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A Notable Range Extension for the Plains Pocket Mouse *Perognathus flavescens perniger* Osgood, in Iowa

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The known range for the plains pocket mouse, *Perognathus flavescens perniger* Osgood has been extended 60 miles (96 km) southeast of the easternmost known locality for this arid grassland species. The discovery of this species in the relict sand dune habitat of Muscatine County, Iowa indicates that other eastern populations may be found in similar relict areas in southeastern Iowa and western Illinois.

INDEX DESCRIPTORS: *Perognathus flavescens perniger*, Iowa, Range Extension.

The plains pocket mouse, *Perognathus flavescens perniger* Osgood, is found from about 100 miles (161 km) south of the Canadian border in eastern South Dakota and western Minnesota southwestward to Nebraska, central Colorado, western Oklahoma, and the panhandle of Texas (Burt and Grossenheider, 1976). The species is rare in Iowa and specimens were previously known from only 8 counties in the state (Bowles, 1975). It was first reported in the state by Polderboer (1937) from northwestern Black Hawk County, although a specimen was taken earlier in Greene County (see Bowles, 1975). Bowles suggested that other scattered populations might be found in suitable habitat in northern and western Iowa, especially along the Missouri River bluffs. No specimens had been found in southeastern Iowa.

In August 1973 James A. Cooper collected a single pocket mouse on Big Sand Mound, Muscatine County, Iowa. The existence of this population was confirmed with the capture of 5 additional mice by Robert Sanz in 1977. The newly discovered population is 60 miles (96 km) southeast of the closest known locality. This constitutes the easternmost population known for the species and the first to be found adjacent to the Mississippi River. No published record for this species in Iowa has appeared in the past 20 years and most records are much older.

IDENTIFICATION

The dorsal pelage of our specimens is a mixture of deep brown and golden brown hairs typical of the species. Laterally the brown hairs are lost, with a striking gold (almost orange) on the sides becoming yellowish gray ventrally. The tail is moderately covered with hair and bears a very small tuft of slightly elongated hairs at the tip on the male. Fur-lined cheek pockets are obvious, there are 6 distinct mammae, the upper incisors are grooved anteriorly, and there are 20 cheek teeth. The measurements for the 3 mice preserved are given in Table 1.

One preserved female specimen had 3 embryos, each approximately 6 mm long. The intestines were engorged with food and these factors probably were main contributors to the unusually high weight for this specimen. The second female was not examined internally.

HABITAT AND METHODS OF COLLECTION

All specimens were taken overnight in pitfall or Sherman live traps set in open sand dunes. They were trapped in runs evident in the sand, usually near clumps of vegetation. Specimens were collected over approximately 400 m of continuous habitat of this type. One was taken within 30 m of the edge of a river birch (*Betula nigra*) forest, the others more than 100 m from trees. Vegetation of the sand dunes was sparse, consisting of clumps of *Calamovilfa longifolia*, *Ambrosia psilostachya*, *Commelina erecta*, *Cyperus schweinitzii*, and *Croton glandulosus* on top. One dune was also capped with a thicket of *Rhus aromatica*. The very sparsely vegetated, more windblown parts of the dunes had scattered individuals of *Aristida tuberculosa*. The area of the

more or less active sand dunes occupies in excess of 100 acres (40.5 ha) and gives way to sandy cultivated fields toward the west. The only other mice taken in the same or similar nearby habitats were *Peromyscus maniculatus* and *Reithrodontomys megalotis*. Both of these were more closely associated with vegetation than were the pocket mice.

These specimens were the result of more than 4,200 trap nights from 1973 through 1977. Of these, approximately 3,700 involved Sherman live traps baited with peanut butter or bird seed, 300 used Museum Special snap traps baited with peanut butter, and 200 used pit traps. Two pocket mouse was obtained by pit trap, the other four by Shermans.

DISCUSSION

Plains pocket mice are known to be rare in Iowa and have recently been placed on the state's endangered species list (Roosa, 1977). Because of their rarity, only 3 of the 6 specimens collected were preserved; two of these were deposited in the Drake Research Collection and one in the Ecology Consultants, Inc. Collection, Ft. Collins, Colorado. The remainder were released at the point of capture. Two of the specimens were preserved as study skins and one as an alcoholic. The occurrence of this species in relatively unvegetated sandy habitat is consistent with the finding of others. Bowles (1975) pointed out that this species probably invaded Iowa during the xerothermal period and may have disappeared from much of its range during more recent times in response to establishment of a more vegetated environment and more recently in response to agriculture. Three other relict xerothermal animal species were collected by the authors and have been reported in the literature from this locality. Dodge and Miller (1955) found the first recorded Iowa population of Illinois mud turtles, *Kinosternon flavescens spooneri*, and Berberich *et al.* (1971) reported western hognose snakes, *Heterodon nasicus*, here. These and the ornate box turtle, *Terrapene ornata*, are all representatives of desert adapted species whose main populations exist in the desert grasslands of the southwestern United States.

Table 1. Measurements of *Perognathus flavescens perniger* from Muscatine Co., Iowa. Lengths in mm and weight in g.

| Specimen Number | Sex | Date Collected | Total Length | Tail Length | Hind | | Ear Length | Weight |
|-----------------|--------|----------------|--------------|-------------|-------------|--------|------------|--------|
| | | | | | foot Length | Length | | |
| JAC 74 | male | 6 Aug 1973 | 122 | 55 | 19 | 5 | 6.29 | |
| JLC 4302 | female | 15 May 1977 | 117 | 51 | 17 | 6 | 10.25 | |
| RCS 177 | female | 16 May 1977 | 120 | 54 | 18 | 6 | 12.20 | |

Other somewhat similar habitats along the Mississippi River in Iowa, Missouri, and Illinois are known to support at least some of these relict species. These associations suggest that pocket mice might be expected there as well. Since this species is clearly endangered in Iowa, care should be taken not to disturb critical habitat where pocket mice occur and not to kill or remove specimens.

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