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Plains Harvest Mouse in North Dakota

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NOTES

PLAINS HARVEST MOUSE IN NORTH DAKOTA -- The plains harvest mouse (*Reithrodontomys montanus*) is primarily a species of the central and southern plains of North America (Hall 1981, Wilkins 1986). Its published distribution extends from northwestern South Dakota south to the Mexican states of Chihuahua, Sonora, and Durango. To the west, it occurs in eastern Wyoming, Colorado, New Mexico, and southeastern Arizona, while its eastern limits are in eastern Nebraska, Kansas, Oklahoma, Texas, and southwestern Missouri. In South Dakota, *R. montanus* has been reported as far north as the vicinity of Ludlow, Harding County, which is the most northerly published location recorded for the species (Andersen and Jones 1971, Higgins et al. 2000). There have been no published reports of plains harvest mice in North Dakota, although Andersen and Jones (1971) cited a previously unreported specimen from 18 km south of Mandan, Morton County, in the collection of the University of Michigan Museum of Zoology. This specimen, a study skin and incomplete skull, falls within the range of measurements of *R. montanus* (Priscilla Tucker, Curator, University of Michigan, Museum of Zoology, personal communication).

The plains harvest mouse is among the smallest rodents of the northern Great Plains, weighing only 10 to 13 g. The upper parts are pale brown and the under parts are yellowish gray and white. There is typically a broad stripe on the back, darker than the surrounding pelage, and a buffy patch behind the ear. The tail is sharply bicolored, with a narrow, dark dorsal stripe. Externally, the species is similar to the sympatric, western harvest mouse (*R. megalotis*) but has a relatively shorter (less than the head and body) and more sharply bicolored tail (Wilkins 1986). The skull, though smaller than that of the western harvest mouse, also cannot be reliably distinguished from that species by using individual characters, especially when dealing with specimens of mixed age classes (Hooper et al. 1999). However, Hooper et al. (1999), using discriminant function analysis of combinations of cranial measurements, were able to accurately identify specimens of both species regardless of age. *Reithrodontomys montanus* can be clearly separated from *R. megalotis* based on discriminant scores by using 11 and 7 character combinations, whereas some overlap in discriminant scores occurs between species when only 3 character combinations are used (see Fig. 1 in Hooper et al. 1999).

The proximity of records of *R. montanus* from northwestern South Dakota, combined with the results of the discriminant function analyses of the two species by Hooper et al. (1999), prompted us to reassess 52 skulls of

Reithrodontomys in the University of North Dakota Vertebrate Museum. These had been collected in southwestern North Dakota during the 1960's and 1970's (Svihovec 1967, Seabloom et al. 1978) and labeled as *R. megalotis*. Fifteen skulls had associated study skins, all having tail to head and body ratios conforming to *R. montanus*. However, the degree of tail bicoloration appeared highly variable.

We measured 11 cranial characteristics to 0.1 mm: breadth of braincase, length of molar tooth row, depth of braincase, breadth of occipital condyles, zygomatic breadth, length of incisive foramen, greatest length of skull, breadth of rostrum, interorbital breadth, length of nasal bone, and length of rostrum. These were used with discriminant multipliers and constants from Table 2 in Hooper et al. (1999) to compute 11, 7, or 3 character discriminant scores for each specimen. We computed discriminant scores by multiplying each cranial value by the respective multiplier, summed them, and added the constant to produce an overall score for each of the 52 specimens. Missing values for some cranial characters due to damaged skulls made computation of the 11 character score possible for only 37 of the 52 specimens. However, we were able to compute the 7 character score for five additional specimens and the 3 character score for eight more specimens.

Eleven skulls with complete information had 11 character discriminant scores less than -1.0, and two skulls with partial information had 7 character scores less than -1.0, thus assigning them to *R. montanus* (see figures 1a and 1b in Hooper et al. 1999). Two of eight skulls with 3 character scores had scores of less than -1.7, meaning that they also can be reliably assigned to *R. montanus* (see figure 1d in Hooper et al. 1999). Eight skulls had borderline scores of ca -1.0, and could not be assigned to either species.

All 15 specimens of *R. montanus* were collected in Slope and Bowman counties as far north as T136N, R102W, about 15 km northwest of Amidon. This extends the northern limits of the species' published distribution by approximately 50 km, and establishes its occurrence in North Dakota.

Although plains harvest mice and western harvest mice are sympatric (Wilkins 1986, Webster and Jones 1982), they appear to be somewhat ecologically separated from each other (Hill and Hibbard 1943). The plains harvest mouse typically inhabits well developed grasslands, while the western harvest mouse occurs in a wider variety of habitats with more dense vegetation, only avoiding dense forest and xeric upland (Jones et al. 1983). The majority of our North Dakota specimens of plains harvest mice were collected in grassland habitats (upland prairie, mesic grassland, lowland meadows, pine grasslands, fence lines), whereas most western harvest mice were taken from cottonwood (*Populus deltoides*) bottoms adjacent to the Little Missouri River, with scattered records from sagebrush (*Artemisia* sp.) bottoms, pine grassland, fence lines, upland prairie, and alfalfa (*Medicago sativa*) fields.

Little is known of the status of the plains harvest mouse in North Dakota except for the specimens considered here from the 1960's from scattered locations in Slope and Bowman counties, and the previously discussed specimen from Morton County. Subsequent surveys (Genoways and Jones 1972, Seabloom et al. 1978, Seabloom et al. 1999) did not encounter the species. Therefore, we regard it as rare to uncommon in extreme southwestern North Dakota. -- Robert W. Seabloom¹ and Terry L. Shaffer. Department of Biology, Box 9019, University of North Dakota, Grand Forks, North Dakota 58202 (RWS), U. S. Geological Survey, Northern Prairie Wildlife Research Center, 8711 37th Street SE, Jamestown, North Dakota 58401 (TLS). ¹Corresponding author. E-mail address: robert_seabloom@und.nodak.edu

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