

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM****Animal Abstract****Element Code:** ARACF12040**Data Sensitivity:** Yes**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

NAME: *Phrynosoma mcallii*
COMMON NAME: Flat-tailed Horned Lizard
SYNONYMS: *P. m'callii*; *P. m'calli*; *Anota m'calli*
FAMILY: Phrynosomatidae

AUTHOR, PLACE OF PUBLICATION: Hallowell, E., 1852. Descriptions of new species of reptiles inhabiting North America. Proc. Acad. Natur. Sci. Philadelphia 6: 177-184.

TYPE LOCALITY: "Great Desert of the Colorado, between Vallicita [Vallecita] and Camp Yuma, about 160 miles east of San Diego."

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: Monotypic species. Fourteen species in genus, ranging from British Columbia to Guatemala and from Arkansas to the Pacific Coast.

DESCRIPTION: Small lizard that reaches a maximum adult body length of 3.3 in. (8.4 cm), excluding the tail. Behler and King (1992) report a maximum length of 4.75 in (12 cm). Average length ranges from 2.5-3.4 in (6.4-8.6 cm). Dorsally pale gray, buff, or rusty brown, occasionally with greenish cast to back; color closely matches the background. Belly white, unmarked. Only horned lizard with dark middorsal strip; also has two rows of fringe scales on each side of body. The fringe scales consist of round brown spots with yellow or white centers. The body is flattened dorso-ventrally, while the long tail is broad, and very much flattened. They have two elongate occipital horns (3-4 times longer than the basal horn width) and six temporal horns. Additionally, they lack external ear openings.

AIDS TO IDENTIFICATION: *Phrynosoma mcallii* is the only horned lizard with dark middorsal stripe. It differs from the desert horned lizard (*Phrynosoma platyrhinos*), which also occurs in its range, by its dark vertebral stripe, two rows of fringed scales on each side of the body, lack of external ear openings, and unmarked white ventral surface in most individuals (Foreman 1997 in USFWS 2003).

ILLUSTRATIONS: B&W drawing (Stebbins 1985: Pl. 21)
Color drawing (Stebbins 2003: Pl. 33)
Color photo (Behler and King 1988)

Color photo (Behler and King reprinting 1992: Pl. 334)

Color photos (Tucson Herpetological Society, accessed 2003 in <http://www.arts.arizona.edu/herp/flat.html>)

Color photo (California Herpetological Society, accessed 2003 in <http://www.faultline.org/news/2003/01/phrynosoma.html>)

Color photos and line drawings of head (<http://uts.cc.utexas.edu/>)

Color photos (<http://yumabirding.org/lizards.htm>)

TOTAL RANGE: Endemic to the Sonoran Desert from Coachella Valley in extreme southern California, south to head of Gulf of California, taking in extreme southwest Arizona, northeast Baja California and extreme northwest Sonora. This distribution is not contiguous across its range, because of fragmentation by large-scale agricultural and urban development.

RANGE WITHIN ARIZONA: Extreme southwest corner of the state; essentially the Yuma Desert west of the Gila Mountains and south of Interstate 8.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: A diurnal lizard that burrows into the sand in midday to avoid the heat. It also burrows to escape the cool of night. Burrowing is accomplished by side-to-side shuffling. Hibernation may begin as early as October and end as late as March. Self-constructed hibernation burrows range within 5-10 cm (2-3.9 in) of the surface. Lifespan is at least 6 years in the wild and up to 9 years in captivity. Predators include round-tailed ground squirrels (main predator), loggerhead shrikes, grasshopper mice, snakes, canids, American kestrels, common ravens, and burrowing owls (Muth and Fisher 1992, Duncan et al. 1994, Young and Young 2002 in USFWS 2003). Flat-tailed horned lizards generally remain still or may bury themselves in the loose sand, when approached. This reluctance to move when disturbed, together with cryptic coloration and flattening of the body, makes them very difficult to locate in the field.

Home ranges of *P. mcallii* are relatively large, and differ between dry and wet years, and between the sexes. The mean home range for males was 2.5 ha (6.2 ac) during a dry year versus 10.3 ha (25.5 ac) during a wet year. Female mean home ranges were smaller at 1.3 ha (3.2 ac) and 1.9 ha (4.7 ac) in dry and wet years, respectively (Young and Young 2000 in USFWS 2003).

Hybridization may be occurring between *P. mcallii* and *P. platyrhinos*, where their range overlaps. According to USFWS (2003), "Apparent hybrids between the two species, exhibiting a mix of morphological characteristics, have been observed in the vicinity of Ocotillo, California (Stebbins 1985), and southeast of Yuma, Arizona (K. Young, Utah State University, pers. comm. 2002).

REPRODUCTION: *Phrynosoma mcallii* mates April-May. They are oviparous, producing relatively small egg clutches of 3-10 eggs (5-6 on average), compared to most other horned lizards. Clutches are laid in May to June, however, multiple clutches may be laid within a breeding season.

FOOD HABITS: Mostly ants of the genera *Messor*, *Pogonomyrmex*, *Conomyrma*, and *Myrmecocystus*. They may also take beetles and other arthropods. Because of the lack of freestanding water, flat-tailed horned lizards primarily use preformed water (water found in their food) to maintain proper water balance.

HABITAT: Fine packed sand or pavement, overlain with loose, fine sand in areas that are sparse or lacking in vegetation. When dispersing, some individuals may be found in a mix of rocky and sandy substrate. Habitat in Arizona is *Larrea tridentata* - *Ambrosia dumosa* - *Hilaria rigida* dominated sandy flats, commonly in association with the fringe-toed lizard (*Uma notata*). In California, they generally occur on lower parts of loose, wind-blown dunes.

ELEVATION: From below sea level (in Salton Sink) to around 820 feet (250 m), in areas with flat-to-modest slopes. In Arizona, it ranges from 155-540 ft (47-165 m) (AGFD, unpublished data accessed 2003).

PLANT COMMUNITY: Lower Colorado River Valley Subdivision of Sonoran Desert Scrub, in a creosote (*Larrea tridentata*)-white bursage (*Ambrosia dumosa*) plant association.

POPULATION TRENDS: Information concerning population dynamics of flat-tailed horned lizard populations is limited and inconclusive (USFWS 2003). Since 1979, population trends were monitored using a combination of scat counts and lizards observed along transects (Wright 2002 in USFWS 2003). Wright (2002) states "The relationship between scat counts and lizard abundance is unclear, or weak at best...while differences in scat abundance could indicate differences in lizard abundance, the observed decline in the rate at which scat is found could also be a result of increase in Off-Highway Vehicle activity resulting in crushed or buried scat, lower deposition rates, greater wind eradication, different observers, or additional factors. Furthermore, the use of scat counts does not account for variations in lizard activity, misidentification of scat from other species, scat production due to fluctuating food resources, weather conditions that affect scat production or longevity in the field, observer differences, and small sample sizes." The Bureau of Land Management (BLM) recently estimated the population size on one of the five managed areas (MAs) identified in a management strategy for the species. They used capture-mark-recapture (CMR) techniques incorporating detection probabilities, with positive results. The CMR methodology will be conducted soon for the other four MAs. (USFWS 2003).

Pronounced declines have been postulated for all areas now heavily urbanized or where agricultural practices dominate. Status uncertain in southern parts of range (Mexico).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None – Removed (USDI, FWS 2003)
[PT USDI, FWS 2001]
[None - Removed (USDI, FWS 1997)]
[PT USDI, FWS 1996]
[PT USDI, FWS 1993]
[C1 USDI, FWS 1991]
[C1 USDI, FWS 1989]
[C2 USDI, FWS 1985]

STATE STATUS: WSC (AGFD, WSCA in prep.)
[State Threatened AGFD, TNW 1988]

OTHER STATUS: Bureau of Land Management Sensitive
(USDI, BLM AZ 2008)
Category A, 1994 Mexican Fed Comm.

MANAGEMENT FACTORS: Limited distribution. Urban and agricultural expansion resulting in habitat destruction. Subject to pesticide contamination and ORV activities. Basks on roadways thus road-kill is a major source of known mortality. Border Patrol maintains many miles of roads in *mcallii* habitat, which depending on how often they are used, may contribute to mortality. Military controls high proportion of habitat in Arizona.

PROTECTIVE MEASURES TAKEN: Closed season. Restrictions on scientific collecting permits for *mcallii*. Fully protected from take in California and Arizona. ACEC nomination on Barry Goldwater Range.

The creation of 5 MAs (4 in California, 1 in Arizona), which are believed to represent approximately 35% of flat-tailed horned lizard habitat remaining in the United States (USFWS 2003). The five MAs were designed to identify large areas of public land where flat-tailed horned lizards have been found, as well as to include most flat-tailed horned lizard habitat identified as key areas in previous studies. The MAs were proposed based on accepted principles of good preserve design, and are meant to be the core areas for maintaining self-sustaining populations of flat-tailed horned lizards in the U.S. (USFWS 2003).

SUGGESTED PROJECTS: Distribution, habitat, population and life history studies are needed. Most important is locating a healthy population and setting aside a substantial preserve.

LAND MANAGEMENT/OWNERSHIP: BLM – Yuma Field Office; BOR – Yuma Area; DOD - Barry M. Goldwater Range; State Land Department; and Private.

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ADDITIONAL INFORMATION: “Scat” (fecal remains) records are unacceptable since they cannot be reliably distinguished from scat of sympatric *P. platyrhinos*.

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