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NOTES ON THE ECOLOGY OF *REITHRODONTOMYS MICRODON* BASED ON NEW RECORDS IN THE EJE NEOVOLCÁNICO, MÉXICO

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ABSTRACT.—Based on the first record in the state of Morelos and a new record for the Estado de México, we suggest that *Reithrodontomys microdon* preferentially uses an arboreal habitat. Specimens described here, for the most part (75%), were captured >4 m above ground on trees. Although historical records indicate that *R. microdon* is rare, our data may suggest otherwise. Assuming this species is preferably arboreal and that most inventories of rodents have focused on the ground, it is evident that, historically, this species has not been surveyed in its preferred habitat.

RESUMEN.—Con base en el primer registro de *Reithrodontomys microdon* en el estado de Morelos y un nuevo registro para el Estado de México nosotros sugerimos que esta especie de roedor utiliza preferentemente un hábitat arbóreo. Los ejemplares reportados aquí, en su mayoría (75%), fueron capturados en árboles a más de 4 metros sobre el suelo. Aunque los registros históricos señalan que éste es un taxón raro, nuestros datos sugieren que puede que este no sea el caso. Asumiendo que esta especie es preferentemente arborícola y que los inventarios de roedores se han enfocado principalmente en el suelo, es evidente que, históricamente, este ratón no ha sido muestreado en su hábitat preferido.

The small-toothed harvest mouse, *Reithrodontomys microdon,* is considered a rare species because of its sparse representation in scientific collections. At present, it is categorized as a threatened taxon by the Mexican government (SEMARNAT 1994, 2002, 2010). Current records indicate that this species is allopatrically distributed in patches of oak, pine, and fir forests above 2300 m in central and southern Mexico and in northern Guatemala (Hooper 1952, Hall 1981, Musser and Carleton 2005, González-Ruíz et al. 2007, Marines 2014). Presently, 3 subspecies are recognized: *R. m. microdon* (Sierra Madre de Chiapas), *R. m. wagneri* (Eje Neovolcánico), and *R. m. albilabris* (Sierra de Juárez in Oaxaca) (Hooper 1952, Hall 1981, Ramírez-Pulido et al. 2005). Within the Eje Neovolcánico, *R. microdon* has been recorded in the Distrito Federal, Estado de México, Michoacán, and Guerrero (Fig. 1). In this paper, we report the first record of *R. microdon* in the state of Morelos and new records of this species in the Estado de México, but most importantly, we highlight that the preferred microhabitat where this species was captured is the forest canopy.

As part of a survey of the rodent fauna of cool moist forests of the Eje Neovolcanico, at each collecting site we set 40 Sherman traps on the ground and 40 traps on tree branches at least 4 m above the ground. In the state of Morelos we trapped 4 nights and in the Estado de México only 2 nights. Traps were baited with a mixture of sunflower seeds and oats. Specimens were prepared as conventional museum vouchers following standard techniques (Hall 1981) and deposited in the Colección de Mamíferos, Centro de Investigación en Biodiversidad y Conservación, Universidad Autónoma del Estado de Morelos (CMC).

In July–August 2009, we collected 5 specimens of *R. microdon* (CMC 2585–2589) at 6.5 km E Coajomulco (along the old railroad México–Cuernavaca), Municipio Tepoztlán, Morelos (19°1.580′ N, 99°9.660′ W) at 2520 m elevation (Fig. 1). Three animals were females and 2 were males. One of the females had swollen uteri, but the rest showed no evidence of reproductive activity. Of the 5 specimens, 4 were adults and 1 (male) was a juvenile. The fur was long and dense. The upper parts were ochraceous tawny and the underparts mostly white with some small blackish patches. A blackish ring surrounded the eyes. The hind feet were mostly white with some blackish hair on the upper parts. The tail was dark brown and slightly paler ventrally. Range and mean (in parentheses) of external measurements (mm) of the adults were as follows: total length 185–192 (188.5); vertebral tail length

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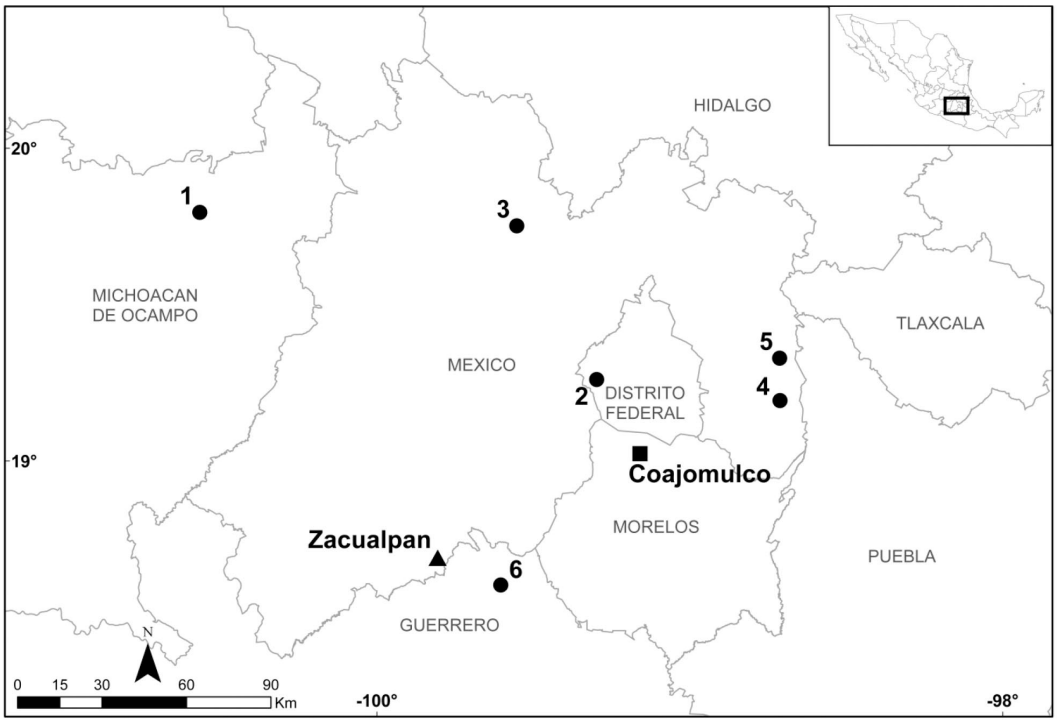

Fig 1. First record of *Reithrodontomys microdon* from the state of Morelos (■), new record for the Estado de México (▲), and previously reported localities in the Eje Neovolcánico (●): (1) Cerro San Andrés, (2) Cañón Contreras, (3) Villa del Carbón, (4) San Rafael, (5) Llanos de Aculco, (6) Cerro del Huixteco.

114–118 (115.25); hind foot length 19–20 (19.25); ear length 18–19 (18.5). Body mass for all specimens was 10 g.

Specimens of *R. microdon* were collected in an oak forest, where the most abundant species are *Quercus rugosa* and *Quercus castanea.* This forest is also characterized by other tree species typical of cloud forests, including *Clethra mexicana, Styrax ramirezii,* and *Symplocos prionophylla.* Trees were commonly covered with epiphytes. The forest is located on a moderate slope facing south. One specimen of *R. microdon* was obtained on the ground, at the base of a tree, but the remaining 4 were collected on tree branches >4 m above ground. Of the 4 mice obtained in the canopy, 3 were caught on *C. mexicana;* the tree species where the fourth specimen was collected was not identified. Other rodent species collected at this site were *Peromyscus difficilis* (2 individuals) and *Peromyscus hylocetes* (7 individuals).

Even though it is known that *R. microdon* is distributed in the Eje Neovolcánico, the specimens collected at Municipio Tepoztlán represent the first record for the state of Morelos. The nearest locality previously known for *R. microdon* in Central México is Cañón Contreras in the western limits of Distrito Federal (Hooper 1952), about 30 km north of this new record (Fig. 1).

On 17 August 2006, we collected 3 adult males of *R. microdon* (CMC 1783–1785) at 6.5 km SW Zacualpan, Municipio Zacualpan, Estado de México (18°41.428′ N, 99°48.421′ W), at 2400 m elevation (Fig. 1). No evidence of reproductive activity was detected in any of the mice. Coloration patterns were similar to those described for specimens from Morelos, but the underparts were predominately white with practically no dark spots. Range and mean (in parentheses) of external measurements (mm) of the adults were as follows: total length 188–198 (193.6); vertebral tail length 116–122 (118.6); hind foot length 19–20 (19.6); ear length 17 (17). Range and mean (in parentheses) of body mass (g) was 10–12 (11.3).

Mice were captured in a temperate humid forest where oaks (*Quercus* spp.) were the predominant trees. Epiphytes were commonly covering trees. Traps were set along a glen with a narrow stream at the bottom. Two specimens were caught on oak trees, >5 m above the forest floor; the third mouse was collected on the ground at the base of a bush. We also caught 4 individuals of *R. sumichrasti* and 2 specimens of *Habromys schmidly* at this site.

Although there are additional records of *R. microdon* for the Estado de México (González-Ruíz et al. 2007), this locality represents the southernmost record for the species in this state (Fig. 1). This area is part of the Sierra de Taxco, a mountain system that extends from the northern portion of state of Guerrero into the southern limits of the Estado de México. Just recently, the occurrence of *R. microdon* in the same mountain range, but in the section that corresponds to the state of Guerrero, was reported by Marines (2014). Certainly there are records of *Reithrodontomys bakeri*, a closely related species (Bradley et al. 2004), also in the state of Guerrero, but those records occurred in the Sierra Madre del Sur, a distinct mountain range separated by the Balsas Depression.

Our new records of *R. microdon* update the current species distribution, but more importantly, information on the microhabitat where the majority of the mice were caught (75%; forest canopy) provides a better understanding of the ecology of this species. In fact, recent studies have revealed the preference of *R. microdon* for arboreal habitat (González-Téllez 2013, Marines 2014). Therefore, although historical records indicate that *R. microdon* is a rare taxon, new data suggest that this may not be the case. This is because most collecting efforts have focused on the ground—a microhabitat that apparently is not preferred by *R. microdon.*

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