ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** ARACF15022
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Uma rufopunctata*
COMMON NAME: Yuman Desert Fringe-toed Lizard, Cowles Fringe-toed Lizard, Sonoran Fringe-toed Lizard
SYNONYMS: *Uma notata*, in part; *Uma notata cowlesi*
FAMILY: Sauria: Iguanidae

AUTHOR, PUBLICATION: *Uma rufopunctata* Cope, 1895, Amer. Nat., Vol. 29: 939 (also *in* Norris, 1958, Bull. Am. Mus. Nat. Hist. 114(3): 251-326). *Uma notata cowlesi* Heifetz, Copeia 1941(2): 99-111.

TYPE LOCALITY: "Arizona," = Monument 200. Yuma Desert, Yuma County, Arizona.

TYPE SPECIMEN: Univ. Illinois Mus. Nat. Hist. 407750. 15-16 May 1894. E.A. Mearns. San Diego Natural History Museum reports Holotype at CAS, and Paratypes at SDSNH 16460-16464.

TAXONOMIC UNIQUENESS: Three species occur in genus, and 2 subspecies in *notata*, to include *rufopunctata* and *notata*. Only *rufopunctata* occurs in Arizona. It has been questioned by Pough (1977 *in* NatureServe 2002), whether the subspecies *rufopunctata* is taxonomically distinct from subspecies *notata*.

Per NatureServe (2002), "Trepanier and Murphy (2001) used mtDNA data to examine phylogenetic relationships among the three northernmost *Uma* species and concluded that either a two-species (*Uma scoparia*, *U. notata*) or five-species (*U. scoparia*, *U. notata*, *U. inornata*, and *U. rufopunctata*, plus an undescribed species from Mohawk Dunes, Arizona) classification is appropriate. They preferred the latter arrangement and stated that a description of the Mohawk Dunes species is in progress. Here we maintain *U. inornata* as a species and *rufopunctata* as a subspecies of *U. notata* until a taxonomic consensus emerges for this group."

DESCRIPTION: A medium lizard with a flattened pear shaped body, and small fringelike scales projecting from the toes. Lengths from 2.5 – 4.75 inches (6.35-12 cm), snout-vent. The base coloration, which closely matches the sand on which it lives, is light cream, yellow-tan, to reddish, with small brown to orange spots on the back surrounded by a network of black reticulations. The black reticulations give the appearance of lines near the forelimbs. There are black bands on the underside of the tail, and a black spot surrounded by an orange

bar on each side of the belly. Subspecies *rufopunctata* lacks the orange ventral markings except during breeding season. The species has a shovel-shaped nose, and the male has enlarged postanal scales.

AIDS TO IDENTIFICATION: *Uma notata rufopunctata* differs from *U. n. notata* in often lacking the orange belly markings and in having narrower ventrolateral black bars (Pough 1977 *in* NatureServe 2002).

When comparing the species *Uma notata* to the Mojave Fringe-toed Lizard (*Uma scoparia*), the later has black crescents on the throat, and the belly is usually tinged with greenish yellow. In the Coachella Valley Fringe-toed Lizard (*Uma inornata*), the black belly spots are absent or reduced to one or several small dots. (Stebbins 2003).

ILLUSTRATIONS:

Color drawing (Stebbins 1985: Pl. 23)
Color drawing (Stebbins 2003: Pl. 29)
Color photo (Behler and King 1979: Pl. 343)
Color photo (Brennan 1999, 2003, http://www.reptilesofaz.com/h-u-notata.html)
Color photo of lower body (G. Vargas, California Acad. Sci., http://elib.cs.berkeley.edu/cgi/)
Color photo of species (http://www.geocities.com/Baja/Trails/6099/Fringetoedlizard.html)
Color photo (Al Morgon, Arizona Sonora Desert Museum, http://arizonawildlife.net/)

TOTAL RANGE: Extreme southwestern Arizona and adjacent Mexico.

RANGE WITHIN ARIZONA: Southwestern corner of the state, south of the Gila River, mainly in the Mohawk and Yuma dune systems, Yuma County, and the Pinta Sands, Pima County.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: A diurnal lizard that is inactive in cold temperature and extreme heat. *Uma notata rufopunctata* is well adapted to living in sand. The fringes on the toes act like "snowshoes" to stop the feet from sinking. When fleeing from predators, the species may run bipedally on their hind legs. They "swim" into the sand (head first) to avoid capture, and to escape extreme heat or cold. The setback jaw, scaly flaps over the ear, overlapping eyelids, and valves in the nostrils all serve to keep out sand while the lizard is burrowing. (Behler 1979). The lizard's sand-like pattern makes them cryptic, which allows them to avoid predators.

According to Turner and Schwalbe (1998), environmental variables of temperature and humidity play critical roles in these lizards lives. Temperatures affect morning emergence from the sand and mid-day burrowing into the sand, thus influencing the number of lizards

visible on the surface during a census operation. In addition, temperatures affect all physiological processes, including egg development and seasonal events such as the onset of and emergence from hibernation. Relative humidity may influence survival in many species and may be an important proximal cue for seasonal activity patterns of many lizards and their prey.

REPRODUCTION: Females lay 1-5 eggs per clutch (average 2), with clutches laid every 4-6 weeks from May to August. Eggs are laid below surface in the sand. Females may lay more than one clutch per year, but adults are sensitive to food levels and will not reproduce if they do not obtain adequate food (Mayhew 1966 *in* http://www.dfg.ca.gov/hcpb/).

FOOD HABITS: Chiefly insects, but occasionally other lizards, leaves, flowers, and some buds.

HABITAT: Restricted to sparsely vegetated fine, windblown sand dunes, flats, riverbanks and washes of very arid desert. Vegetation is sparse, consisting of creosote bush (*Larrea tridentata*), burroweed, croton, mesquite, or other scrubby growth.

ELEVATION: The elevation range is from sea level to around 600 feet (183 m). Based on unpublished records in the HDMS (AGFD, accessed 2003), elevation ranges for the subspecies rufopunctata are from 160 - 900 ft (49-275 m).

PLANT COMMUNITY: Based on a study conducted in the Mohawk Dunes (Turner and Schwalbe 1998), "Dominant perennial species on the crests included *Ambrosia dumosa*, *Aristida californica*, *Hilaria rigida*, *Ephedra trifurca*, and *Psorothamnus emoryi*. The swales had a similar suite of species, with the addition of *Larrea tridentata* and a strong reduction in *Psorothamnus emoryi*." Available ground cover was formed by four perennial species, including *A. dumosa*, *E. trifurca*, *H. ridgida*, and *P. emoryi*, along with dead woody debris formed primarily by the annual *Dicorea canescens*. For those lizards that used cover, *A. dumosa* was the most commonly used type while *E. trifurca* assumed less importance. A couple of observations southeast of Somerton and near the Mexico border have been observed in loose sand with big galleta grass (*Hilaria rigida*) dominated habitat.

POPULATION TRENDS: Unknown

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: SC (USDI, FWS 1996)
[C2 USDI, FWS 1991, 1994]
[C2 USDI, FWS 1989]
[3C USDI, FWS 1985]

STATE STATUS: 1B (AGFD SWAP 2012)

OTHER STATUS:

[WSC AGFD, WSCA in prep]
[State Candidate, AGFD, TNW 1988]
Not Forest Service Sensitive (USDA, FS Region 3 2007)
[Forest Service Sensitive (USDA, FS Region 3 1999)]
Bureau of Land Management Sensitive (USDI, BLM AZ 2008, 2010)
[None (USDI, BLM AZ 2005)]
[Bureau of Land Management Sensitive (USDI, BLM AZ 2000)]
P, Determined Endangered in Mexico (Proyecto de Norma Oficial Mexicana 2010)
[Full Species Listed Threatened Secretaría de Desarrollo 1994]

MANAGEMENT FACTORS: Significant potential threats include restricted habitat, limited distribution, ORV activity, and residential and agricultural development.

PROTECTIVE MEASURES TAKEN: Mohawk Dunes designated State Natural Area; military closure protects much habitat.

SUGGESTED PROJECTS: Distribution, habitat, population and life history studies needed. Comprehensive assessment of genetic variation across the range of *U. notata* and potentially conspecific populations now recognized under other names is needed.

LAND MANAGEMENT/OWNERSHIP: BLM – Yuma Field Office; BOR – Yuma Area; DOD – Barry M. Goldwater Air Force Range; FWS – Cabeza Prieta National Wildlife Refuge; State Land Department; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Arizona Game and Fish Department. 1988. Threatened native wildlife in Arizona. Arizona Game and Fish Department Publication. Phoenix, Arizona. P. 12.

Arizona Game and Fish Department. In prep. Wildlife of special concern in Arizona. Arizona Game and Fish Department Publication. Phoenix, Arizona. 32pp.

Arizona Game and Fish Department. 2012. Arizona's State Wildlife Action Plan 2012-2022. Phoenix, AZ.

Behler, J.L. and F.W. King. 1979. The Audubon Society field guide to North American reptiles and amphibians. Reprint 1992. Alfred A. Knopf, New York. Pp. 532-533.

Beltz, E. 2003. Original description citations for the reptiles and amphibians of North America. http://ebeltz.net/herps/od-dex.html#R. Accessed: 4/2/2003.

eNature.com. Field guide, Sonoran Desert Fringe-toed Lizard, *Uma notata*. Accessed 4/2/2003 from http://www.enature.com/fieldguide/.

Integrated Taxonomic Information System (ITIS). Retrieved 4/2/2003 from ITIS. http://www.itis.usda.gov/.

Lowe, C.H. 1964. Amphibians and reptiles. The vertebrates of Arizona. University of Arizona Press. Tucson, Arizona. P. 161.

NatureServe Explorer: An online encyclopedia of life [web application]. 2002. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: http://www.natureserve.org/explorer. (Accessed: April 2, 2003).

Norris, K.S. 1958 Bull. Amer. Mus. Nat. Hist. Vol 114, article 3, New York.

Pough, F.H. 1977. *Uma notata rufopunctata*. Catalogue of American amphibians and reptiles. 197.1.

San Diego Natural History Museum. 1999. SDNHM Field Guide, *Uma notata* (Sonoran Desert Fringe-toed Lizard). http://www.sdnhm.org/fieldguide/herps/uma-nota.html. Accessed: 4/2/2003.

San Diego Natural History Museum. SDNHM Herpetology Type Specimens. http://www.sdnhm.org/research/herpetology/herptype.html. Accessed: 4/2/2003.

Secretaría de Medio Ambiente y Recursos Naturales. 2010. NORMA Oficial Mexicana NOM-059-SEMARNAT-2010, Protección ambiental-Especies nativas de México de flora y fauna silvestres-Categorías de riesgo y especificaciones para su inclusión, exclusión o cambio-Lista de especies en riesgo.

Smith, H.M. 1946. Handbook of lizards. Lizards of the United States and Canada. Comstock Publishing company, Ithaca, New York. Pp. 154-155.

Stebbins, R.C. 1954. Amphibians and reptiles of western North America. McGraw-Hill Book Company, Inc., New York. Pp. 224-226.

Stebbins, R.C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Company. Boston, MA. Pp. 98-99.

Stebbins, R.C. 1985. A field guide to western reptiles and amphibians. Second edition, revised. Houghton Mifflin Company. Boston, MA. Pp. 118.

Stebbins, R.C. 2003. A field guide to western reptiles and amphibians. Third edition. Houghton Mifflin Company. Boston, MA. Pp. 281-282.

Sugerman, R.A. and J.S. Applegarth 1980. Herp. Rev. 11(4): 90.

Turner, D.S. and C.R. Schwalbe. 1998. Ecology of Cowles Fringe-toed Lizard. Arizona Game and Fish Department Heritage Fund IIPAM Project No. I95042. Final Report to Arizona Game and Fish Department, 2221 West Greenway Road, Phoenix, Arizona 85023. 78pp.

USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.

USDA, Forest Service Region 3. 2007. Regional Forester's List of Sensitive Animals.

USDI, Bureau of Land Management. 2000. Arizona BLM Sensitive Species List. Instruction Memorandum No. AZ-2000-018.

USDI, Bureau of Land Management. 2005. Arizona BLM Sensitive Species List.
USDI, Bureau of Land Management Region 2. 2008. Arizona BLM Sensitive Species List.
USDI, Bureau of Land Management Region 2. 2010. Arizona BLM Sensitive Species List.
USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants; Review of Vertebrate Wildlife; Notice of Review. Federal Register 50(181): 37963.
USDI, Fish and Wildlife Service. 1989. Endangered and Threatened Wildlife and Plants; Animal Notice of Review. Federal Register 54(4): 559.
USDI, Fish and Wildlife Service. 1991. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species; Proposed Rule. Federal Register 56(225): 58813.
USDI, Fish and Wildlife Service. 1994. Endangered and Threatened Wildlife and Plants; Animal Candidate Review for Listing as Endangered or Threatened Species; Proposed Rule. Federal Register 59(219): 58995.
USDI, Fish and Wildlife Service. 1996. Endangered and Threatened Wildlife and Plants: Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species, Proposed Rule. Federal Register 61(40): 7596-7613.
Vitt, L.J. and R.D. Ohmart. 1978 West. Found. Vert. Zool. LA, CA Vol 2(2).
Zalusky, S.B., A.J. Gaudin and J.R. Swanson, 1980. Copeia 1980(2): 296-310.

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ADDITIONAL INFORMATION:

Uma is named after Fort Yuma located in Yuma, Arizona, a location that served as a shipping point for natural history specimens back in the 1800s. The name *notata* refers to the dorsal color patterns of ocelli.

Revised: 1991-04-08 ( )
1995-06-15 (DBI)
1997-03-06 (SMS)
2003-04-17 (SMS)