

Annual Progress Report:
Implementation of the
Flat-tailed Horned Lizard Rangewide Management Strategy
January 1, 2009 - December 31, 2009

Prepared by the
Flat-tailed Horned Lizard Interagency Coordinating Committee

Final draft, November 2010

EXECUTIVE SUMMARY

The flat-tailed horned lizard is a small horned lizard that inhabits a narrow range within southeastern California, southwestern Arizona, and northwestern Mexico. Much of the species' historic habitat in the United States has been lost due to agricultural and residential development. A Conservation Agreement was signed by several federal and state agencies in 1997 to implement the Flat-tailed Horned Lizard Rangelwide Management Strategy. The Strategy is a long-term plan of action among signatory agencies to ensure persistence of the species. It continues to be implemented by the signatory agencies throughout the Management Areas, the Research Area, and other areas of flat-tailed horned lizard habitat.

Implementation activities during 2009 included regular coordination among the participating agencies through the Management Oversight Group and Interagency Coordinating Committee. Authorized surface impacts remained low in Management Areas. Outreach efforts continued to include the general public and other agencies, such as the U.S. Border Patrol and several Mexican agencies, as active participants in implementing the Strategy. Agencies conducted population inventories, trend monitoring, and research. New lands were acquired within the East Mesa and West Mesa Management Areas, the Anza-Borrego Desert State Park Management Area, and the Ocotillo Wells Research Area. Continued attempts will be made in 2010 to acquire additional lands in the California Management and Research Areas.

Biologists from the Alto Golfo Preserve in northern Sonora (Mexico) continue to be involved with the ICC. They have begun the process of creating a management strategy for FTHL in northern Mexico.

The participating agencies believe the Flat-tailed Horned Lizard Rangelwide Management Strategy as designed and implemented by the signatories of the Conservation Agreement continues to provide an effective management focus to conserve flat-tailed horned lizard habitat throughout its range. The majority of the tasks outlined by the Strategy are being completed on schedule.

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INTRODUCTION

On June 7, 1997, a long-term Conservation Agreement was signed by several federal and state agencies to implement the *Flat-tailed Horned Lizard Rangewide Management Strategy* (RMS). The RMS is a plan of action to conserve the flat-tailed horned lizard (*Phrynosoma mcallii*) (FTHL) in the United States. The FTHL is a small horned lizard that inhabits creosote flats, sand dunes, and mud hills in southeastern California, southwestern Arizona, and northwestern Mexico. Much of the FTHL's historic habitat (possibly as much as 50%) in the United States has been lost due to agricultural and residential development. A revision of the RMS, with minor changes, was completed in 2003.

The following agencies are signatories to the Conservation Agreement:

- U.S. Fish and Wildlife Service (USFWS), Region 1
- USFWS, Region 2
- Bureau of Land Management (BLM), California State Office
- BLM, Arizona State Office
- Bureau of Reclamation (Reclamation), Lower Colorado Region
- Marine Corps Air Station, Yuma (MCAS-Yuma)
- Naval Air Facility, El Centro (NAF-El Centro)
- Arizona Game and Fish Department (AGFD)
- California Department of Fish and Game (CDFG)
- California Department of Parks and Recreation (CDPR)

The U.S. Border Patrol (BP) at times participates as guests in the Management Oversight Group (MOG) and the Interagency Coordinating Committee (ICC). BP elected not to sign the Conservation Agreement, but they continue to work closely with staff at BLM-El Centro.

The Conservation Agreement remains in effect today, and the RMS continues to be implemented by all Conservation Agreement signatory agencies. The RMS requires the ICC to prepare an annual report to monitor plan compliance (Planning Action 9.2.4). This is the 11th annual report and covers the period from January through December 2009.

The FTHL has been the subject of considerable activity within the Endangered Species Act and the federal courts. The 2003 Revision of the RMS summarized that activity through early 2003. Later that year, the Tucson Herpetological Society and others filed suit challenging the 2003 withdrawal to list the FTHL as a threatened species. In 2005, the U.S. District Court for the District of Arizona ruled in favor of the plaintiffs and set aside the 2003 withdrawal on the grounds that the withdrawal failed to determine whether the lost historical habitat for the FTHL is a significant portion of the range for this species and thereby violated the Endangered Species Act. On December 7, 2005, the USFWS published a Federal Register Notice vacating the 2003 withdrawal and restoring proposed status to the FTHL (70 FR 72776). The comment period was reopened on March 2, 2006, for two weeks (71 FR 10631) and on April 21, 2006, for two weeks (71 FR 20637). On June 28, 2006, USFWS published a notice in the Federal Register

withdrawing the proposed rule, based on the conclusion that the lost habitat is not a significant portion of the range of the FTHL (71 FR 36745). A lawsuit was filed by Defenders of Wildlife and others on December 11, 2006, in the Arizona District Court challenging the 2003 and 2006 decisions to withdraw the proposed rules to list the FTHL as threatened. In May 2009, the Ninth Circuit Court of Appeals decided in favor of the plaintiffs and in November 2009 ordered the FWS to reinstate the 1993 proposal to list the species as threatened.

IMPLEMENTATION PROGRESS IN 2009

Progress toward implementation of Planning Actions within the RMS during this period is summarized below.

Planning Action 1. Delineate and designate five FTHL Management Areas and one FTHL Research Area.

The 1997 Conservation Agreement designates 5 Management Areas (MAs) and one Research Area (RA) and precisely described their boundaries. Maps and boundary descriptions are available in the 2003 RMS. All MAs and a portion of the RA were formally adopted within agency environmental and planning documents (see also Planning Action 6) as a result of the actions listed below. All agencies had applied RMS provisions to these areas prior to the formal adoption.

- Yuma Desert MA: In 2007, MCAS Yuma finalized an Integrated Natural Resource Management Plan (INRMP) that fully incorporates the RMS for its portion of the Yuma Desert MA. In 2004, Reclamation completed a Five-Mile Zone Resource Management Plan that incorporates the RMS for its portion of this MA.
- East Mesa, West Mesa, and Yuha Desert MAs: An Environmental Assessment (EA) proposing an amendment to the California Desert Conservation Area Plan to officially adopt these three MAs received no public protests and was signed on February 1, 2005.
- Borrego Badlands MA: In 2004, the Anza-Borrego Desert State Park's (ABDSP) General Plan was unanimously approved by the California State Parks and Recreation Commission providing long-range guidance and planning to the 600,000 acre park and acknowledging the FTHL RMS. A Natural Resources Management Plan to be completed in the near future will more specifically address FTHL management. Boundaries for the Borrego Badlands MA within ABDSP have been delineated in the Borrego Badlands and Clark Dry Lake areas.
- Ocotillo Wells RA: In 2003, the BLM portion of the Ocotillo Wells RA was designated in an amendment to the Western Colorado Desert Ecosystem Plan. The California State Parks owns a portion of the RA that has not been incorporated into planning documents. The Ocotillo Wells State Vehicle Recreation Area (OWSVRA) effectively manages this property in accordance with RMS provisions. As designated in the RMS, the Ocotillo

Wells District moved forward on developing an OWSVRA General Plan for the current RA. This General Plan includes the Heber Dunes and the Freeman Property; a relocation study in SVRA where the FTHL may be re-introduced and a possible acquisition where FTHL have been encountered during the 2009 survey inventory, respectively. RMS provisions will be acknowledged in these documents.

- Coachella Valley: BLM-Palm Springs continues to participate in the Coachella Valley Multi-Species Habitat Conservation and Natural Communities Conservation Plan (CVMSHCP) which fully incorporates FTHL RMS measures. The CVMSHCP uses an ecosystem/habitat approach to identify natural communities and sensitive species known or expected to occur in the Plan area. The Plan is designed to ensure the long-term viability of sensitive-species populations within the Coachella Valley, including the FTHL.

Planning Action 2. Define and implement management actions necessary to minimize loss or degradation of habitat.

The international boundary pedestrian fence that was completed in 2008 along the entire border of the Yuma Desert appears to have greatly reduced impacts to FTHL habitat in the Yuma MA resulting from drug smuggling, illegal immigration, and associated law enforcement activities. Outreach efforts to inform and educate enforcement personnel on FTHL issues continue.

The habitat impacts authorized by managing agencies within the period are shown in Table 1. Included in the remainder of this section is a narrative for each participating agency. For reference, the amount of land owned by each agency in the various MAs is shown in Table 2.

BLM - El Centro Field Office.

In January 2009, the BLM-El Centro authorized a Right-of-way Grant to San Diego Gas and Electric (SDG&E) for the construction of the Sunrise Powerlink solar project. The project is authorized to disturb 91.31 acres in the Yuha FTHL MA and 141.53 acres outside MAs. Compensation has been received (\$348,450.00). No disturbance has occurred at this time.

There was one trespass of 9.4 acres in the East Mesa MA. The person responsible has been billed, but no compensation has been received for the trespass.

BLM Law Enforcement Officers regularly patrol the MAs. However, some illegal use and route proliferation continue to occur in Limited Use Areas because there is such a large area to cover,.

BLM-El Centro continues to receive multiple solar energy applications in FTHL habitat. Most of the applications request 500-15,000 acres. It has been successful in preventing applications located in its MAs. BLM is continuing to process an application from Stirling Energy Systems (now called Tessara Solar). This project is a solar-thermal facility that would generate over 700

megawatts of electricity on over 6000 of BLM land north of the Yuha MA. The site is along I-8 and will require the installation of a powerline through the Yuha MA to the Yuha Substation. If the project is approved, BLM will require compensation as per the strategy.

SDG&E submitted an application to develop, build, own and operate a photovoltaic electric generation project surrounding the SDG&E Imperial Valley Substation in Imperial County. The project's purpose is to generate approximately 12-14 megawatts of renewable energy. The project will be located on approximately 100 acres; however, the application consists of an approximate 350 acre study area located in the Yuha MA.

Construction of the Drop 2 Reservoir in and adjacent to the East Mesa MA was begun in 2009 by BR. The area of disturbance for this project was 285 acres within the MA and 199 acres outside the MA. An additional 321 acres disturbed within the MA did not require compensation because it had already been developed and was on private land. These impacts were authorized prior to 2009 but were not included in previous annual reports, and so appear in Table 1 in this report.

BLM - Palm Springs South Coast Field Office.

No update available.

BLM - Yuma Field Office.

No projects were authorized on FTHL habitat administered by BLM-Yuma.

Marine Corps Air Station - Yuma.

No projects subject to the RMS authority were authorized in or out of the Yuma MA by MCAS during 2009. Projects described in the EIS for the Yuma Training Range Complex of 1995 are not subject to the RMS (Planning Action 2.2.1).

NAF-El Centro.

No projects were authorized in NAF El Centro MA in 2009.

Anza-Borrego Desert State Park.

No impacts were encountered or authorized within FTHL habitat in 2009. The illegal sand and gravel mining operation that was using two miles of a public dirt road in the Park (and the MA) finally ceased operation around May 2009. The Borrego Springs Community Sponsor Group rejected its claim of having a valid Major Use Permit and was affirmed by San Diego County. This operation will no longer affect the ABDSP MA or have peripheral affects on the OWSVRA RA.

Table 1. Acres of flat-tailed horned lizard habitat authorized for impact by RMS signatories from January to December 2009, and cumulative acres of impacts within the management areas.

Agency	Within MA		Outside MA (acres)	Total Acres	Acres Impacted to Date in MAs	
	MA	Acres			Total	Percent**
BLM-Palm Springs	*	0	0	0	*	
BLM-El Centro	East Mesa	285	199	484	378.9	0.34
	West Mesa	0	0	0	117.11	0.10
	Yuha Desert	91.31	141.53	232.84	180.01	0.31
BLM-Yuma	*	0	0	0	*	
NAF-El Centro	East Mesa	0	0	0	1.0	0.01
	West Mesa	0	0	0	6.0	0.02
MCAS-Yuma	Yuha Desert	0	0	0	10.15	0.01
Anza-Borrego Desert State Park	Borrego Badlands	0	0	0	0	0.00
Ocotillo Wells State Vehicular Recreation Area	*	0	0	0	*	
Reclamation	Yuha Desert	0	0	0	15.80	0.10
Total Acres		376.31	340.53	716.84	708.97	0.15

* No land administered within an MA.

** Based on the MA acreage for each agency, including acquisitions (see Table 2).

Table 2. Ownership of lands within FTHL management areas.

MA	Acres as of 1997			Private acres acquired since 1997		Total (signatory)
	Signatory	Private	State	Total	Percent	
Yuha Desert	115,500	0	15,500	15,500 (state)	100.0 (state)	131,000
East Mesa	108,400	6,900	0	3,410	49.4	111,810
West Mesa	113,000	21,800	1,300	6,483	29.7	119,483
Yuha Desert	57,200	3,000	0	0	0.0	57,200
Borrego Badlands	36,500	5,900	36,500	1464 ¹	24.8	37,964

¹Includes 864 acres acquired by the Anza-Borrego Foundation.

Bureau of Reclamation - Yuma.

Construction activities for the DROP 2 project continued in 2009. Disturbance from this project was 137 acres directly impacted within the East Mesa MA and 109 acres outside the MA, and 469 acres indirectly impacted within the MA and 90 acres outside the MA. Also, construction activities for the All-American Canal lining (AAC) project continued in 2009. The Area Service Highway, which traverses FTHL habitat on Reclamation lands, was completed in 2009. No new projects that impacted FTHL habitat were authorized in 2009.

Ocotillo Wells State Vehicular Recreation Area.

No new development projects resulted in loss of FTHL habitat in 2009. A new enclosure protecting 4 acres of mesquite dune habitat was approved and installed.

Total Habitat Disturbance from January through December 2009.

As reported, BLM-El Centro authorized disturbance of 91.31 acres in the Yuha Desert MA and 141.53 acres outside the MA. Disturbance resulting from the Drop 2 Reservoir project included 285 acres within the East Mesa MA and 199 acres outside.

Planning Action 3: Within the MAs, rehabilitate damaged and degraded habitat, including closed routes and other small areas of past intense activity.

BLM-El Centro has been actively implementing the Western Colorado (WECO) route designation plan signed on January 31, 2003. Signage for the Yuha Desert, East Mesa, and West Mesa MAs is complete. BLM rangers make routine checks on signs and replace them as necessary. BLM-El Centro continues to update 12 interpretive kiosks within the Yuha Desert and West Mesa MAs with new maps, rider, and lizard information. In addition, BLM-El Centro continues to provide regular outreach by producing and distributing maps of the WECO route of travel designations. Finally, BLM-El Centro continues law enforcement patrol of all MAs under their jurisdiction and makes regular public enforcement and education contacts.

Through a series of multiple-year grants from the California OHV Motor Vehicle Commission, BLM is continuing work on an ambitious restoration program. BLM continued to work with the Student Conservation Association (SCA) to conduct restoration activities in the Yuha Desert, West Mesa, and East Mesa MAs. Archaeological surveys are necessary before implementing restoration and are ongoing, concurrent with restoration.

OWSVRA is attempting to restore some mesquite dune habitat. In 2008, mesquite bushes as well as several other plant species were transplanted into previously fenced areas in hopes that they will survive and become vegetation around which sand will accumulate. In 2009, additional plants were placed, some in the enclosures and some in a major wash to shore up and maintain the little islands of habitat that occur in the middle of this drainage. In addition, the OWSVRA Resources Department continues to employ a Park Aide whose primary responsibility will be

monitoring, repairing, and upgrading fencing around restricted areas.

Planning Action 4: Attempt to acquire through exchange, donation, or purchase from willing sellers all private lands within MAs.

In-holdings within the Yuma Desert MA were purchased previously and all land remains federally owned.

In Anza-Borrego Desert State Park, land acquisitions within FTHL habitat continue in coordination with the Anza-Borrego Foundation (ABF). ABF seeks to acquire private in-holdings within ABDSP including acres within the FTHL MA. Although there were no habitat acquisitions in 2009, ABF acquired 99 acres within the MA. This property is managed by ABDSP and will eventually be transferred into Park ownership.

California State Parks acquired approximately 1628.33 acres of private in-holdings for the Research Area (OWSVRA).

BLM-El Centro continues to use compensation funding for acquisition of private lands throughout FTHL MAs. Acquisitions totaled 3,145.66 acres in the West Mesa MA for \$1,237,525, and 500 acres in the East Mesa MA for \$250,000. The composition of these compensation funds included \$892,625 from ADOT, \$524,000 from BR, and \$23,200 from SDGE.

Reclamation's Boulder City Regional Office, which is implementing the Multi-Species Conservation Program (MSCP), is in the process of acquiring 230 acres of FTHL habitat to meet Lower Colorado River MSCP mitigation requirements. Lands acquired by MSCP must be inhabited by FTHL and will be transferred to an appropriate land management agency. During 2009, MSCP was looking at lands in California. In 2009, Reclamation surveyed lands near Borrego Springs, CA for FTHL occupancy. Results were inconclusive. Reclamation plans to continue this effort in the Coachella Valley in 2010.

Seek funds for land acquisitions in MAs.

See previous section.

Planning Action 5: Maintain or establish effective habitat corridors between naturally adjacent populations.

The Department of Customs and Border Protection completed construction of a pedestrian fence along the entire southern border of the Yuma Desert in 2008. Following ICC recommendations, this fence includes slots intended to allow passage of the FTHL. However, drifting sand buried these slots or they have become stranded high above the sand surface, making most of them inaccessible to FTHL. This, combined with the difficulty of crossing Mexico Highway 2, may

mean there is no longer an effective corridor between the Arizona and Sonora populations. In 2008, the ICC provided recommendations on how to maintain permeability for FTHL so that genetic exchange with Mexico populations could continue.

No activities or projects have been permitted within the California MAs or Ocotillo Wells RA this year that would prevent or obstruct FTHL movement between adjacent populations in the MAs or RA.

Planning Action 6: Coordinate activities and funding among the participating agencies and Mexican agencies.

Management Oversight Group.

The MOG is comprised of managers from 12 signatory agency offices. It meets as necessary each year to coordinate implementation of the Conservation Agreement in response to ICC recommendations. The MOG met on the following dates during 2009:

26 March (MOG/ICC; BLM-El Centro)
1 October (BLM-El Centro)

Major items discussed by the MOG during 2009 were analysis of recent monitoring data, the production of a conservation plan in Mexico, and proposals for various development projects.

Interagency Coordinating Committee.

The ICC is comprised of biologists from 13 signatory agency offices. It meets quarterly to exchange information on research results, develop proposals, and discuss technical and management issues. The ICC is responsible for compiling information for the annual ICC report which outlines accomplishments under the RMS, lists issues regarding management of the MAs and RAs, and details planned actions for the upcoming year. The ICC met on the following dates during 2009:

26 March (MOG/ICC; BLM-El Centro)
17 June (BLM-Yuma)
24 September (BLM-El Centro)
3 December (Yuma Quartermaster Park)

Major items that the ICC discussed in 2009 included proposals for habitat restoration, developing a centralized database for monitoring data, analyzing recent monitoring data, developing another study to evaluate the effectiveness of FTHL relocation, purchasing land in California MAs, various projects that could impact FTHL habitat, the results of monitoring and research, and updating the research and monitoring list.

Coordination with Mexico.

In 2007, a bi-national working group was formed to address FTHL conservation activities in Mexico and the development of a conservation management strategy. Rob Lovich, Natural Resources Specialist with the Department of Navy, headed an sub-team to facilitate coordination through the ICC and Mexico representatives. A funding agreement was initiated in 2008 that would transfer funding to Mexico to assist with the development of a conservation management strategy.

ICC team members continued to meet with Alto Golfo de California Biosphere Reserve (AGCBR) staff to discuss the development of a Mexican management strategy and other issues of common concern. The new highway between the community of Santa Clara (El Golfo) and Puerto Peñasco (Rocky Point) which passes through FTHL habitat was of persistent concern. This highway provides tourists access, including off-highway vehicles, to the dunes of the Gran Desierto and Gulf beaches. The total distance of the new highway is 128 kilometers (about 80 miles) in length. This highway was partially opened in 2008 and was completed during 2009. Biologists with AGCBR conducted road surveys along an open portion of the highway in 2008. During seven mornings, they documented four live and two dead FTHL. Continued data collection will enable a FTHL impact analysis of the new road and assist in mitigating impacts (e.g. possible fence construction). In addition, a highway to connect San Luis with El Doctor was also completed during 2009. This highway allows vehicles to bypass the agricultural for travel between El Golfo, Puerto Peñasco, and San Luis. Unfortunately, a majority of this 35-mile development is through previously pristine FTHL habitat.

Brochures and other interpretive materials are still needed to inform visitors of the sensitivity of desert habitat in the area and of regulations designed to protect the environment, as well as the FTHL in Mexico. Special management areas, equivalent to the MAs in the U.S., need to be identified and managed as such. Additional signage and interpretive materials would be needed in support of these areas. In addition, MOG and/or ICC need to meet to focus management and research needs in Mexico and projects to support those needs. Ideally, the meetings should be held in Sonora and include representatives from AGCBR and El Pinacate y Gran Desierto de Altar Biosphere Reserves. A Spanish version of the RMS would be useful.

Conservation Agreement.

The 10 agencies that are signatories to the Conservation Agreement to implement the FTHL RMS are listed in the introduction.

Incorporate RMS actions in ecosystem plans.

See also Planning Action 1.

In January 2003, the BLM-El Centro Field Office completed the Western Colorado Routes of Travel Designation (WECO). This designated routes as open, closed, or limited. WECO specifically incorporates the guidelines of the RMS, and the BLM is managing its land under

those guidelines. BLM-El Centro wrote an Environmental Assessment to amend the California Desert Conservation Area Plan to officially designate the FTHL MAs. The EA was signed on February 1, 2005, thus formally establishing all three MAs in the El Centro area.

Reclamation continues to implement the Five-Mile Zone Resource Management Plan, adopted March 18, 2004, for withdrawn lands along this zone that parallels the international border. This RMP incorporated the RMS and was further described in the 2004 FTHL Annual Report.

MCAS-Yuma finalized the INRMP (see Planning Action 1), which fully incorporates and implements the RMS.

BLM-Palm Springs continues to participate in the CVMSHCP that fully incorporates measures in the FTHL RMS.

Border Patrol.

BLM-El Centro coordinates monthly meetings with 3 BP offices and sponsors regular FTHL orientation sessions to reduce BP impacts to FTHL habitat along the international border. In 2008, BP initiated fence construction in all flat-terrain and lowland areas for the entire California-Mexico border and portions along the Arizona–Mexico border. Several types of fencing (i.e., pedestrian and vehicular) were constructed. BLM conducts regular troop briefings to ensure they are aware of FTHL concerns in the desert. This coordination is viewed as a national model because it positive effects BLM’s and BP’s ability to accomplish their missions. BP is completing its mission while minimizing impacts in FTHL habitat as a result increased understanding of the FTHL and its habitat needs.

BLM-El Centro implemented an ambitious education strategy with BP to reduce impacts to FTHL habitat. This includes Detailer and Post Academy Orientation. Detailed staff and new employees assigned to the BP’s El Centro Sector are given a 1-2 hour presentation on MA locations, desert ecology, sensitive species, archeology, and wilderness. Detrimental effects of off-route travel on FTHL habitat is discussed in relation to prey, ecology, and FTHL habits. This information is provided to all new BP field agents in the El Centro and Calexico as part of their new employee orientation. BLM recommends, and will assist with, similar training for enforcement staff in other MAs (e.g. Yuma Desert).

Planning Action 7: Promote the goals of the Strategy through law enforcement and public education.

Law Enforcement.

BLM-El Centro has continued to increase law enforcement patrols in FTHL habitat in Imperial County, particularly within the East Mesa MA (see description under Planning Action 3 above). Law enforcement officers report that the majority of recreational users in the MAs are now

complying with the route designation requirements by staying on approved routes and camping in appropriate areas.

OWSVRA law enforcement personnel monitor OHV use to ensure that regulations are followed. Personnel are familiarized with FTHL information for enforcement and educational purposes.

MCAS conducts daily ORV patrols within the Yuma Desert MA and adjacent habitat.

Public Information.

OWSVRA continues to distribute the FTHL information brochure to park visitors. OWSVRA was officially designated as a California Watchable Wildlife Site as of September 29, 2008. Signs advertising this fact were first installed in 2009. The write-up on the California Watchable Wildlife website highlights the importance of the area as FTHL habitat. The district has added an Interpretation Department which is developing wildlife trading cards, one of which features the FTHL. It is also assembling a Visitor's Guide which will include an FTHL article. It has already published a Reptile Guide for the park which includes the FTHL. The walkway to the new amphitheater now has two benches that are in the shape of a horned lizard, albeit not specifically a FTHL.

BLM-El Centro continues to maintain informational kiosks and update and distribute the WECO area road map, which encompasses the Yuha Desert, and West Mesa and East Mesa MAs. Furthermore, BLM-El Centro continues public contacts and information dissemination using Park Rangers and the Student Conservation Association crew. BLM-El Centro has extended these contacts into the West Mesa MA and has partnered with the Desert Protective Council in securing of a grant to produce and distribute an interpretive brochure of the Yuha area. Additionally, BLM-El Centro has expanded the environmental outreach program in the Imperial Sand Dunes. New interpretive panels that have information about FTHL and other wildlife in the dunes have been placed in the Cahuilla Ranger station. The 5 new kiosks locations include: Cahuilla Ranger station, Gecko Road, Wash Road, Buttercup Ranger station, and Dunebuggy Flats. These panel will rotate among the various to allow returning visitors see a variety of information. A FTHL panel is not currently on display but one will be made available in the future.

Recreation is allowed within a limited area of the MCAS portion of the Yuma Desert MA. MCAS has published a recreational use map depicting closed areas which is supported with on-the-ground signage.

Planning Action 8: Encourage and support research that will promote the conservation of FTHLs or desert ecosystems and will provide information needed to define and implement necessary management actions effectively.

Research Permitting and Funding.

AGFD issued 8 permits for collecting or handling FTHL during 2009. CDFG issued no new scientific collecting permits during 2009; 30 Letters of Concurrence were issued to monitoring trainees. The following studies were funded by signatory agencies or other sources during this reporting period:

OWSVRA continues to self-fund all of its FTHL research which includes the completion of the ICC-recommended occupancy survey, the additional surveys conducted on the Freeman Property, and the FTHL component of OW's regular reptile surveys. All data has been collected and organized in a manner so that ecological and population questions can be examined over time. OWSVRA also continues to fund all habitat closures and restoration that are being done within its boundaries.

Reclamation funded demographic surveys at 2 plots within the Yuma Desert MA, previously established and monitored in 2008. The Navy provided funding for surveys of the West Mesa demographic plot.

Planning Action 9: Continue Inventory and Monitoring.

Previously, the ICC evaluated the success of earlier FTHL monitoring efforts and established a plan for future monitoring. Following is a summary:

Monitoring is used to assess the status or "health" of the populations in question. Many different indicators can be informative of "health," and which indicator is used is often a function of conditions specific to the species. Such indicators include population size, density, survival rate, recruitment, population growth rate, or other such metrics. The ICC proposed a new monitoring regime to monitor FTHL population health in the MAs and RA. The monitoring consisted of occupancy estimation and "sentinel" (or "demographic") plots.

FTHL monitoring using 4-hectare closed mark-recapture plots has been done at least once on all the MAs and RA except for the Borrego Badlands. This monitoring has successfully generated broad population estimates. The confidence intervals were very wide in a few cases. The ICC proposed an alternative method be used in future monitoring efforts because of perceived fluctuations in populations.

Occupancy estimation allows for inferences regarding the FTHL distribution in the MAs. It will answer the question: Is the distribution of FTHLs in the MAs stable, increasing, or decreasing? This monitoring component is intended to detect large-scale changes that reflect large or catastrophic status changes. This protocol method has been generally established in occupancy surveys conducted during the last several years.

There are fewer sentinel plots where more in-depth information is collected to further our understanding of FTHL population dynamics. ICC participants are using a statistical mark-

recapture model known as “Robust Pradel.” The Robust Pradel model is a recent extension of the simple Pradel model which has been used to monitor northern spotted owl. Robust Pradel models estimate critical population dynamics elements by evaluating summer abundance and annual survival and fecundity rates.

The summers of 2007 and 2008, served as a pilot study/evaluation period for the sentinel plot protocol. The ongoing monitoring goal is to conduct annual surveys of all MA and RA for a specified amount of time (e.g. 5 years). A summary of past and current inventory and monitoring efforts is provided in Table 3.

In 2009, BLM-El Centro continued demographic surveys on the East Mesa, Yuha, and West Mesa MAs. The Navy provided \$23,351 for surveying the West Mesa demographic plot (Target 101 area). SCA interns surveyed each demographic plot for 10 consecutive days. All FTHL with snout-vent length greater than 55mm were PIT-tagged, GPS location recorded, and a range of measurements noted. Occupancy plots were completed on 62 randomly selected 4-hectare plots on West Mesa.

OWSVRA conducted only occupancy plot surveys. The demographic (sentinel) plot surveys were abandoned because they did not produce sufficient results to allow any data analysis. In consultation with the research coordinator for the ICC, it was decided that staff time would be better utilized in expanding the number of occupancy surveys. With the extra time, the number of occupancy plot surveys was increased to 160. In addition, 21 occupancy plots were established and surveyed on the Freeman Property, a possible California State Parks acquisition. All surveys were conducted by employees of OWSVRA. Observations of FTHL during the course of biannual reptile surveys and any other incidental sightings in the OWSVRA were recorded in the CDFG California Natural History Database and archived with GPS equipment. FTHL observations by staff during archaeological surveys, ranger patrol, or maintenance activities were noted.

AGFD and Reclamation completed surveys on the 2 demographic plots that were established and surveyed in the Yuma Desert MA. One plot lies within the Reclamation portion and the other within the BMGR portion. Each area was surveyed for 10 days in late summer. All adult FTHL were PIT tagged and their locations were recorded.

No monitoring or research updates were provided from the BLM-Palm Springs Field Office.

Table 3. Summary of monitoring estimates on Flat-tailed Horned Lizard Management Areas, with 95% confidence intervals. Estimates are of the total population in the Management Area (except where noted) or the probability of occupancy of lizards (L) and scat (S) on plots in the Management Area. Population estimates were based on mark-recapture data, except one case where trapping webs were used (TW) in 2003 in the Yuma MA. Results are from preliminary analyses (B. Root, USFWS) and may be revised.

	Yuma Desert	East Mesa	West Mesa	Yuha Basin	OWSVRA	Borrogo Badlands
2002	-	-	-	25,514 (12,761-38,970)	-	-
2003	16,328 (TW) (8,378-31,794) 25,855 (16,390-43,951)	42,619 (19,704-67,639)	10,849 (3,213-23,486)	-	19,222 (18,870-26,752)	-
2004	-	-	-	73,017 (4,837-163,635)	-	-
2005	22,120 ¹ (19,962-25,357)	-	0.06 (0.02-0.14) L 0.48 (0.31-0.79) S	-	24,345 (14,329-69,922)	-
2006	-	0.44 (0.28-0.69) L 0.83 (0.76-0.89) S	-	-	1.00 (no CI) L 0.56 (0.43-0.72) S	-
2007	-	-	-	-	1.00 (no CI) L 0.74 (0.52-1.00) S	-
2008	16,185 ¹ (12,840-20,285)	-	-	0.56 (0.29-1.00) L 1.00 (no CI) S	0.66 (0.42-1.00) L 0.74 (0.64-0.83) S	-
2009	19,422 ¹ (13,703-24,925)	-	0.86 (0.53-1.00) L 0.87 (0.75-0.99) S	-	0.75 (0.50-1.00) L 0.88 (0.82-0.94) S	-

¹ Estimates are only for areas of optimal habitat, approximately 10% of the MA.

Table 4. Flat-tailed horned lizard demographic plot density estimates (adults) with 95% confidence intervals calculated from Huggins closed-capture abundance estimates and mean maximum distance moved (Wilson and Anderson 1985). Results are from preliminary analyses (B. Root, USFWS) and may be revised.

MA	Yuma Desert		East Mesa	West Mesa		Yuha Basin	OWSVRA	
Plot	YD1 (=BMG)	YD2 (=BOR)	EM1 (=315)	WM1 (=156)	WM2	YU1 (=486)	Squaw Peak	Mudhills
2007	-	-	1.62 (1.26 – 1.97)	0.83 (0.48 – 1.18)	-	1.15 (0.88 – 1.43)	- ¹	- ¹
2008	2.24 (1.75 – 2.78)	0.98 (0.82 – 1.26)	1.23 (0.89 – 1.56)	0.33 (0.20 – 0.45)	2.34 (1.86 – 2.82)	1.11 (0.83 – 1.38)	- ¹	- ¹
2009	3.36 (2.41 – 4.24)	1.83 (1.24 – 2.41)	3.31 (2.64 – 3.98)	1.19 (0.83 – 1.55)	3.40 (2.71 – 4.08)	2.70 (2.13 – 3.27)	Discontinued	Discontinued

¹ Sample sizes are too small for statistical analysis.

Summaries of results from demographic and occupancy plots are given in Table 5 and 6.

Table 5. Summary of flat-tailed horned lizard captures on demographic plots in 2009 (juveniles < 60mm SVL).

Plot	Location Description	MA	Adults Captured	Juveniles Captured
BMG (=YD1)	On BMG range	Yuma Desert	33	94
BOR (=YD2)	Reclamation land	Yuma Desert	17	36
315 (=EM1)	East of geothermals	East Mesa	62	5
486 (=YU1)	Pinto Wash	Yuha Basin	63	0
156 (=WM1)	SW of Superstition Mtn	West Mesa	21	20
WM2	On Navy target	West Mesa	69	0
Squaw Peak	Near Squaw Peak	OWSVRA	Discontinued	
Mudhills	Mudhill area	OWSVRA	Discontinued	

Table 6. Number of occupancy plots surveyed in 2009 and percent that were found to be occupied.

Management Area	Number of Plots	Naïve Occupancy Estimate
Ocotillo Wells	160	42.5%
West Mesa	62	85.5%

TREASURY REPORT

Table 7. Expenditures and balances for compensation fund accounts through 31 December, 2009 (no updates were provided for the Yuma accounts).

	Yuma Area ¹	Yuma MA ² (17.3% INC)	ASH intermediate acquisitions costs ³ (19% INC)	ASH land purchase cost ⁴ (19% INC)	East Desert MA ⁵ (% INC)	West Desert MA ⁶ (% INC)	Reclamation Drop 2 ⁷	Sunrise Powerlink ⁸
2008 carryover	\$2,860	248,976	416,963	779,541	130,833	63,815	906,867	348,484
Additions								
San Luis ROW								
Reclamation Drop 2 Deposit								
Truckhaven Geothermal Developer								
Subtractions								
DOI Minerals								
DOI Minerals								
			86,776	47,915	91,073	49,090	405,080	137,301
TOTALS	unknown	unknown	330,186	731,626	39,760	14,725	501,787	211,182

¹LLAZC020000 L71220000 JP0000 LVTF5701AZ00

²AZ 320 7122 5701

³AZ 320 7122 5808

⁴AZ 320 7122 6974

⁵CA 670 7122 6712

⁶CA 670 7122 713

⁷LRORBX901700

⁸LVTFB10649LO

CONCLUSIONS

Signatory agencies continue close cooperation and careful execution of their respective responsibilities as described in the 2003 updated version of the FTHL RMS. The signatory and cooperating agencies continue to implement the RMS throughout the MAs and other FTHL habitat. Regular coordination between the participating agencies continues through the MOG and ICC. The participating agencies believe the FTHL Conservation Agreement and RMS continue to provide an effective management focus for FTHL habitat conservation. During the past year, the aggressive RMS implementation has positively benefited FTHL conservation. Outreach efforts continue to include the general public, other U.S. agencies (e.g., BP), and Mexican agencies as active participants in RMS implementation. AGCBR and Pinacate Biosphere Reserves are working closely with U.S. agencies on research and conservation efforts to benefit the FTHL in Mexico. Authorized surface impacts have remained low in MAs.

The MOG and ICC continue to support the 2004 decision to allow distributing compensation funding among MAs, regardless of source state, since no land is available for purchase in the Yuma MA. This decision continues to focus on purchasing land available in any MA prior to private development. If there is no additional land available for purchase in a MA, the group will continue to use compensation funds for habitat restoration within MAs. Some signatory participants have been successful in securing funding for rehabilitation efforts from non-compensation funds. This supplements the compensation funds in providing management capability for RMS implementation.

Population inventories and the monitoring of trends continue, as does research in MAs and habitat areas. This information is useful in developing future management actions and providing direction on how best to implement current projects.

Outreach, which includes educating and informing the public, is an on-going activity. The informational videos that were produced in 2006 for the general public and the BP will help immensely in this effort. Public understanding of the FTHL, its habitat needs, and authorized activities in its habitat areas, is necessary to fully implement the RMS.

The 2003 updated version of the FTHL RMS continues to direct participating agencies towards ever more effective management and conservation of FTHL.

RMS IMPLEMENTATION PROGRESS TO DATE (Updated schedule)

The following table displays the priority level, responsible agency, estimated cost, and schedule for completing each Planning Action. The priority levels indicated in the table are assigned the following definitions:

Priority 1: An action that must be taken in the near term to conserve the species and prevent irreversible population declines.

Priority 2: An action that must be taken to prevent significant declines in population or habitat quality.

Priority 3: All other actions necessary to meet the goals and objectives of this RMS.

The following abbreviations and symbols are used in the implementation schedule:

ABDSP	.....	Anza-Borrego Desert State Park
AGFD	.....	Arizona Game and Fish Department
BLM	.....	Bureau of Land Management
Reclamation	.....	Bureau of Reclamation
ICC	.....	Interagency Coordinating Committee
CDFG	.....	California Department of Fish and Game
OWSVRA	.....	Ocotillo Wells State Vehicular Recreation Area
USFWS	.....	U.S. Fish and Wildlife Service
USMC	.....	U.S. Marine Corps
USN	.....	U.S. Navy
<input checked="" type="checkbox"/>	Task completed since 1997
<input type="checkbox"/>	Task not completed
⇒, ∪	.....	Task ongoing, on schedule
➔, ∪	.....	Task ongoing, not on schedule

Management Strategy Implementation Schedule, 2008-2012												
Status	Priority	Action Number	Planned action	Duration (yrs)	Responsible agency	Total cost (\$000)	Cost estimates (\$000)					
							FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	
		1.	Delineate and designate FTHL MAs									
☑	1	1.1	Designate Yuma Desert MA	2	RECLAMATION USMC	1	0	0	0	0	0	
☑	1	1.2	Designate East Mesa MA	2	BLM USN	1	0	0	0	0	0	
☑	1	1.3	Designate West Mesa MA	2	BLM USN	1	0	0	0	0	0	
☑	1	1.4	Designate Yuha Desert MA	2	BLM	1	0	0	0	0	0	
☑	1	1.5	Designate Borrego Badlands MA	2	ABDSP	1	0	0	0	0	0	
☑	3	1.6	Designate Ocotillo Wells RA	1	BLM OWSVRA ABDSP	1	0	0	0	0	0	
☑	1	1.7	Designate conservation areas in Coachella Valley	2	BLM USFWS CDFG	1	0	0	0	0	0	
		2.	Define and implement actions necessary to minimize loss or degradation of habitat									
⇒	1	2.1.1	Apply mitigation measures	∞	ALL	5	1	1	1	1	1	
⇒	1	2.1.2	Require compensation	∞	ALL	25	5	5	5	5	5	
⇒	1	2.2.1	Limit discretionary land uses authorizations and rows to 10 acres and 1% total per MA	∞	ALL	5	1	1	1	1	1	
⇒	1	2.2.2	Do not dispose of lands in MAS	∞	ALL	0	0	0	0	0	0	
⇒	3	2.2.3	Continue maintenance in existing ROWS	∞	ALL	0	0	0	0	0	0	
⇒	2	2.2.4	Require fencing along Yuma Desert MA boundary road	∞	ALL	50	0	50	0	0	0	
⇒	2	2.3.1	Limit surface disturbance from mineral activities in MAS	∞	ALL	5	1	1	1	1	1	
⇒	2	2.4.1	Reduce new roads to a minimum in MAS	∞	ALL	5	1	1	1	1	1	
⇒	1	2.4.2	Designate routes "open," "closed", or "limited." Give route signing a priority	∞	BLM USMC BR	100	20	20	20	20	20	
⇒	1	2.4.3	Reduce route density in MAS		See 2.4.2							
⇒	1	2.4.4	Coordinate with U.S. BP	∞	ALL	20	4	4	4	4	4	
⇒	3	2.5.1	Allow OHV recreation in RA	∞	OWSVRA	0	0	0	0	0	0	
⇒	1	2.5.2	No competitive recreational events in MAS	∞	ALL	0	0	0	0	0	0	
⇒	2	2.5.3	Allow non-motorized recreational activities in MAS, but no new recreational facilities	∞	ALL	0	0	0	0	0	0	
⇒	2	2.5.4	Limit camping in MAS	∞	BLM USMC	20	4	4	4	4	4	

Management Strategy Implementation Schedule, 2008-2012												
Status	Priority	Action Number	Planned action	Duration (yrs)	Responsible agency	Total cost (\$000)	Cost estimates (\$000)					
							FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	
⇒	2	25.5	No new long-term visitor areas in MAS	∞	ALL	0	0	0	0	0	0	
⇒	3	2.6	Authorize limited use of flora in MAS	∞	ALL	5	1	1	1	1	1	
⇒	1	2.7	Allow military maneuvers and encampments only in designated sites in MAS	∞	USN USMC	5	1	1	1	1	1	
⇒	3	2.8	Suppress fires in MAS using limited fire suppression methods in MAS	∞	ALL	5	1	1	1	1	1	
⇒	1	2.9	Prohibit pesticide treatments in MAS	∞	ALL	5	1	1	1	1	1	
⇒	3	2.10	Limit other activities consistent with above	∞	ALL	5	1	1	1	1	1	
		3.	Rehabilitate damaged and degraded habitat									
⇒	2	3.	Rehabilitate damaged and degraded habitat in MAS	∞	BLM RECLAMATION ABDSP USMC USN	500	100	100	100	100	100	
		4.	Bring all lands within MAS into public management									
☑	3	4.1	Maintain prioritized list of parcels for acquisitions; and respect private rights	1	ALL	5	1	1	1	1	1	
⇒	3	4.2	Procure funds for land acquisitions in MAS (32,178 acres of private lands in California MAS)	∞	BLM CDFG ABDSP OWSVRA	22,525	4,505	4,505	4,505	4,505	4,505	
⇒	3	4.3	Use compensation funds to acquire key lands in MAS	∞	BLM CDFG ABDSP OWSVRA	20	4	4	4	4	4	
⇒	3	4.4	Exchange lands opportunistically	∞	BLM	20	4	4	4	4	4	
		5.	Maintain or establish effective habitat corridors between naturally adjacent populations									
⇒	2	5.1	Limit or mitigate activities in movement corridors	∞	ALL	25	5	5	5	5	5	
⇒	3	5.2	Coordinate with Mexico and INS	∞	ALL	10	2	2	2	2	2	
		6.	Coordinate activities and funding among the participating agencies and Mexican agencies									
☑	2	6.1.1	Establish FIHLMOG	∞	ALL	5	1	1	1	1	1	
⇒	2	6.1.2	Hold semi-annual ICC meetings	∞	ALL	5	1	1	1	1	1	
⇒	3	6.1.3	Establish forum for discussions with agencies and individuals in Mexico	∞	ALL	25	5	5	5	5	5	
☑	1	6.2	Develop Conservation Agreement	1	ALL	0						

Management Strategy Implementation Schedule, 2008-2012											
Status	Priority	Action Number	Planned action	Duration (yrs)	Responsible agency	Total cost (\$000)	Cost estimates (\$000)				
							FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
⇒	2	6.3.1	Incorporate actions in Western Colorado Desert ecosystem plan (Note: Other state and local agencies will fill key roles)	∞	ALL	50	10	10	10	10	10
☑	2	6.3.2	Incorporate actions in CVMSHCP (Note: Other state and local agencies will fill key roles)	3	BLM CDFG USFWS	0	0	0	0	0	0
⇒	2	6.3.3	Incorporate actions in Western Colorado Desert Route Designation	∞	BLM	20	4	4	4	4	4
⇒	1	6.4	Coordinate with U.S. BP and develop mutual agreements	2	BLM RECLAMATIO N USMC	6	2	2	2	0	0
⇒	2	6.4.1	Encourage use of techniques to minimize BPOHV activity	∞	BLM RECLAMATIO N USMC	5	1	1	1	1	1
⇒	2	6.4.2	Prepare educational briefing for BP agents	1	BLM BR	5	1	1	1	1	1
		7.	Promote the purposes of the RMS through law enforcement and public education								
⇒	1	7.1	Provide adequate law enforcement	∞	BLM CDFG AGFD USMC	750	150	150	150	150	150
⇒	3	7.2	Provide public information and education	∞	ALL	25	5	5	5	5	5
		8.	Conduct research necessary to define and implement necessary management actions effectively								
⇒	3	8.1	Require permits for research	∞	ALL	5	1	1	1	1	1
⇒	2	8.2	OWSVRA shall continue to fund research	∞	OWSVRA	200	40	40	40	40	40
☑	2	8.3.1	Test trapping as a population census technique	2	ALL	0	0	0	0	0	0
⇒	2	8.3.2	Test direct counting methods	2	ALL		Included in 8.2 and 8.3.1				
⇒	2	8.4	Determine life history and demographic data (sentinel plots)	5	BLM MCAS, RECLAMATIO N OWSVRA ABDSP	300 150 150 100	60 30 30 20	60 30 30 20	60 30 30 20	60 30 30 20	
⇒	2	8.5	Determine effects of conflicting activities	5	ALL	300	60	60	60	60	60
⇒	3	8.6.1	Determine genetic variation in population	5	ALL	40	0	20	0	20	0
⇒	3	8.6.2	Determine effects of non-natural barriers	∞	ALL	30	5	5	5	5	5
☐	3	8.6.3	Determine effects of natural barriers	5	ALL	15	3	3	3	3	3

Management Strategy Implementation Schedule, 2008-2012											
Status	Priority	Action Number	Planned action	Duration (yrs)	Responsible agency	Total cost (\$000)	Cost estimates (\$000)				
							FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
⇒	3	8.7	Determine effectiveness of mitigation measures	5	ALL	20	4	4	4	4	4
		9.	Continue inventory and monitoring								
⇒	2	9.1	Continue inventories	∞	ALL	125	25	25	25	25	25
⇒	2	9.2.1	Monitor implementation	∞	ICC	40	8	8	8	8	8
⇒	2	9.2.2	Monitor population trends (occupancy plots)	∞	BLM MCAS, RECLAMATION OWSVRA ABDSP	400 180 135 150	100 60 45 50	50 60 45 50	100 50 10 10	50 60 45 50	100 60 45 50
⇒	1	9.2.3	Document habitat disturbance and loss	∞	ALL	50	10	10	10	10	10
⇒	1	9.2.3.1	Conduct aerial reconnaissance and analysis of surface disturbance on the five MAs every five years	∞	ALL	100		100			
⇒	2	9.2.4	Prepare annual monitoring/implementation report	∞	ICC	20	4	4	4	4	4
⇒	1	9.2.5	Use new inventory, monitoring, and research data in evaluations and proposed changes	∞	ALL	10	2	2	2	2	2

Appendix A: Report Abstracts

Abbatte, Dennis, Vincent Frary, and Linden Piest. 2010. Flat-tailed horned lizard demographic monitoring within the Yuma Desert Management Area, Arizona. 2009 progress report submitted to U.S. Bureau of Reclamation by the Arizona Game and Fish Dept. 11 pp. No abstract included; following is a summary, which may be modified as a result of reanalysis: AGFD established and implemented 2 demographic plots within the Yuma Desert MA with Reclamation funding. One plot each was located on Reclamation land and on the BMGR. Surveys were conducted using protocols established by the FTHL ICC, and the program MARK was used for analysis. In 2008, 48 adult and 61 juvenile FTHL were found on the 2 plots. In 2009, 51 adult and 131 juveniles were found. Estimates based on MARK were 59 and 71 adults in 2008 and 2009, respectively. Using a 33m buffer strip around the MA, density estimates were 2.66 and 3.20 FTHL/ha in 2008 and 2009, respectively. Population estimates for the good quality habitat in which the plots were located (approximately 10% of the MA) were 14,350 and 17,264 adults in 2008 and 2009, respectively. These estimates are similar to earlier estimates in the Yuma Desert MA. Recommendations for future monitoring are provided.

Bureau of Land Management El Centro Field Office. Flat-Tailed Horned Lizard Monitoring Report 2009. The BLM-El Centro continued monitoring at the East Mesa, West Mesa, and Yuha MAs. A fourth plot was added on Navy lands, the bombing range north of Superstition Mountain. Nine hectare demographic plots were established and surveyed for 9 consecutive days using 6 monitors on all plots. Lizards over 55mm snout-to-vent length were fitted with a PIT tag and temporarily marked with a sharpie. The capture locations were GPSed and routes walked recorded. Individual lizards were generally recaptured near the original capture site. Three hundred fifteen FTHL captures were made on the demographic plots. In addition to the demographic plots, 62 occupancy plots were surveyed in the West Mesa MA.

Hollenbeck, Eric and Joe Hopkins. 2009. Ocotillo Wells District 2009 flat-tailed horned lizard (*Phrynosoma mcallii*) occupancy survey report (draft). In 2009, Ocotillo Wells State Vehicular Recreation Area, designated as the Research Area under the FTHL Conservation Agreement, was surveyed using the Occupancy protocol authored by the BLM in 2006. 160 stratified-random and nested four-hectare plots were searched for presence of FTHL. 68 plots (42.5%) were positive for FTHL. Analysis in the program MARK for occupancy has not been done yet, but it will probably indicate 100% occupancy. 21 Occupancy Plots were established and surveyed on the Freeman Property, a possible California State Parks acquisition. These plots were established to complement the reptile inventory surveys being done by the San Diego Natural History Museum under a contract jointly administered by the Ocotillo Wells District and the Colorado Desert District. Only one plot was determined to be positive, that plot being in the same general area where the contractor had captured FTHL in its pitfall arrays.

Hollenbeck, Eric and Joe Hopkins. 2009. Ocotillo Wells District 2009 flat-tailed horned lizard (*P. mcallii*) capture rate in pitfall arrays. In 2009, Ocotillo Wells State Vehicular Recreation Area, while completing its biannual reptile monitoring, captured an extraordinary number of flat-tailed horned lizards, especially in the Spring survey. Prior to Fall, 2007,

OWSVRA's reptile monitoring system was a combination of walking (time-constraint) surveys and pitfall arrays run for one week (4 trapping days). The pitfall arrays consisted of four five-gallon buckets buried with a center bucket and three buckets 20 feet away separated by 120 degree angles and drift net fencing running between the center and spoke buckets. In the Fall season, 2007, most of the walking surveys were replaced with pitfall arrays, and all the pitfall arrays were worked for three weeks (12 trapping days). In Spring, 2008, the remainder of the walking surveys were converted to pitfalls, worked for the longer time period. Total spring captures of flat-tailed horned lizards from 2000 through 2007 amounted to 21 individuals. Total fall captures, 2000 through 2007 with 2007 having more pitfall arrays run for the longer time period, were 23. In Spring, 2008, there were 21 FTHLs captured, equal to the eight previous springs. In Fall, 2008, 35 FTHLs were captured, a 52% increase over the total captures of the previous eight falls. This trend continued in Spring, 2009, when 47 FTHLs were captured, 5 more than captured in all of the spring surveys from 2000-2008. In Fall, 2009, only 15 were captured, still a healthy number compared to previous years. The 2009 total of 62 individuals is almost 75% of the total FTHL found by the crews doing the Occupancy Plots with those Occupancy Plot Surveys being conducted from May 26 through September, visiting 160 plots a total of 262 times executing 752 individual surveys.

Appendix B: 2010 Annual Work Plan for the Flat-tailed Horned Lizard Interagency Coordinating Committee

1. Delineate and designate flat-tailed horned lizard MAs and a RA.

1.1-1.6. All MAs and the RA have been delineated and officially designated. ABDSP will work to strengthen their official commitment in their new Natural Resources Management Plan.

1.7. Encourage development of a MA in the Coachella Valley. Signatories decided to support creation and management of the CVMSHCP instead. BLM-Palm Springs will continue to participate in the development of the CVMSHCP.

2. Define and implement management actions necessary to minimize loss or degradation of habitat.

2.1. Mitigate and compensate project impacts through humane and cost-effective measures.

2.1.1. Apply mitigation measures. Appropriate mitigation measures will be enforced for all authorized projects that impact FTHLs or their habitat.

2.1.2. Require compensation for residual impacts. Agencies will continue to require compensation for projects that have residual impacts to FTHL habitat.

2.2. Limit authorizations that would cause surface disturbance in MAs.

2.2.1. Attempt to locate projects outside MAs; limit discretionary land use authorizations and ROWs to 10 acres and 1% total per MA. These limits will be observed.

2.2.2. Federally owned lands in the MAs shall be retained in federal ownership. No disposal of federal lands within MAs will occur.

2.2.3. Maintenance in existing ROWs may continue. No action required.

2.2.4. Require fencing along Yuma Desert MA boundary road. Agencies in Arizona will continue to coordinate with ADOT to ensure that they are committed to maintaining lizard barrier fencing along the Area Service Highway.

2.3. Limit surface disturbance in MAs from minerals actions.

2.3.1. Allow approved minerals actions while applying applicable mitigation and compensation. Applicable mitigation and compensation will continue to be applied.

2.4. Limit vehicle access and route proliferation in MAs. BLM-El Centro will continue to rehabilitate illegal routes and add signage to designated routes.

2.4.1. Reduce new roads to a minimum in MAs. BLM-El Centro: all designated routes within the MAs have been signed.

- 2.4.2. Designate routes “open,” “closed,” or “limited.” Give route signing a priority.** BLM-El Centro completed route designation for the Western Colorado Desert in January, 2003. All vehicle routes on BLM managed lands in Imperial County were designated as open, closed, or limited. BLM has completed initial signing of all of these routes and is routinely patrolling the area and replacing signs as necessary. BLM is also in the process of restoring closed routes to a natural condition. MCAS-Yuma’s INRMP includes a comprehensive effort to sign routes.
- 2.4.3. Reduce route density in MAs.** BLM-El Centro completed route designation for the Western Colorado Desert. All vehicle routes on BLM managed lands in Imperial County were designated as open, closed, or limited. BLM has successfully secured hundreds of thousands of grant dollars to restore closed routes throughout the Western Colorado Desert area, particularly in the FTHL Management Areas. The MCAS-Yuma INRMP includes most of the Yuma Desert MA and calls for closure of redundant routes; routes will be identified for closure within the MA.
- 2.4.4. Coordinate with USBP to ensure cooperation and enforcement of vehicle regulations.** ICC members will continue to hold FTHL orientation sessions with BP agents in the El Centro sector to reduce impacts to FTHL habitat along the International Border.
- 2.5. Limit impacts of recreational activities in MAs.** Recreational camping is limited in the Yuha Desert MA to designated camping areas. The MCAS-Yuma INRMP closes the portion of the Yuma Desert MA on the Barry M. Goldwater Range to all forms of recreation.
- 2.5.1. Allow vehicle-oriented recreation in RA.** No action required.
- 2.5.2. Permit no competitive recreation events in MAs.** Competitive races will not be permitted in MAs.
- 2.5.3. Allow non-motorized recreational activities in MAs, but limit new recreational facilities.**
- 2.5.4. Limit camping in MAs.** Recreational camping is limited in the Yuha Desert MA to designated camping areas. The MCAS-Yuma INRMP closes the portion of the Yuma Desert MA on the Barry M. Goldwater Range to camping.
- 2.5.5. No long-term camping areas shall be developed in MAs.** None will be developed.
- 2.6. Allow limited use of plants in MAs.** No plant sales, commercial collecting, or grazing will be allowed.
- 2.7. Allow military maneuvers and encampments only in designated sites in MAs.** Military training areas in the Yuma Desert MA are fenced or marked to identify their locations and limits so that adjacent areas will not be impacted.
- 2.8. Suppress fires in MAs and BLM lands in the RA using allowable methods.**

- 2.9. No pesticide treatments shall be applied within MAs.** No pesticide treatments will occur in MAs, except for specifically targeted herbicides. Herbicides are used on tamarisk removal projects, which improve FTHL habitat.
- 2.10. Within MAs, other activities not consistent with the RMS shall not be approved.** None will be approved.
- 3. Rehabilitate damaged and degraded habitat in MAs.** BLM-El Centro will continue restoration and rehabilitation efforts in 2010 utilizing SCA interns. Efforts will focus on the East Mesa MA.
- 4. Attempt to acquire all private lands within MAs.**
- 4.1 Maintain prioritized list of parcels for acquisitions.** Lists identifying parcels for acquisition will be maintained by the California OHV Division office headquarters in Sacramento and by BLM-El Centro. Ocotillo Wells District, through OHMVRD, will continue to acquire private in-holdings. ABDSP will continue to acquire private in-holdings within the park.
- 4.2. Seek funding to acquire key parcels in MAs.** Compensation funds will be banked for habitat acquisition.
- 4.3. Using compensation and other funds, acquire key lands in MAs.** Key lands in MAs will be acquired as opportunities arise. The ICC and MOG will continue to develop a more comprehensive approach regarding the use of funds.
- 4.4. Participate in exchanges to acquire key parcels in MAs.** This will occur as opportunities arise. At the moment, the primary tool for land acquisition is through purchases rather than land exchanges.
- 5. Maintain or establish effective habitat corridors between naturally adjacent populations.**
- 5.6. Limit or mitigate activities in movement corridors.**
- 5.7. Coordinate with Mexico and INS to ensure movement across the border.** Agencies will continue to consult with Department of Homeland Security on border fencing issues.
- 6. Coordinate activities and funding among the participating agencies and Mexican agencies.**
- 6.1.1. Maintain a FTHL MOG.** The MOG will continue to meet as needed to coordinate implementation of the conservation agreement in response to recommendations from the ICC. Meeting minutes will be provided to all MOG and ICC members to facilitate effective coordination.
- 6.1.2. Hold semi-annual meetings of the ICC.** The ICC has met quarterly since the inception of the RMS and will continue to do so to discuss implementation of Planning Actions under the RMS and issues and challenges regarding this implementation. In addition to ICC meetings, subgroups of the ICC may meet on occasion to discuss specific issues.

6.1.3. Develop a forum for discussions with agencies and individuals in Mexico.

6.2 Develop a conservation agreement. The 2003 revision of the RMS has been finalized, printed, and distributed to all involved agencies and interested parties. The RMS may be revised as necessary to reflect new information.

6.3.1. Incorporate actions into the Western Colorado Desert Coordinated Management Plan. In 2005, the California Desert Conservation Area Plan was amended to formally adopt the Strategy and the FTHL MAs. This plan will continue to be implemented in 2010.

6.3.2. Incorporate actions into the CVMSHCP. BLM-Palm Springs will continue to participate in the development of the CVMSHCP.

6.3.3. Incorporate actions into the Western Colorado Desert Route Designation. See 2.4.2.

6.4. Coordinate with U.S. BP to develop mutual agreements. BP will continue to be invited to MOG meetings. ICC agencies will finalize the production of the BP training and education video and distribute it to BP offices for use in their training programs.

7. Promote the goals of the RMS through law enforcement and public education.

7.1. Provide sufficient law enforcement. MCAS and AGFD will continue to conduct ORV patrols within the Yuma Desert MA and adjacent habitat. BLM-El Centro has aggressively moved ahead to fill vacant law enforcement positions and apply for grants to add additional rangers. El Centro is currently almost fully staffed.

7.2. Provide public information and education about the MAs and RA. All users of BMGR will receive a briefing that includes information on the FTHL, via slides, pictures and/or descriptions. BLM-El Centro will continue to distribute FTHL brochures and maps to land users. Agencies on both sides of the border will continue to distribute the FTHL brochure that was developed by the Centro Intercultural de Estudios de Desiertos y Océanos. ICC agencies will finalize the production of the general public information video and distribute it to appropriate groups.

8. Encourage and support research to promote conservation of FTHL and desert ecosystems.

8.1. Require permits for research. AGFD and CDFG will continue to require scientific collecting permits for people who collect or handle FTHL. (New CDFG regulations enable monitors who move FTHL as mitigation for projects in California to do so with a letter of authorization from CDFG and not a collecting permit.)

- 8.2. OWSVRA shall continue to budget for research.** Continued monitoring (in house): Repeat the survey of all 160 occupancy plots and the 21 newly established plots on the Freeman Property. Explore alternate detection methods such as evening surveys and pitfall arrays. Do whatever preliminary survey work is required at the Heber Dunes SVRA to examine its suitability as a possible relocation site for FTHL removed from developments elsewhere.
- 8.3. Continue to refine cost-effective techniques for assessing FTHL abundance.**
 - 8.3.1. Test trapping and other techniques used to enumerate FTHLs directly.**
 - 8.3.2. Determine effectiveness of relative enumeration techniques and scat counts as an index of relative abundance.**
- 8.4. Determine life history and demographic data.** The sentinel plots proposed for each of the MAs will provide this data.
- 8.5. Determine effects of conflicting activities.**
- 8.6. Determine genetic variation among populations and effects of barriers.** The study to evaluate genetic variation across the range of FTHL has been completed.
 - 8.6.1. Determine genetic variation in MAs.**
 - 8.6.2. Determine effects of human-created barriers.**
 - 8.6.3. Determine effects of natural barriers.**
- 8.7. Determine effectiveness of mitigation measures.** The ICC will review the results of the relocation study to determine whether the RMS should be revised or whether additional information is needed on this issue.

9. Continue Inventory and Monitoring.

- 9.1. Continue inventories.** BLM-El Centro will continue to monitor lizard populations in the MAs using the methods prescribed by the ICC. In the Coachella Valley Preserve, FTHL will continue to be surveyed by the Center for Natural Lands Management, with a focus on lizard-ant-small mammal interactions. The objective is to use a correlation approach as well as an experimental approach (small mammal enclosures with varying resource levels) to determine whether the small mammals restrict the growth of the ant populations and therefore impact FTHL. With funding from Reclamation and/or MCAS, AGFD will conduct 2 sentinel plots within the Yuma Desert MA as well as a baseline sample of occupancy plots. In addition, sentinel plots are proposed in the West Mesa, and Yuha Desert MAs. OWSVRA will survey its existing occupancy plots in the RA and on the new acquisition property (Freeman) jointly managed by OWSVRA and ABDSP. Occupancy surveys are proposed for the Yuha Desert MA.
- 9.2. Monitor habitat quality and population trends in the MAs.** OWSVRA will continue to monitor habitat. BLM-El Centro conducts disturbance and vehicle

track surveys as time and funding allow. The Student Conservation Crew conducting restoration in the Yuha Desert MA is evaluating the level of disturbance within the MA before, during, and after the restoration.

- 9.2.1. Monitor implementation of the RMS.** The 2009 Work Plan describes how the 2003 RMS will be implemented. At the end of the year, the ICC will report accomplishments and significant deviations.
- 9.2.2. Monitor population trends.** Observations of FTHL during the course of biannual reptile surveys at OWSVRA will be recorded as part of regular monitoring. FTHL observations by staff during archeology surveys, ranger patrol, or in the course of maintenance duties will be noted. BLM-El Centro will gather population data using occupancy and sentinel plots.
- 9.2.3. Document habitat disturbance and loss.** All authorized habitat impacts will be reported in the 2010 ICC Annual Report. BLM-El Centro, AGFD, and USFWS will continue to quantify the level of vehicular impacts to FTHL habitat using a step-point method.
- 9.2.4. Prepare an annual report of monitoring results and implementation progress.** An annual report will be produced that summarizes monitoring and RMS implementation during 2010. The report will include a schedule of activities to be accomplished in 2011, budget needs for 2011, and projected budget needs for major projects in 2012 and 2013. The report shall also include a summary of monitoring results and a discussion of the likely causes of any noted declines in population.
- 9.2.5 New data shall be used in evaluations of the RMS and in assessing proposed changes.** New information resulting from ongoing research will be used to revise the RMS.