

## RANGE EXPANSION OF THE NORTHERN PYGMY MOUSE (*BAIOMYS TAYLORI*) INTO EASTERN NEW MEXICO

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The Northern Pygmy Mouse (*Baiomys taylori*) is a small grassland rodent that reaches its northern distributional limits in southwestern parts of the United States (Hall 1981; Eshelman & Cameron 1987). Distribution of this species has expanded during recent decades in the United States (e.g., Stangl & Dalquest 1986; Pitts & Smolen 1989; Stuart & Scott 1992; Choate 1997; Roehrs et al. 2008; Green & Wilkins 2010; Stevens 2015; Schmidly & Bradley 2016; Geluso et al. 2017). In western Texas, researchers have tracked the northward and westward movement for decades, including counties that border eastern New Mexico (Diersing & Diersing 1979; Stangl et al. 1983; Hollander et al. 1987; Jones & Manning 1989; Choate et al. 1990; Jones et al. 1993; Choate 1997; Schmidly & Bradley 2016). To date, no verifiable records of *B. taylori* exist from eastern New Mexico (Aday & Gennaro 1973; Findley et al. 1975; Choate 1997; Frey 2004; Geluso et al. 2017). Herein, we report on the first published observations of *B. taylori taylori* from eastern New Mexico, including new information on its reproduction in the state.

*Study Area & Methods.*—On 21 December 2017, 200 Sherman live traps (Model type LFATDG, H. B. Sherman Traps, Inc., Tallahassee, Florida) were baited with mixed bird seeds and set along three roadside right-of-ways in Roosevelt County, New Mexico. All roadsides contained dense grasses of various species and heights, including Johnsongrass (*Sorghum halepense*), blue grama (*Bouteloua gracilis*), little bluestem (*Schizachyrium scoparium*), and sprangletop (*Leptochloa fusca*), as well as some forbs including burningbush (*Bassia scoparia*). Due to general habitat associations of *B. taylori* with Hispid Cotton Rats (*Sigmodon hispidus*; Choate et al. 1990; Stuart & Scott 1992; Schmidly & Bradley 2016; Geluso et al. 2017), traps were

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only set in roadsides with visual sign (i.e., runways and vegetative clippings) of *S. hispidus*. Voucher specimens of *B. taylori* and *S. hispidus* were deposited in the natural history collection at the Museum of Southwestern Biology, University of New Mexico, Albuquerque (Table 1).

*Results & Discussion.*—On 22 December 2017, the following five species of rodents were captured: 31 *B. taylori taylori*, 28 *S. hispidus*, 11 Western Harvest Mice (*Reithrodontomys megalotis*), 1 Southern Plains Woodrat (*Neotoma micropus*), and 1 Ord's Kangaroo Rat (*Dipodomys ordii*). On the basis of 10 voucher specimens, body weights of *B. taylori* ranged from 5.5 g (a subadult male) to 11 g (a pregnant female; Table 1). Lactating females weighed 9.0 and 9.5 g. On three occasions, two individuals of *B. taylori* were captured in a single trap. Records from 7.2 km S and 6.5 km W of Floyd represent a 129 km range expansion to the northwest from the nearest published record in Hockley County, Texas (6 mi N, 0.5 mi W Levelland; Schmidly & Bradley 2016; VertNet.org; Museum of Texas Tech University, Mammals, #60604; Table 1). The authors discovered that records reported in Schmidly & Bradley (2016) from Hereford, Deaf Smith County, Texas, were actually from the vicinity of Hereford, Cochise County, Arizona. Those records were based on 62 specimens housed at the Museum of Zoology, University of Michigan. Six of the specimens were individuals caught by P. M. Blossom in 1941, and remaining individuals were raised in a laboratory at the university (C. W. Thompson, in litt.).

In the past, a number of mammalian surveys have been conducted throughout the Llano Estacado region of eastern New Mexico without any confirmed reports of *B. taylori* from the region. However, species commonly associated with *B. taylori* have been documented in the region (including Roosevelt County), such as *S. hispidus* and *R. megalotis* (Aday & Gennaro 1973; Findley et al. 1975; Choate 1997; Frey 2003). Thus, captures of *B. taylori taylori* in this study most likely represent a range expansion into eastern New Mexico, rather than the possibility of *B. taylori* having been undetected for decades. It appears that Northern Pygmy Mice might have been in the area for at least the

Table 1. Localities of occurrence for the Northern Pygmy Mouse (*Baiomys taylori*) captured at three sites in Roosevelt County, New Mexico, on 22 December 2017. Other species of small mammals captured in trap lines (i.e., *Sigmodon hispidus*, *Reithrodontomys megalotis*, *Dipodomys ordii*, and *Neotoma micropus*) are also listed. Gender is given for each individual captured (if recorded in notes), and if kept as a specimen, body weight is given in grams (g) and reproductive information is provided. Voucher specimens are indicated below by their museum number at the Museum of Southwestern Biology, Division of Mammals, University of New Mexico in Albuquerque (MSB). For each locality, latitude and longitude were recorded with a handheld Global Positioning System (Garmin GPS 12, Garmin International, Inc., Olathe, Kansas, USA), using North American Datum 1983 (NAD 83). Elevations (elev.) of collecting sites were determined by plotting coordinates in Google Earth Pro (accessed 8 February 2018).

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NEW MEXICO: Roosevelt Co.

**Site 1:** 7.2 km S, 6.5 km W Floyd P.O., 34.14964°N, 103.65004°W, elev. 1,324 m (*B. taylori* 2♀♀ [MSB#312761 11 g, three tiny embryos, largest uterine swelling = 5 mm]; *S. hispidus* 7♂♂ [MSB#312762 33 g, testis length 7 mm and MSB#312763 17.5 g, testis length 4 mm] and 4♀♀; *R. megalotis* 1♂; and *D. ordii* 1♂).

**Site 2:** 9.7 km S, 12.3 km E Floyd P.O., 34.12680°N, 103.44514°W, elev. 1,258 m (*B. taylori* 4♂♂ [MSB#312764 6.5 g, testis length 4 mm] and 4♀♀; *S. hispidus* 3♂♂; and *R. megalotis* 1♀).

**Site 3:** 0.04 km N, 0.4 km E Rogers P.O., 33.98177°N, 103.22738°W, elev. 1,288 m (*B. taylori* 5♂♂ [MSB#312768 7.5 g, testis length 3 mm; MSB#312770 7 g, testis length 3 mm; and MSB#312771 5.5 g, testis length 2 mm], 15♀♀ [MSB#312765 9 g, lactating; MSB#312766 7 g, no embryos; MSB#312767 9.5 g, lactating; MSB#312769 8 g, no embryos; and MSB#312772 8 g, no embryos], and 1 unknown sex; *S. hispidus* 6♂♂ and 8♀♀; *R. megalotis* 6♂♂ and 3♀♀; and *N. micropus* 1 unknown sex).

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7-8 years prior to the current study because of unconfirmed reports of them in Roosevelt County, New Mexico in 2009 and 2010 (no specific localities mentioned; Hernandez 2012).

Geluso et al. (2017) recently summarized reproduction of *B. taylori* in New Mexico, albeit for *B. taylori ater*, the subspecies that occurs only in the southwestern part of the state. In southwestern New Mexico, reproductive females were observed from March to October. Data from this study from eastern New Mexico extends the reproductive timing for this species in New Mexico into early winter (i.e., late December). On the Llano Estacado in western Texas, reproductive females have

only been documented May-November (Choate 1997), but farther south in Texas, *B. taylori taylori* reproduces nearly yearlong (Eshelman & Cameron 1987; Schmidly & Bradley 2016). The authors suspect that Northern Pygmy Mice are more widespread throughout grassy habitats on the Llano Estacado of eastern New Mexico and western Texas, especially considering their abundance and extended period of reproduction in the study area.

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