

WISTER SOLAR  
640 ACRE PROJECT

FLAT-TAILED HORNED LIZARD SURVEY

Prepared for:  
ORMAT  
6225 Neil Road  
Suite 300  
Reno, NV 89511

August, 2018

**Prepared by:**  
Barrett's Biological Surveys  
Certified as performed in accordance with established biological practices  
by:



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## CONTENTS

Project Description	2
Survey Results	5

## APPENDIX

Appendix A Photographs	9
Appendix B Species found on Site	20
Appendix C Maps	22
Appendix D Qualifications	25

## PROJECT DESCRIPTION

The proposed site is located east of the intersection of Wilkins and Wiest Roads, about 3 miles north of the unincorporated town of Niland. This property is considered “Recreational Open Space” and is located in close proximity to agricultural fields. The zoning is “Open Space/Preservation with Geo-Thermal overlay zone (S2-G). Adjacent to the west are citrus groves; to the north and east is desert and Coachella Canal; desert and agricultural fields are found to the south.

Ormat Technologies, Inc. proposes to construct and operate a 20 MW photovoltaic solar facility on approximately 160 acres within this 640 acre property located in Imperial County, California. The remaining property will remain undeveloped. The solar PV generating facility would consist of 3.2 foot by 6.5 foot PV modules (or panels) on single-axis horizontal trackers in blocks that each hold 2,520 PV panels, with 90 modules in each of 28 rows. The panels would be oriented from east to west for maximum exposure and the foundation would be designed based on soil conditions. The PV modules are made of a poly-crystalline silicon semiconductor material encapsulated in glass. Installation of the PV arrays would include installation of mounting posts, module rail assemblies, PV modules, inverters, transformers and buried electrical conductors. Concrete would be required for the footings, foundations and pads for the transformers and substation work. Tracker foundations would be comprised of either driven or vibrated steel posts/pipes, and/or concrete in some places (depending on soil and underground conditions).

PV modules would be organized into electrical groups referred to as “blocks” capable of producing 844 kW of energy. Every three blocks will be collected to a 2.5 MW inverter and would typically encompass approximately 15 acres including a pad for one transformer and one inverter. The Project would include design elements to reduce the potential glare impacts on adjacent sensitive receptors, e.g. traveling public on nearby county roads, which may include sight obscure proposed fencing.

The electrical output from the PV modules would be low voltage DC power that would be collected and routed to a series of inverters and their associated pad-mounted transformers. Each 2.5 MW array would have (1) one 2500 kW inverter and 2.5 megavolt-ampere (MVA) transformer, which are collectively known as a Power Conversion Station (PCS) [A volt-ampere (VA) is defined as the amount of apparent power in a circuit equal to the product of voltage and current. A MVA is equivalent to 1,000,000 VA]. The inverters would convert the DC power generated by the panels to AC power and the pad mounted transformers step up the voltage to a nominal 12.47 KV voltage level. The 12.47 KV outputs from the transformers are grouped together in PV combining switchgear, which in turn

supplies the geothermal plant auxiliary loads. Existing roads would be utilized and no new access road construction is anticipated.

Construction activities would be sequenced and conducted in a manner that addresses storm water management and soil conservation. During the course of construction, equipment would be placed in service at the completion of each 2500KW power-block. The activation of the power-blocks is turned over to interconnection following the installation of transformer and interconnection equipment upgrades. This in-service timing is critical because PV panels are capable of producing power as soon as they are exposed to sunlight, and because the large number of blocks and the amount of time needed to commission each block requires commissioning to be integrated closely with construction on a block-by- block basis.

Construction of the proposed Project would occur in phases beginning with site preparation and grading and ending with equipment setup and commencement of commercial operations. Generally speaking, construction would consist of three major phases:

- (1) Site preparation, which includes clearing grubbing, grading, roads, fences, drainage, and concrete pads;
- (2) PV system installation and testing, which includes installation of mounting posts, assembling the structural components, mounting the PV modules, wiring; and
- (3) Site clean-up and restoration.

At this time, the exact location of the solar field has not been determined.

#### FLAT-TAILED HORNED LIZARD DESCRIPTION

The flat-tailed horned lizard (FTHL), *Phrynosoma mcallii*, was first identified in 1852 by U.S. Army Colonel George A. M'Call. There are 14 species of horned lizard; 8 occur in the United States. The FTHL is associated in some overlapping territory with the Desert Horned Lizard (DHL). There are some reports of hybrids found in the Ocotillo, Ca. area.

FTHL has long, thin, sharp horns with a dark line down the middle of the back. There are two rows of fringe scales on each side, base of tail is dorsoventrally flattened. The vent lip does not have black spotting. The back skin is smooth with small spines. The FTHL is a medium-sized horned lizard measuring 2.5 to 4.3 inches in snout to vent length. The two median horns are particularly long and sharp. This is the only species to have a dark vertebral line down the middle of its back. There are also a series of brown spots on either side of the line. This lizard is only found in the lower Colorado River, southwestern Arizona and Baja, California (Sherbrooke, Introduction to Horned Lizards, 2003). The scat, which is

shiny black or mahogany, from the ingestion of ants (the primary diet of FTHL and DHL), is an indication of the presence of either species. The female deposits eggs in an underground nest and covers them with sand.

## SURVEY PROTOCOL

Survey protocol is found in *Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision*. Survey protocol was discussed with Magdalena Rodriguez, Senior Environmental Scientist (Specialist), California Department of Fish and Wildlife, Ontario, CA office. It was determined to concentrate on the entire property, not just area development is expected.

Since this site is determined to be in an area of unknown occurrence, surveys must be conducted to determine the presence or absence of FTHLs prior to project initiation. Both live lizard and scat surveys shall be done with the emphasis on live lizard. Surveys shall be conducted from April through September when temperatures are between 75 and 100°F. Surveys should cover at least 10 hours if the project consists of one section (640 acres). An hour will be spent surveying each hectare; a total of 10 hectares will be surveyed.

Flat-tailed horned lizard certified biologists included:

Glenna Barrett  
 Marie Barrett  
 Shawna Bishop  
 Jacob Calanno  
 Dani Figueroa

Certificates are attached.

## SURVEY RESULTS

On August 31, 2018 from 7:00 AM to 10:00 AM, live lizard and scat surveys were conducted on the site.

Table 1 Survey Areas

Area	Time/Weather	Live Lizard	Scat	Results	Comments
1 NW:33°16'18.0"/115°30'1.2" SW:33°16'16.0"/115°30'2.4" NE: 33°16'16.1"/115°29'59.3" SE: 33°16'15.0"/115°29'59.8"  Biologist: Glenna Barrett	0820-0920 96°F/clear/2-4 mph	None	None	None seen	Few ants Soil is typically gravelly sand with soft flat sandstones and flagstones

Area	Time/Weather	Live Lizard	Scat	Results	Comments
2. NW:33°16'25.0"/115°29'47.7" SW:33°16'21.8"/115°29'49.0" NE: 33°16'23.9"/115°29'45.0" SE: 33°16'21.7"/115°29'46.4"  Biologist: Glenna Barrett	0710-0810 80°F/clear 2-4 mph	None	None	None seen	Few ants Soil is typically gravelly sand with soft flat sandstones and flagstones
3 NW:33°16'1.7"/115°29'51.1" SW:33°15'59.0"/115°29'51.3" NE: 33°16'16.1.3"/115°29'48.0" SE: 33°15'58.6"/115°29'48.3"  Biologist: Jacob Calanno	0815-0915 94°F/clear/2-4 mph	None	None	None seen	5 Ant hills with ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
4 NW:33°15'53.4"/115°29'42.4." SW:33°15'50.6"/115°29'42.9" NE: 33°15'52.5"/115°29'40.2" SE: 33°15'50.8"/115°29'41.0"  Biologist: Jacob Calanno	0720-0820 80°F/clear 2-4 mph	None	None	None seen	3 Ant hills with ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
5 NW:33°16'33.6"/115°30'26.4." SW:33°15'41.3"/115°30'28.2" NE: 33°16'30.4"/115°30'11.0" SE: 33°16'40.4"/115°30'10.6"  Biologist: Dani Figueroa	0705-0805 80°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
6 NW:33°16'29.6"/115°30'16.4." SW:33°16'27.1"/115°30'5.2" NE: 33°16'17.0"/115°30'4.9"	0815-0915 80°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is

Area	Time/Weather	Live Lizard	Scat	Results	Comments
SE: 33°16'40.4"/115°30'10.6" Biologist: Dani Figueroa					typically gravelly sand with soft flat sandstones and flagstones
7 NW:33°16'14.0"/115°30'23.7" SW:33°16'11.1"/115°30'23.6" NE: 33°16'14.0"/115°19'19.8" SE: 33°16'11.2"/115°30'19.8" Biologist: Shawna Bishop	0735-0835 80°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
8 NW:33°16'6.1"/115°30'28.1" SW:33°16'3.1"/115°30'28.1" NE: 33°16'6.1"/115°30'25.0" SE: 33°16'3.1"/115°30'25.0" Biologist: Shawna Bishop	0840-0940 94°F/clear 2-4 mph	None	None	None seen	No ants observed Soil is typically gravelly sand with soft flat sandstones and flagstones
9 NW:33°15'57.6"/115°30'30.5" SW:33°15'55.5"/115°30'30.8" NE: 33°15'57.8"/115°30'27.1" SE: 33°15'55.9"/115°30'27.9" Biologist: Marie Barrett	0730-0830 80°F/clear 2-4 mph	None	None	None seen	One ant hill observed Soil is typically gravelly sand with soft flat sandstones and flagstones
10. NW:33°15'59.1"/115°30'12.4" SW:33°15'57.2"/115°30'13.4" NE: 33°15'58.1"/115°30'10.0" SE: 33°15'56.0"/115°30'10.0" Biologist: Glenna Barrett	0900-1000 88°F/clear 2-4 mph	None	None	None seen	Few ants Soil is typically gravelly sand with soft flat sandstones

Area	Time/Weather	Live Lizard	Scat	Results	Comments
					and flagstones

Permission was not obtained from private property owners who own surrounding property, therefore this survey was conducted exclusively onsite.

No live lizards or scat were found.

#### INTERPRETATION OF SURVEY RESULTS

*Flat-tailed Horned Lizard Rangewide Management Strategy, 2003 Revision* criteria state that the species are absent if:

1. No scat or horned lizards are found and
  - a. No FTHL have been found within two miles of project site (search of California Natural Diversity Data Base (CNDDDB) August, 2018)

Also, the habitat is not continuous (see Location Map). Coachella Canal and agriculture separate the site from more favorable habitat to the north and east.

As a result of this live lizard and scat survey, it has been determined that there are no FTHL on this project site.

#### References

California Natural Diversity Database, August, 2018. Sacramento, California Department of Fish and Game.

United States Department of Agriculture Soil Conservation Service, *Soil Survey of Imperial County, California Imperial Valley Area*, October, 1981.

Working Group of the Flat-Tailed Horned Lizard Interagency Coordinating Committee, *Flat-tailed Lizard Rangewide Management Strategy*, May, 1997.

# APPENDIX A PHOTOGRAPHS

PHOTOGRAPHS

**Plot 1**



1. Northwest corner facing north; gravelly and with sandstone and creosote



2. Northwest corner facing south; gravelly sand with creosote and sandstone

**Plot 2**



3. Northwest corner facing south; gravelly sand with creosote



4. Northwest corner facing west; gravelly sand with disturbed soil

**Plot 3**



5. Southeast corner of hectare plot; gravelly sand



6. Northeast corner of hectare plot

**Plot 4**



7. Southeast corner of hectare plot



8. Center of hectare plot looking east; abandoned bowling ball

**Plot 5**



9. From northwest corner of hectare plot looking to center; gravelly sand, sandstone and creosote in background



10. Southwest corner of hectare plot looking east

**Plot 6**



11. Burro bush and gravelly sand; center of hectare plot



12. Southwest corner of hectare plot looking east; gravelly sand substrate



15. Southeast corner of hectare plot looking south; acacia in background; gravelly sand



16. Southwest corner of hectare plot looking northeast; gravelly sand substrate with sandstone and acacia in background



17. Looking northwest from southeast corner of hectare plot; gravelly sand substrate with sandstone and creosote in background



18. Looking northeast from southwest corner of hectare plot; gravelly sand substrate with sandstone and creosote in background



19. Looking northeast from southwest corner of hectare plot; gravelly sand substrate with sandstone and acacia trees in background



20. Looking south from center of hectare plot; gravelly sand substrate with creosote and acacia trees in background

**Plot 10**



21. Northwest corner of hectare plot looking south; creosote and gravelly sand substrate



22. Southwest corner of hectare plot facing northeast; acacia, creosote and gravelly sand substrate

**APPENDIX B  
SPECIES FOUND ON SITE**

<b>ANIMALS/INVERTEBRATES OBSERVED ON OR NEAR SITE</b>	
<b>Common name</b>	<b>Scientific name</b>
<b>Birds</b>	
Loggerhead Shrike	<i>Lanius ludovicianus</i>
Mourning Dove	<i>Zenaida macroura</i>
White throated swift	<i>Aeronautes saxatalis</i>
<b>Mammals</b>	
Canine tracks/scat	<i>various</i>
Cottontail	<i>Sylvilagus audubonii</i>
<b>Insects</b>	
Alfalfa butterfly	<i>Colias eurytheme</i>
Ants (red harvester)	<i>various</i>
Bees	<i>Aphis sp.</i>
Damsel/dragonflies	<i>various</i>
Desert termite	<i>Gnathamitermes tubiformans</i>
Grasshopper	<i>various</i>
<b>Reptiles</b>	
Sidewinder (tracks)	<i>Crotalus cerastes</i>

<b>BOTANICAL SPECIES OBSERVED ON OR NEAR SITE</b>		
<b>Common name</b>	<b>Scientific name</b>	<b>Cal-IPC Inventory listing*</b>
Burroweed	<i>Ambrosia dumosa</i>	None
California Fagonia	<i>Fagonia laevis</i>	None
Cats claw	<i>Acacia greggii</i>	None
Acacia	<i>Acacia spp.ne</i>	None
Creosote	<i>Larrea tridentata</i>	None
Mesquite	<i>Prosopis sp.</i>	None
Salt Bush	<i>Atriplex sp.</i>	None
Saltcedar	<i>Tamarix sp.</i>	Invasive/High

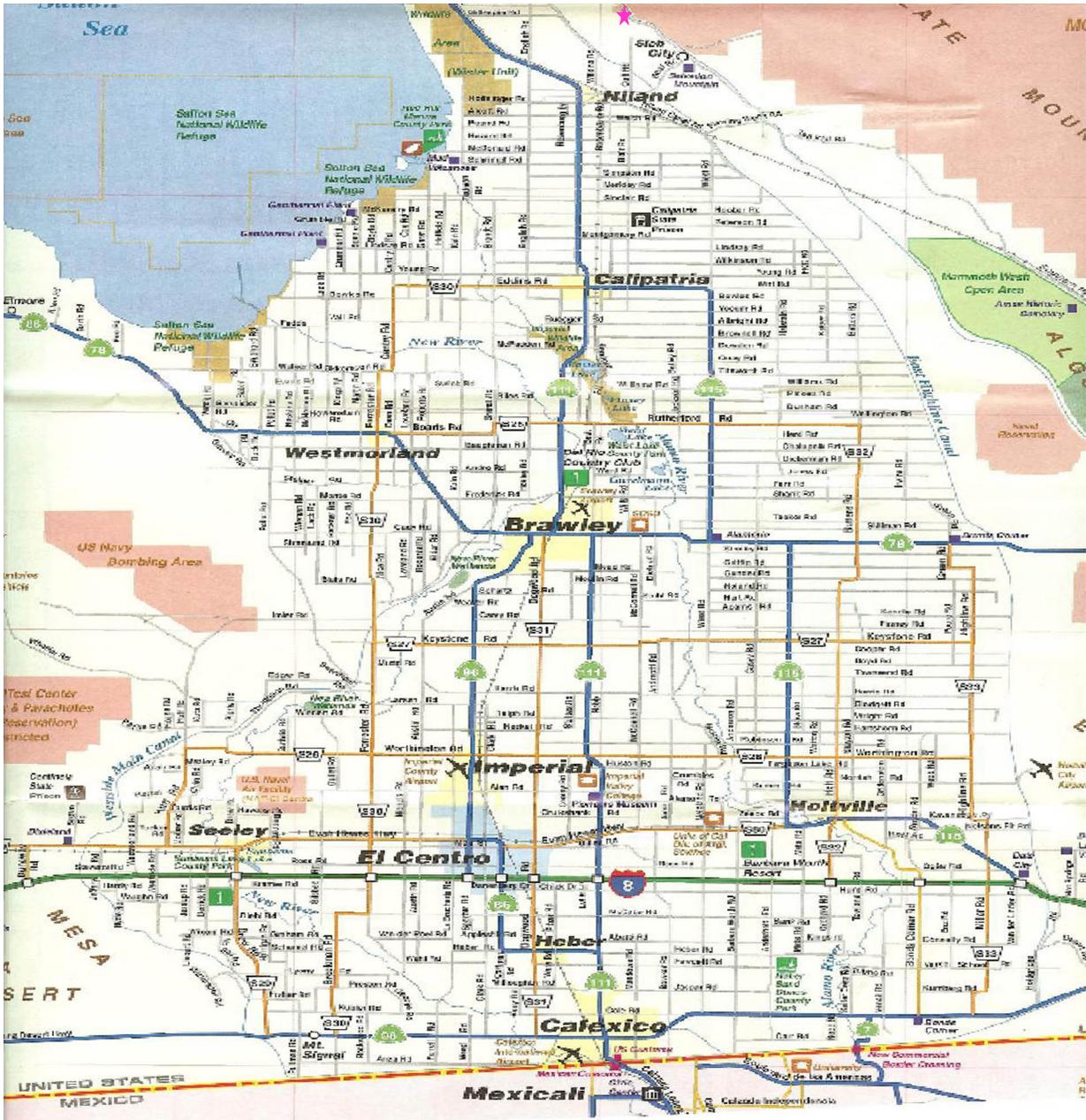
\*<http://www.cal-ipc.org/plants/inventory/#inventory>

# APPENDIX C MAPS

# PROJECT STATEWIDE LOCATION



# PROJECT REGIONAL LOCATION



Gillespie Rd

Citrus

**ORMAT 640 ACRES**

FTHL Survey Locations

Site

Citrus

County landfill

Coachella Canal Rd

Wilkins Rd

Weist Rd

Gas Line Rd

Chadwick Dr

Beal Rd



## APPENDIX D QUALIFICATIONS



State of California – The Resources Agency  
DEPARTMENT OF FISH AND GAME  
78078 Country Club Dr., Ste. 109  
Bermuda Dunes, CA 92203  
(760) 200-9158  
<http://www.dfg.ca.gov>

ARNOLD SCHWARZENEGGER, Governor



June 13, 2008

To whom it may concern,

Title 14 of the California Code of Regulations authorizes the Department of Fish and Game (the Department) to regulate the take and possession of wildlife in the State of California.

This letter provides proof of authorization by the Department for the individual named below to take, possess, and transport Flat-tailed Horned Lizards (*Phrynosoma mcallii*), while performing the duties of biological monitor, as part of mitigation requirements for construction or other activities which place individual lizards at risk. This person is also authorized to take and possess lizards briefly for data collection, during surveys conducted for public agencies. He/she has completed Department-approved training in tracking and finding Flat-tailed Horned Lizards.

This authorization does not permit activities, such as the trapping or marking of lizards, which otherwise require the possession of a current Scientific Collecting Permit issued by the Department.

This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Craig J. Weightman  
Senior Environmental Scientist (Acting)  
Inland Deserts Region

Authorized Individual

Marie Barrett  
Barrett Biological Surveys  
2035 Forrester Road  
El Centro, CA 92243

*Conserving California's Wildlife Since 1870*



DEPARTMENT OF FISH AND GAME

78078 Country Club Dr., Ste. 109

Bermuda Dunes, CA 92203

(760) 200-9158

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June 13, 2008

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This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Craig J. Weightman  
Senior Environmental Scientist (Acting)  
Inland Deserts Region

Authorized Individual

Glenna Westbrook (Barrett)  
Barrett Biological Surveys  
29112 Avenida de las Flores  
Quail Valley, CA 92587

*Conserving California's Wildlife Since 1870*



DEPARTMENT OF FISH AND GAME

JOHN MCCAMMAN, Director

Inland Deserts Region

78078 Country Club Dr., Ste. 109  
Bermuda Dunes, CA 92203  
[www.dfg.ca.gov](http://www.dfg.ca.gov)



June 28, 2011

Subject: Authorization for Shawna Bishop,

To Whom It May Concern,

Title 14 of the California Code of Regulations authorizes the Department of Fish and Game (the Department) to regulate the take and possession of wildlife in the State of California.

This letter provides proof of authorization by the Department for the individual named below to take, possess, and transport **Flat-tailed Horned Lizards** (*Phrynosoma mcallii*) out of harm's way, while performing the duties of biological monitor, as part of mitigation requirements for construction or other activities which place individual lizards at risk. This person is also authorized to possess lizards briefly for data collection, during surveys conducted for public agencies. He/she has completed Department-approved training in tracking and finding Flat-tailed Horned Lizards.

This authorization does not permit activities, such trapping, marking, or sacrifice of lizards, which otherwise would require the possession of a current Scientific Collecting Permit issued by the Department.

This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Jack Crayon  
Associate Biologist  
Inland Deserts Region

Authorized Individual:

Shawna Bishop  
619 Rockwood Road  
El Centro, CA 92243



State of California – The Natural Resources Agency  
DEPARTMENT OF FISH AND GAME  
Inland Deserts Region  
78078 Country Club Dr., Ste. 109  
Bermuda Dunes, CA 92203  
[www.dfg.ca.gov](http://www.dfg.ca.gov)

EDMUND G. BROWN Jr., Governor  
JOHN MCCAMMAN, Director



June 28, 2011

Subject: Authorization for Danielle Barrett,

To Whom It May Concern,

Title 14 of the California Code of Regulations authorizes the Department of Fish and Game (the Department) to regulate the take and possession of wildlife in the State of California.

This letter provides proof of authorization by the Department for the individual named below to take, possess, and transport **Flat-tailed Horned Lizards** (*Phrynosoma mcallii*) out of harm's way, while performing the duties of biological monitor, as part of mitigation requirements for construction or other activities which place individual lizards at risk. This person is also authorized to possess lizards briefly for data collection, during surveys conducted for public agencies. He/she has completed Department-approved training in tracking and finding Flat-tailed Horned Lizards.

This authorization does not permit activities, such trapping, marking, or sacrifice of lizards, which otherwise would require the possession of a current Scientific Collecting Permit issued by the Department.

This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Jack Crayon  
Associate Biologist  
Inland Deserts Region

Authorized Individual:

Danielle Barrett  
1744 Lotus Ave  
El Centro, CA 92243



State of California – The Natural Resources Agency  
 DEPARTMENT OF FISH AND GAME  
 Inland Deserts Region  
 78078 Country Club Dr., Ste. 109  
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[www.dfg.ca.gov](http://www.dfg.ca.gov)

EDMUND G. BROWN Jr., Governor  
 CHARLTON H. BONHAM, Director



September 26, 2012

Subject: Authorization for Jacob Jaime Calanno,

To Whom It May Concern,

Title 14 of the California Code of Regulations authorizes the Department of Fish and Game (the Department) to regulate the take and possession of wildlife in the State of California.

This letter provides proof of authorization by the Department for the individual named below to take, possess, and transport **Flat-tailed Horned Lizards** (*Phrynosoma mcallii*) out of harm's way, while performing the duties of biological monitor, as part of mitigation requirements for construction or other activities which place individual lizards at risk. This person is also authorized to possess lizards briefly for data collection, during surveys conducted for public agencies. He/she has completed Department-approved training in tracking and finding Flat-tailed Horned Lizards. Dead lizards may also be salvaged and temporarily retained for accession into a Department-approved museum or educational institution.

This authorization does not permit activities, such trapping, marking, or sacrifice of lizards, which otherwise would require the possession of a current Scientific Collecting Permit issued by the Department.

This authorization is in effect permanently, unless revoked, at the Department's discretion.

Sincerely,

Jack Crayon  
 Environmental Scientist  
 Inland Deserts Region

Authorized Individual:

Jacob Jaime Calanno  
 PO Box 458  
 Niland, CA 92257