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NOTES ON THE WHITE-TAILED ANTELOPE SQUIRREL, *AMMOSPERMOPHILUS LEUCURUS*, AND THE PINYON MOUSE, *PEROMYSCUS TRUEI*, IN NORTH CENTRAL NEVADA

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ABSTRACT.— A four-season live trapping study in the Whirlwind Valley, on the Lander and Eureka county lines near the Humboldt River, yielded two species previously unrecorded from both counties, *Ammospermophilus leucurus* and *Peromyscus truei*. Both records represent minimal airline range extension of 113 and 105 km. It is suggested that the distribution of *A. leucurus* may include the entire northeastern quadrant of Nevada. The occurrence of *P. truei* in sagebrush habitat 21 km from the nearest pinyon woodland is unusual and suggests that this species may occur patchily distributed throughout the lower elevation ranges in the northern portion of the state.

A recent baseline inventory study in the Whirlwind Valley, Lander and Eureka counties, Nevada, furnished several noteworthy observations of small mammals. A substantial range extension for the white-tailed antelope squirrel (*Ammospermophilus leucurus*) was documented. Also, a range extension and an unusual habitat occurrence was found for the pinyon mouse (*Peromyscus truei*).

Seasonal data were obtained on five trapping plots that sampled representative habitat types for the area. Four plant associations (Cronquist et al. 1972) occurred within the study area: Shadscale Association dominated by shadscale (*Atriplex confertifolia*), budsage (*Artemisia spinescens*), peppergrass (*Lepidium perfoliatum*), and small star (*Microsteris gracilis*); Big Sagebrush Association dominated by big sagebrush (*Artemisia tridentata*), Nevada bluegrass (*Poa nevadensis*), snake-weed (*Gutierrezia sarothrae*), and small star; Greasewood Association dominated by greasewood (*Sarcobatus vermiculatus*), inkweed (*Suaeda fruticosa*), and smallscale (*Atriplex pusilla*); Marsh-Meadow Association dominated by saltgrass (*Distichlis stricta*), wire rush (*Juncus balticus*), and sedge (*Carex* sp.).

Plot 1 (T31N, R47E, Sec. 24 NW $\frac{1}{4}$ of SW $\frac{1}{4}$) was placed to sample a combination of Shadscale and Big Sagebrush associations and was situated at the base of the Malpais escarpment. Plot 2 (T31N, R47E, Sec. 13 SW $\frac{1}{4}$ of SE $\frac{1}{4}$) sampled a relatively homogeneous

area of Shadscale Association. Plot 3 (T31N, R48E, Sec. 18 NW $\frac{1}{4}$ of NE $\frac{1}{4}$) was placed in homogeneous Marsh-Meadow Association. Plot 4 (T31N, R48E, Sec. 4 SE $\frac{1}{4}$ of SE $\frac{1}{4}$) was placed in relatively homogeneous Greasewood Association. These plots were on the valley floor, whereas Plot 5 (T31N, R48E, Sec. 20 SW $\frac{1}{4}$ of SW $\frac{1}{4}$) was placed in homogeneous Big Sagebrush Association on the Malpais escarpment, approximately 152 m elevation above the valley floor.

Trapping, using standard Sherman live traps, was conducted for six consecutive nights each in May, July, and September 1982 and January 1983 during the new moon phase. Each trapping plot consisted of two parallel lines transected by four assessment lines (modified from O'Farrell et al. 1977) covering an area of about 22 ha.

The July, September, and January sampling periods yielded multiple captures of *A. leucurus* on Plots 1, 2, and 5. On Plot 1 two adult individuals of each sex were captured in July and September. They occurred only in the big sagebrush component of the habitat, associated with a wash; mean vegetation height was 90.0 cm and cover was 35.0%. Plot 2 yielded three adults, two males and one female, in July, September, and January. Most captures occurred in relatively pure shadscale; mean vegetation height was 19.4 cm and cover was 17.8%. On Plot 5, only one adult male was captured in July; mean vegetation height was 40.6 cm and cover was 28.7%.

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From many years of personal observation in southern Nevada, one of us (M.J.O'F.) has noted that *A. leucurus* is commonly seen during the crepuscular hours, particularly along roadways. Also, during the spring and summer months, the species is quite evident by characteristic "trilling" vocalizations. However, in the Whirlwind Valley no vocalizations were heard and only a few individuals were observed running around the rocky hill-sides at the base of the Malpais escarpment in July and September. No others were observed, except in traps, throughout the rest of the valley.

Hall (1981) provides the most recent examination of the distribution of *A. leucurus* over its entire range. The distribution in Nevada excludes the north central and most of the northeastern portion of the state. The Whirlwind Valley location represents an air-line range extension of about 113 km (70 mi) from the nearest recorded location at the S base of Granite Peak, east range, Pershing County; three mountain ranges lie between these two locations. The remaining known locations occur in a nearly complete circle around the Whirlwind Valley location at distances not exceeding 274 km (170 mi). We suggest that systematic sampling throughout the northeastern portion of Nevada may reveal the presence of *A. leucurus*, justifying a major modification of present range maps.

During the last half of the study, we obtained captures of *P. truei* on Plots 1 and 5. An adult male was captured only once on Plot 1 in September; the point of capture was in homogeneous Shadscale Association. Four adults, two of each sex, were captured on Plot 5 during September and January. A female captured in September was in a post-lactating condition. All individuals were caught in homogeneous Big Sagebrush Association with rocky substrate.

The most recent projected range map for *P. truei* (Hall 1981) indicates that the Whirlwind Valley is at the estimated edge of the range. However, a more detailed examination of the known distribution in Nevada (Hall 1946), using the same locations as the more recent work, show the nearest location to the Whirlwind Valley as the W side of Ruby Lake, about 105 km (65 mi) distant.

Also, there are no records of *P. truei* in either Lander or Eureka counties.

The occurrence of *P. truei* in pure stands of either Big Sagebrush or Shadscale associations is unusual considering that the nearest pinyon habitat is over 21 km (13 mi) away from the sampling locations. Hall (1946) reported this species restricted to pinyon woodland with rocky substrate. Douglas (1969) found that *P. truei* was not resident in brush areas that lacked pinyon logs, although the mouse would venture into adjacent habitat to occasionally forage. He further noted that rocky substrate was not required; however, populations tended to be higher in such areas due to use of rocks as subsidiary nesting areas.

Although the capture on Plot 1 was obviously a transient individual, the presence and increase in numbers over a two-season period on Plot 5 indicates a resident status. Inasmuch as the nearest pinyon woodland is far removed, we surmise that *P. truei* is patchily distributed throughout the Big Sagebrush Association in the Shoshone Range, of which the Malpais escarpment is a projection. This may be the case for many of the lower mountain ranges in central and northern Nevada. Such scattered populations may fluctuate greatly depending on available resources and reproductive success in optimal habitat. They may also serve to maintain the genetic integrity of the species. Further work with these populations is certainly warranted.

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LITERATURE CITED

- CRONQUIST, A., A. HOLMGREN, N. HOLMGREN, AND J. REVEAL. 1972. Intermountain flora: vascular plants of the intermountain west, USA. Vol. 1. Hafner Publ. Co., Inc., New York. 270 pp.
- DOUGLAS, C. L. 1969. Comparative ecology of pinyon mice and deer mice in Mesa Verde National Park, Colorado. Univ. Kansas Publ. Mus. Nat. Hist. 18:421-504.

- HALL, E. R. 1946. Mammals of Nevada. Univ. of California Press, Berkeley. 710 pp.
- . 1981. The mammals of North America, 2d ed. John Wiley and Sons, New York. Vol. 1:1-600 + 90 pp. Vol. 2:601-1181 + 90 pp.
- O'FARRELL, M. J., D. W. KAUFMAN, AND D. W. LUNDAHL. 1977. Use of live trapping with the assessment line method for density estimation. *J. Mammal.* 58:575-582.