



# United States Department of the Interior

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In Reply Refer to:

AESO/SE  
2-21-95-F-216R1

June 26, 2002

## Memorandum

To: Director, Resource Management Office, Bureau of Reclamation, Yuma Area Office  
(Attn: Cynthia Hoeft)

From: Field Office Supervisor

Subject: Conference Opinion on 242 Well Field Drilling Project, Yuma County, Arizona

This letter is in response to your request for a conference opinion on the proposed drilling of two additional observation well clusters near the 242 well field southeast of the City of Yuma, Arizona. Your request was dated May 6, 2002, and was received by this office on May 7, 2002. At issue are impacts the proposed action may have on the flat-tailed horned lizard (*Phrynosoma mcallii*) (FTHL), a species proposed for listing as threatened. In your request for conferencing you determined that the project may affect, but is not likely to adversely affect, FTHL in the Yuma Desert Management Area as provided for in Section 7(a)(4) of the Endangered Species Act of 1973. After further telephone conversations with Andrea Campbell of your staff and Mike Coffeen of my staff, the Bureau of Reclamation (BOR) has requested that conferencing be conducted in accordance with procedures for formal conferencing, as provided in 50 CFR § 402.10(d), and you determined that the above action may adversely affect the proposed threatened FTHL.

This conference opinion is based on information provided as attachments to BOR's May 6, 2002, request for conferencing, which is formatted as a biological assessment, and three attachments including a 1999 categorical exclusion checklist, six FTHL transect records, a map of the well sites, and a copy of Appendix 3 from the FTHL management strategy; and telephone conversations and discussions between Mike Coffeen and Andrea Campbell. A complete administrative record of this consultation is on file at this office.

### Conference History

The area covered in this conference request was originally covered by consultation #2-21-95-F-216, the Biological and Conference Opinion on Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Boundary. This conference occurred during the time that the Rangewide Management Plan for the FTHL was being written by the cooperating agencies. Observation wells and their use and maintenance were not covered in the original biological and conference opinion.

On May 7, 2002, this office received BOR's memorandum requesting our concurrence on a request for informal conferencing on the effects of the proposed project on the FTHL. The BOR consultation package contained the basic information required to begin conferencing on the project. However, in a conference call on June 6, 2002, our and BOR personnel discussed the indirect effects of the project and agreed that the action may adversely affect the FTHL, and the request for conferencing was changed from informal to formal.

## DESCRIPTION OF THE PROPOSED ACTION

The proposed action by BOR is the drilling and monitoring of observation wells at three sites near the 242 well field southeast of Yuma, Arizona (Figures 1, 2, & 3). The well clusters would lie within the Yuma Desert Management Area (MA), which is a 131,000 acre area managed for the FTHL. As a signatory to the FTHL Conservation Agreement, BOR agreed to manage the part of the MA on their lands (16,000 acres) for FTHL. However, BOR reserved the right to maintain and expand the 242 well field, which was authorized by Public Law 93-320 to meet the provisions of a U.S./ Mexico Water Treaty of February 3, 1944.

BOR proposes to access drill sites from existing roads within the MA. A dual rotary air drill rig will be used to drill a cluster of three observation wells at two drill sites. The third drill site in Section 2, was drilled in 2000 before the change in the status of the FTHL and is not part of the proposed action. However, the monitoring and maintenance of the well clusters in the future are part of the proposed action. The three observation well clusters, at the other two sites, would be located 10-15 feet apart in a straight line with the well casing protruding three feet above ground. Each well of the cluster would be screened at different depths from 600 to 250 feet depending on the geology of the deepest well. A 50-ft by 50-ft pad area would temporarily be needed at the two drill sites to accommodate equipment and material necessary for drilling and for an interim solid waste storage area. The well clusters are needed to provide data to develop a 3-dimensional profile of the hydraulic head changes resulting from U.S. and Mexico ground-water pumping operations. The data would assist in testing a ground-water model to give better information on ground-water flow and water budget estimates for both countries.

The nine observation wells will be monitored regularly on a monthly or quarterly basis over a period of ten years by BOR. Occasional pumping tests will be conducted in one or more wells. The wells are also designed to allow the placement of a submersible pump to observe the aquifer's response to pumping at various intervals. The data gathered will be used to calculate aquifer parameters such as transmissivity. Digital transducers could be suspended in the wells to collect high resolution data for observation periods of several weeks to a month.

The drilling operations would be started in June, 2002, and would continue for one week until all the wells are completed. Drill wastes generated by the project will primarily be solid cuttings removed from the hole. These wastes will be collected and stored on site within the equipment and materials area and used to backfill the hole. When drilling is done, all equipment, materials, and drill waste will be removed from the drilling site.

### Conservation Measures

The Bureau of Reclamation proposes to implement the following conservation measures:

1. BOR will implement the management actions identified in Appendix 3 of the FTHL Management Plan.
2. BOR will keep all equipment on existing roads or roadways, and the drill pads.
3. BOR will allow no loss of FTHL habitat through land disturbance other than temporary materials/equipment lay down areas.
4. Prior to all equipment access and lay down of materials and equipment, a biologist approved by AGFD will perform clearance surveys for FTHL. Such surveys will be performed as often as necessary to ensure that lizards in harm's way at the drilling site or along the access roads or roadways will be protected.
5. The areas to be disturbed will be staked and flagged to keep activities within the surveyed area.

### **STATUS OF THE SPECIES**

The flat-tailed horned lizard is a small, cryptically colored, phrynosomatid lizard restricted to flats and valleys in the western Sonoran Desert, including the Coachella, Borrego, and Imperial valleys in California; the Yuma Desert in extreme southwestern Yuma County, Arizona; and adjacent portions of Baja California Norte and Sonora, Mexico (Funk 1981, Johnson and Spicer 1985, Rodriguez 2001). On November 29, 1993, we published a rule in the Federal Register proposing the flat-tailed horned lizard as a threatened species (U.S. Fish and Wildlife Service 1993). The proposed rule was withdrawn in a Federal Register notice dated July 15, 1997. However, on July 31, 2001, the 9<sup>th</sup> Circuit Court of Appeals remanded the withdrawal for further consideration. In a Federal Register notice dated December 26, 2001, we reinstated the proposed rule. A final listing decision is due one year after the reinstatement notice (December 2002) (USFWS 2001).

In Arizona, the range of this species is approximately bounded by the Gila River on the north, urban and agricultural development along the Colorado River on the west, and to the east by bajadas and relatively coarse, alluvial, granitic soils immediately west of the Gila and Butler mountains (Rorabaugh *et al.* 1987, Hodges 1995). In this area, most records for the species are from areas of fine, often windblown, silica sand dominated by sparse stands of white bursage (*Ambrosia dumosa*), creosote (*Larrea tridentata*), and galleta grass (*Hilaria rigida*) (Rorabaugh *et al.* 1987, Hodges 1995). The species shows a preference for and may be more abundant on sandy substrates as compared to desert pavement or hardpan surfaces (Muth and Fisher 1992, Rorabaugh *et al.* 1987), and in Arizona is most often found in areas of silica sand, rather than granitic sands and gravels (Hodges 1995).

The diet of the flat-tailed horned lizard consists primarily of ants, particularly from May to July (Parker and Pianka 1975; Turner and Medica 1982; Mark Fisher, Deep Canyon Desert Research Center, Palm Desert, California, pers. comm. 1992; Young and Young 2000). The species is active primarily from mid-February to mid-November (Muth and Fisher 1992, Mayhew 1965) and juveniles may be active throughout the winter on warm days (Muth and Fisher 1992). Mean home ranges of telemetered flat-tailed horned lizards in Imperial County, California are 4.7 acres (Muth and Fisher 1992). In the Yuma Desert, mean annual home ranges for flat-tailed horned lizards ranged from 1.7-25.5 acres for males and 2.4-12.6 acres for females (Young and Young 2000). Daily movements decline as density of lizards increase and as forage resources decline (Young and Young 2000). Females produce one or two clutches of eggs that hatch in July-September (Turner and Medica 1982, Muth and Fisher 1992, Howard 1974). Flat-tailed horned lizards construct burrows in which they hibernate in winter and escape high temperatures in summer (Muth and Fisher 1992, Rorabaugh 1994, Young and Young 2000). Mean cloacal temperature of active flat-tailed horned lizards in California was 37.7° C (Mayhew 1965). Maximum and minimum voluntary body temperatures are 41.0° and 29.3° C, respectively (Brattstrom 1965). Individuals become stressed when cloacal temperatures reach 45° C or more (Mayhew 1965).

Predators of the flat-tailed horned lizard include a number of birds, most notably the loggerhead shrike; as well as the sidewinder, leopard lizard, round-tailed ground squirrel, coyote, and fox (Young 1999, Duncan *et al.* 1994, Muth and Fisher 1992, Funk 1981). Eighty-two percent of flat-tailed horned lizards approached by researchers at Ocotillo Wells State Recreational Vehicle Area crouched low and remained motionless. Flat-tailed horned lizards were more likely to flee when approached by a vehicle than by someone on foot (Wone and Beauchamp 1995).

We proposed the flat-tailed horned lizard as a threatened species because of documented and anticipated population declines and loss of habitat associated with widespread habitat loss, fragmentation, and degradation due to human activities such as agricultural and urban development, off-highway vehicle use, energy developments, sand and gravel mining, construction of roads and canals, and military activities (U.S. Fish and Wildlife Service 1993). Based on a 1997 analysis, roughly 48.6 percent of the historical habitat of the flat-tailed horned lizard in the United States had been converted to other uses, particularly urban development and agriculture, and by filling of the Salton Sea (Hodges 1997). Remaining habitats are threatened by continued habitat conversion, off-road vehicles, pesticide applications, and invasion of nonnative plants. Insecticide applications in flat-tailed horned lizard habitat to control an agricultural pest may have reduced ant populations, the primary prey of the flat-tailed horned lizard (U.S. Fish and Wildlife Service 1993, Bolster and Nicol 1989); although that practice has been discontinued on Bureau of Land Management lands in California (Foreman 1997). Invasion of nonnative plants, such as split grass (*Schismus barbatus*) and Sahara mustard (*Brassica tournefortii*) may alter the prey base of the flat-tailed horned lizard. Stem densities of these species in wet years can become dense enough to impede the movement of flat-tailed horned lizards. Furthermore, nonnative plants can carry fire that eliminates native shrubs (Foreman 1997).

From 1994 to 1997, representatives from 10 State and Federal agencies worked with herpetologists to develop a comprehensive conservation strategy for the lizard. The agency representatives comprised the Flat-tailed Horned Lizard Rangewide Strategy Working Group. The Working Group was responsible for preparing the strategy with the help of the Flat-tailed Horned Lizard Conservation Team. The Conservation Team was composed of conservation biologists and herpetologists familiar with the flat-tailed horned lizard. A draft conservation strategy was completed and made available for public comment in January 1997. The strategy was finalized (Foreman 1997) and a conservation agreement was signed in June 1997, committing signatory agencies to implementation of the strategy. Agencies signing the agreement included the Fish and Wildlife Service (Regions 1 and 2), Bureau of Land Management (Arizona and California), Bureau of Reclamation (Lower Colorado Region), Marine Corps Air Station - Yuma, El Centro Naval Air Facility, Arizona Game and Fish Department, California Department of Fish and Game, and California Department of Parks and Recreation (Rorabaugh *et al.* 2000).

The purpose of the agreement and strategy was to maintain viable populations of flat-tailed horned lizards in five management areas (MAs), including the Yuma Desert MA in Yuma County, Arizona; and the East Mesa, West Mesa, Yuha Desert, and Borrego Badlands MAs in Imperial and eastern San Diego counties, California. These MAs range in size from 42,400 to 136,100 acres and total 485,200 acres. Also established was a research area at the Ocotillo Wells State Recreational Vehicle Area in California where the effects of human activities and other studies of the lizard would be supported. The strategy's format was that of a Fish and Wildlife Service recovery plan. It included an introductory section summarizing the biology, status, threats, and current management of the species; a management goal and objectives, planning actions, and an implementation schedule that identified each task needed to meet the management goal; parties responsible for implementing tasks; schedules; and cost estimates. The strategy also included standard mitigation and compensation formulas and an interim survey protocol that all signatory agencies would use, and suggested techniques for restoration of degraded flat-tailed horned lizard habitat (Foreman 1997).

Key planning actions included establishing the MAs and, within MAs, limiting cumulative new disturbance to one percent of each MA; limiting vehicle use to designated routes only and reducing route densities; acquisition of inholdings; law enforcement and public education; rehabilitation of degraded habitats; and prohibition of competitive recreational events, long term camping, and use of pesticides. The planning actions also included research needed to promote conservation of the lizard and its habitat, inventory and monitoring of horned lizard populations and habitats, and maintenance of habitat corridors between MAs. A technical team (the Interagency Coordinating Committee [ICC]) and a management team (the Management Oversight Group [MOG]), modeled after similar groups for the desert tortoise, coordinate and track implementation of the strategy.

The ICC compiles an annual report that tracks implementation of the strategy. Compliance with the strategy has been very good, particularly in regard to establishing MAs, regulating recreation

and pesticide use, mitigation and compensation of project impacts, conducting research, monitoring of habitat conditions, and acquiring inholdings in Arizona. Plans are in place or in preparation to fully implement the strategy, and the ICC and MOG meet regularly. Off-road vehicle activity by the Border Patrol in some MAs is an increasing problem; we have begun discussions with the Border Patrol about limiting this activity. To date, no method of monitoring populations of flat-tailed horned lizards has been devised; thus this task is incomplete. However, testing of trapping webs to monitor regional population densities began in May 2000.

Further information on the range, biology, and ecology of the flat-tailed horned lizard can be found in Young and Young (2000), Rorabaugh *et al.* (2000, 1987), Beauchamp *et al.* (1998), Hodges (1997, 1995), Wone and Beauchamp (1995), Rorabaugh (1994), Muth and Fisher (1992), Turner and Medica (1982), Turner *et al.* (1980), Norris (1949), and Mayhew and Wright (1971).

## ENVIRONMENTAL BASELINE

The environmental baseline includes the past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action area now under consultation. The environmental baseline is a snapshot of the species' health at a specific point in time. It does not include the effects of the action under review in the consultation.

### Past Conference Opinions

A number of formal conference opinions have been issued for projects proposed throughout the FTHL's distribution within the U.S., and Arizona in particular:

- On February 17, 1994, we issued a conference opinion (2-21-92-F-414) on potential effects to FTHL from the construction and operation of a natural gas pipeline within La Paz and Yuma counties in Arizona (USFWS 1994a). Take was anticipated for FTHL in the form of 1) direct and indirect mortality (unknown number of lizards) from construction activities and the associated loss of habitat; 2) direct mortality (two lizards per year) from operation and maintenance activities; and 3) harassment (30 lizards) from relocation efforts during construction (USFWS 1994a).
- On June 1, 1994, we issued a conference opinion (2-21-95-F-348) on potential effects to FTHL from the construction and maintenance of a 69 kilovolt Arizona Public Service Company powerline near San Luis, in Yuma County, Arizona (USFWS 1994b). Take was anticipated for FTHL in the form of 1) direct mortality (three lizards) from construction activities; 2) direct mortality (two lizards per year) from maintenance activities during the ten-year term of right-of-way; and 3) harassment (six lizards) from relocation efforts during construction (USFWS 1994b).

- On April 17, 1995, we issued a conference opinion (2-21-95-F-114) on potential effects to FTHL from the Marine Corps Air Station-Yuma military use of the Barry M. Goldwater Range which included proposed changes to military flights over the Cabeza Prieta National Wildlife Refuge, on-going flights over the Goldwater Range, and the operation of training facilities such as landing strips, a rifle range, targets, a parachute drop zone, a transmitter/telemetry system, and ground support areas in Yuma County, Arizona (USFWS 1995a). Take was anticipated for FTHL in the form of 1) direct mortality (23 lizards) from training activities; 2) harm (ten lizards per year) from habitat loss or degradation; and 3) harassment (unlimited lizards) from relocation efforts during field exercises (USFWS 1995a).
- On June 28, 1995, we issued a conference opinion (2-21-94-F-359) on potential effects to FTHL from the construction and maintenance of a 34.5 kilovolt Arizona Public Service Company powerline east of San Luis, in Yuma County, Arizona (USFWS 1995b). Take was anticipated for FTHL in the form of 1) direct mortality (two lizards) from construction activities; 2) direct mortality (one lizard every two years) from maintenance activities; and 3) harassment (three lizards) from relocation efforts during construction (USFWS 1995b).
- On February 8, 1996, we issued a conference opinion (2-21-96-F-144) on potential effects to FTHL from a 160 acre land transfer, under a Recreation and Public Purposes Lease to Yuma County, for the construction and operation a County Administrative Complex housing the offices of Agricultural Extension, Development Services, Public Works, and Administrative Services (USFWS 1996a). Take was anticipated for FTHL in the form of direct mortality, injury, or harassment (up to 65 lizards) from construction and relocation activities (USFWS 1996a).
- On July 12, 1996, we issued a conference opinion (2-21-96-F-445) on potential effects to FTHL from the extension of two roads, Avenue B and County 23<sup>rd</sup>, and the interrelated and interdependent construction of a City of Yuma landfill and additional Arizona State Medium Security Prison building, in Yuma County (USFWS 1996b). Take was anticipated for FTHL in the form of 1) direct mortality and injury (six lizards) from road construction activities; 2) harassment (unlimited number of lizards) from relocation efforts (which may reduce lizards taken as a result of direct mortality noted immediately above); and 3) direct mortality (15 lizards) from lizards moving onto the new pavement of County 23<sup>rd</sup> and Avenue B from adjacent habitats; and 4) direct mortality (approximately 1000 lizards) from construction activities associated with the City of Yuma landfill and Arizona State Medium Security Prison buildings (USFWS 1996b).
- On April 30, 1997, we issued a programmatic biological and conference opinion (2-21-95-F-216) on potential effects to FTHL from the implementation of Reclamation's Lower Colorado River Operations and Maintenance Project from Lake Mead to the southerly

International Boundary in Mohave, La Paz and Yuma Counties, Arizona (USFWS 1997). Take was anticipated for FTHL in the form of 1) direct mortality (eight lizards) from moving onto travel routes or project sites from adjacent habitats and being crushed or injured by moving vehicles or equipment; and 2) harassment (unlimited numbers of lizards) resulting from relocation efforts during project implementation (USFWS 1997).

In all of the aforementioned conference opinions, we found that the proposed actions were not likely to jeopardize the continued existence of the FTHL. Since no critical habitat has been designated for the FTHL, adverse modification of critical habitat would not occur.

### **Vegetation Community**

The vegetation community of the action area, a creosote bush-white bursage association, is consistent with that of undisturbed areas in close proximity. Specifically, dominant perennial plant species within the action area, in order of descending abundance, include white bursage, creosote bush, big galleta, and three-awn (*Aristida sp.*).

### **Status of the Proposed Species in the Project Area**

In the Yuma Desert west and north of the Goldwater Range, numerous proposed or ongoing activities threaten the habitat of the flat-tailed horned lizard. Federal actions that have affected the species over the last two decades include construction of a desalinization sludge disposal facility, a State Prison at County 23<sup>rd</sup> and Avenue B, paving of County 23<sup>rd</sup> and Avenue B, development of a Yuma County Administrative Center, and rights-of way for roads and utilities. A landfill has been proposed along County 23<sup>rd</sup> east of its intersection with Avenue D. Yuma Metropolitan Planning Organization has proposed a highway (the "Area Service Highway") from San Luis to Interstate 8 that would traverse County 23<sup>rd</sup> and then cross the northwestern portion of the Goldwater Range and connect to Interstate 8 at Araby Road.

A new border crossing is proposed in flat-tailed horned lizard habitat near San Luis. Border Patrol and illegal activities along the border in the Yuma area have increased dramatically over the last decade, and much of the habitat along the border has been adversely affected by off-road-vehicle activity. Many new roads and routes have been created in recent years. On State and private lands in the northern Yuma Desert, habitat continues to be developed for agriculture. The habitat in the San Luis area and north of the Goldwater Range in the Foothills is rapidly being lost to housing developments. Habitats on the Goldwater Range are the least disturbed of the Arizona portion of the lizard's range. The public is prohibited from entering that portion of the Goldwater Range that supports flat-tailed horned lizards. As of 1997, approximately 31.1 percent of the historic habitat in Arizona had been converted to other land uses, with agriculture (17.5 percent) and urban development (11.1 percent) accounting for most of the habitat conversions (Hodges 1997).

Relative abundance of flat-tailed horned lizards has been estimated by standardized transects in

which observers count flat-tailed horned lizards and their scat. Numbers of scat and lizards observed per hour has been used as an index to the species' relative abundance (e.g. Turner and Medica 1982); however a correlation between scat counts and lizard density has never been tested. Scat count data are best used in combination with lizard observations and habitat characteristics to determine the importance of an area for this species (Rorabaugh 1994). The interim survey protocol (appendix 7 of Foreman 1997) is the standard method used to determine presence or apparent absence of this species. It employs counts of both horned lizards and their scat. Wright (2002) advocates use of FTHL encounter rates as an index to abundance (however, the relationship between FTHL encounter rate and abundance has not been tested).

One-hour "section searches" were conducted in 1985 within all sections adjacent to the proposed well sites (Rorabaugh *et al.* 1987). Section searches consisted of one-hour walks along a triangular route through a section (one square mile area) in which observers counted all horned lizards and horned lizard scat. Results from these surveys and data from the study plots near the monitoring wells are presented in Table 1. Locality records indicate the species is found throughout the 242 well field and the project areas. The information in Table 1 supports this finding as well. Using scat counts from section searches and the study plots to estimate flat-tailed horned lizard abundance is problematic, as already discussed. Flat-tailed horned lizards are associated with and may be present in areas with moderate amounts of windblown sand (Muth and Fisher 1992, Rorabaugh *et al.* 1987). BOR field counts during the summer of 1999 found evidence of high relative abundance at the proposed observation well sites. Thus, flat-tailed horned lizards may be abundant in sections 2, 15, and 34; and in the area surrounding the observation wells.

## **EFFECTS OF THE PROPOSED ACTION**

"Effects of the action refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action" (50 CFR 402.02). "Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration" (50 CFR 402.02).

### Habitat Disturbance

The proposed action will cause long-term disturbance and degradation of 0.17 acre of habitat at the two 50 foot x 50 foot drill pads. The third pad was built in 2000. Well drilling equipment and monitoring and maintenance vehicles will access the drill sites on elevated gravel roads and sandy two-track roadways through occupied FTHL habitat but will not result in additional habitat loss or degradation.

### Mortality and Injury of Flat-tailed Horned Lizards During Construction, Operation, and Maintenance of the 9 Observation Wells

**Table 1:** Results of previous section searches, site searches, and monitoring of study plots near the proposed BOR monitoring well pads at T11S R23W Sec34, 15, and 2.

Section	Section Search <sup>1</sup>		mean lizards/hr	Study Plots <sup>2</sup> mean #scat/hr (May-June)	# lizards /hr	BOR Site Search <sup>3</sup>	
	#lizards /hr	#scat/hr				# lizards /hr	#scat/hr
T11S R23W S2	0	31			0	21	
T11S R23W S3	0	43					
T11S R23W S4	0	40					
T11S R23W S9	0	26					
T11S R23W S10	0	21	0.03	42			
T11S R23W S11	0	15					
T11S R23W S15	0	22			6	36	
T11S R23W S17	1	5					
T11S R23W S18	0	0					
T11S R23W S21	0	4					
T11S R23W S22	0	12					
T11S R23W S27	0	7					
T11S R23W S28	0	3			0	12	
T11S R23W S34							

<sup>1</sup>From Rorabaugh *et al.* (1987)

<sup>2</sup>From Rorabaugh (1994)

<sup>3</sup>From BOR CATEX (1999)

Flat-tailed horned lizards are known to occur in the project areas and would be subject to mortality or injury during well drilling and accessing the three sites on the access roads. Animals could be crushed by vehicles or equipment while in their underground, shallow burrows, or while on the surface. Since FTHL often freeze, rather than flee when approached, they are especially susceptible to crushing by vehicles or equipment.

Limited information exists to quantify densities of flat-tailed horned lizards; however, estimates have ranged from 0.06 to 2.0 per acre (Turner *et al.* 1978, Muth and Fisher 1992, Rorabaugh 1994, Young and Young 2000). Assuming moderate densities of flat-tailed horned lizards (0.8 per acre), then a relatively small number of horned lizards would be lost, disturbed, or displaced as a result of the small footprint of this project, ie. 50x50 foot drill pads.

Periodic maintenance and testing of the nine observation wells could also result in occasional mortality or injury of horned lizards over the ten year life of the project. Regular use of the three well pads will result in mortalities of FTHL due to crushing by vehicles.

### **Cumulative Effects**

Cumulative effects are those impacts of future non-Federal (State, local government, and private) actions that are reasonably certain to occur in the project area. Future Federal actions will be subject to the consultation and conferencing requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project.

Continued development of non-Federal lands that support FTHL is anticipated to the west and north of the action area. Continued development of non-federal lands for residential, commercial, industrial, and agricultural purposes is occurring at a rapid rate. If the FTHL is listed, take of the species from non-Federal actions, including residential and other development, will be subject to the section 10(a)(1)(B) permit process.

Of particular concern are increasing illegal border crossings by undocumented migrants and smugglers. Deportable migrant apprehensions by Border Patrol agents in the Ajo Station increased steadily from 9,150 in 1996 to 20,340 in 2000. In 2001, estimates of undocumented migrants traffic reached 1,000 per night in Organ Pipe Cactus NM alone. Increased presence of Border Patrol in the area of Yuma, and other large Arizona border towns (Operation Gatekeeper), as well as southeastern California, have pushed undocumented migrant traffic into remote desert areas, such as Cabeza Prieta NWR, Organ Pipe Cactus NM, BMGR, and the Yuma Desert. Illegal activities result in habitat damage in the form of new roads, discarded trash, cutting of firewood, illegal campfires, competition at water sources, and increased chance of wildfire likely resulting in disturbance of FTHL and its habitat. These activities are likely to continue into the future and may continue to increase.

### **Conclusion**

After reviewing the current status of the FTHL, the environmental baseline for the action area,

the anticipated effects of the proposed action, and the cumulative effects, it is our opinion that the proposed action is not likely to jeopardize the continued existence of the FTHL. Our conclusions are based on the following reasons:

- 1) The proposed action would affect a minor portion of the species' range;
- 2) The small footprint of the action area in relation to large FTHL contiguous habitat north and west of the action area lessens the effect of the project to the population in the surrounding area.
- 3) BOR has proposed conservation measures to mitigate the effects of the proposed action by reducing direct take of FTHL, including the use of a biologist on scene to relocate any FTHL out of harm's way.
- 4) BOR will continue to manage the 16,000 acres of the FTHL Management Area on their lands following the guidelines in the management plan which is currently undergoing a five year review.
- 5) FTHL density within the action area and in adjacent habitat is believed to be high so the amount of take, over the life of the project, should have little effect on the adjacent population.

### INCIDENTAL TAKE STATEMENT

Section 9 of the Act prohibits the take of listed species without special exemption. "Take" is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct. "Harm" is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering (50 CFR §17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3). Incidental take is any take of a listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited under the Act provided that such taking is in compliance with this incidental take statement.

The prohibitions against taking in section 9 of the Act do not apply to proposed species, such as FTHL. Nevertheless, the BOR should consider implementing reasonable and prudent measures that minimize the affects of incidental take of this species. If the species is listed, and if this conference opinion is adopted as a biological opinion for the FTHL, those measures would become non-discretionary, and would have to be implemented by the agency so that they become binding conditions of any grant or permit issued to any applicant, as appropriate, in order for the

exemption in section 7(o)(2) to apply. The BOR would also have a continuing duty to regulate the activity covered by this incidental take statement. If the BOR (1) fails to require any applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) could lapse.

#### AMOUNT OR EXTENT OF TAKE

This conference opinion anticipates the following forms of take would occur as a result of the proposed action:

- 1) Up to six (6) FTHL in the form of direct mortality or injury, including crushing or injury as a result of the construction of the drill pad, lay down of equipment, and construction of a temporary drill waste storage areas; and in the form of harassment resulting from moving lizards out of harm's way.
- 2) Two (2) FTHLs per year in the form of direct mortality or injury as a result of animals moving onto the drill pads from adjacent habitat and being crushed or injured by the operation of on-site equipment used for maintenance or testing of the nine wells.
- 3) Five (5) FTHLs per year in the form of direct mortality or injury as a result of lizards being crushed by project-related vehicle traffic on the access roads to the nine wells.

If this conference opinion is adopted as a biological opinion, we will only authorize forms of take that are incidental to the proposed action. Incidental take will be authorized, only if such activities are consistent with the terms and conditions of this conference opinion. Anticipated take is contingent upon the manner in which on-site remediation efforts are conducted and the operation and maintenance of the proposed three well sites, however the "Terms and Conditions" below only apply to BOR. If adopted as a biological opinion, take will be authorized for the construction, operation, and maintenance of the proposed observation well sites so long as the reasonable and prudent measures, their terms and conditions, and the proposed action are carried out as described herein.

#### EFFECT OF TAKE

In this conference opinion, we find that this level of anticipated take is not likely to result in jeopardy to the FTHL.

#### REASONABLE AND PRUDENT MEASURES

We believe that the following reasonable and prudent measures are necessary and appropriate to

minimize the incidental taking described in this conference opinion. If the species is listed, then the incidental take statement in this opinion, including its protection against a section 9 violation, will apply to the proposed action.

- 1) Special precautions and considerations shall be made to minimizing take of FTHLs, during the drilling of the six observation wells.
- 2) Additional precautions and considerations shall be made to minimize take during the monitoring and maintenance of the nine observation wells.
- 3) Take and the effectiveness of these terms and conditions shall be monitored and reported to us in an annual report.

### **Terms and Conditions**

The following terms and conditions implement reasonable and prudent measure number 1.

- a. Restrict the 10-hour drill crew work periods to times when FTHLs are active. FTHL activity is greatest from April through September when surface temperatures, exposed to sunlight, are between 95°F and 122°F.
- b. All project work areas shall be clearly flagged or similarly marked at the outer boundaries to define the limit of work activities. All construction and restoration workers shall restrict their activities and vehicles to areas which have been flagged to eliminate adverse impacts to the FTHL and its habitat. All workers shall be instructed that their activities are restricted to flagged and cleared areas.
- c. A biological monitor shall be present during drilling activities to ensure that ground disturbance is kept to a minimum. The biological monitor shall have sufficient education and field experience or training with the FTHL to understand its biology and behavior and shall have the authority to halt field activities if deemed out of compliance with these Terms and Conditions.
- d. The area of disturbance of vegetation and soils shall be the minimum required for the completion of the drill work. This includes using existing roads or trails for travel and equipment storage.
- e. If an injured FTHL is encountered and the injuries are determined to be non-fatal, the Biological Monitor shall take precautions to ensure that the injured FTHL receives adequate veterinary care so that it may be salvaged and released, if possible. Temporary housing of the injured lizard shall be consistent with conditions described in Item 2 of the “Proposed Mitigation Measures” section above.

The following term and condition implements reasonable and prudent measure number 2:

All monitoring and maintenance workers shall restrict their activities and vehicles to roads or essential roadways to eliminate adverse impacts to the FTHL and its habitat. All workers shall be instructed in identification and avoidance of FTHL and the procedures to follow if a FTHL is injured or killed.

The following term and condition implements reasonable and prudent measure number 3:

BOR shall supply to this office an annual report detailing the implementation of these terms and conditions with information on all FTHLs found, salvaged, or relocated. The report shall contain readable copies of all field data sheets, maps of FTHL locations, and also shall make recommendations, as needed, to refine or modify these terms and conditions to enhance protection of the FTHL. The report shall be due by January of the following year for each of the ten years of the project. Reporting under this opinion may be combined with annual reporting for the Biological and Conference Opinion for the Lower Colorado River Operations and Maintenance - Lake Mead to the Southerly International Boundary.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation. The BOR must immediately provide explanation of the causes of the taking and review with us the need for possible modification of the reasonable and prudent measures.

#### **DISPOSITION OF DEAD, INJURED, OR SICK FTHLS**

If the species is listed, and if a dead, injured, or sick FTHL is found at the project sites, initial notification must be made to Service Law Enforcement, Federal Building, Room 108, 26 North McDonald, Mesa, Arizona, 85201 (Telephone: 480/835-8289) within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the finding, a photograph of the animal, and any other pertinent information. The notification shall be sent to Law Enforcement with a copy to the Arizona Ecological Services Field Office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. If possible, the remains of intact FTHLs shall be placed with educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, the information noted above shall be obtained and the carcass left in place.

Arrangements regarding proper disposition of potential museum specimens shall be made with the institution prior to implementation of the action. Injured animals should be transported to a qualified veterinarian by an authorized biologist. Should any treated FTHLs survive, the please contact us regarding the final disposition of the animals.

### Conservation Recommendations

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of listed species. Conservation recommendations are suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here do not necessarily represent complete fulfillment of the agency's section 2(c) or 7(a)(1) responsibilities for the FTHL, should it be listed. We recommend implementing the following actions:

1. BOR should work with the Marine Corps Air Station in Yuma and Arizona Game Fish Department to support research necessary to: a) improve our knowledge of the ecology and life history of the FTHL, particularly in regards to demographic parameters needed to better understand population dynamics and viability; b) improve upon survey techniques, protocols, and recommendations to enhance statistical confidence of survey efforts; and, c) determine the relationship between scat/lizard counts and lizard densities.
2. BOR should continue to pursue efforts to minimize impacts to the FTHL and its 16,000 acres that are within the Management Area.
3. BOR should acquire Yuma County rights of way on section lines in the MA and close these routes as appropriate in coordination with the Fish and Wildlife Service and the U.S. Border Patrol.

We request notification of the implementation of any conservation recommendations so we can be kept informed of actions that either minimize or avoid adverse effects, or that are beneficial to this proposed threatened species or its habitat.

#### REINITIATION STATEMENT

This concludes the conference for the proposed drilling of two additional observation well clusters and the monitoring and maintenance of three observation well clusters over the ten year life of the project in Yuma County, Arizona. You may request that we confirm the conference opinion as a biological opinion as provided under formal consultation procedures if the FTHL is listed. The request must be in writing. If we review the proposed action and find that there have been no significant changes in the action as planned, or in the information used during the conference, we will confirm the conference opinion as a biological opinion and no further section 7 consultation will be necessary.

If the FTHL is listed and this conference opinion is adopted as a biological opinion, BOR shall request reinitiation of consultation if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the agency action is

subsequently modified in a manner that causes an effect to a listed species or critical habitat that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action (50 CFR §402.16).

Additionally, we take this opportunity to remind BOR that, if the FTHL is listed, you will need to evaluate your operations and maintenance of the entire 242 well field to assure that all current activities are covered under the existing consultations. Any ground-disturbing activities proposed outside of project action areas will require additional site-specific section 7 compliance.

The incidental take statement provided in this conference opinion does not become effective until the species is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the project will be reviewed to determine whether any take of the FTHL has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of the FTHL may occur between the listing of FTHL and the adoption of the conference opinion through formal consultation, or the completion of a subsequent formal consultation.

We appreciate your continued efforts to conserve the flat-tailed horned lizard. Any questions in this matter should be directed to Mike Coffeen (x251) or Jim Rorabaugh (x238) of my staff.

  
For David L. Harlow

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)  
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

Ronald Pearce, Director of Range Management, Marine Corps Air Station, Yuma, AZ  
Field Office Manager, Yuma Field Office, Bureau of Land Management, Yuma, AZ  
Director, Arizona Game and Fish Department, Phoenix, AZ  
Regional Supervisor, Arizona Game and Fish Department, Yuma, AZ

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