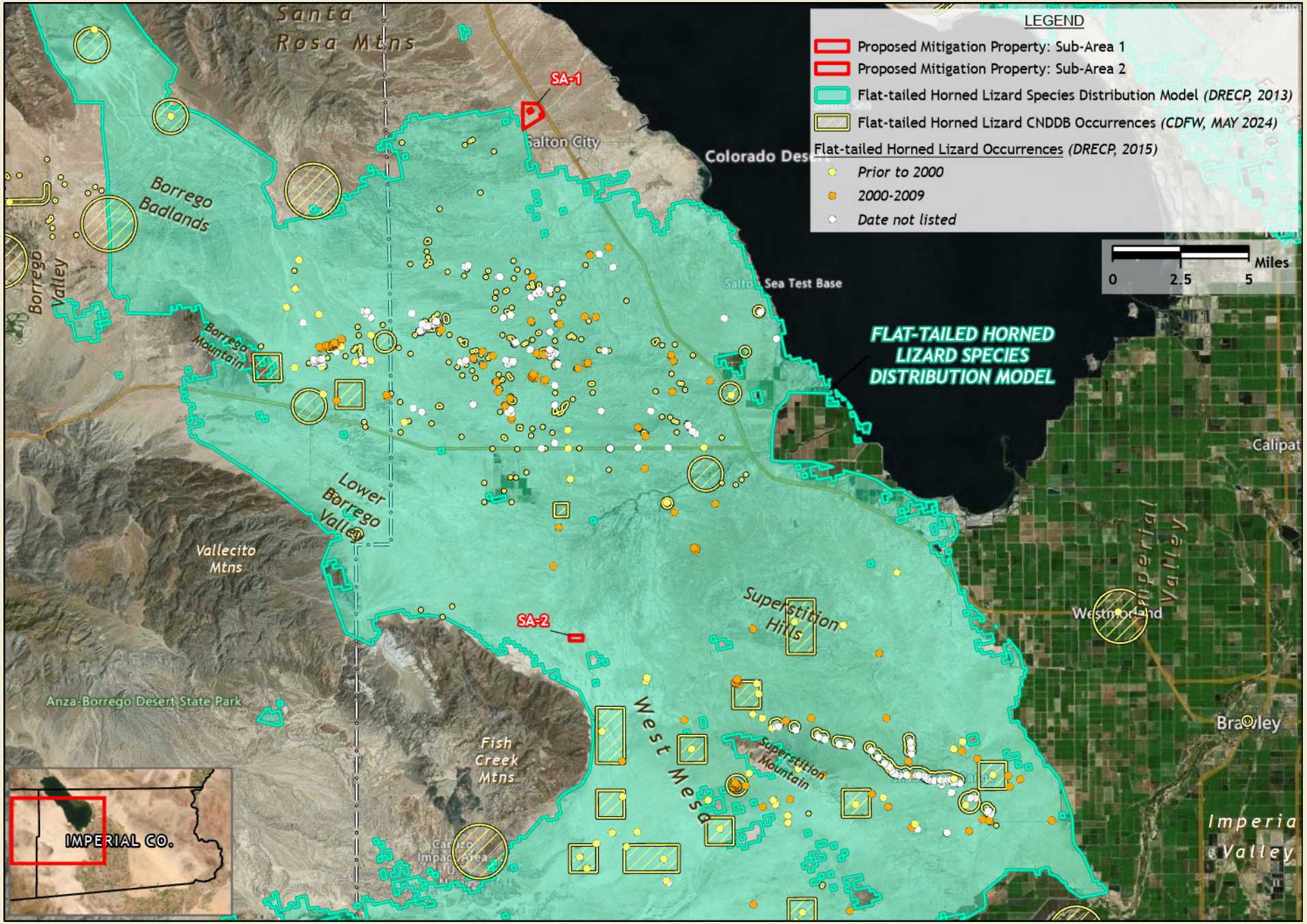

Figure 8a - DRECP Flat-tailed Horned Lizard Distribution Model, Sub-Areas 1 & 2
Proposed Mitigation Conservation Analysis

WILDLANDS

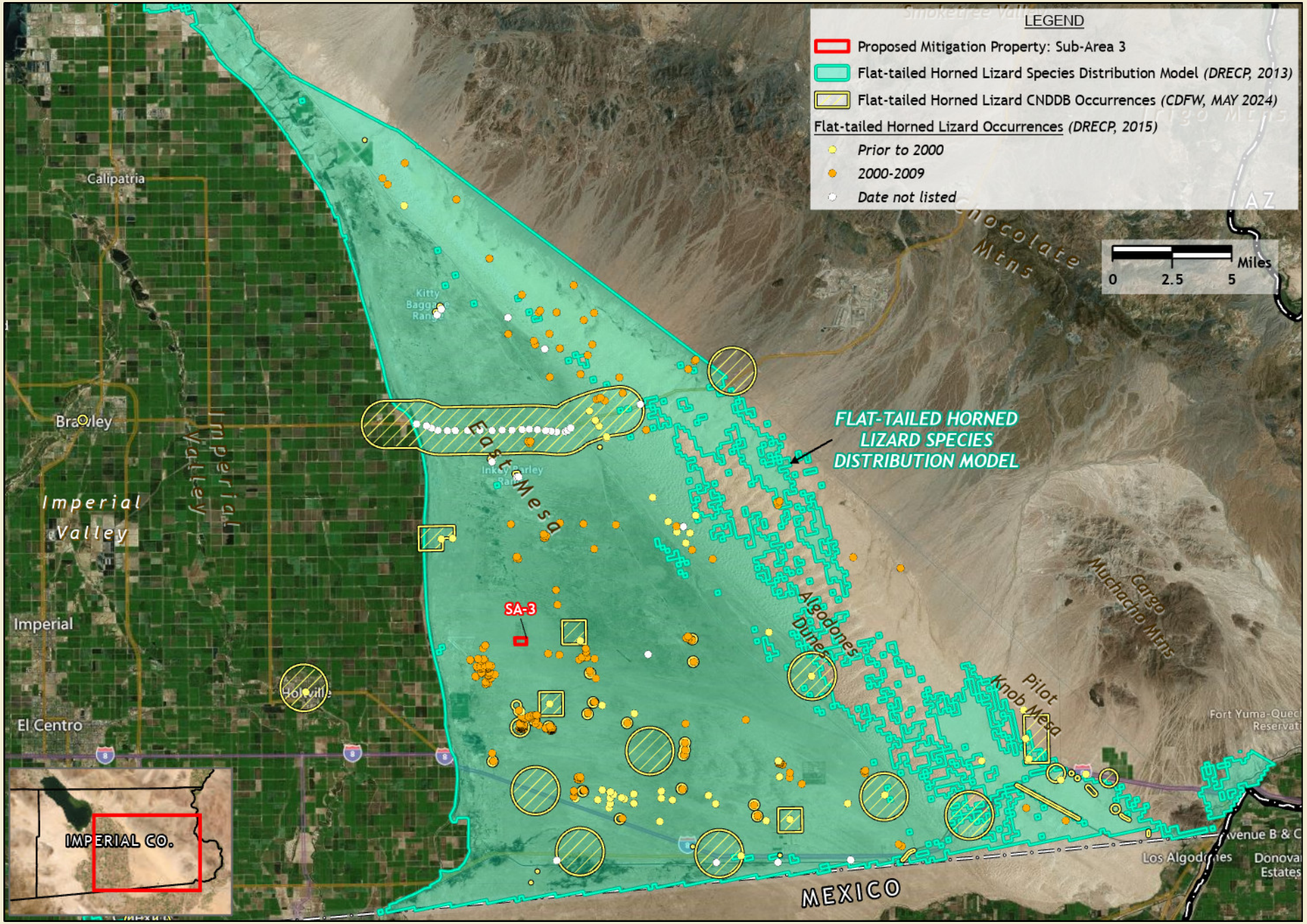

Figure 8b - DRECP Flat-tailed Horned Lizard Distribution Model, Sub-Area 3
Proposed Mitigation Conservation Analysis

WILDLANDS

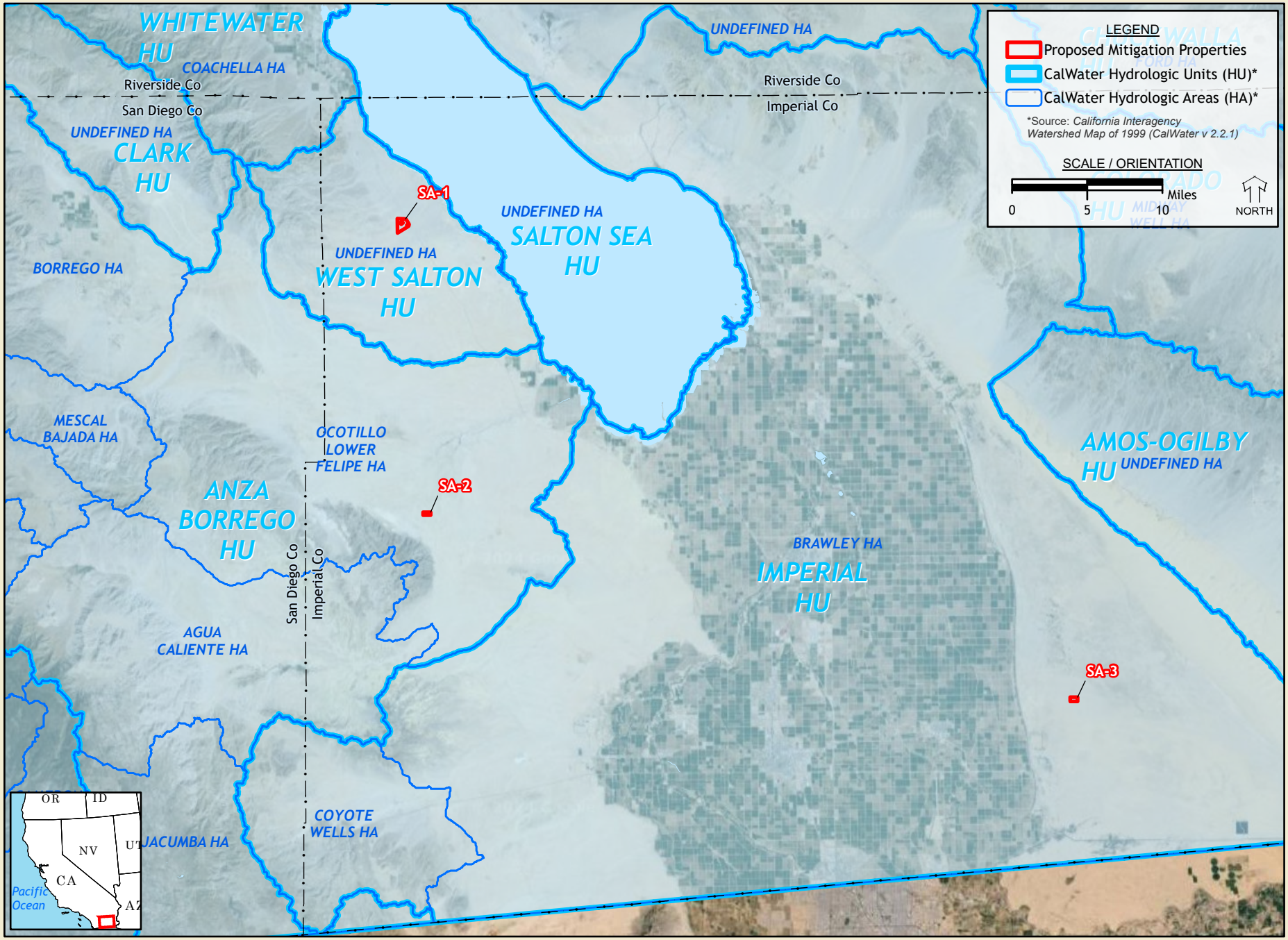

Figure 9 - Watersheds
Proposed Mitigation Conservation Analysis

WILDLANDS

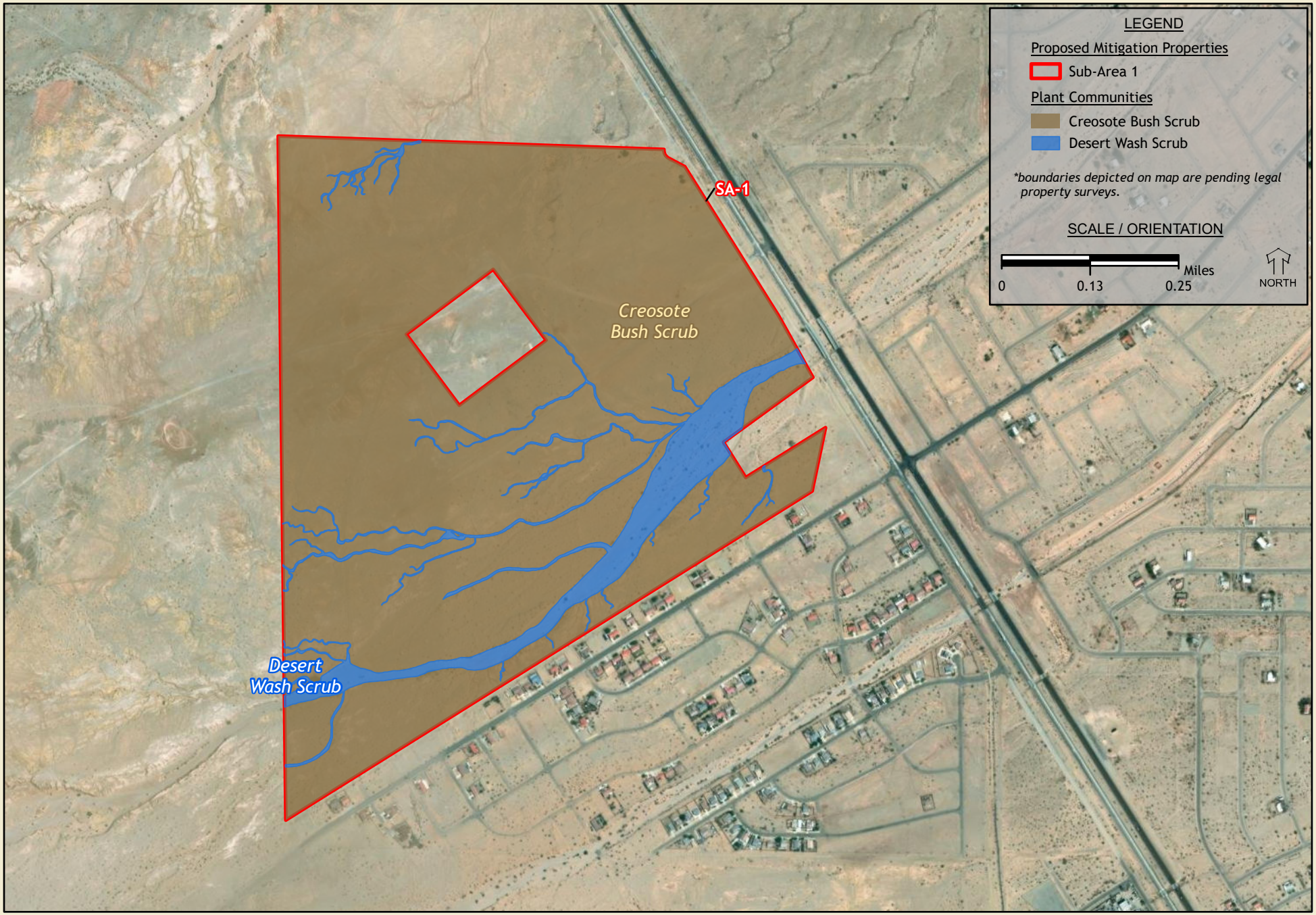

Figure 10a - Plant Communities, Sub-Area 1
Proposed Mitigation Conservation Analysis

WILDLANDS

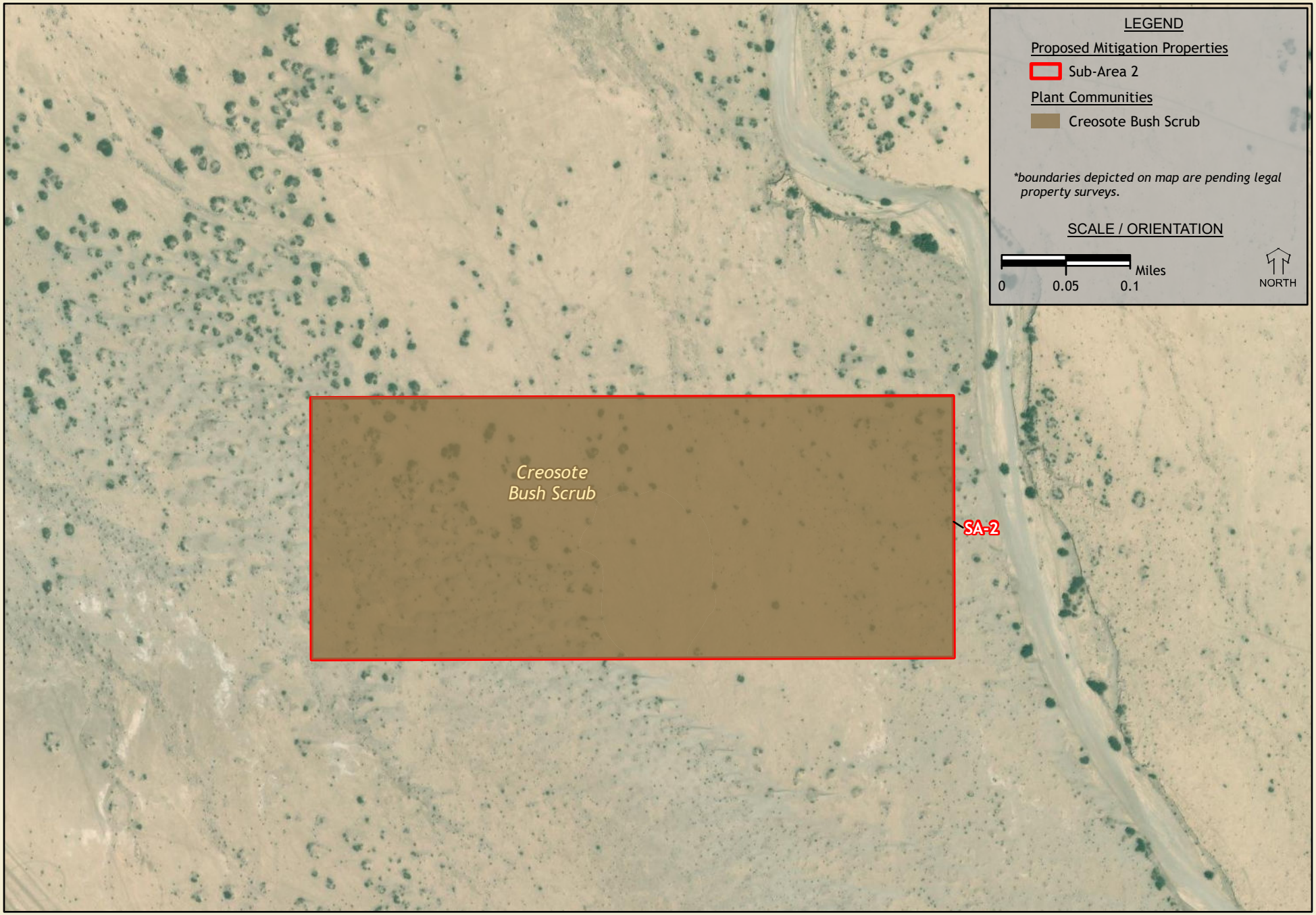

Figure 10b - Plant Communities, Sub-Area 2
Proposed Mitigation Conservation Analysis

WILDLANDS

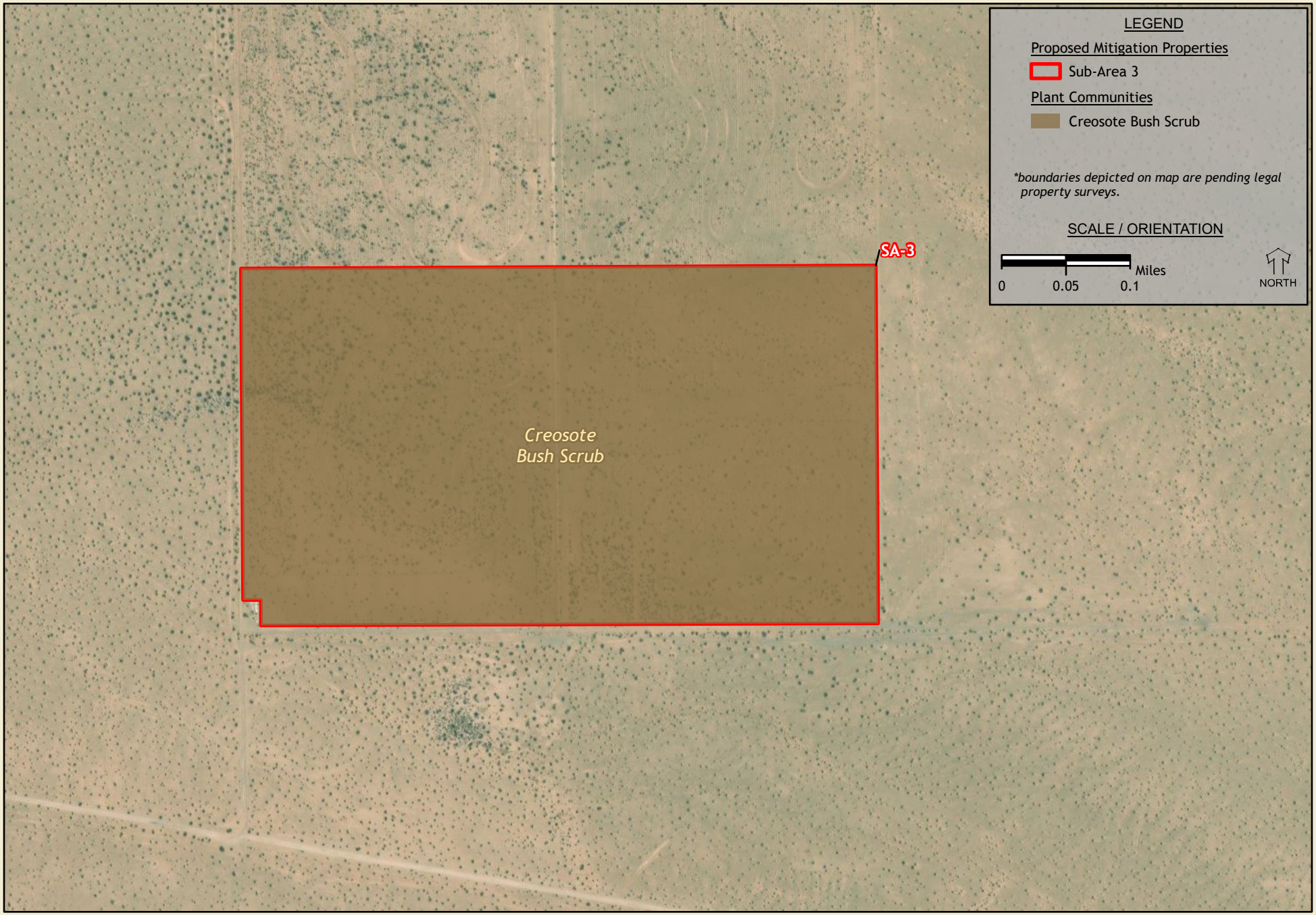

Figure 10c - Plant Communities, Sub-Area 3
Proposed Mitigation Conservation Analysis

WILDLANDS

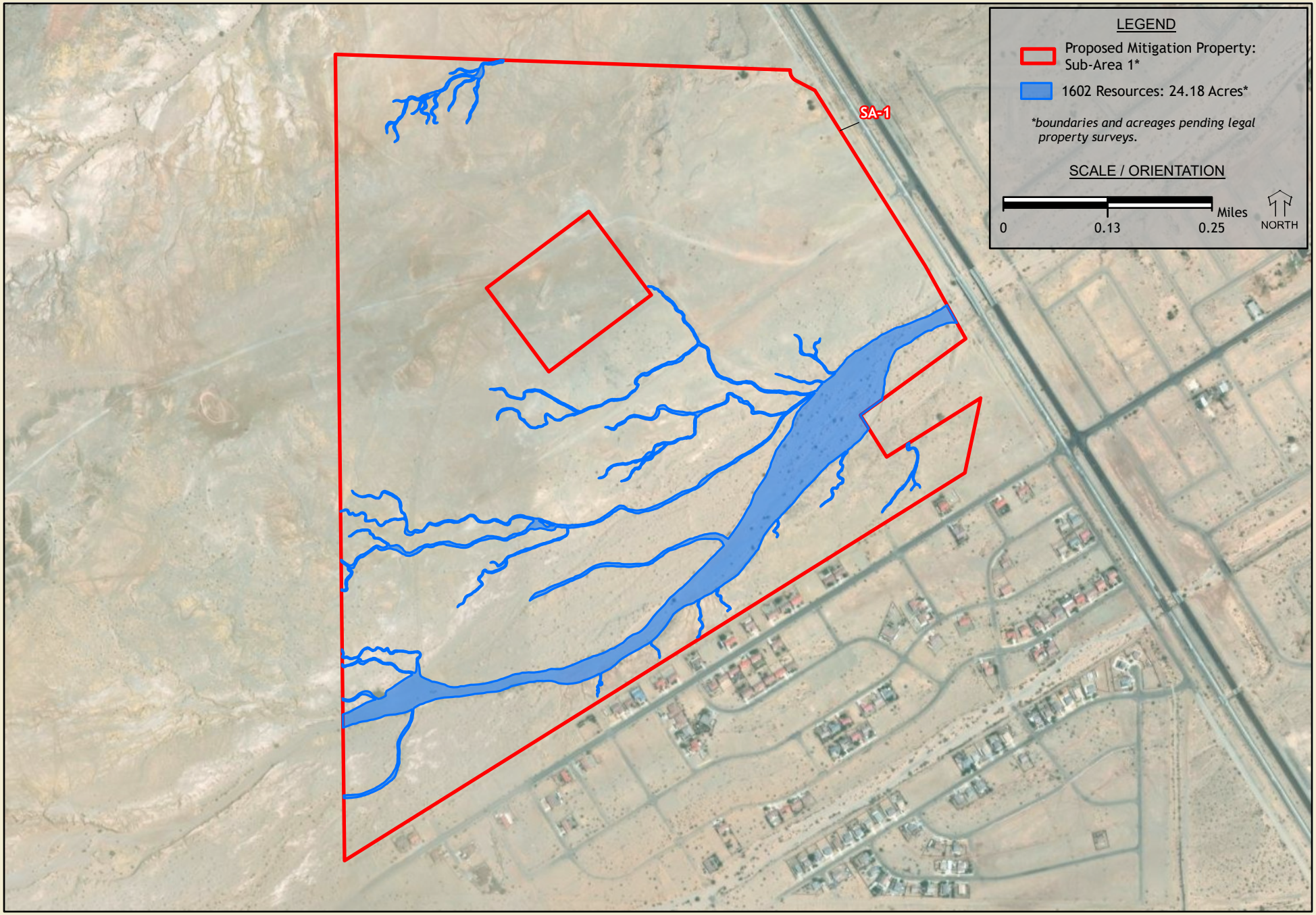

Figure 11 - 1602 Resources, Sub-Area 1
Proposed Mitigation Conservation Analysis

WILDLANDS

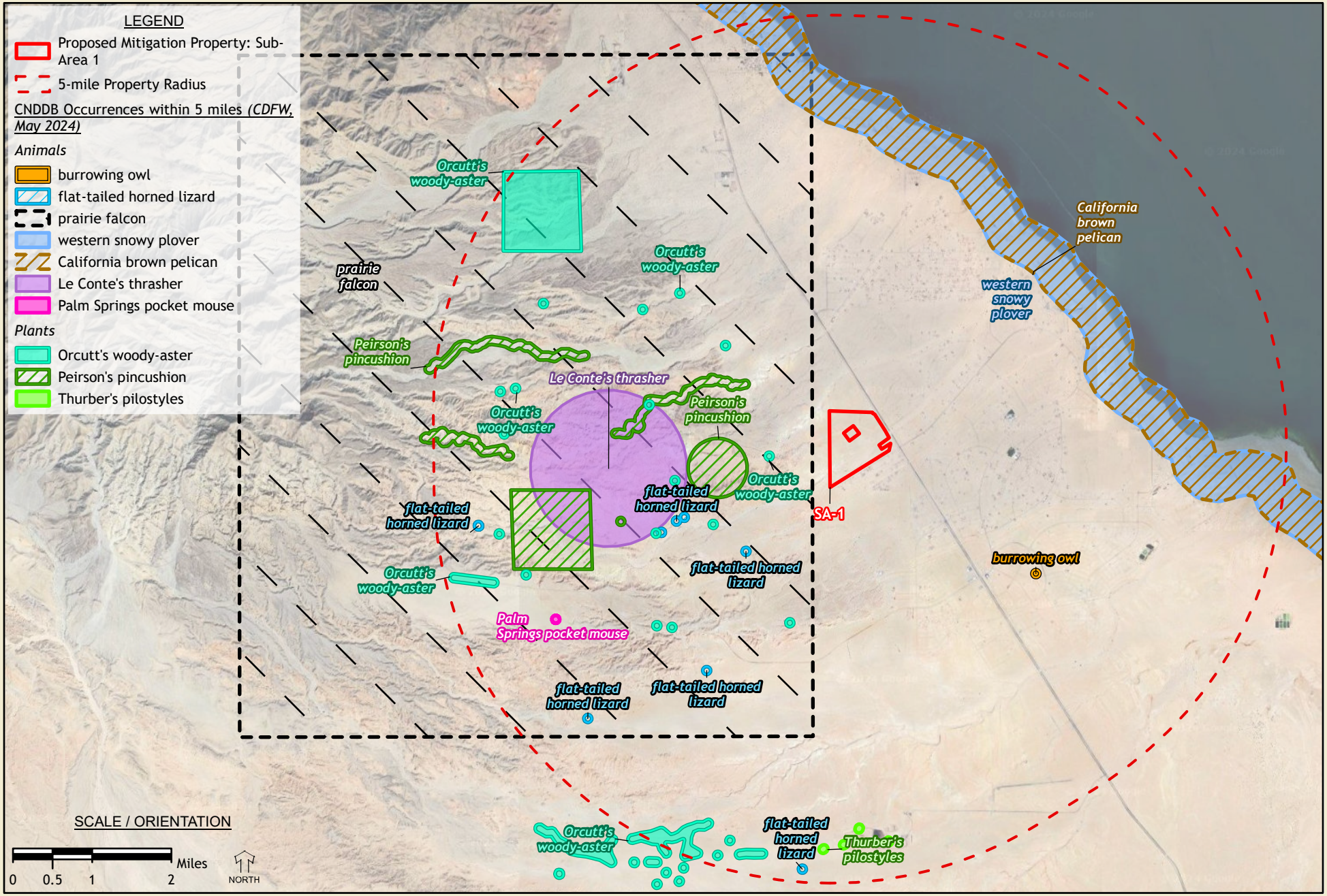

Figure 12a - CNDDB Occurrences, Sub-Area 1
Proposed Mitigation Conservation Analysis

WILDLANDS

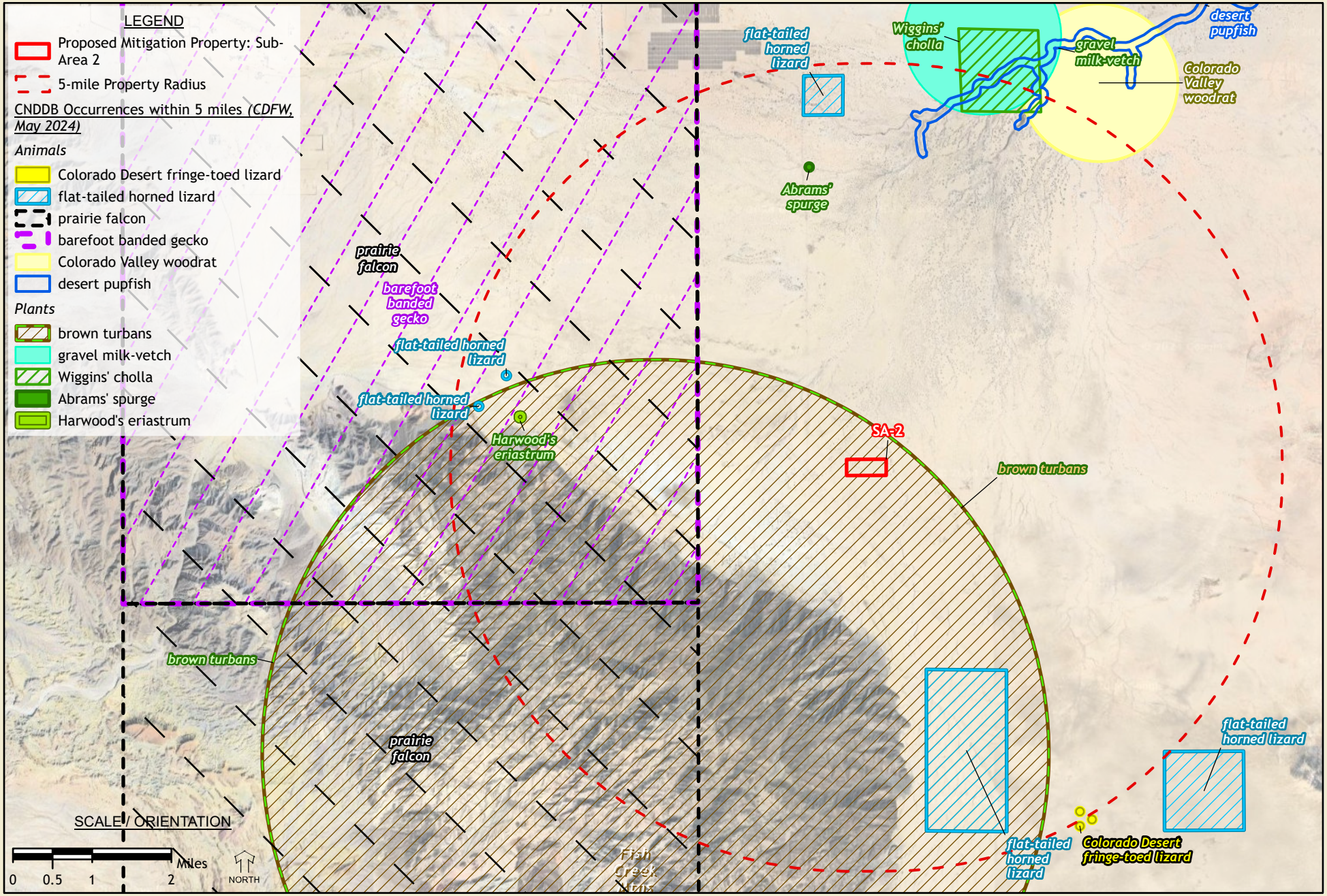

Figure 12b - CNDDB Occurrences, Sub-Area 2
Proposed Mitigation Conservation Analysis

WILDLANDS

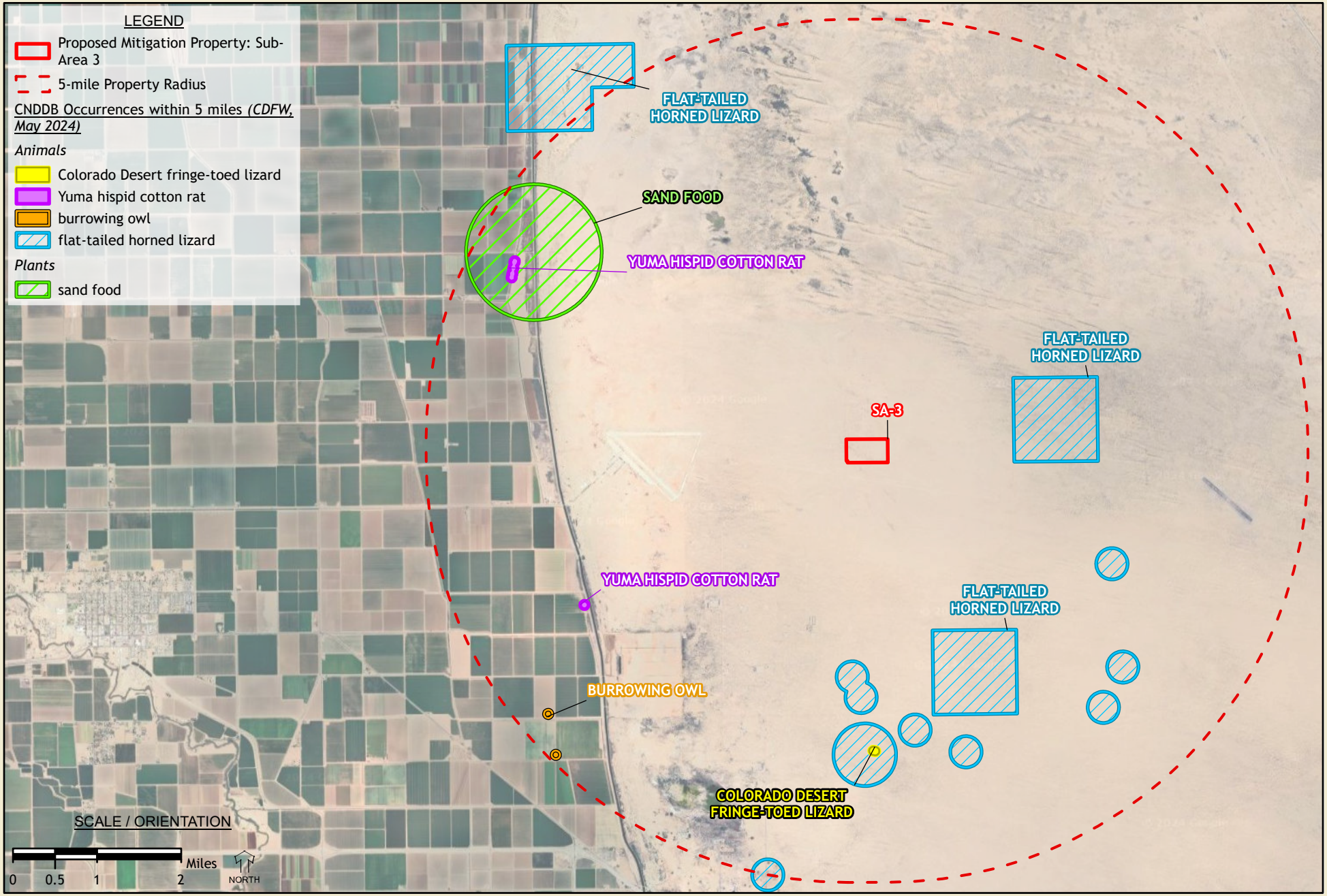

Figure 12c - CNDDB Occurrences, Sub-Area 3
Proposed Mitigation Conservation Analysis

WILDLANDS

Attachment C.10 FTHL Available Mitigation

June 3, 2024

Intersect Power, LLC
9450 SW Gemini Drive PMB #68473
Beaverton, OR 97008-7105
Camille Wasinger
Senior Director, Environmental & Permitting

RE: Available Private Lands Mitigation for Flat-tailed Horned Lizard (*Phrynosoma mcallii*)

Ms. Wasinger,

At the request of Intersect Power, Wildlands performed an evaluation of potentially available private lands that could provide compensatory mitigation for Flat-tailed Horned Lizard (FTHL) and associated vegetation communities, including Creosote Brush Scrub (CBS), and Alkali Golden Desert Scrub (AGDS), for the approximately 6,000-acre Perkins Solar Project. The extent of the search was focused on eastern San Diego and Imperial Counties, throughout the extent of the FTHL range.

Our analysis utilized guidance from the California Department of Fish and Wildlife, Bureau of Land Management, interviews with desert species and habitat experts, as well as our internal land acquisition team. Wildlands utilized available geographic data and various geographically based filters to identify potentially suitable mitigation lands, specifically targeting high priority areas that would contribute to species connectivity, corridors, and continued and improved gene flow for the FTHL.

Wildlands utilized available data, geographically based filters, and regional conservation strategies during this analysis including but was not limited to the California Natural Diversity Database, designated FTHL Management Areas, Desert Renewable Energy Conservation Plan FTHL habitat model, FTHL historic range, and Wildlands reconnaissance and monitoring data. It should be noted that Wildlands currently manages preserves for FTHL in the region.

Wildlands identified large blocks of land with the above analysis that were dominated by CBS, eolian sand dune or partially stabilized sand dune habitat, lands contributing to FTHL habitat connectivity, FTHL corridor linkages, and with suitable or occupied FTHL habitat. Lands that lack intensive recreational use or other disturbances, properties

adjacent to already protected lands, and properties for which long-term management is feasible were prioritized.

Once large blocks of land were identified, Wildlands contact landowners to identify willing sellers. Interested landowners will enter into a purchase and sale agreement with Wildlands, giving Wildlands the legal right to purchase the property.

Upon execution of a purchase and sale agreement, Wildlands will perform thorough property history and title report investigation as well as in-depth on-site biological reconnaissance and species documentation. The duration of the purchase and sale agreement can vary widely, ranging from a few months to a few years based on negotiations with the seller. After the property is accepted by the resource agencies as appropriate to meet project habitat mitigation conditions, Wildlands will acquire and manage the property in accordance with permit conditions.

Project specific performance standards, approval schedules, and details of the habitat management plan are negotiated with the approving agencies post land selection and are largely independent from the initial land identification process. Once specific properties are selected and deemed biologically suitable, these due diligence will be available.

Based on the information above it is Wildlands' conclusion that suitable FTHL and CBS compensatory mitigation land is available to compensate for the impacts of the Perkins Solar Project, including impacts to CBS, AGDS and California jurisdictional waters of the state.

If you have any questions or concerns, please feel free to contact me.

Sincerely,

Jacob Robinson
Wildlands - Director of Conservation Biology
(916) 435-3555
jrobinson@heronpacific.com

Attachment C.11 4.2-4 Updated Perkins Opt-in Application Table

Opt-in Application Updated Table 4.2-4

Table 4.2-4 Special Status Wildlife Species with Potential to Occur in the Project Vicinity

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Invertebrates				
Western bumble bee *Bombus occidentalis*	SCE	Inhabits grasslands, shrublands, and urban grassy areas. Widely distributed throughout the western United States and Canada.	Moderate across Project Application Area	Not observed. Nearest CNDDB record is 22 miles from Project site.
Crotch's bumble bee *Bombus crotchii*	SCE	Inhabits grasslands and shrublands. Primarily occurs in California but range extends into Baja Mexico and Nevada.	Moderate across Project Application Area	Not observed. Nearest CNDDB record of observation 29 miles from Project site near the town of Brawley from 1948.
Monarch butterfly *Danaus plexippus (overwintering population)*	FCT	Winter roosts are located in wind-protected tree groves with nectar and water sources nearby. Forage on milkweed (*Asclepias* spp.) and use them as larval hosts.	Overwintering – low Foraging - moderate	Nearest record of observation 108 miles from Project site in 2014 (CNDDB). May forage on milkweed that occur in the Project site. Roost habitat not present onsite. Forage/larval habitat (milkweed) occurs onsite.

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Reptiles				
Flat-tailed horned lizard *Phrynosoma mccalli*	SSC BLM-S	Typical habitat is sandy desert hardpan or gravel flats with scattered sparse vegetation of low species diversity. Most common in areas with a high density of harvester ants and fine windblown sand but rarely occurs on dunes. The historic range of this lizard is throughout most of the Colorado desert from the Coachella Valley south through the Imperial Valley and west into the Anza-Borrego desert, south to extreme NE Baja California, extreme SW Arizona, and NW Sonora, Mexico.	**Present** Suitable habitat across Project Application Area	One hundred live individuals observed on the Project site during surveys.
Colorado desert fringe-toed lizard *Uma notata*	SSC BLM-S	Inhabits sparsely vegetated arid areas with fine wind-blown sand, including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Needs fine, loose sand for burrowing. Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta, and on into extreme northeastern Baja California. Ranges west as far as the east base of Borrego Mountain.	**Present** Suitable habitat only on Project site	One individual was observed on the Project site. Habitat on site is suitable for Colorado Desert fringe-toed lizards.
Birds				
Western burrowing owl *Athene cunicularia hypugaea*	SSC BLM-S BCC FOC	Typically found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nesters that are dependent upon burrows made by other animals for nest shelters.	**Present** Suitable habitat in Project Application Area	Five live individuals and nine active burrows observed on Project site during surveys.

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Swainson's hawk *Buteo swainsoni*	ST BLM-S (nesting) FOC	Require large areas of open landscape for foraging, including grasslands and agricultural lands that provide low-growing vegetation for hunting and high rodent prey populations. Swainson's hawks typically nest in large native trees such as valley oak, cottonwood, walnut, and willow, and occasionally in non-native trees such as eucalyptus within riparian woodlands, roadside trees, trees along field borders, isolated trees, small groves, and on the edges of remnant oak woodlands.	**Present (flyover)** Forage habitat in Project Application Area Nesting – low	Two observations of flyovers were documented during surveys. No nests were observed. There are no CNDDB records in Imperial County, but historical observation from 1978 in Imperial County (eBird, n.d.).
Northern harrier *Circus hudsonius*	SSC BCC (nesting)	This species does not commonly breed in desert regions of California, where suitable habitat is limited, but winters broadly throughout California in areas with suitable habitat. Northern harriers forage in open habitats including deserts, pasturelands, grasslands, and old fields.	Nesting – low Wintering or Migration – moderate in Project Application Area	Not observed. No CNDDB observations in Imperial County, but observations recorded recently in Salton Sea National Wildlife Refuge (eBird, n.d.).
Southwestern willow flycatcher *Empidonax traillii extimus*	SE FE	Found primarily in dense riparian habitats with cottonwood/willow and tamarisk vegetation and microclimatic conditions that are dictated by local surroundings. Saturated soils, standing water, or nearby streams, pools, or cienegas are an important component of nesting habitat.	Nesting – Low Migration – moderate	Nearest record 34 miles from the Project site in 2004 (CNDDB). Not observed in Project site during surveys. No suitable nesting habitat present onsite. Project site may be used for foraging during migration.

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Prairie falcon *Falco mexicanus*	WL (nesting)	Occurs in annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Typically nests cliffs and bluffs.	Nesting – low Foraging – moderate in Project Application Area	Not observed. Nearest CNDDB record approximately 30 miles east of Project site and observed 35 miles east of Project Application Area in Winterhaven in 2021 (eBird, n.d.).
American peregrine falcon *Falco peregrinus anatum*	~~CFP~~ CDF-S (nesting)	Rare in the arid southwest, occur and are suspected to breed in the lower Colorado River Valley. Peregrine falcons require open habitat for foraging and prefer breeding sites near water. Nesting habitat includes cliffs, steep banks, dunes, mounds, and some human-made structures.	Nesting – low Foraging – moderate in Project Application Area	Not observed. No CNDDB records in Imperial County but observed east of the Project Application Area, at Brock Research Center, in 2011 (eBird, n.d.).
Loggerhead shrike (Nesting) *Lanius ludovicianus*	SSC (nesting)	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats.	**Present** Foraging in Project Application Area	Eleven observations on Project site during surveys. No nests were observed.

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Black-tailed gnatcatcher *Polioptila melanura*	WL	A year-round resident in southwestern United States and central and northern Mexico. In California, the black-tailed gnatcatcher is found in the southeast desert wash habitat from Palm Springs and Joshua Tree National Park south and along the Colorado River. It is now rare in eastern Mojave Desert north to the Amargosa River, Inyo County. This species nests primarily in wooded desert wash habitat but also occurs in creosote scrub habitat during the non-breeding season.	**Present** Foraging in Project Application Area Nesting – moderate across Project Application Area	Eight observations recorded on the Project site during surveys
California black rail *Laterallus jamaicensis coturniculus*	ST CFP BLM-S	Small populations occur in the freshwater marshes of the Colorado River.	Moderate within BAAH and loop-in corridor, along All-American Canal Nesting – low	Not observed. Occupied habitat in freshwater marsh east of loop-in transmission corridor. They may fly over the Project site, but no nesting or foraging habitat exists within the Project site.
Ridgway's (Yuma Ridgway's) rail *Rallus obsoletus yumanensis*	SE CFP FE	In California, nests in freshwater marshes and wetlands along the lower Colorado River, the Coachella Canal, the Imperial Valley, and the upper end of the Salton Sea at the Whitewater River delta and Salt Creek.	Moderate within BAAH and loop-in corridor, along All-American Canal Nesting – low	Not observed. Occupied habitat in freshwater marsh east of transmission line corridor. They may fly over the Project site, but no nesting or foraging habitat exists within the Project site.

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Bank swallow *Riparia riparia*	ST BLM-S (nesting)	A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring–fall period. Uses holes dug in cliffs and riverbanks for cover. Will also roost on logs, shoreline vegetation, and telephone wires.	Nesting – low Migration – moderate within BAAH and loop-in corridor, along All-American Canal	Not observed. No CNDDB records in Imperial County, but observed in the Salton Sea in 2023 (eBird, n.d.). No suitable nesting habitat.
Bats				
Pallid bat	BLM-S	Roost in rock crevices and caves, mines, rock piles, and tree cavities. Forage for prey over open ground in grassland, shrub-steppe, and dry forest ecotones. Foraging habitat occurs onsite; roosting habitat may be available in tree cavities in adjacent desert dry wash woodlands.	Roosting – low Foraging – moderate	Not observed, but potentially detected in acoustic surveys. Nearest record is approximately 20 miles from the Project site.
California leaf-nosed bat	SSC BLM-S	Occurs in Sonoran and Mojave desert scrub. Uses buildings and bridges as night roosts, but depend on mines or caves for roosting and overwintering. Forage in vegetation along dry washes and in vegetated areas. No suitable roosting habitat occurs onsite, but foraging habitat is present in the form of adjacent dry wash woodlands and other vegetated areas onsite.	Roosting - low Foraging – **present**	Not observed, but detected in acoustic surveys. Nearest record is approximately 17 miles from the Project site.
Arizona myotis	SSC	Predominately found in Sonoran desert scrub with creosote bush, brittlebush, palo verde, and cacti. Roosts in caves, tunnels, mine shafts, under bridges, and sometimes in buildings within a few miles of water. No suitable roosting habitat occurs onsite, but foraging habitat is present in the form of adjacent desert dry wash woodlands.	Roosting – none Foraging – low	Not observed. There is one record in Imperial County from 1910 and is typically only confirmed if observed or with genetic sampling. Likelihood of occurrence is low.

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Yuma myotis	BLM-S	Prefers to inhabit cliffs and rocky walls, buildings, and abandoned cliff swallow mud nests; rarely roosts in caves or mines. Forages on insects in proximity to standing water. No suitable roosting habitat occurs onsite, but suitable foraging habitat occurs in the adjacent desert dry wash woodlands.	Roosting – none Foraging – moderate	Not observed, but potentially detected in acoustic surveys. Nearest record is approximately 35 miles from Project site.
Cave myotis	BLM-S	Found in desert scrub, desert succulent shrub, desert wash, and desert riparian habitats. Tend to forage near riparian vegetation. Roosts in caves and mines and occasionally buildings in the summer. No suitable roosting habitat occurs onsite, but foraging habitat is present in the adjacent desert dry wash woodland areas.	Roosting – none Foraging – moderate	Not observed, but potentially detected in acoustic surveys. Nearest record is approximately 20 miles from the Project site.
Western yellow bat *Lasiurus xanthinus*	SSC WBWG-H	Found in arid regions in riparian, desert riparian, desert wash, and palm oasis habitats. Roosts and feeds in palm oases and riparian habitats. Roosts primarily in trees in riparian habitats. Suitable foraging and roosting habitat is available in the desert dry wash woodlands adjacent to the Project site.	Roosting – low Foraging – moderate	Not observed or detected in acoustic surveys. Nearest record of western yellow bat 10 miles from the Project site.
Mammals				
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	SSC	Occur along the Colorado River, in grass and agricultural areas near irrigation waters, and wetlands and uplands with dense grass and herbaceous plants.	Moderate within BAAH and loop-in corridor, along All-American Canal	Occurrences are located near the freshwater marsh habitat associated with the All-American Canal within the loop-in corridor of the Project site.

Species name	Status [a]	Habitat requirements	Potential to occur	Regional occurrence records
Burro deer *Odocoileus hemionus eremicus*	CPGS FOC	Occur in early to intermediate successional stages of most forest, woodland, and brush habitats. Prefer a mosaic of various-aged vegetation that provides woody cover, meadow and shrubby openings, and free water.	High across Project Application Area	No live individuals detected. Scat, tracks, and carcass observed during surveys. Burro deer may use site to access All-American Canal.
American badger *Taxidea taxus*	SSC	Suitable habitat for badgers is characterized by herbaceous, shrub, and open stages of most habitats with dry, friable soils.	Moderate in Project site	No individuals or sign observed on site; suitable habitat is present.
Desert kit fox *Vulpes macrotis*	~~FE~~ ~~ST~~ FOC	Lives in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Cover provided by dens they dig in open, level areas with loose-textured, sandy, and loamy soils.	Present in Project site	No live individuals detected. One active burrow and multiple inactive burrows were observed during surveys.

Notes

[a] Conservation Status:

Federal

FE = Federally listed as endangered: species in danger of extinction throughout a significant portion of its range

FT = Federally listed as threatened: species likely to become endangered within the foreseeable future

FCT = Proposed for federal listing as a threatened species

BCC = Fish and Wildlife Service: Birds of Conservation Concern

FSS = United States Forest Service Sensitive

State

SSC = State Species of Special Concern

CFP = California listed as Fully Protected

SE = State listed as endangered

ST = State listed as threatened

SCE = State candidate for endangered listing

WL = State watch list

CPF = California Protected Furbearing Mammal

CPGS = California Protected Game Species

CDF-S = California Department of Forestry and Fire Protection Sensitive

Bureau of Land Management

BLM-S = BLM sensitive

FOC = DRECP Focus and Planning Species

Western Bat Working Group (WBWG)

H = Imperiled or at high risk of imperilment

M = Warrant closer evaluation, more research, and conservation actions

L = Most of the existing data support stable populations

**Species not detected during surveys may have the potential to occur in the Project Application Area in the future

Attachment D Imperial County Response to Public Record Request

Gmail

Jennifer Savois <jenna.savois@panoramaenv.com>

Request for Public Records - Perkins Renewable Energy Project

9 messages

Jennifer Savois <jenna.savois@panoramaenv.com> Tue, May 28, 2024 at 9:11 PM
To: planninginfo@co.imperial.ca.us
Cc: Emily Capello <emily.capello@panoramaenv.com>

Hello,

We are submitting on behalf of Intersect Power for a request for public records in relation to the Perkins Renewable Energy Project (formerly East Mesa), an approximately 1,150 MW solar photovoltaic and battery energy storage facility in Imperial County east of El Centro, California. I have attached the Request for Public Records form with additional details. The project was submitted to the California Energy Commission (CEC) for the Opt-in review process February 2024 where additional project information can be found, including the site plan. The docket log on the CEC's website can be found here.
The first request from the CEC is to include zone changes and/or general plan amendments that may have occurred that were not associated with infrastructure projects within a 6-mile radius of the Project. The second request was to identify any projects with discretionary reviews within the past 18 months that were not specifically associated with infrastructure projects. We were not able to locate this information on the website and are requesting a list of such zone changes, amendments, or discretionary reviews not associated with infrastructure projects within 6 miles of the Project be provided. I have attached a KMZ to assist with Project location.

Please reach out if you need any additional information. Thank you for your time.

Jenna Savois, Project Manager/Environmental Planner
Panorama Environmental, Inc.

717 Market Street, Suite 400

San Francisco, CA 94103

www.panoramaenv.com

2 attachments

2024-5-28-Perkins_request-for-public-records-Imperial.pdf
220K

2023-11-21 Perkins Site Plan (1).kmz
163K

Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us> Tue, Jun 4, 2024 at 8:30 AM
To: Jennifer Savois <jenna.savois@panoramaenv.com>, planninginfo <planninginfo@co.imperial.ca.us>
Cc: Emily Capello <emily.capello@panoramaenv.com>

Good morning,

This is to confirm we have received your request.

Thank you,

Laryssa Alvarado

Administrative Secretary

Imperial County Planning & Development Services

801 Main Street

El Centro, CA 92243

laryssaalvarado@co.imperial.ca.us

From: Jennifer Savois <jenna.savois@panoramaenv.com>
Sent: Tuesday, May 28, 2024 9:11 PM
To: planninginfo <planninginfo@co.imperial.ca.us>
Cc: Emily Capello <emily.capello@panoramaenv.com>
Subject: Request for Public Records - Perkins Renewable Energy Project

[Quoted text hidden]

Jennifer Savois <jenna.savois@panoramaenv.com> Mon, Jun 10, 2024 at 3:55 PM
To: Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us>
Cc: planninginfo <planninginfo@co.imperial.ca.us>, Emily Capello <emily.capello@panoramaenv.com>

Hi Laryssa,

Thank you for the follow-up. I have been out of the office but wanted to ask if you have an idea as to timing of the response?

Respectfully,

Jenna Savois, Project Manager/Environmental Planner
Panorama Environmental, Inc.

717 Market Street, Suite 400

San Francisco, CA 94103

www.panoramaenv.com

[Quoted text hidden]

Jennifer Savois <jenna.savois@panoramaenv.com> Tue, Jul 9, 2024 at 8:28 PM
To: Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us>
Cc: planninginfo <planninginfo@co.imperial.ca.us>, Emily Capello <emily.capello@panoramaenv.com>

Hi Laryssa,

I am just following up on this request. Hoping to receive an answer in the next few days to meet our deadline.

Thank you,

Jenna Savois, Project Manager/Environmental Planner
Panorama Environmental, Inc.

717 Market Street, Suite 400

San Francisco, CA 94103

www.panoramaenv.com

[Quoted text hidden]

Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us> Tue, Jul 16, 2024 at 8:17 AM
To: Jennifer Savois <jenna.savois@panoramaenv.com>
Cc: Emily Capello <emily.capello@panoramaenv.com>, Evelia Jimenez <EJimenez@co.imperial.ca.us>, Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us>

Hi Jennifer,

Sorry for the delayed reply. A planner hadn't been assigned to this request however, it has now been assigned to Evelia Jimenez. I will CC her in this email.

[Quoted text hidden]

Jennifer Savois <jenna.savois@panoramaenv.com> Tue, Jul 16, 2024 at 9:29 AM
To: Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us>
Cc: Emily Capello <emily.capello@panoramaenv.com>, Evelia Jimenez <EJimenez@co.imperial.ca.us>, Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us>

Thank you, Laryssa.

Hi Evelia,

When you get the chance, can you let us know how long you anticipate the review taking? We originally were hoping to have this back in time for a response back to the CEC last week, but it did get pushed to this week.

Jenna Savois, Project Manager/Environmental Planner
Panorama Environmental, Inc.

717 Market Street, Suite 400

San Francisco, CA 94103

www.panoramaenv.com

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Jennifer Savois <jenna.savois@panoramaenv.com> Fri, Jul 26, 2024 at 8:35 AM
To: Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us>
Cc: Emily Capello <emily.capello@panoramaenv.com>, Evelia Jimenez <EJimenez@co.imperial.ca.us>, Laryssa Alvarado <laryssaalvarado@co.imperial.ca.us>

Good morning Evelia,

I am just checking to see if there is a timeline for turn around of the review.

Thank you,

Jenna Savois, Project Manager/Environmental Planner
Panorama Environmental, Inc.

717 Market Street, Suite 400

San Francisco, CA 94103

www.panoramaenv.com

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Evelia Jimenez <EJimenez@co.imperial.ca.us> Mon, Jul 29, 2024 at 8:41 AM
To: Jennifer Savois <jenna.savois@panoramaenv.com>
Cc: Emily Capello <emily.capello@panoramaenv.com>

Good Morning Jennifer,

I apologize for the late response, however, the request is to seek any proposed zone changes, general plan amendments within a six (6) mile radius, as well as, any discretionary reviews within the past eighteen (18) months on vacant land, correct?

So far, nothing notable has been found within the radius of the subject property. This week I should be completing the search within the timeframe of the 18 month time period.

Sincerely,

Evelia Jimenez

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Jennifer Savois <jenna.savois@panoramaenv.com> Mon, Jul 29, 2024 at 12:54 PM
To: Evelia Jimenez <EJimenez@co.imperial.ca.us>
Cc: Emily Capello <emily.capello@panoramaenv.com>

Hi Evelia,

Thank you very much for your reply. What you asked is correct and that is good news on the proposed zone changes and general plan amendments. We weren't anticipating there to be much based on location, but were requested to research this from the CEC. Appreciate you working on this request.

Jenna Savois, Project Manager/Environmental Planner
Panorama Environmental, Inc.

717 Market Street, Suite 400

San Francisco, CA 94103

www.panoramaenv.com

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Gmail

Jennifer Savois <jenna.savois@panoramaenv.com>

Proposed Zone changes for 056-180-003-000, 005, 006, 013, 014, 015

2 messages

Evelia Jimenez <EJimenez@co.imperial.ca.us> Wed, Jul 31, 2024 at 2:05 PM
To: Jennifer Savois <jenna.savois@panoramaenv.com>

Good Afternoon Jennifer,

In review of the following parcel numbers, 056-180-003-000, 005, 006, 013, 014, 015, research for any zone changes, amendments or discretionary reviews were not found. No activity was found within the radius of the stated parcel numbers nor in the past eighteen (18) months. Please note that the land surrounding the subject parcels is owned and managed by the Bureau of Land Management, of which, no activity was noted on those as well.

Sincerely,

Evelia Jimenez

Evelia Jimenez

Planner

Imperial County Planning & Development Services

801 Main Street, El Centro, CA 92243

ejimenez@co.imperial.ca.us

Phone (442) 265-1747

Jennifer Savois <jenna.savois@panoramaenv.com> Wed, Jul 31, 2024 at 2:06 PM
To: Evelia Jimenez <EJimenez@co.imperial.ca.us>
Cc: Emily Capello <emily.capello@panoramaenv.com>, Susanne Heim <susanne.heim@panoramaenv.com>

Hi Evelia,

Thank you for getting back to me and appreciate your research on this. I hope you have a great day!

Jenna Savois, Project Manager/Environmental Planner
Panorama Environmental, Inc.

717 Market Street, Suite 400

San Francisco, CA 94103

www.panoramaenv.com

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