

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

Element Code: AMAFF07040

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Sigmodon ochrognathus*

COMMON NAME: Yellow-nosed Cotton Rat

SYNONYMS: *Sigmodon baileyi* J. A. Allen, 1903; *S. madrensis* Goldman and Carter, 1947; *S. montanus* Benson, 1940

FAMILY: Cricetidae. Subfamily: Sigmodontinae

AUTHOR, PLACE OF PUBLICATION: Bailey, 1902. Proc. Bio. Soc. Wash., 15:115.

TYPE LOCALITY: USA, Texas, Brewster Co., Chisos Mountains, 8000 ft (2438 m).

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: One of seven species in the genus *Sigmodon*, and one of four in Arizona. *S. ochrognathus* belongs in the "Subgenus *Sigmodon*, *S. hispidus* species group. Basal clade within the *S. hispidus* assemblage according to phylogenetic interpretations of cytochrome *b* data (Peppers et al., 2002), not with *S. fulviventer* and kin (Baker, 1969). Findley and Jones (1960) detected no consistent pattern of size and pelage color variation to justify recognition of subspecies, a conclusion sustained by low genetic distances recorded among populations (Carroll et al., 2002). See Baker and Shump (1978, mammalian Species, 97)." (Wilson and Reeder, 2005).

DESCRIPTION: A small vole-like cotton rat with no significant sexual dimorphism. The total length is 13.2-26.4 cm (5.20-10.39 in; 13.9 cm in Durango, 22.2 cm in AZ, 25.9 cm in TX), tail length is 8.0-11.4 cm (3.15-4.49 in; 96 mm in AZ, 114 mm in TX), and the weight is 51-106 g (1.8-3.74 oz; 78 g in AZ). The fur is coarse, grayish-brown to blackish-brown, and heavily mixed with pale buff. The belly fur is silvery or whitish. The nose and eye ring is orangish or yellowish. The bicolor tail is finely haired, blackish above, pale below, shorter than the head and body. The ears barely project above the fur. The feet are gray, and the hind foot is 30 mm or less in length.

The baculum is diamond shaped at base. The central trifurcation of the baculum has two points. Interparietal has a posterior median notch, and acutely tapered wings. The foramen ovale is less than half the width of the second upper molar, while the foramen magnum is not notched on the anterior lip. Length of the upper molar tooth row usually 6.4 mm or less.

AIDS TO IDENTIFICATION: Yellowish or orangish nose and eye ring separate adult *S. ochrognathus* from all other adult Arizona *Sigmodon*. The smaller size of *S. ochrognathus* (hind foot less than 30 mm) helps distinguish it from *S. arizonae* (hind foot greater than 32 mm) and *S. hispidus* (hind foot 30-32 mm). The dorsal pelage of *S. fulviventer* is speckled and the belly is a buffy color compared to the silvery or whitish belly of *S. ochrognathus*. The tail of *S. fulviventer* is blackish (not bicolored) and the top of the hind feet buffy (not gray). *S. ochrognathus* is rarely found in association with other *Sigmodon* species in Arizona. However, identification of immature animals may be difficult, and distinguishing adult *ochrognathus* from immature *arizonae* or *hispidus* on the basis of external characteristics can be especially difficult due to similar size and coloring. In southeast Arizona, where their ranges and habitat overlap, comparisons of cranium and baculum characteristics with museum specimens of known identification and examination by specialists may be necessary. Hoffmeister (1986:388, 389, 399) lists distinguishing characteristics for *S. ochrognathus* as “palatine slits shorter; interparietal notched along posterior border by supraoccipital [as opposed to un notched]; smaller foramen ovale, ...base of baculum diamond-shaped rather than gradually curved.” See also Hoffmeister (1963:440; 1986:389, 399f) for additional descriptions and drawings showing distinguishing characteristics.

ILLUSTRATIONS:

- Black and white photo (Hoffmeister 1986:401)
- Skull and baculum (Hoffmeister 1963)
- Color photo (Whitaker 1980: plate 141)
- Color photo (Wilson 1999)
- Color photo (Tveten in <http://www.nsrl.ttu.edu/tmot1/sigmochr.htm>)

TOTAL RANGE: Overall distribution includes southeast Arizona, extreme southwest New Mexico, and Transpecos, Texas, USA, south to C Durango, México; northern outlier population may persist in Guadalupe Mtns, Transpecos, Texas (see Stangle and Dalquest, 1991). (Wilson and Reeder, 2005).

RANGE WITHIN ARIZONA: Southeastern Arizona in Cochise, Graham, Pima, and Santa Cruz counties. Current range includes a couple of sites in the Chiricahua Mountains; Leslie Canyon in the Pedregosa Mountains; along the AZ/Mexico border west of the San Pedro River; a couple of sites in the Huachuca Mountains near the AZ/Mexico border; Diablo Mtns in the Santa Rita Mountains; in the Atascosa Mtns and a canyon near Pena Blanca Lake; Marana in Avra Valley; and several sites in the Rincon Mountains.

Historically, much more widespread and with further surveys, may prove to be such. Their historic range include Aravaipa Creek; Baboquivari Mts; many sites NW of Nogales; Patagonia and Patagonia Mountains; many sites in the Santa Rita Mountains; Hot Springs Canyon N of Willcox; Pinaleno Mountains; N Saddle Mtn vicinity in the Canelo Hills; several site in the Chiricahua Mountains; many sites in the Huachuca Mountains; several sites near and along Ruby Road east and west of Pena Blanca Lake; San Rafael Valley along Duquesne Wash and near Lochiel; Santa Catalina Mountains SE Butterfly Peak; Tres

Bellotas Canyon S of Arivaca; and Fraguita Wash in the San Luis Mountains. (unpublished data, HDMS, AZ Game and Fish Dept., 2011).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Closely associated with *Thomomys umbrinus* (Southern Pocket Gopher) and *Reithrodontomys fulvescens* (Fulvous Harvest Mouse). May occupy habitat with soil too shallow and rocky for burrowing by other *Sigmodon*; may utilize tunnels abandoned by *T. umbrinus*. Nests are located either underground or in thickets of grasses. Surface nests are made of grasses, spherical, 20-40 cm (8-16 in) in diameter, and not lined with fine material. They form complex, interconnected runways radiating from nests and burrows. Runways are often more than 25 meters long though not always well defined. They are more active diurnally than at night. The home range for an adult male tagged in the Chiricahua Mountains by Hardin et al. (1970) was 31,450 square feet.

REPRODUCTION: Reproduction apparently can occur throughout most of the year (except, at least in Arizona, during the most arid portions of the summer), and females as young as 45 days of age sometimes breed. Gestation lasts about 34 days. There are 2-6 young in litter and these young (rather than being naked, blind and helpless like those of most other mice and rats) are amazingly precocial at birth. Within a few hours, a newborn looks and acts like a miniature adult. Weaning occurs by 15 days or earlier, but the young cotton rat may begin eating vegetation when it is as young as 8 days. (Wilson and Ruff, 1999).

FOOD HABITS: Grasses make up their main diet (especially *Bouteloua gracilis*), however prickly pear fruit is reported to be a popular food item when and where it occurs. Succulent plants probably provide needed moisture, since they apparently do not require free water. They are thought to take only small amounts of individual plants, since no particularly destructive effect upon vegetation was noted by Hoffmeister (1963).

HABITAT: *Sigmodon ochrognathus* inhabits grassy, dry, rocky slopes in or near the oak woodland belt, as well as montane meadows within ponderosa pine and Douglas fir forests. They live under more xeric conditions than any other *Sigmodon*. Grasses are often sparse and scattered in clumps with beargrass, agave or yuccas. Slopes are often up to 40 degrees.

ELEVATION: In Arizona, elevation ranges from 1,998 - 8,800 feet (609-2,682 m). (unpublished data, HDMS, AZ Game and Fish Dept. 2011).

PLANT COMMUNITY: Madrean evergreen woodland, and semidesert grassland. Predominant large plants are *Quercus emoryi*, *Agave*, *Nolina*, *Cowania mexicana*, *Mimosa*, *Opuntia*, and *Yucca*. Other plants providing cover and food are *Bouteloua gracilis*, *B. curtipendula*, *Aristida*, *Heteropogon contortus*, *Muhlenbergia*, *Senecio longilobus*, *Grindelia aphanactis*, and *Eleocharis*.

POPULATION TRENDS: Unknown in Arizona. Rappole and Tipton (1987), reported populations in Texas to have declined. The yellow-nosed cotton rat has expanded its range northward in the past 100 years. Surprisingly, this expansion has sometimes occurred across gaps of habitat that seem quite unsuitable.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[C2 USDI, FWS 1991]

STATE STATUS: None

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 2007)

MANAGEMENT FACTORS: *Sigmodon ochrognathus* may be negatively affected by excessive grazing or other factors reducing or eliminating native perennial grasses. In Texas, it was suggested that declines were related to overgrazing (Rappole and Tipton, 1987).

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Inventory surveys needed to determine population distribution, trends, threats, and habitat use. Monitor habitat modification and loss.

LAND MANAGEMENT/OWNERSHIP: BIA - Tohono O'odham Nation; BLM – Safford and Tucson Field Offices; DOD - Fort Huachuca Military Reservation; FWS – Leslie Canyon National Wildlife Refuge; NPS - Saguaro National Park, Chiricahua and Coronado National Monuments; USFS - Coronado National Forest; State Land Department; TNC - Aravaipa Canyon Preserve; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Anderson, S. 1972. Mammals of Chihuahua Taxonomy and Distribution. Bulletin of the American Museum of Natural History. Vol. 148. Article 2. Pp: 358.
- Baker, R.H. 1969. Cotton rats of the *Sigmodon fulviventer* group (Rodentia: Muridae). pp. 177-232. In Jones J.K. ed. Contributions in Mammalogy. Misc. Publ. Mus. Nat. Hist. Univ. Kan. Mus. Nat. Hist. Univ. Kan.,51:1-428.
- Baker, R.H. and K.A. Shump. 1978. *Sigmodon ochrognathus*. Mammalian Species 97:1-2, 2 figs. The American Society of Mammalogists.
- Burt, W.H. 1976. A Field Guide to the Mammals. Houghton Mifflin Company, Boston, MA 174-175.
- Cockrum, C.L. 1960. The Recent mammals of Arizona. Univ. of Arizona Press, Tucson. pp. 190f.

- Davis, W.B. 1974. The mammals of Texas. Bull. No. 41. Texas Parks and Wildlife Department, Austin, pp. 216-217.
- Elder, F.F.B. and M.R. Lee. 1985. The chromosomes of *Sigmodon ochrognathus* and *S. fuliventer* suggest a realignment of *Sigmodon* species groups. J. Mamm. 66(3):511-518.
- Findley, J.S., A.H. Harris, D.E. Wilson and C. Jones. 1975. Mammals of New Mexico. University of New Mexico Press, Albuquerque, pp. 360.
- Hall, E.R. 1981. The mammals of North America. John Wiley & Sons, New York, pp. 744-745.
- Hardin, J.W., R.W. Barbour and W.H. Davis. 1970. Observations on the home range of a yellow-nosed cotton rat, *Sigmodon ochrognathus*. Southern Naturalist 14:353-355.
- Hoffmeister, D.F. 1963. The yellow-nosed cotton rat, *Sigmodon ochrognathus*, in Arizona. Amer. Mid. Nat. 70(2):429-441.
- Hoffmeister, D.F. 1986. Mammals of Arizona. Univ. of Arizona Press, Tucson and Arizona Game and Fish Department, Phoenix. pp.399-401.
- Hoffmeister, D.F. and W.W. Goodpaster. 1954. The mammals of the Huachuca Mountains, southeastern Arizona. Ill. Biol. Monog. 24(5):1-152.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2001. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: May 7, 2003).
- Rappole, J.H. and A.R. Tipton. 1987. An assessment of potentially endangered mammals of Texas. Unpub. report to U.S. Fish and Wildlife Service. Office of Endangered Species. Albuquerque, New Mexico. pp.121-123.
- Schmidly, D.J. 1977. The mammals of Trans-Pecos Texas. Texas A&M University Press, College Station, pp. 225.
- Tveten, J.L. The Mammals of Texas-Online Edition.
<http://www.nsr.ttu.edu/tmot1/sigmochr.htm>
- USDA, Forest Service Region 3. 2007. Regional Forester's List of Sensitive Animals.
- 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):58809.
- 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. Federal Register 61(40):7596-7613.
- Whitaker, J.O. 1980. The Audubon Society field guide to North American mammals. A.A. Knopf. New York. p.484; plate 141.
- Whitaker, J.O. 1996. The Audubon Society field guide to North American mammals. A.A. Knopf. New York. p.609.
- Wilson, D. E. and D. M. Reeder, eds. 2005. Mammal species of the World: A taxonomic and Geographic Reference, Third edition, Volume 1. The Johns Hopkins University Press, Baltimore, Maryland. 1176.
- Wilson D.E., and S. Ruff, eds. 1999. The Smithsonian Book of North American Mammals. Smithsonian Institution Press, Washington, in association with the American Society of Mammalogists, pp 595-596.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Was formerly listed as a candidate species by U.S. Fish and Wildlife Service (USFWS) because of concerns about its rarity and local distribution in the Chihuahuan region and declines in Texas (Alisha Shull, USFWS, Austin Field Office pers. comm. 1992). Candidate status was dropped in 1996 when C2 (Candidate 2) species were eliminated by the USFWS.

Revised: 1992-04-30 (JGH)
1992-05-05 (BKP)
1992-05-09 (RBS)
1997-03-04 (SMS)
2003-05-09 (AMS)

To the user of this abstract: you may use the entire abstract or any part of it. We do request, however, that if you make use of this abstract in plans, reports, publications, etc. that you credit the Arizona Game and Fish Department. Please use the following citation:

Arizona Game and Fish Department. 20XX (= **year of last revision as indicated at end of abstract**). X...X (= **taxon of animal or plant**). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. X pp.