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Sigmodon ochrognathus.

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Sigmodon ochrognathus Bailey, 1902

Yellow-nosed Cotton Rat

Sigmodon ochrognathus Bailey, 1902:115. Type locality Chisos Mountains, 2840 m, Brewster Co., Texas.
Sigmodon baileyi Allen, 1903:601. Type locality La Cienega de las Vacas, 2990 m, Durango.

CONTEXT AND CONTENT. Order Rodentia, Suborder Myomorpha, Family Muridae, Subfamily Cricetinae. The genus *Sigmodon* now includes at least seven species. A key to them is presented in Baker and Shump (1977). Four subspecies of *Sigmodon ochrognathus* have been described but are not currently recognized (Baker, 1969).

DIAGNOSIS. Small size (for captive animals, maximum weight 130 g for males, and 133 g for nonpregnant females; maximum lengths of head and body are 154 mm and 149 mm, respectively) coupled with a muddy gray dorsum and ochraceous-colored nose (and eye-ring) separate *S. ochrognathus* from other species in the *S. fulviventer* group (that is, *S. fulviventer*, *S. alleni*, and *S. leucotis*). Distinguishing cranial characters are: a pronounced median keel on the basioccipital; small and elongate auditory bullae; obvious lateral bulges of the capsular projections of the upper incisors; and a median-posterior notch on the interparietal and curved paraoccipital processes with distinctive basal notches (Baker, 1969).

Sigmodon ochrognathus differs from the *S. hispidus* group (*S. hispidus*, *S. arizonae*, and *S. mascotensis*) by possessing small tail scales, 0.50 mm wide rather than 0.75 mm wide; tail more heavily haired; short and broad rather than long and narrow skull; in relation to width, short instead of long basioccipital; skull less arched; deep rather than shallow palatal pits (Baker, 1969; Zimmerman, 1970).

GENERAL CHARACTERS. No differences in size between sexes were found (Baker, 1969; Jiménez, 1971, 1972), and the following measurements (in mm, N = 8, from Baker, 1969) represent both sexes of wild-taken adults from Canatlán, Durango. External measurements are: length of head and body, 139 (132 to 144); hind foot, 28 (25 to 29); height of ear from notch, 21 (20 to 22). Cranial measurements are: condylopremaxillary length, 31.2 (30.2 to 32.0); zygomatic breadth, 18.7 (18.3 to 19.4); least interorbital constriction, 4.8 (4.6 to 4.9); depth of cranium, 10.0 (9.6 to 10.3); length of nasals, 11.7 (11.0 to 12.5); alveolar length of maxillary toothrow, 6.3 (6.1 to 6.4). See Figure 1.

DISTRIBUTION. The yellow-nosed cotton rat is the most xerophilous species in the genus *Sigmodon*. It lives on dry, rocky slopes in oak-piñon-juniper habitat along the eastern side of the Sierra Madre Occidental from Arizona and New Mexico south to central Durango. This species is also found in the widely-scattered desert ranges of the Mesa del Norte (northern part of the Mexican Plateau) in Trans-Pecos Texas, western Coahuila, and northeastern Durango (Hoffmeister and Goodpaster, 1954; Baker, 1956, 1969; Hall and Kelson, 1959; Cockrum, 1960; Baker and Greer, 1962; Anderson, 1972; Findley *et al.*, 1975). See Figure 2. *S. ochrognathus* has no fossil record.

FORM. In *Sigmodon ochrognathus*, the pelage consists of three hair types, excluding vibrissae (Baker and Shump, 1977). The dorsal guard hairs and underhairs are grayish with a tinge of yellow, whereas those of the venter are grayish white (Bailey, 1902; Baker, 1969). A yellowish patch occurs on each side of the nose (Anderson, 1972), and the eye possesses a ring (Baker, 1969). The feet are buffy gray in color, the tail is hairy, blackish above, and grayish below (Bailey, 1902).

Jiménez (1971) correlated the morphological characteristic of size in the various species of *Sigmodon* with the associated habitat for each species. He noted that *S. ochrognathus* lives in shallow, rocky soils on sparsely vegetated slopes and is one of the smallest species of the genus. Small size may make these cotton rats less noticeable to predators than otherwise would be the case.

FUNCTION. Bowers (1971) measured the metabolism of

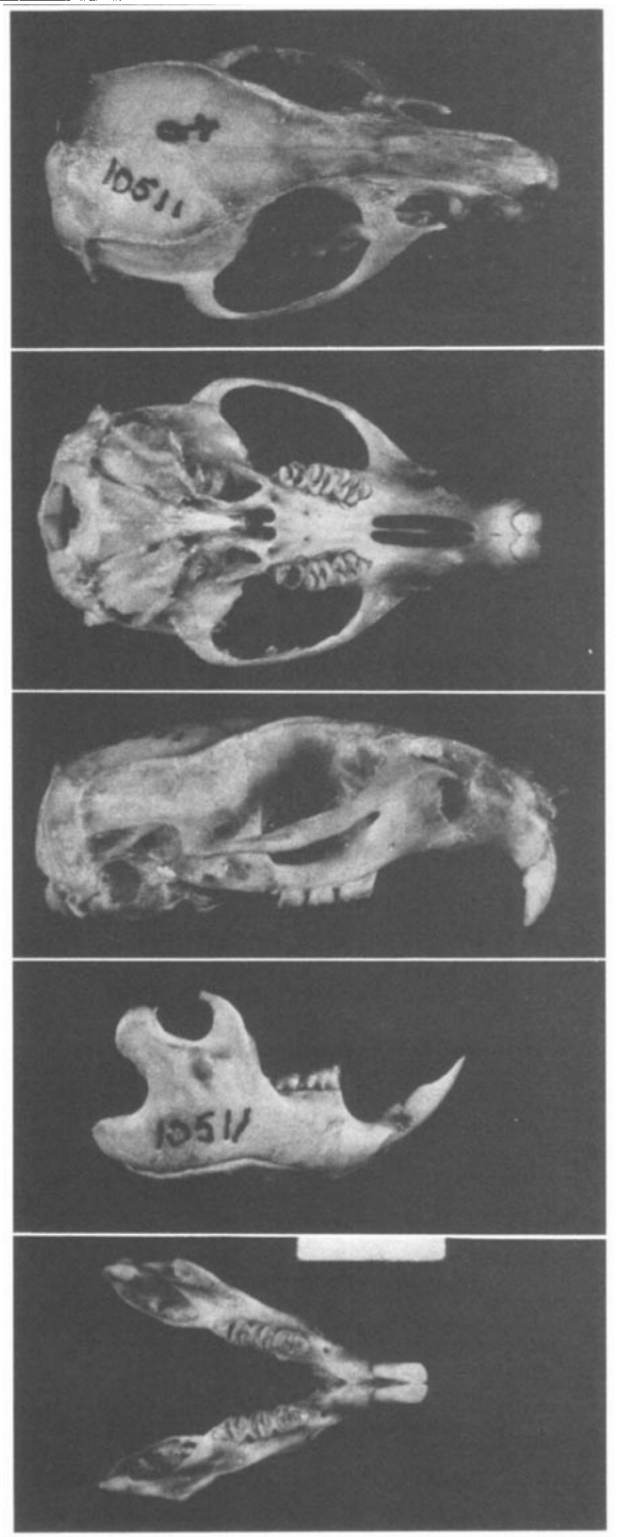

FIGURE 1. Dorsal, ventral, and lateral views of cranium, and lateral and occlusal views of mandible of *Sigmodon ochrognathus* (MSU 10511, male from 8.8 km NNW Canatlán, 2130 m, Durango). Scale represents 10 mm.

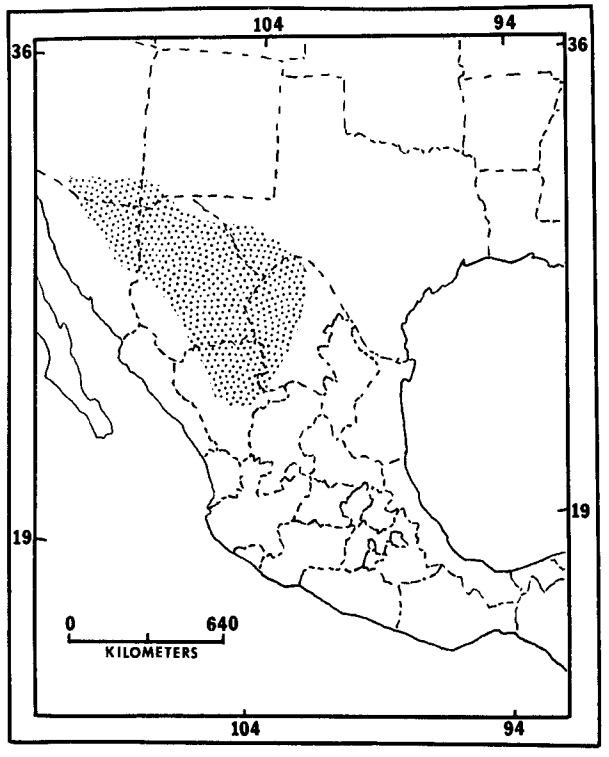

FIGURE 2. Distribution of the yellow-nosed cotton rat, *Sigmodon ochrognathus*.

yellow-nosed cotton rats taken from Durango, Mexico, and demonstrated that this species had a resting metabolic rate 12.9 percent lower than expected for *Sigmodon* of that size. The mean value of oxygen consumption for *S. ochrognathus* was found to be 1340 mm^3 O_2/g/hr.

ONTOGENY AND REPRODUCTION. Growth curves for *S. ochrognathus* are presented in Baker and Shump (1977). No sexual dimorphism in growth was found. In laboratory-raised animals, females produced offspring at 71 days and would have mated approximately 35 days earlier (Baker, 1969).

Sigmodon ochrognathus weighs from 4.5 to 6.6 g at birth and is completely covered with fur which is adpressed to the body. The young yellow-nosed cotton rat is precocial (Hoffmeister, 1963) as are other species of *Sigmodon* (Meyer and Meyer, 1944; Asdell, 1964). The young gain weight at a rate of about two grams per day and reach sexual maturity by 45 days of age (Hoffmeister, 1963).

ECOLOGY. *Sigmodon ochrognathus* inhabits desert mountains in southwestern North America. Although this species occupies grassy habitats in localities devoid of other species of cotton rats, it lives primarily on rocky slopes with scattered bunches of grass (Baker, 1956, 1969; Denyes, 1956; Findley and Jones, 1960; Hoffmeister, 1963). Vegetation associated with this species includes: *Haplopappus spinulosus, Bouteloua gracilis, Bouteloua curtipendula, Andropogon saccharoides, Elyonurus barbiculnus, Agrägrostis pilosa, Setaria macrostachya, Heteropogon contortus, Senecio longitabus, Grindelia aphanactis, Muhlenbergia, Baileya, Yucca, Agave, Quercus, Opuntia, Mimosa,* and *Rhus*.

Runways are prominent in thick grass covering deep soils but are indistinct on sparsely-vegetated rocky hillsides. Cuttings of grass blades (and fecal piles) are usually conspicuous (Taylor *et al.*, 1945; Baker, 1969). Caches of grass clippings have been found in burrows (Baker and Greer, 1962), many of which were originally excavated and then abandoned by pocket gophers, *Thomomys umbrinus* (Baker, 1969). Burrows and runway systems used by this cotton rat species have been described by Baker and Greer (1962) and Hoffmeister (1963). Thickets of grass often have surface nests of this species concealed inside them. Captive *S. ochrognathus* also have been observed to construct nests of cotton either inside or outside of refuge cans placed in their cages (Hoffmeister, 1963).

Where *S. ochrognathus* is the only cotton rat present, as in desert ranges in southwestern Texas and western Coahuila, it inhabits not only the rocky, bunch-grass slopes but also the grassy montane flats or alluvial fans where soils are deep and rocks are few. However, throughout most of its range, this cotton rat is absent or occurs only peripherally in the latter habitats due to their occupancy by other cotton rat species (Baker, 1969). Although the ranges of *S. ochrognathus* and *S. leucotis* overlap in latitude in the Canatlán-Tepehuanes area of west-central Durango, the two species have not been found together. The yellow-nosed cotton rat seems confined to the lower, dry slopes (below 1950 m elevation). *Sigmodon ochrognathus* is parasitized by the flea, *Polygenis martinez-baezi* Vargas, 1951 (Baker, 1969).

A laboratory colony maintained in the Division of Living Vertebrates of The Musuem at Michigan State University thrived but produced few litters in captivity.

GENETICS. Sex determination is XX/XY, with the chromosomes being subtelocentric, X, and submetacentric, Y. The diploid chromosomal number of *S. ochrognathus* was found to be 52 (FN, 52) by Zimmerman (1970). Specimens having this number were from three sites in Arizona; the karyotypes showed no variation with regard to location or sex.

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