OCCASIONAL PAPERS

Museum of Texas Tech University

NUMBER 193 14 October 1999

COMMENTS ON SOME SMALL MAMMALS FROM THE BIG BEND AND TRANS-PECOS REGIONS OF TEXAS

ROBERT D. BRADLEY, DARIN S. CARROLL, MELINDA L. CLARY, CODY W. EDWARDS, IRENE TIEMANN-BOEGE, MEREDITH J. HAMILTON, RONALD A. VAN DEN BUSSCHE, AND CLYDE JONES

Recent collecting trips to the Big Bend and Trans-Pecos regions of Texas have resulted in noteworthy captures of seven species of small mammals. Below, we discuss the distributions of these taxa and have provided comments describing the importance of these records.

Western Yellow Bat
(*Lasiurus xanthinus*)

The western yellow bat, *Lasiurus xanthinus*, is known to occur in the extreme southwestern United States and along the Mexican Plateau and in Baja California. This species has been reported recently from the Big Bend National Park, Brewster County, Texas, by Higginbotham et al. (1999), who captured two males on 12 October 1996 and 27 September 1997, respectively, and a female on 24 November 1997.

On 9 July 1998, we obtained two male specimens of *L. xanthinus* at the Black Gap Wildlife Management Area, Brewster County, Texas (UTM coordinates 13 687295E 3277570N). Another western yellow bat (female, lactating) was captured in a mist net and released on 10 July 1998. The site where these bats were obtained was a shallow, man-made open pond in a wide valley, over which mist nets were placed for two nights. No yellow bats were netted the first night; the two males were shot as they flew at high levels (<10 m), whereas several other species of bats flew low over the pond to drink. Surrounding vegetation included some grasses, short *Yucca* sp., and scattered *Prosopis glandulosa*. This locality in the Black Gap Wildlife Management Area is approximately 56.5 km NE of the locality in Big Bend National Park reported by Higginbotham et al. (1999). The identification of the western yellow bats reported herein was confirmed by standard karyotypic analysis following methods of Baker et al. (1982). Other species of bats collected at this locality on the same dates included the ghost-faced bat (*Mormoops megalophylla*), California myotis (*Myotis californicus*), western pipistrelle (*Pipistrellus hesperus*), big brown bat (*Eptesicus fuscus*), pallid bat (*Antrozous pallidus*), and Brazilian free-tailed bat (*Tadarida brasiliensis*). Based on our collections and observations, *P. hesperus* was the most common bat at this locality on these dates.

A discussion of the possible reasons for the apparent recent dispersal of *L. xanthinus* in the Big Bend region of West Texas was given by Higgenbotham et al. (1999), who also provided some information on the nomenclatural history of the species. In addition, some comments on these matters were provided by Jones et al. (1999), who captured a female *L. xanthinus* on 27 June 1998 in the Davis Mountains.

Voucher materials, skins and skulls (TTU 78295, 78296, TK 78680, 78704), frozen tissues, and the karyotype of one specimen (TTU 78296, TK 78704) are deposited in the Collection of Recent Mammals in the Natural Science Research Laboratory, the Museum of Texas Tech University.

Ghost-faced bat
(*Mormoops megalophylla*)

In Texas, the ghost-faced bat is known only from the southern Trans-Pecos region, the southern edge of the Edward's Plateau, and extreme south Texas (Davis and Schmidly, 1994). In the Trans-Pecos region, *Mormoops megalophylla* has been recorded from Culberson, Presidio, and southern Brewster counties, (Schmidly, 1977; Yancey, 1997). On 19 July 1998, we collected an individual of *M. megalophylla* at the Elephant Mountain Wildlife Management Area, Brewster County, Texas (UTM coordinates 13 637770E 3325061N). This is the northernmost record for Brewster County and may be indicative that the ghost-faced bat is expanding its range north from the Rio Grande Valley. This bat was captured over a small pool of water in a streambed along with four individuals of *P. hesperus* and two individuals of *E. fuscus*. Additionally, two *M. megalophylla* were collected on 9 July 1998 at the Black Gap Wildlife Management Area, Brewster County, Texas (UTM coordinates 13 687295E 3277570N). These bats were collected along with *L. xanthinus*, *A. pallidus*, *E. fuscus*, *P. hesperus*, and *T. brasiliensis*.

The ghost-faced bat apparently is not rare in the southern Trans-Pecos region, being one of the most frequently captured species of bat at the Big Bend Ranch State Park during the warmer seasons (Yancey, 1997). Nevertheless, only two individuals of *M. megalophylla* were collected out of 185 bats captured at Elephant Mountain and Black Gap Wildlife Management Areas during the period of nine days in July 1998.

Voucher materials for the specimens collected include skull, skin, frozen tissues (TK 79096, 78503, 78661), and bone marrow cells. These materials were deposited in the Collection of Recent Mammals in the Natural Science Research Laboratory, the Museum of Texas Tech University under the following reference numbers: TTU 78605 and TTU 79274-79275.

Long-legged Myotis
(*Myotis volans*)

The long-legged myotis, *Myotis volans*, occurs primarily in the Trans-Pecos region of Texas, but also has been recorded from the Rolling Plains (Davis and Schmidly, 1994). This species typically inhabits forested areas and prefers high, open woods and mountainous terrain (Davis and Schmidly, 1994). Sixty-two individuals were obtained from four localities at the Davis Mountains Preserve, Jeff Davis County, Texas (UTM coordinates 13 584418E 3396466N, 13 584513E 3396669N, 13 580697E 3392220N, 13 580001E 3392034N) during 14-17 July 1998. Although *M. volans* was known from this area previously, the large number of individuals collected is noteworthy. These specimens were collected near small, man-made tanks and small pools of water in Upper Madera Canyon. Other species collected at this time were *P. hesperus*, *A. pallidus*, *M. thysanodes*, *E. fuscus*, *T. brasiliensis*, and *L. cinereus*.

Voucher materials, skins and skulls (TTU 79508-79569), and frozen tissues (TK 78861, 78920-78923), as well as the karyotypes of some specimens, (TK 78861, 78914-78918, 78920-78925, 78935-78937, 78941, 78955, 78959-78973, 78975-78980, 79015-75019, 79022-79027, 79030-79041) are deposited in the Collection of Recent Mammals in the Natural Science Research Laboratory, the Museum of Texas Tech University.

Western Pipistrelle
(*Pipistrellus hesperus*)

The western pipistrelle, *Pipistrellus hesperus*, is a common inhabitant of the desert southwest and is abundant throughout much of Texas, where it is known from the mountain ranges and rocky canyons of the Trans-Pecos, scattered localities on the High Plains, Rolling Plains, and the northern and western edges of the Edwards Plateau (Schmidly, 1991). A small mammal survey conducted on 8-13 July 1998 at the Black Gap Wildlife Management Area, Brewster County, Texas (UTM coordinates 13 687295E 3277570N and 13 699094E 3271178N), resulted in the capture of 226 specimens of bats; of these, 124 (54.9%) were *P. hesperus*. A similar effort conducted at the Elephant Mountain Wildlife Management Area, Brewster County, Texas (UTM coordinates 13 637770E 3325061N), from 19-23 July 1998 resulted in three specimens of *P. hesperus* and accounted for 6% (3 of 50) of bats collected at this locality. The unusually high number of captures, as well as the high percentage of *P. hesperus* collected at the Black Gap Wildlife Management Area (in contrast to that of the Elephant Mountain Wildlife Management Area), may be a direct result of ongoing drought conditions in the Trans-Pecos region with bats being forced to congregate at the few available water sources. At these two localities, all specimens were netted or shot over man-made water tanks. For comparison, a recent survey of 108 sampling localities at Big Bend Ranch State Park from January 1994 to December 1995 resulted in the capture of 123 western pipistrelles (Yancey, 1997) prior to the recent drought.

Thirty individuals of *P. hesperus* collected at the two aforementioned localities were prepared as voucher specimens. The specimens of *P. hesperus* (skin, skull, and tissue) reported herein (TTU 78601-78604, 79244-79269), are deposited in the Collection of Recent mammals in the Natural Science Research Laboratory, the Museum of Texas Tech University.

Big Free-tailed bat
(*Nyctinomops macrotis*)

The big free-tailed bat, *Nyctinomops macrotis*, is uncommon in Texas, with the most records being from the Trans-Pecos region (Schmidly, 1991; Davis and Schmidly, 1994). A single specimen was obtained from the Davis Mountains Preserve (UTM coordinates 13 589367E 3395092N) in Jeff Davis County, Texas. This individual was shot late at night on 15 July 1998 over a grassy field near the preserve headquarters. A total of 46 bats was collected at this site between 13-17 July 1998. Other species collected include *A. pallidus*, *E. fuscus*, *M. thysanodes*, *M. volans*, and *T. brasiliensis*. The rare occurrence of this species in Texas is illustrated by a recent two year survey of Big Bend Ranch State Park, in which only one individual of *N. macrotis* was reported out of 542 total bats captured (Yancey, 1997).

Voucher materials, skin and skull (TTU 79570), frozen tissues, and the karyotype of this specimen (TK 78908) are deposited in the Collection of Recent Mammals in the Natural Science Research Laboratory, the Museum of Texas Tech University.

Brush Mouse
(*Peromyscus boylii*)

The brush mouse, *Peromyscus boylii rowleyi* (J.A. Allen, 1893), is known from montane areas in six counties of West Texas (Schmidly, 1977; Davis and Schmidly, 1994; Manning and Jones, 1998). This species typically inhabits woodlands on rocky terrain above 4,500 ft in elevation from the Franklin Mountains, El Paso County, in the west to the Chisos Mountains, Brewster County, in the east (Schmidly, 1977; Davis and Schmidly, 1994). According to Schmidly (1977), dense shrubby vegetation is important to this mouse, and it is uncommon in open areas. There are a few recent records of *P. boylii* from lower elevations on relatively barren, rocky slopes dominated by lechuguilla (*Agave lechuguilla*) and sotol (*Dasylirion* sp.). Yancey (1997) listed a specimen of *P. boylii* from a rocky hillside above the Rio Grande in Presidio County, and Stangl et al. (1994) reported the species from similar habitats in Culberson County. However, these kinds of habitats were considered marginal for *P. boylii* (Stangl et al., 1994).

On 22-23 July 1998, we obtained a small series of *P. boylii* on the Elephant Mountain Wildlife Man-

agement Area, Brewster County, Texas. Specimens were trapped at three localities (UTM coordinates 13 641330E 3324361N, 13 640734E 3323318N, 13 640506E 3323416N) on the slopes and rimrock of Elephant Mountain. The 19 individuals were collected in rough terrain, with large rocks and scattered clumps of scrub oak trees and bushes. On the higher parts of Elephant Mountain, the white-ankled mouse (*P. pectoralis*) was captured in the same areas as the brush mouse. On slopes below the rimrock of the mountain, other species of mammals taken included Merriam's pocket mouse (*Perognathus merriami*), hispid pocket mouse (*Chaetodipus hispidus*), and Nelson's pocket mouse (*C. nelsoni*).

To our knowledge, the aforementioned records are the first reports of *P. boylii* from Elephant Mountain. Along with those from the Chisos Mountains in southern Brewster County, these records represent the easternmost distributional limits of *P. boylii* in the Trans-Pecos area of Texas. Recent field activities have resulted in reports of other species of mammals previously unknown from Elephant Mountain (Heaney et al., 1998).

The specimens of *P. boylii* (skins and skulls) reported herein (TTU 78297-78315), as well as frozen tissues (TK 83109, 83112-83116, 83125-83126, 83138-83143, 83145-83149), are deposited in the Collection of Recent Mammals in the Natural Science Research Laboratory, the Museum of Texas Tech University.

Western Spotted Skunk
(*Spilogale gracilis*)

Spotted skunks have been recorded from a total of 18 localities in nine counties west of the Pecos River in West Texas (Schmidly, 1977; Davis and Schmidly, 1994). However, recent records of spotted skunks in West Texas in general and in the Trans-Pecos region in particular are not common (Schmidly, 1977; Davis and Schmidly, 1994; Choate, 1997). Spotted skunks apparently are rare in West Texas (Jones et al., 1985). Stangl et al. (1994) stated that the absence of spotted skunks from cave sediments probably reflects its past and current scarcity in the Guadalupe, Delaware, and Apache mountains of the Trans-Pecos region of Texas.

We recently have obtained four specimens of spotted skunks from Brewster and Presidio counties, Texas. An adult male was captured on 11 July 1998 at the Black Gap Wildlife Management Area, Brewster County, Texas (UTM coordinates 13 694412E 3272987N). The animal was trapped among rocks on a steep slope with limited vegetation. No other terrestrial mammals were taken at this site. On 21 and 22 July 1998, respectively, two adult males were obtained at the Elephant Mountain Wildlife Management Area, Brewster County, Texas (UTM coordinates 13 644031E 3326108N). These mephitids were captured within 100 m of each other on rocky slopes adjacent to a mesquite (*P. glandulosa*) grassland. Other terrestrial mammals collected at this locality included Merriam's pocket mouse (*P. merriami*), Nelson's pocket mouse (*C. nelsoni*), and white-ankled mouse (*P. pectoralis*). An adult male was collected on 24 July 1998 in the Sierra Vieja, about 10 mi WSW Valentine (Clay Miller's ranch), Presidio County, Texas (UTM coordinates 13 532545E 3379942N). This spotted skunk was trapped beneath a mesquite tree (*P. glandulosa*) on sandy soil at the base of a steep slope. Additional terrestrial mammals obtained as this locality included Merriam's pocket mouse (*P. merriami*), Merriam's kangaroo rat (*Dipodomys merriami*), banner-tailed kangaroo rat (*D. spectabilis*), southern plains woodrat (*Neotoma micropus*), and ringtail (*Bassariscus astutus*). Our specimens clearly are assignable to the western species of spotted skunk (*Spilogale gracilis leucoparia,* Merriam, 1890) rather than the eastern spotted skunk, *S. putorius interrupta* (Rafinesque, 1820), based on the descriptions presented by Hall (1981). In addition, Schmidly (1984) provided a detailed description and an accompanying illustration of the color patterns of the pelage of these two species.

The specimens of *S. gracilis* (skins and skulls) discussed above (TTU 78287, 78288, 78289, 78290), as well as frozen tissues (TK 78776, 79216, 83081, 83167), are deposited in the Collection of Recent Mammals in the Natural Science Research Laboratory, the Museum of Texas Tech University.

Specimens were collected from the Black Gap Wildlife Management Area in accordance with a scientific collecting permit issued by the Texas Parks and Wildlife Department (permit number SPR-0393-593).

Access to the area was provided by Mike Pittman, Tom Vanzant, III, and Chuck Zorz, as well as Bonnie and Billy Pat McKinney. Access to the Elephant Mountain Wildlife Management Area was through the courtesy of Clay Brewer and Scott Lerich. Permission to work on property in the Sierra Vieja was granted by Mr. and Mrs. Clay Miller. Access to the Davis Mountains Preserve was kindly provided by John Karges. Collection and preparation of specimens were conducted with the help of members of the 1998 class in field methods. Brenda Rodgers and Robert Baker assisted with the karyotypic analysis. Confirmation of identification of some specimens was provided by Hugh Genoways. This study was part of a faunal survey supported by funds appropriated by the state of Texas through collaboration among the Texas Parks and Wildlife Department, U.S. Geological Survey Cooperative Research Unit, and the Natural Science Research Laboratory, the Museum of Texas Tech University.

LITERATURE CITED

Baker, R.J., M.W. Haiduk, L.W. Robbins, A. Cadena, and B.F. Koop. 1982. Chromosome studies of South American bats and their systematic implications. Pp. 303-327 *in* Mammalian Biology in South America (Mares, M.A., and H.H. Genoways, eds.), Spec. Publ. Ser., Pymatuning Lab. Ecol., Univ. Pittsburgh, 6:1-539.

Choate, L.L. 1997. The mammals of the Llano Estacado. Spec. Publ., Mus., Texas Tech Univ., 40:1-240.

Davis, W.B., and D.J. Schmidly. 1994. The mammals of Texas. Texas Parks and Wildlife Department, Austin, x + 338 pp.

Hall, E.R. 1981. The mammals of North America. John Wiley & Sons, New York, Second edition, 2:vi = 601-1181 + 90.

Heaney, M.R., E.J. Cook, and R.W. Manning. 1998. Noteworthy record of the yellow-nosed cotton rat (*Sigmodon ochrognathus*) from Trans-Pecos Texas. Texas J. Sci., 50:347-349.

Higginbotham, J.L., L.K. Ammerman, and M.T. Dixon. 1999. First record of *Lasiurus xanthinus* (Chiroptera:Vespertilionidae) in Texas. Southwestern Naturalist, 44:343-347.

Jones, C., L. Hedges, and K. Bryan. 1999. The western yellow bat, *Lasiurus xanthinus* (Chiroptera: Vespertilionidae) from the Davis Mountains, Texas. Texas J. of Sci., 51:267-269.

Jones, J.K., Jr., R.R. Hollander, and D.A. McCullough. 1985. Records of spotted skunk and long-tailed weasel from the Llano Estacado of Texas. Texas J. Sci., 37:355-358.

Manning, R.W., and C. Jones. 1998. Annotated checklist of Recent land mammals of Texas, 1998. Occas. Pap., Mus., Texas Tech Univ., 182:1-20.

Schmidly, D.J. 1977. The mammals of Trans-Pecos Texas including Big Bend National Park and Guadalupe Mountains National Park. Texas A&M Univ. Press, College Station, xiii + 225 pp.

Schmidly, D.J. 1984. The furbearers of Texas. Bull., Texas Parks & Wildlife Department, 111:vii + 55 pp.

Schmidly, D.J. 1991. Bats of Texas. Texas A&M University Press, College Station, xvii + 188 pp.

Stangl, F.B., Jr., W.W. Dalquest, and R.R. Hollander. 1994. Evolution of a desert mammalian fauna: A 10,000-year history of mammals from Culberson and Jeff Davis counties, Trans-Pecos Texas. Midwestern State Univ. Press, Wichita Falls, Texas, xix + 264 pp.

Yancey, F.D., II. 1997. The mammals of Big Bend Ranch State Park, Texas. Spec. Publ., Mus., Texas Tech Univ., 1-210.

Addresses of Authors:

ROBERT D. BRADLEY

Department of Biological Sciences and the Museum
Texas Tech University
Lubbock, TX 79409-3131
e-mail: izrdb@ttacs.ttu.edu

IRENE TIEMANN-BOEGE

Department of Biological Sciences
Texas Tech University
Lubbock, TX 79409-3131
e-mail: izitb@ttacs.ttu.edu

DARIN S. CARROLL

Department of Biological Sciences
Texas Tech University
Lubbock, TX 79409-3131
e-mail: dcarroll@ttu.edu

MEREDITH J. HAMILTON

Oklahoma State University
Department of Zoology, 430 Life Sciences West
Stillwater, OK 74078
e-mail: mjh@okway.okstate.edu

MELINDA L. CLARY

Department of Biological Sciences
Texas Tech University
Lubbock, TX 79409-3131
e-mail: mclary@ttacs.ttu.edu

RONALD A. VAN DEN BUSSCHE

Oklahoma State University
Department of Zoology, 430 Life Sciences West
Stillwater, OK 74078
e-mail: ravdb@okway.okstate.edu

CODY W. EDWARDS

Department of Biological Sciences
Texas Tech University
Lubbock, TX 79409-3131
e-mail: cedwards@ttu.edu

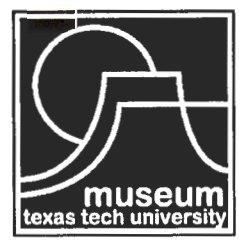
CLYDE JONES

Department of Biological Sciences and the Museum
Texas Tech University
Lubbock, TX 79409-3131
e-mail: cjones@packrat.musm.ttu.edu

PUBLICATIONS OF THE MUSEUM OF TEXAS TECH UNIVERSITY

It was through the efforts of Horn Professor J Knox Jones, as director of Academic Publications, that Texas Tech University initiated several publications series including the Occasional Papers of the Museum. This and future editions in the series are a memorial to his dedication to excellence in academic publications. Professor Jones enjoyed editing scientific publications and served the scientific community as an editor for the Journal of Mammalogy, Evolution, The Texas Journal of Science, Occasional Papers of the Museum, and Special Publications of the Museum. It is with special fondness that we remember Dr. J Knox Jones.

Institutional subscriptions are available through the Museum of Texas Tech University, attn: NSRL Publications Secretary, Box 43191, Lubbock, TX 79409-3191. Individuals may also purchase separate numbers of the Occasional Papers directly from the Museum of Texas Tech University.



ISSN 0149-175X

Museum of Texas Tech University, Lubbock, TX 79409-3191