

Heteromys nelsoni. By Duke S. Rogers and Judith E. Rogers

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Heteromys nelsoni Merriam, 1902

Nelson's Spiny Pocket Mouse

Heteromys nelsoni Merriam, 1902:43. Type locality "Pinabete, Chiapas, Mexico."

CONTEXT AND CONTENT. Order Rodentia, Suborder Sciurogathi (Carleton, 1984), Infraorder Myomorpha, Superfamily Geomyoidea, Family Heteromyidae, Subfamily Heteromyinae, genus *Heteromys*, subgenus *Xylomys*. The subfamily Heteromyinae contains two genera, *Heteromys* and *Liomys*, with *Heteromys* containing 10 species according to Honacki et al. (1982). However, Rogers and Schmidly (1982) and Rogers (1990) recognize only seven. See Schmidt et al. (1989) for the generic account and key to species of *Heteromys*. According to Rogers (1990), *H. nelsoni* is most closely related to members of the *H. desmarestianus* species group. *H. nelsoni* is monotypic (Goldman, 1911; Hall, 1981).

DIAGNOSIS. Distinguishing features of *H. nelsoni* include an adult pelage consisting of soft bristles, whereas all other species of *Heteromys* (other than *H. oresterus*) possess an adult pelage composed of stiff bristles or spines. *H. nelsoni* can be distinguished from *H. oresterus* by ears without white edges and by premaxillae that are conterminus posteriorly with the nasals (Goldman, 1911). *H. nelsoni* does not occur sympatrically with any other species of *Heteromys* (Rogers, 1986).

GENERAL CHARACTERS. *Heteromys nelsoni* (Fig. 1) is a large, gray spiny pocket mouse. Goldman (1911:31) described *H. nelsoni* as follows: "tail much longer than head and body, thinly haired; and as in the subgenus *Heteromys*, ears rather large, nearly naked, dusky and without distinct white edging; pelage soft; general color mouse gray; lateral line absent; sole of hind foot six-tuberculate." Goldman (1911:32) described the skull (Fig. 2) as follows: "long and narrow; rostrum long, not tapering anteriorly, slightly constricted in front of zygomata; braincase high and rather smoothly rounded; supraorbital and temporal ridges faint; zygomata widest anteriorly, the upper surface of maxillary root large and somewhat rectangular; nasals very broad anteriorly, narrowing gradually posteriorly, the ends slightly emarginate; premaxillae narrowing gradually, conterminous posteriorly with nasals; frontals elongated along median line, crowding nasals and premaxillae far forward, but not prolonged along intermaxillary suture; interparietal small and oval; palate narrow between tooth rows; palatopterygoids slender; basioccipital narrow; auditory bullae, including meatus, large and inflated; dentition heavy." Means and ranges (in parentheses) of external and cranial measurements (in mm) of 12 adult males and females (Rogers, 1986) are: total length, 346.8 (328-356); length of body, 152.4 (113-172); length of tail, 188.7 (174-211); length of hind foot, 42.2 (39-44); length of ear, 20.7 (19-23); greatest length of skull, 39.8 (37.7-41.3); zygomatic breadth, 18.0 (17.2-19.0); length of rostrum, 18.2 (17.2-18.8); length of nasals, 15.6 (14.5-16.2);

least interorbital constriction, 9.5 (9.1-10.0); mastoid breadth, 16.5 (16.2-17.2); length of maxillary toothrow, 6.2 (5.8-6.5); interorbital width, 8.3 (7.4-8.9); interorbital length, 4.7 (4.0-5.5); depth of braincase, 12.3 (11.8-12.9). Weight (in g) of adult individuals (Rogers and Schmidly, 1982) from Cerro Mozotól, in Chiapas, México, averaged 84.2 (60.0-110.0).

DISTRIBUTION. *Heteromys nelsoni* is known only from several cloud forest localities (Fig. 3) in southeastern Chiapas, México (Pinabete, Cerro Mozotól, 2,850 m, and 22.5 km NW (by road)



FIG. 1. Adult male *Heteromys nelsoni* from 23.5 km NE (by road) Motozintla de Mendoza, Cerro Mozotól, Chiapas, México.

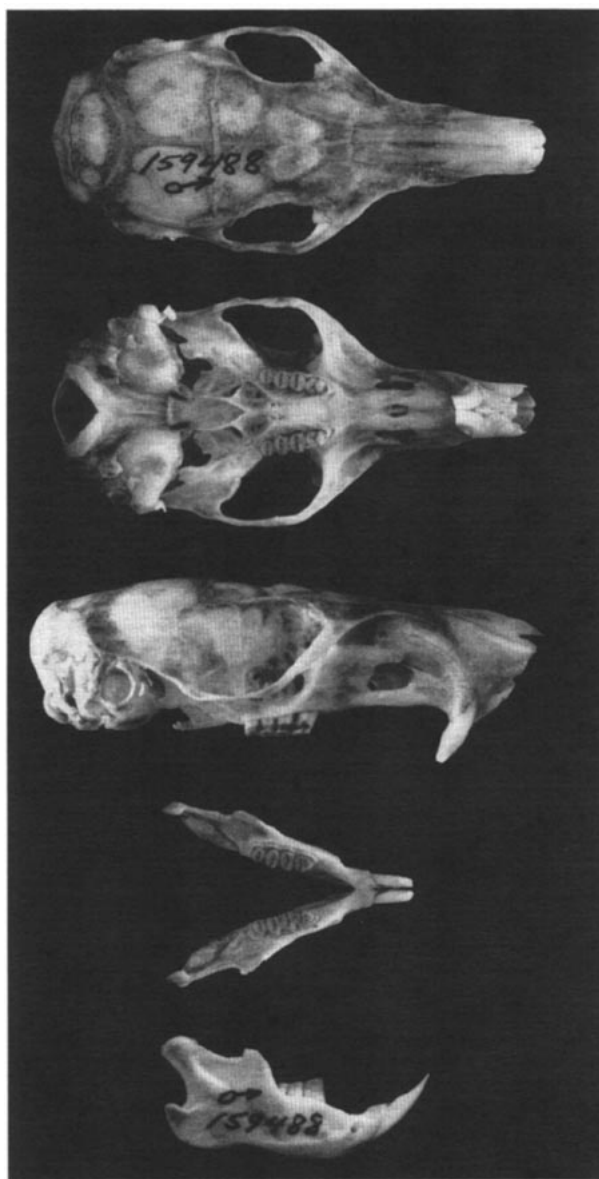


FIG. 2. Dorsal, ventral, and lateral views of the cranium, and lateral view of the mandible of an adult male *Heteromys nelsoni* (Museum of Vertebrate Zoology 159488) from 23.5 km NE (by road) Motozintla de Mendoza, Cerro Mozotól, Chiapas, México. Greatest length of skull is 39.8 mm.

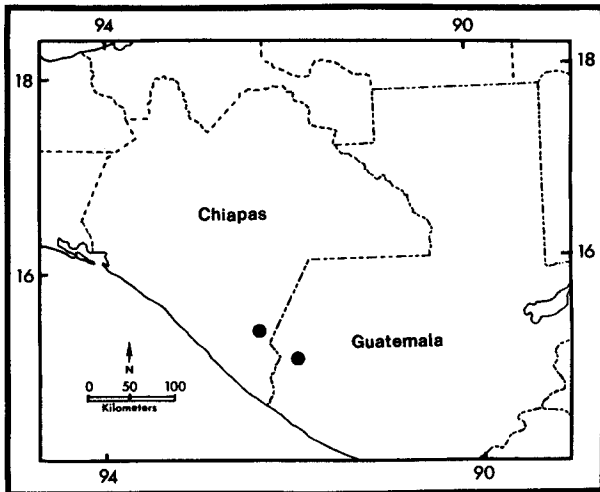


FIG. 3. Map of northern Central America showing the distribution of *Heteromys nelsoni*. This species is known from southern Chiapas, México, and southwestern Guatemala.

Motozintla de Mendoza, Cerro Mozotól), and from Volcán Tajumulco in eastern Guatemala (Rogers, 1986). No fossils of *H. nelsoni* are known.

FORM. Compared with other species of *Heteromys* examined, *H. nelsoni* possesses rather long, but narrow, hair shafts. The trough, or concavity along the upper surface of the shaft, is shallower and narrower relative to other *Heteromys* and the ventral hair surfaces are only slightly flattened with rounded ridges. The lengths and widths (in mm) of individual hairs range from 11.6 to 13.0 and 0.10 to 0.12, respectively (Homan and Genoways, 1978).

ONTOGENY AND REPRODUCTION. Information relative to reproduction in Nelson's spiny pocket mouse is limited to the months of December and February. Of five males collected in mid-December, four were adults and all had testes that were scrotal. Length of testes ranged from 21 to 26 mm. The fifth individual was a subadult with non-scrotal testes 6 mm in length. One nulliparous subadult female was collected during the same period. An adult female was collected in late February and was post-lactating (based on external appearance of mammae).

ECOLOGY. Little is known regarding the natural history of this species, except that it is restricted to cloud forests. Other rodents collected in association with *H. nelsoni* include *Peromyscus boylii*, *P. guatemalensis*, *Reithrodontomys mexicanus*, and *R. tenuirostris*.

GENETICS. The karyotype (Fig. 4) has a diploid number of 42 chromosomes and a fundamental number of 72. Seven of the banded chromosome pairs are metacentric and the remainder are either submetacentric or subtelocentric. The sex chromosomes consist of a large submetacentric X and a medium-sized subtelocentric or acrocentric Y. No chromosomal variation has been detected among individuals from the one population examined (Patton and Rogers, in press a; Rogers, 1989). The Y chromosome is entirely heterochromatic (C-band positive) and stains darkly throughout its length, but the majority of autosomes exhibit no heterochromatic material, even at the centromeric regions (Rogers, 1989). The level of genetic variation within one population of *H. nelsoni*, as documented by allozyme electrophoresis, was relatively low. Only one locus (6-phosphogluconate dehydrogenase) of 30 genetic loci examined was variable (Rogers, 1990). Direct count heterozygosity was 0.006% (Patton and Rogers, in press b).

REMARKS. Merriam (1902) allocated *H. nelsoni* to the subgenus (*Xylomys*), presumably to underscore distinctive features of the pelage, dentition, and cranium characteristic of this mouse. Based primarily on electrophoretic evidence, Rogers (1986, 1990) suggests that *H. nelsoni* is not as distinctive as was previously thought. When all species of *Heteromys* are considered, *H. nelsoni* appears to be more closely related to other members of the *H. desmarestianus* species group (sensu Rogers and Schmidly, 1982)

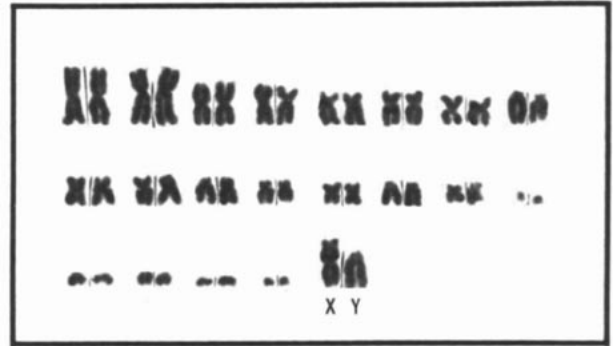


FIG. 4. Standard karyotype of a male *Heteromys nelsoni* from 23.5 km NE (by road) Motozintla de Mendoza, Cerro Mozotól, Chiapas, México (Rogers, 1989).

than are *H. anomalus*, *H. australis*, and *H. gaumeri* (Engstrom et al., 1987; Rogers, 1986, 1990). Moreover, the features classically used to differentiate *H. nelsoni* from other taxa (as well as chromosomal characters) may be autapomorphic (Rogers, 1986, 1989).

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Editors of this account were TROY L. BEST and KARL F. KOOPMAN. Managing editor was CRAIG S. HOOD.

D. S. ROGERS AND J. E. ROGERS, DEPARTMENT OF ZOOLOGY, BRIGHAM YOUNG UNIVERSITY, PROVO, UTAH 84602 AND DEPARTMENT OF BIOLOGY, WESTMINSTER COLLEGE, SALT LAKE CITY, UTAH 84105.