

RANGE EXPANSION OF RED FOXES IN NORTHWESTERN TEXAS AND NORTHEASTERN NEW MEXICO

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ABSTRACT—We recently collected specimens of red foxes (*Vulpes vulpes*) in northwestern Texas and northeastern New Mexico that extend the known range of this species in both states. In Texas, the new record likely represents a western range expansion of introduced red foxes that had spread across the state during the past 100 years. In New Mexico, the new record likely represents a westward expansion from Texas, or possibly an eastward or northward expansion from previously documented populations in the state.

RESUMEN—Recientemente colectamos especímenes de zorra roja (*Vulpes vulpes*) en el noroeste de Texas y noreste de Nuevo México, con lo que se extiende la distribución conocida de esta especie en ambos estados. El nuevo registro en Texas probablemente representa la expansión hacia el oeste de zorras rojas introducidas que se han extendido a través del estado en los últimos 100 años. El nuevo registro en Nuevo México probablemente representa la expansión hacia el oeste desde Texas, o posiblemente la expansión hacia el este o norte de poblaciones previamente documentadas en el estado.

Red foxes (*Vulpes vulpes*) are common fauna in most areas of North America. However, red foxes are absent from many semi-arid regions, including lowland areas of the southwestern United States (Hall and Kelson, 1959; Samuel and Nelson, 1982; Voigt, 1987). In Texas and New Mexico, red foxes reportedly occur in most areas of both states, except for large portions of the shortgrass prairie region in extreme western Texas and eastern New Mexico (Findley et al., 1975; Davis and Schmidly, 1994; Choate, 1997).

In Texas, red foxes are considered nonnative, as they did not historically occur in the state (Davis and Schmidly, 1994). Starting in 1895, red foxes (probably from states to the east) were introduced for sport in the central and eastern portions of Texas, where they established populations by the 1940s (Strecker, 1926; Taylor and Davis, 1947; Davis and Schmidly, 1994). By the 1960s, red foxes spread north and west in Texas, and were reported as far north as Swisher County, and as far west as Hale, Lubbock, and Upton counties

(Packard and Bowers, 1970; Davis, 1974). In northwestern Texas, the western limit of red foxes was reported as the central Panhandle (Davis and Schmidly, 1994; Choate, 1997).

In September 2000, we collected remains of a road-killed red fox in Stratford, in western Sherman County, Texas (TTU #85507, The Museum, Texas Tech University, Lubbock). This record extends the known range of red foxes approximately 75 km west than previously reported in the northern Texas Panhandle (Davis and Schmidly, 1994). We also observed red foxes in some towns of adjacent counties to the west and south of Sherman County, suggesting red foxes likely occur throughout the entire western part of the Texas Panhandle.

In New Mexico, all records and specimens of red foxes ($n > 30$) before 1950 were from montane habitats and valleys throughout central and western New Mexico (Townsend, 1893; Bailey, 1932; Halloran, 1946; Clothier, 1957; Hall and Kelson, 1959; Findley et al., 1975), indicating native red foxes historically occupied the western two-thirds of the state.

For example, red foxes were reported from the San Juan and Sangre de Cristo mountains across northern New Mexico (Bailey, 1932; Findley et al., 1975), southwards as far as the San Andres (Halloran, 1946; Hall and Kelson, 1959; Findley et al., 1975) and Mogollon (Bailey, 1932) mountains in southern and western New Mexico, respectively. Historically, red foxes were rare or absent from the plains of eastern New Mexico. A red fox captured by a trapper in Chaves County in 1958 was the first record from eastern New Mexico (Findley et al., 1975). The trapper had never seen a red fox in the region and was not sure of its identity (Findley et al., 1975). No additional records were reported in eastern New Mexico until 2 red fox specimens were collected in the late 1980s near Portales, Roosevelt County (#9707 and #10533; Natural History Museum, Eastern New Mexico University, Portales).

In May 1998, we collected a red fox specimen near Clayton, Union County, in north-eastern New Mexico (Museum of Southwestern Biology, University of New Mexico, Albuquerque; specimen number not yet assigned). This record is approximately 200 km east of previous records from the mountains of northern New Mexico (Hall and Kelson, 1959; Findley et al., 1975; Samuel and Nelson, 1982). This specimen also is 250 km north of red foxes collected from the plains of east-central New Mexico (Roosevelt County). The specimen we collected might represent a westward expansion from Texas, an eastward expansion from existing populations in the mountains of northern New Mexico, or a northward expansion from red foxes in east-central New Mexico (which had an unknown source). Red foxes have been harvested by trappers in all counties of eastern New Mexico during the past 20 years (unpublished harvest data, New Mexico Department of Game and Fish, Albuquerque), suggesting red foxes now occur throughout eastern New Mexico.

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LITERATURE CITED

- BAILEY, V. 1932. Mammals of New Mexico. *North American Fauna* 53:1–412.
- CHOATE, L. L. 1997. The mammals of the Llano Estacado. Special Publications of The Museum, Texas Tech University, Number 40.
- CLOTHIER, R. 1957. Distribution of the mammals of the Sandia and Manzano mountains, New Mexico. Unpublished Ph.D. dissertation, University of New Mexico, Albuquerque.
- DAVIS, W. B. 1974. The mammals of Texas. Texas Parks and Wildlife Press, Austin.
- DAVIS, W. B., AND D. J. SCHMIDLY. 1994. The mammals of Texas. Texas Parks and Wildlife Press, Austin.
- FINDLEY, J. S., A. H. HARRIS, D. E. WILSON, AND C. JONES. 1975. Mammals of New Mexico. University of New Mexico Press, Albuquerque.
- HALL, E. R., AND K. R. KELSON. 1959. The mammals of North America. Ronald Press Company, New York.
- HALLORAN, A. 1946. The carnivores of the San Andres Mountains, New Mexico. *Journal of Mammalogy* 27:154–161.
- PACKARD, R. L., AND J. H. BOWERS. 1970. Distributional notes on some foxes from western Texas and eastern New Mexico. *Southwestern Naturalist* 14: 450–451.
- SAMUEL, D. E., AND B. B. NELSON. 1982. Foxes. In: J. A. Chapman and G. A. Feldhamer, editors. *Wild mammals of North America: biology, management, and economics*. Johns Hopkins University Press, Baltimore, Maryland. Pp. 475–490.
- STRECKER, J. K. 1926. A check-list of the mammals of Texas. *Baylor Bulletin (Baylor University)* 29:1–48.
- TAYLOR, W. P., AND W. B. DAVIS. 1947. The mammals of Texas. *Bulletin of Texas Game, Fish and Oyster Commission* 27:1–79.
- TOWNSEND, C. H. T. 1893. On the life zones of the Organ Mountains and adjacent region in southern New Mexico, with notes on the fauna of the range. *Science* 22:313–315.
- VOIGT, D. R. 1987. Red fox. In: M. Novak, J. A. Baker, M. E. Obbard, and B. Mallock, editors. *Wild fur-bearer management and conservation in North America*. Ontario Ministry of Natural Resources, Toronto, Canada. Pp. 379–392.

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