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Contents

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FRONTISPIECE. Tropical Parula (*Parula pitiayumi*), a rare nester in the Lower Rio Grande Valley. Frontispiece due to a grant from the Center for the Study of Tropical Birds, Inc. Photo credit: J. Dunning/Vireo.

CURRENT STATUS OF NORTHERN BEARDLESS-TYRANNULET AND TROPICAL PARULA IN BENTSEN-RIO GRANDE VALLEY STATE PARK AND SANTA ANA NATIONAL WILDLIFE REFUGE, SOUTHERN TEXAS

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ABSTRACT.—There are no published records of Northern Beardless-Tyrannulet (*Camptostoma imberbe*) and Tropical Parula (*Parula pitiayumi*) nesting in the Lower Rio Grande Valley of Texas since the late 1940s. In this 1996–1998 study, both species were confirmed nesting at Santa Ana National Wildlife Refuge, and Northern Beardless-Tyrannulet was also confirmed at Bentsen-Rio Grande Valley State Park. Most Northern Beardless-Tyrannulet nests were between clumps of ball-moss (*Tillandsia recurvata*) in cedar elm (*Ulmus crassifolia*) trees, and nests were active from 21 March-23 September. Only females build nests or incubate. Two-three young fledged per successful nest, but three nests were abandoned after heavy rains. Tropical Parulas maintained 2-5 territories/year at Santa Ana but were absent from Bentsen-Rio Grande Valley State Park. A Tropical Parula pair fed a fledgling Brown-headed Cowbird (*Molothrus ater*) at Santa Ana in 1997.

Northern Beardless-Tyrannulet (*Camptostoma imberbe*) and Tropical Parula (*Parula pitiayumi*), two tropical birds with limited ranges in the United States, are both listed as threatened by the Texas Parks and Wildlife Department (1987), but little is known about their current status or ecology in Texas. The Northern Beardless-Tyrannulet has never been considered common in Texas, and only two nests have been reported: a nest with young, May–June 1940, in Santa Ana National Wildlife Refuge, Hidalgo Co. (Davis 1940); and a nest with eggs, 15 June 1940, in Harlingen, Cameron Co. (Oberholser 1974). Currently, the species is considered rare to locally uncommon in the Lower Rio Grande Valley (LRGV: Cameron, Willacy, Hidalgo, and Starr Cos.), north to Kenedy and Zapata Cos. (Texas Ornithological Society 1995).

Oberholser (1974) considered the Tropical Parula to be very common in suitable bottomland (riparian) forest in the LRGV during the late 19th century and early 20th century, particularly in areas with abundant Spanish moss (*Tillandsia usneoides*) and ball-moss (*T. recurvata*; scientific names from Lonard et al. 1991). Tropical Parula has declined severely in the LRGV since 1951 (Oberholser 1974), and it is absent from most forest tracts in the LRGV today (Rupert 1997). A nest was found at Santa Ana in May-June 1940 (Davis 1940), and an adult was observed feeding a fledgling Bronzed Cowbird (*Molothrus aeneus*) there in 1948 or 1949 (Friedmann and Kiff 1985). Tropical Parula is locally uncommon in the live oak (*Quercus virginiana*) forests of Kenedy Co. (Texas Ornithological Society 1995, Regelski and Moldenhauer 1997), where three nests have been reported (Webster 1977, 1978).

The closest published locations of both species in Mexico are along the Rio Corona in central Tamaulipas, about 200 mi. (322 km) south of the Rio Grande

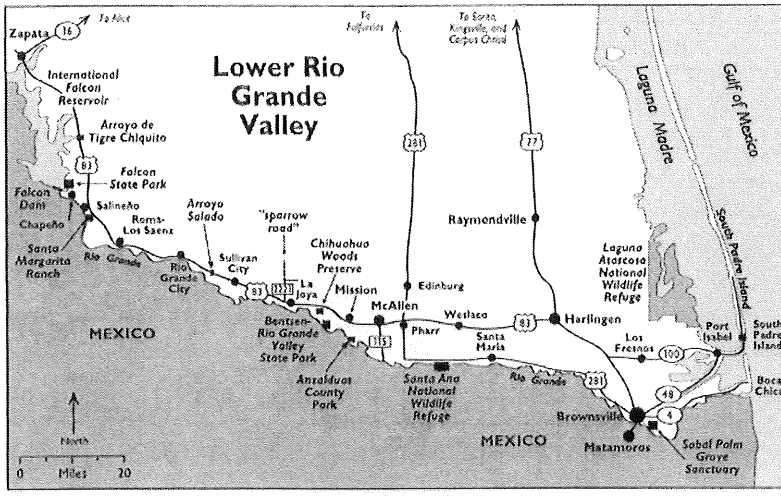

Fig. 1. Lower Rio Grande Valley, in extreme southern Texas, showing locations of study sites: Santa Ana National Wildlife Refuge and Bentsen-Rio Grande Valley State Park, Hidalgo County. Map courtesy of American Birding Association.

(Gehlbach et al. 1976). However, both species have also been recorded in the Sierra de los Picachos, northern Nuevo Leon, about 60 mi. (97 km) southwest of Falcon Dam (J. Arvin, G. Lasley, and A. Sada *pers. comm.*)

In view of the limited information concerning the species in the LRGV, I present results of field work during the nesting seasons of 1996–1998. Also, an unpublished nest record obtained from the Texas Breeding Bird Atlas Program (TBBAP) is discussed.

METHODS

Study areas were Santa Ana National Wildlife Refuge (hereafter Santa Ana), an 800-ha tract of thorn-forest, riparian forest, thorn-scrub, and wetlands, in southeastern Hidalgo Co., and Bentsen-Rio Grande Valley State Park (hereafter Bentsen), a 235-ha tract of thorn forest and thorn scrub with limited riparian forest, in southwestern Hidalgo Co. (Figs. 1–3). Most sections of Santa Ana and Bentsen were visited regularly during April–September 1996 and March–August 1997, with only limited work during April–July 1998. I located nests and observed behaviors along trails and roads, paying particular attention to the presence of singing males, pairs, and the presence of any fledglings. A territory was considered occupied if a singing male was present in an area for more than two weeks. Nests were located by following individuals carrying nesting material or food, or disappearing into clumps of ball-moss or Spanish moss. Once nests were found, I monitored them about once per week until they were abandoned or successful. Nest contents and success were determined based on adult behavior or direct observations of nestlings. Vocalizations and behaviors were noted to aid future research on these species.

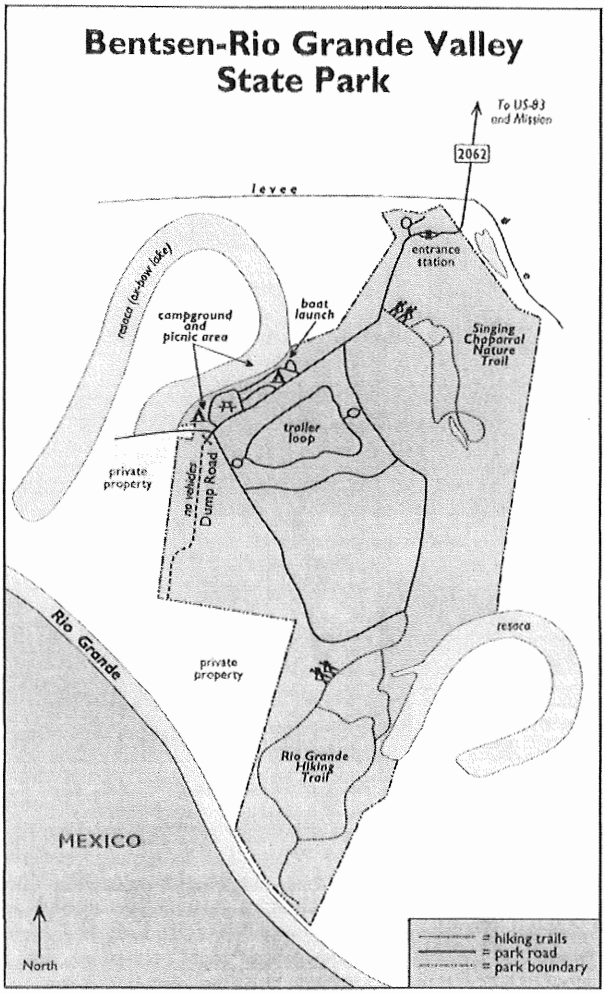

Fig. 2. Detailed map of Bentsen-Rio Grande Valley State Park, showing major trails and other features mentioned in the text. Map courtesy of American Birding Association.

RESULTS

General observations.—Both species were located mainly by sound rather than sight. Often, birds were seen only after >10–15 minutes of careful observation in locations where they had been heard.

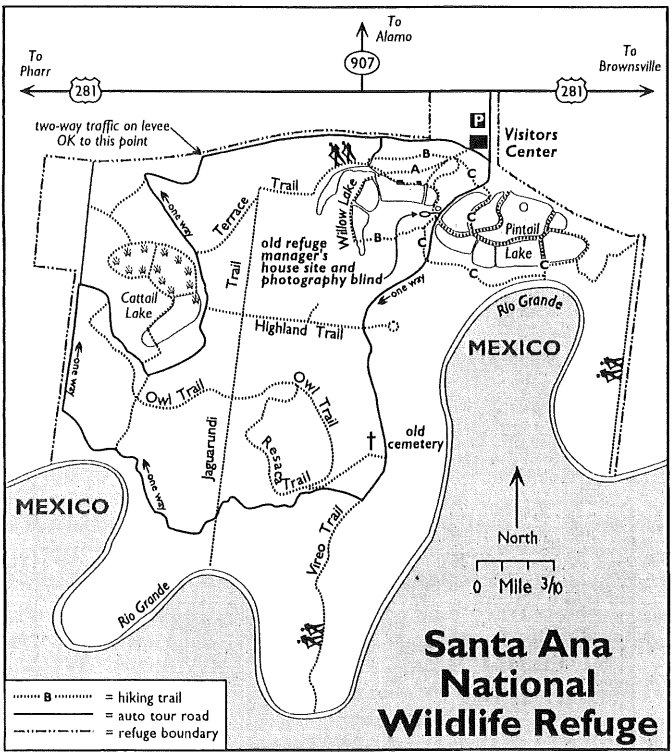

Fig. 3. Detailed map of Santa Ana National Wildlife Refuge, showing major trails and other features mentioned in the text. Map courtesy of American Birding Association.

Northern Beardless-Tyrannulet

Individuals foraged and called 0.5–12 m up in trees and shrubs, and foraged entirely by gleaning from bark and ball-moss during the nesting season. Apparent female tyrannulets (hereafter, females) gave "peeuk" calls but not "pier, pier, pier" call series. Only females were seen building nests or incubating. Apparent males (hereafter males) gave dawn-songs (Howell and Webb 1995) and "pier . . . pier" call-series, with 3–9 "pier"-notes per call-series. Dawn-songs were given as early as 11 April (1997) and as late as 26 August (1996), usually from dead branches in the canopy of emergent trees. Individuals singing dawn-songs always eventually switched to "pier" call-series, never to "peeuk" calls. Males often traveled >200–300 m, giving "pier"-calls regularly. Both males and females gave short trills as contact notes, when birds rejoined each other after a time apart. Apparent copulation was observed on 28 March 1997, 12 May 1998, 28 May 1997, and 26 August 1996. After repeated contact trills, the male would fly toward the female, flutter on her back for <1 second, and then fly off to a nearby perch. Both males and females fed nestlings and fledglings.

Fig. 4. Northern Beardless Tyrannulet (*Camptostoma imberbe*), an uncommon breeding bird in southern Texas. Photo credit: Brian E. Smallwood/Vireo.

All birds judged to be adults by their behavior had noticeable but low crests, flattened fore-crowns and indistinct wing markings. Birds judged to be juveniles by their behavior had rounded heads without a crest and brownish wing-bars and often gave soft "bee" and "bee, bee" calls, never heard from adults, which functioned as begging calls. Birds with incomplete tails, traces of natal down, or well-developed bill flanges were judged to have fledged within the previous week (hereafter, recent fledglings).

I found 11 nests of Northern Beardless-Tyrannulets during 1996–1998. Nests were built between clumps of ball-moss 5–9 m above the ground, except as noted below. Seven succeeded, three failed, and one had an uncertain outcome. Territories occupied by tyrannulets contained two distinct habitats: thorn forest, dominated by mesquite (*Prosopis glandulosa*), brasil (*Condalia hookeri*), Wright's acacia (*Acacia wrightii*), la coma (*Bumelia celastrina*), granjeno (*Celtis pallida*), and colima (*Zanthoxylum fagara*); and deciduous forest, dominated by cedar elm (*Ulmus crassifolia*) and sugar hackberry (*Celtis laevigata*).

Bentsen, 1996.—Three territories and three nests were found. *Nest 96-1*: Greg Lasley and Laura Elaine Moore saw an adult bring food to a nest in a ball-moss clump in a dead cedar elm on 25 May. This nest was located inside the Trailer Loop (TL). Two recent fledglings were being fed by two adults on 30 May, within 150 m of the nest. By 10 June the two fledglings appeared full size and were still being fed by adults.

Nest 96-2 was discovered along the far loop of the Singing Chaparral Nature Trail (SCNT) on 3 June, with a female incubating inside. This nest was in a live cedar elm, and adults brought food to begging nestlings on 10 and 19 June.

Fledging probably occurred on 22 June, when a recent fledgling begged and flew weakly from a perch <10 m from the nest. A full-grown juvenile, with a rounded head and brownish wingbars was seen within 20 m of the nest at the same time. It gave typical "bee, bee" begging calls but was not fed.

Nest 96-3 was discovered on 27 June, when two adults accompanied two begging juveniles in the SCNT area, and the female from that pair was observed nest-building. *Nest 96-3* was in a dead cedar elm, within 25 m of *Nest 96-2*. Incubation was observed on 3 and 15 July, and adults brought food to the nest on 22 July and 2 August. On 2 August, a nestling was heard begging in the nest, and the female entered the nest with food. At the same time, a fledgling was heard begging about 30 m away, and was attended by the male. On 3 August, two begging fledglings were accompanied by both adults.

The third territory at Bentsen in 1996 was near the trailhead of the Rio Grande Hiking Trail (RGHT). A regular dawn-song post was located in the top of a dead mesquite branch. Although no nest was found, a recent fledgling was seen, and two others were heard, begging in dense foliage <15 m away, on 3 July. A female accompanied them but was not seen to feed them. At least two begging tyrannulets were heard in the same area on 23 September, accompanied by a female.

Bentsen, 1997.—The SCNT and RGHT territories each contained one active nest, while tyrannulets were seen irregularly in the former TL territory. A female carried nesting material to *Nest 97-1* on the SCNT, on 28 March and 7 April. This nest was 3 m from the site of *Nest 96-3*, in the same tree. This nest was abandoned when next checked on 15 April.

Nest 97-2 was also discovered on 28 March, when a female was seen gathering nesting material and building a nest in a dead cedar elm near the RGHT trailhead. It was abandoned on 15 April. Within 100 m of the nest, I heard one fledgling on 28 July and saw two on 27 September.

Bentsen, 1998.—Less time was spent searching for tyrannulet nests, but nonetheless two nests and two family groups were found. On 8 May, a female gathered ball-moss "leaves" and carried them to *Nest 98-1*, under construction in a dead cedar elm near the RGHT trailhead. This individual was being followed by a full-grown juvenile, who begged from it but did not receive food during about five minutes of observation. On 25 May, incubation was presumably underway, as an unseen tyrannulet in the nest trilled in response to a male outside. Other duties kept me from determining if this nest succeeded.

Nest 98-2 was discovered on 7 July in a dead cedar elm on the SCNT: one nestling begged from inside a nest in a mixed clump of Spanish moss and ball-moss, while two recent fledglings begged in a Wright's acacia 10–15 m from the nest. The adults brought food to the nest, and were followed by the fledglings as they moved away from the nest. No nests were found in the TL area, but two begging juveniles were fed by two adults on 1 and 4 July.

Santa Ana, 1996.—Dawn-singing occurred regularly along the northern half of the Vireo Trail (VT), and all the nests I found at Santa Ana were in this territory. *Nest 96-4* was discovered on 9 April in a dead cedar elm, when a female brought nesting material. Adults brought food to unseen nestlings on 4 and 7 June. A pair of fledglings followed and received food from a female on 20 and 24 June, within 150–300 m of the nest.

Nest 96-5 was discovered on 26 August in a dead cedar elm within 100 m of

the earlier nest. A female incubated on both 26 August and 6 September. Her partner was seen well only on 6 September, when he appeared to be in heavy wing and tail molt. Both adults brought food to the nest on 13 and 23 September. On the latter date, two nestlings waited for food at the entrance to the nest, looking out, before leaving the nest. The resulting fledglings flew weakly to a nearby tree, where they were fed mainly by the female.

Pairs or singing males were observed regularly in the western section of Santa Ana in a large area along parts of the Owl, Mesquite, Jaguarundi, and Cattail Lake Trails (OMJCT). I could not tell if there was one territory or two, but no more than one individual or pair was seen per day. I found no dawn-song posts or nests. An independent juvenile was seen along the southern Mesquite Trail on 13 September.

Santa Ana, 1997.—Nest 97-3 was found in the incubation stage on 15 April, in a mostly-dead cedar elm in the VT territory. The nest was within 100 m of both 1996 nests. Both adults brought food to the nest on 7 May. The nest was inactive on 15 May, when a male briefly visited the nest tree.

On 28 May, *Nest 97-4* was discovered in a dead cedar elm, within 50 m of *Nest 97-3*. After copulation, a female entered the nest and sat facing outward for at least 17 minutes. On 3, 9, and 17 June, incubation continued, but on 18 June the nest was abandoned. On the latter date, a male called frequently in the area and briefly looked into the nest, without food. An adult female was accompanied by two full-grown juveniles on 29 August, within 100 m of *Nest 97-4*. Pairs or singing males were observed in the OMJCT area, but no fledglings or independent juveniles were seen.

Santa Ana, 1998.—Limited field work revealed that tyrannulets were present in the VT and OMJCT areas, but no nests were found. Two full-grown juveniles were fed by a female near the western end of the Owl Trail on 16 June.

Tropical Parula

Singing Tropical Parulas were present at Santa Ana from 2 April through 18 September, but no Tropical Parulas were observed at Bentsen during 1996 or 1997. I found one family group at Santa Ana in 1996 and another in 1997.

Males usually foraged >10 m up in dense foliage and did not usually sing regularly. Sometimes males traveled >100 m during observation periods: the male on the eastern Owl Trail territory in 1996 regularly covered >100 m during observation periods. However, the male in the Resaca Trail (RT) territory in both years usually covered <50 m during 30–60 min. observation periods. Females were difficult to observe and were seen only in the RT territory, usually in association with family groups.

Santa Ana, 1996.—Five territories were maintained at Santa Ana in 1996. Three were along the VT, arranged in a linear fashion in a closed-canopy elm forest. Males in these territories sang frequently, but there was no evidence of pairing or nesting. Another territory was in a closed-canopy forest along the RT, which was dominated by cedar elm, sugar hackberry and Mexican ash (*Fraxinus berlandieriana*). The RT territory produced the only Tropical Parula fledglings observed during this study. Four stub-tailed fledglings were seen on 20 June 1996, giving repeated "tk-tk-tk-tk" begging calls and receiving food from an adult male and female. The fledglings remained 4–7 m up in a sugar hackberry, and made

flights of 2–4 m following the female. I saw one full-grown juvenile in the same location on 29 August. The remaining 1996 territory was along the eastern Owl Trail, in a forest with a partially closed canopy, dominated by Mexican ash, cedar elm, and Texas ebony (*Pithecellobium ebano*). There was no evidence of pairing.

Santa Ana, 1997.—Only the RT territory was consistently occupied. A singing male was present from 2 April–18 September. On 8 July 1997, a family group of 4 recent fledglings was seen within 15 m of the 1996 family group location. An adult female foraged 4–8 m up in sugar hackberries and fed the begging fledglings. The male sang first-category (rising trill) songs while it was >20 m away and second-order (rising buzz) songs while within 10 m of the fledglings (Regelski and Moldenhauer 1997).

On 8 July 1997, a pair of Tropical Parulas followed and fed a begging, full-grown Brown-headed Cowbird (*Molothrus ater*) about 0.6 km north of the VT trailhead. The female fed the cowbird at least five times in three minutes, while the male brought food once. Habitat was dense thorn forest.

Santa Ana, 1998.—Limited field work revealed that Tropical Parulas were present near the VT trailhead and along the RT, but no direct evidence of breeding was obtained.

Bentsen, 1996–1998.—No Tropical Parula territories were regularly maintained. The only individual observed was a singing male, who was present in a closed-canopy elm-hackberry forest (<1 ha) on 15 and 18 June 1998.

DISCUSSION

Northern Beardless-Tyrannulet.—This species was confirmed nesting successfully in the Lower Rio Grande Valley for the first time since the 1940s. In addition to the nests already mentioned, I found a nest at the incubation stage in Spanish moss, in 1998, 2.5 m up in a Mexican ash at Anzalduas County Park, south of Mission, Hidalgo Co. Also, Oscar Carmona found a nest in unspecified "moss" at Bentsen in 1987 (TBBAP unpublished data). Nests in the LRGV were well hidden in ball-moss and Spanish moss, as were Arizona nests which have been found in mistletoe (*Phoradendron sp.*) clumps (Van Rossem 1936), on top of tent-caterpillar (*Malacosoma sp.*) web-nests, or in the middle of a tangle of spiderwebs (Brandt 1951).

The March–September breeding season was longer than the late April-late July period Oberholser (1974) reported for Texas. However, Phillips et al. (1964) suspected a May–August nesting season in Arizona, and the timing of nesting may vary annually. A molting juvenile banded on 7 July 1998 along the Resaca Trail at Santa Ana (J. Mueller, in litt.) provides further evidence of early breeding.

The nesting failures I observed in the LRGV may have been caused by heavy rain. The abandonment of nests 97-1 and 97-2 coincided with March–April 1997 precipitation of 272.5 mm, five times the long-term average (National Oceanic and Atmospheric Administration data). Nest 97-4 was abandoned the morning after a single, heavy rain with strong winds at Santa Ana, on the night of 17–18 June 1997.

Tropical Parula.—Although I did not find any nests, the recent fledglings found at Santa Ana confirmed continued breeding there. These records represent the first reported nesting of the species in the LRGV since the late 1940s. The death of many large trees in several sections of Santa Ana during the drought of 1996 may

have caused the reduction from five territories in 1996 to two territories in 1997. Precipitation during January–July 1996 in Brownsville was 41.9 mm, 15% of the normal 273 mm (National Oceanic and Atmospheric Administration data), and when heavy rains fell in August–September many trees were already leafless and apparently dead. The absence of Tropical Parula from Bentsen was initially unexpected, but is reasonable given the current absence of closed-canopy forest of >1 ha in size. The small section of closed-canopy forest in Bentsen was apparently maintained by irrigation, while many large trees died in adjacent areas.

A larger population may exist north of the LRGV, in Kenedy Co. (Regelski and Moldenhauer 1997), as suggested by the following evidence. Single family groups have been reported there in 1998 and 1989, nest-building has been reported from late March to early July, and nestlings observed until late July (TBBAP; Webster 1977).

The Brown-headed Cowbird fledgling may be the first documented record of Tropical Parulas attending that species. Although Friedmann and Kiff (1985) mention two earlier cases in Kenedy Co., the original references (Webster 1977, 1978) simply mention "cowbirds", which could be Bronzed or Brown-headed.

Conclusions.—This study, along with TBBAP data, has confirmed the current nesting of Northern Beardless-Tyrannulets and Tropical Parulas in small numbers in the LRGV of Texas. Both species may have nested in the LRGV for the entire 20th century, but in the absence of sustained field work nests went unseen or unreported. Apparently, forest with abundant Spanish moss or ball-moss is needed to support breeding Tropical Parula and Northern Beardless-Tyrannulet. Both species are absent from apparently suitable forest with sparser epiphytes in Hidalgo Co. (Brush and Cantu 1998) and otherwise excellent riparian forest with no epiphytes in Starr Co. (Brush 1998). The continued existence of both species in the LRGV is uncertain, given the small populations found in the largest remaining forest tracts and the deterioration of riparian forests. Revegetation plans should include tree species such as cedar elm, which seem most likely to support abundant ball-moss and Spanish moss (Brush, pers. obs.).

ACKNOWLEDGMENTS

I thank the following individuals and organizations for making this study possible. Laura Moore and Greg Lasley told me the location of one tyrannulet nest. Jenna Mueller provided a tyrannulet banding from Santa Ana National Wildlife Refuge. Karen Benson and Keith Arnold provided information from the Texas Breeding Bird Atlas Program. James Lowe provided information from the Cornell Nest Record Card Program. Catherine Brush supported the research in many ways. The U.S. Fish and Wildlife Service (Region 2, Albuquerque) funded the study. The staff of Santa Ana National Wildlife Refuge and Bentsen-Rio Grande Valley State Park provided access. The National Oceanic and Atmospheric Administration provided climatological summaries for the Brownsville weather station.

LITERATURE CITED

BRANDT, H. 1951. Arizona and its bird life. Bird Research Foundation, Cleveland, Ohio.

BRUSH, T. 1998. Recent nesting and current status of Red-billed Pigeon along the lower Rio Grande in southern Texas. Bull. Texas Ornith. Soc. 31:22–26.

BRUSH, T. AND A. CANTU. 1998. Changes in the breeding bird community of subtropical evergreen forest in the Lower Rio Grande Valley of Texas, 1970s–1990s. Texas J. Sci. 50:123–132.

DAVIS, L. I. 1940. Elm-ash association. Bird-Lore 42:488–489.

FRIEDMANN, H., AND L. F. KIFF. 1985. The parasitic cowbirds and their hosts. Proceedings of the Western Foundation of Vertebrate Zoology 2:225–304.

GEHLBACH, F. R., D. O. DILLON, H. L. HARRELL, S. E. KENNEDY, AND K. R. WILSON. 1976. Avifauna of the Rio Corona, Tamaulipas, Mexico: northeastern limit of the tropics. Auk 93:53–65.

HOWELL, S. N. G., AND S. WEBB. 1995. A guide to the birds of Mexico and northern Central America. Oxford University Press, New York.

LONARD, R. I., J. H. EVERITT, AND F. W. JUDD. 1991. Woody plants of the Lower Rio Grande Valley, Texas. Texas Memorial Museum Miscellaneous Publication 7, Austin.

OBERHOLSER, H. C. 1974. The bird life of Texas, Vol. 2 (E. B. Kincaid, Jr., ed.). University of Texas Press, Austin.

PHILLIPS, A., J. MARSHALL, AND G. MONSON. 1964. The birds of Arizona. University of Arizona Press, Tucson.

REGELSKI, D. J., AND R. R. MOLDENHAUER. 1997. Tropical Parula (*Parula pitiayumi*). *In* The Birds of North America, No. 293 (A. Poole and F. Gill, eds.). Academy of Natural Sciences, Philadelphia, Pennsylvania, and American Ornithologists' Union, Washington, D. C.

RUPERT, C. E. 1997. Breeding densities and habitat of riparian birds along the lower Rio Grande, Texas. Unpubl. M. S. thesis, University of Texas-Pan American, Edinburg.

TEXAS ORNITHOLOGICAL SOCIETY. 1995. Checklist of the birds of Texas, third ed. Capital Printing, Austin, Texas.

TEXAS PARKS AND WILDLIFE DEPARTMENT. 1987. Threatened species. Regulations for taking, possessing, transporting, exporting, or selling threatened species. 31 T.A.C. Section 65.171–65.177. Texas Parks and Wildlife Department, Austin.

VAN ROSSEM, A. J. 1936. Notes on birds in relation to the faunal areas of south-central Arizona. Transactions of the San Diego Society of Natural History 8:121–148.

WEBSTER, F. S., JR. 1977. South Texas region. American Birds 31:1158–1160.

WEBSTER, F. S., JR. 1978. South Texas region. American Birds 32:1184–1185.

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TEXAS BIRD RECORDS OF S. W. WOODHOUSE

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ABSTRACT.—S. W. Woodhouse made observations on birds in Texas from 27 February to 29 June 1851. Most work was near San Antonio and along the road from that city to El Paso. His accomplishments include collection of type specimens of the Black-capped Vireo (*Vireo atricapillus*) and Cassin's Sparrow (*Aimophila cassinii*), as well as establishing new state records for several species. Woodhouse's published report of 153 species stated or implied to occur in Texas represents the first and most comprehensive enumeration of the avifauna of the state.

Samuel Washington Woodhouse (1821–1904, Fig. 1) was a seasoned naturalist when he arrived in Texas in the spring of 1851. Previously, he had collected birds in Pennsylvania for the Academy of Natural Sciences of Philadelphia and spent much of 1849 and 1850 as the surgeon and naturalist on expeditions by Brevet Capt. Lorenzo Sitgreaves and Lt. Israel C. Woodruff in Indian Territory (Tomer 1974, 1997, Tomer and Brodhead 1992). In late 1850, Woodhouse contracted to accompany the expedition of Capt. Sitgreaves to explore the Zuni and Colorado Rivers between Santa Fe and California. He joined the expedition by sailing from New York City to Indianola on the Texas coast and traveling overland to San Antonio, El Paso, and Santa Fe (Fig. 2). Woodhouse's diary (1851a, 1851b) of this expedition provides an accurate calendar of his activities and, occasionally, mentions birds seen or collected at a particular location.

Woodhouse's report on the natural history of the regions traversed was completed following his return from California to Philadelphia (Woodhouse 1853c). The section on birds includes species observed or collected in Texas, New Mexico, and California during 1851–1852, as well as species encountered on surveys of Indian Territory during 1849 and 1850.

Woodhouse was the first naturalist to publish an extensive and annotated list of the birds of Texas (Table 1). His collection of type specimens of the Black-capped Vireo (*Vireo atricapillus*) and Cassin's Sparrow (*Aimophila cassinii*) was widely cited by his peers (see Baird 1855, Cassin 1856). The many state records included in his list were, however, mostly ignored by later workers. Modern writers have evidenced confusion regarding the date, location, and significance of Woodhouse's work in Texas. Geiser (1948:283) wrongly believed that Woodhouse accompanied the Sitgreaves Survey "through the Panhandle" in 1850 and collected no new species in Texas. Without providing specific examples, Oberholser (1974:3) asserted that Woodhouse's account was "evidently written from memory, and [was], for the most part, rather unreliable." However, Oberholser mistakenly thought that Woodhouse worked in Texas during 1849 or 1850 rather than 1851 [see discussion of Carolina Parakeet, p. 431]. He was also seemingly unaware of the diary kept by Woodhouse and of his extensive ornithological experience before working in Texas.

The purpose of this paper is to correct the misconceptions of previous authors

Fig. 1. Samuel Washington Woodhouse, 1847. Courtesy of the National Portrait Gallery, Smithsonian Institution, Washington, D. C.

and to evaluate Woodhouse's account of the birds of Texas, particularly how it advanced knowledge of the occurrence and distribution of selected species in the southern and western regions of the state. The vernacular and binomial names used by Woodhouse have been modernized to correspond with those published by the American Ornithologists' Union (1998).

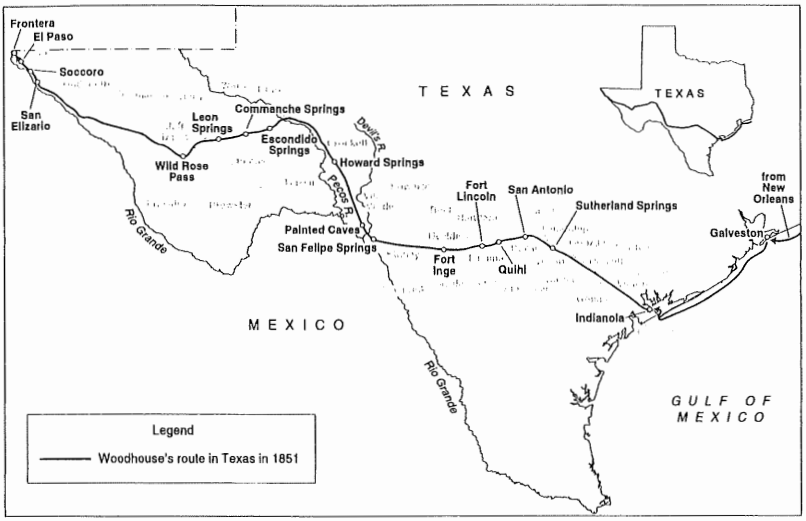

Fig. 2. The route of Woodhouse through Texas during the spring of 1851. Map prepared by W. L. Nelson.

LOCALITIES AND BIRDS MENTIONED IN WOODHOUSE'S DIARY

Woodhouse left Philadelphia on 23 January 1851, arriving at Galveston, Texas, on 27 February. He remained at Galveston until 2 March before sailing to Indianola. Woodhouse left Indianola for San Antonio on 7 March in a mule-drawn ambulance accompanied by Capt. Lorenzo Sitgreaves, Dr. Ebenezer Swift, Col. Samuel Cooper, and Capt.[?] McCloy.

The trip to San Antonio took six days. Large flocks of geese were seen between Indianola and Isaac Mitchell's Ranch eight miles northwest of Victoria. On the afternoon of 8 March, Woodhouse saw what he believed to be three Eskimo Curlew (*Numenius borealis*) between Victoria and Mitchell's Ranch. The party arrived in San Antonio on 12 March and remained there until 7 May while preparing for the journey to Santa Fe. Woodhouse apparently had few official duties and much of his time was spent collecting birds and botanical specimens. A particularly productive location for collecting was the livestock corral on Salado Creek where draft animals of the expedition were held. Woodhouse was assisted in collecting by "Barnard", an expedition member, Dr. Fisher Coleman Smith, and some of the military officers associated with the expedition. Although Woodhouse's diary contains several entries mentioning the collection and preparation of specimens while at San Antonio, no species of birds are actually named.

The expedition left San Antonio for El Paso on 7 May following the military road laid out in 1849 (French 1850, Fig. 2). At the second camp near Quihi, Woodhouse obtained a specimen of the black-crested form of the Tufted Titmouse (*Parus bicolor*) and an unfamiliar flycatcher later determined to be a Vermilion Flycatcher (*Pyrocephalus rubinus*). From Quihi, the group continued on to Fort Lincoln, Sabinal, and Fort Inge near the Leona River. On 14 May, between Fort

Table 1. Species of birds found in Texas by S. W. Woodhouse in 1851. The number following the name represents the number of known museum skins. Species indicated in Woodhouse's diary to have been collected but for which museum specimens are not known are indicated by the symbol (D). Questionable or doubtful species are shown in brackets.

1. Pied-billed Grebe (0) (*Podilymbus podiceps*)
2. American White Pelican (0) (*Pelicanus erythrorhynchos*)
3. Anhinga (1) (*Anhinga anhinga*)
4. Great Blue Heron (0) (*Ardea herodias*)
5. Great Egret (0) (*Ardea alba*)
6. Snowy Egret (0) (*Egretta thula*)
7. Green Heron (0) (*Butorides virescens*)
8. White-faced Ibis (1) (*Plegadis chihi*)
9. Black Vulture (0) (*Coragyps atratus*)
10. Turkey Vulture (0) (*Cathartes aura*)
11. [Brant] (0) (*Branta bernicla*)
12. Wood Duck (0) (*Aix sponsa*)
13. Gadwall (0) (*Anas strepera*)
14. American Wigeon (0) (*Anas americana*)
15. Mallard (0) (*Anas platyrhynchos*)
16. Blue-winged Teal (D) (*Anas discors*)
17. Northern Shoveler (D) (*Anas clypeata*)
18. Green-winged Teal (0) (*Anas crecca*)
19. Osprey (0) (*Pandion haliaetus*)
20. Swallow-tailed Kite (0) (*Elanoides forficatus*)
21. Mississippi Kite (0) (*Ictinia mississippiensis*)
22. Bald Eagle (0) (*Haliaeetus leucocephalus*)
23. Northern Harrier (0) (*Circus cyaneus*)
24. Sharp-shinned Hawk (0) (*Accipiter striatus*)
25. Red-shouldered Hawk (D) (*Buteo lineatus*)
26. Red-tailed Hawk (D) (*Buteo jamaicensis*)
27. Crested Caracara (0) (*Caracara plancus*)
28. American Kestrel (0) (*Falco sparverius*)
29. Merlin (0) (*Falco columbarius*)
30. Greater Prairie-Chicken (0) (*Tympanuchus cupido*)
31. Wild Turkey (0) (*Meleagris gallopavo*)
32. Gambel's Quail (6) (*Callipepla gambelii*)
33. Northern Bobwhite (0) (*Colinus virginianus*)
34. Montezuma Quail (D) (*Crytonyx montezumae*)
35. American Coot (0) (*Fulica americana*)
36. Killdeer (0) (*Charadrius vociferus*)
37. Greater Yellowlegs (0) (*Tringa melanoleuca*)
38. Lesser Yellowlegs (0) (*Tringa flavipes*)
39. Spotted Sandpiper (0) (*Actitis macularia*)
40. Upland Sandpiper (0) (*Batramia longicauda*)
41. Long-billed Curlew (0) (*Numenius americanus*)
42. Least Sandpiper (0) (*Calidris minutilla*)
43. Pectoral Sandpiper (0) (*Calidris melanotos*)
44. Mourning Dove (0) (*Zenaida macroura*)
45. Carolina Parakeet (0) (*Conuropsis carolinensis*)
46. Black-billed Cuckoo (0) (*Coccyzus erythropthalmus*)
47. Yellow-billed Cuckoo (0) (*Coccyzus americanus*)
48. Greater Roadrunner (0) (*Geococcyx californianus*)
49. Eastern Screech-Owl (D) (*Otus asio*)
50. Great Horned Owl (0) (*Bubo virginianus*)
51. Burrowing Owl (1) (*Athene cunicularia*)
52. Barred Owl (0) (*Strix varia*)
53. Common Nighthawk (0) (*Chordeiles minor*)
54. Chuck-will's-widow (0) (*Caprimulgus carolinensis*)
55. Chimney Swift (0) (*Chaetura pelagica*)
56. Ruby-throated Hummingbird (0) (*Archilochus colubris*)
57. Belted Kingfisher (0) (*Ceryle alcyon*)
58. Green Kingfisher (0) (*Chloroceryle americana*)
59. Red-headed Woodpecker (0) (*Melanerpes erythrocephalus*)
60. Golden-fronted Woodpecker (1) (*Melanerpes aurifrons*)
61. Red-bellied Woodpecker (0) (*Melanerpes carolinus*)
62. Ladder-backed Woodpecker (5) (*Picoides scalaris*)
63. Downy Woodpecker (0) (*Picoides pubescens*)
64. Hairy Woodpecker (0) (*Picoides villosus*)
65. Red-cockaded Woodpecker (0) (*Picoides borealis*)
66. Northern Flicker (0) (*Colaptes auratus*)
67. Pileated Woodpecker (0) (*Dryocopus pileatus*)
68. Ivory-billed Woodpecker (0) (*Campephilus principalis*)
69. Eastern Wood-Pewee (0) (*Contopus virens*)
70. Acadian Flycatcher (0) (*Empidonax virescens*)
71. Willow Flycatcher (0) (*Empidonax traillii*)
72. Eastern Phoebe (0) (*Sayornis phoebe*)
73. Say's Phoebe (1) (*Sayornis saya*)
74. Vermilion Flycatcher (1) (*Pyrocephalus rubinus*)
75. Great Crested Flycatcher (1) (*Myiarchus crinitus*)
76. Eastern Kingbird (0) (*Tyrannus tyrannus*)
77. Scissor-tailed Flycatcher (1) (*Tyrannus forficatus*)
78. Loggerhead Shrike (2) (*Lanius ludovicianus*)

Table 1. Continued.

79. White-eyed Vireo (0) (*Vireo griseus*)
80. Bell's Vireo (1) (*Vireo bellii*)
81. Black-capped Vireo (2) (*Vireo atricapillus*)
82. Yellow-throated Vireo (0) (*Vireo flavifrons*)
83. Warbling Vireo (0) (*Vireo gilvus*)
84. Red-eyed Vireo (0) (*Vireo olivaceus*)
85. Blue Jay (0) (*Cyanocitta cristata*)
86. American Crow (0) (*Corvus brachyrhynchos*)
87. [Fish Crow] (0) (*Corvus ossifragus*)
88. Common Raven (0) (*Corvus corax*)
89. Horned Lark (0) (*Eremophila alpestris*)
90. Purple Martin (0) (*Progne subis*)
91. Tree Swallow (0) (*Tachycineta bicolor*)
92. Cliff Swallow (0) (*Pterochelidon pyrrhonota*)
93. Barn Swallow (0) (*Hirundo rustica*)
94. Tufted Titmouse (*Baeolophus bicolor*)
95. White-breasted Nuthatch (0) (*Sitta carolinensis*)
96. Brown Creeper (0) (*Certhia americana*)
97. Carolina Wren (0) (*Thryomanes ludovicianus*)
98. Bewick's Wren (2) (*Thryomanes bewickii*)
99. Golden-crowned Kinglet (0) (*Regulus satrapa*)
100. Ruby-crowned Kinglet (0) (*Regulus calendula*)
101. Blue-gray Gnatcatcher (0) (*Polioptila caerulea*)
102. Eastern Bluebird (1) (*Sialia sialis*)
103. Hermit Thrush (0) (*Catharus guttatus*)
104. Wood Thrush (0) (*Hylocichla mustelina*)
105. American Robin (0) (*Turdus migratorius*)
106. Northern Mockingbird (1) (*Mimus polyglottos*)
107. Brown Thrasher (0) (*Toxostoma rufum*)
108. Blue-winged Warbler (0) (*Vermivora pinus*)
109. Northern Parula (0) (*Parula americana*)
110. Yellow Warbler (0) (*Dendroica petechia*)
111. Black-throated Blue Warbler (0) (*Dendroica caerulescens*)
112. Yellow-rumped Warbler (0) (*Dendroica coronata*)
113. Black-throated Green Warbler (0) (*Dendroica virens*)
114. Pine Warbler (0) (*Dendroica pinus*)
115. Blackpoll Warbler (0) (*Dendroica striata*)
116. Cerulean Warbler (0) (*Dendroica cerulea*)
117. Black-and-white Warbler (0) (*Mniotilta varia*)
118. American Redstart (0) (*Setophaga ruticilla*)
119. Prothonotary Warbler (0) (*Protonotaria citrea*)
120. Kentucky Warbler (0) (*Oporonis formosus*)
121. Common Yellowthroat (0) (*Geothlypis trichas*)
122. Hooded Warbler (0) (*Wilsonia citrina*)
123. Wilson's Warbler (0) (*Wilsonia pusilla*)
124. Yellow-breasted Chat (0) (*Icteria virens*)
125. Summer Tanager (3) (*Piranga rubra*)
126. Scarlet Tanager (0) (*Piranga olivacea*)
127. Green-tailed Towhee (1) (*Pipilo chlorurus*)
128. Eastern Towhee (0) (*Pipilo erythrophthalmus*)
129. Cassin's Sparrow (1) (*Aimophila cassinii*)
130. Chipping Sparrow (1) (*Spizella passerina*)
131. Vesper Sparrow (3) (*Pooecetes gramineus*)
132. Lark Sparrow (3) (*Chondestes grammacus*)
133. Black-throated Sparrow (1) (*Amphispiza bilineata*)
134. Savannah Sparrow (3) (*Passerculus sandwichensis*)
135. Grasshopper Sparrow (0) (*Ammodramus savannarum*)
136. Lincoln's Sparrow (4) (*Melospiza lincolnii*)
137. White-crowned Sparrow (9) (*Zonotrichia leucophrys*)
138. Dark-eyed Junco (0) (*Junco hymenalis*)
139. Northern Cardinal (0) (*Cardinalis cardinalis*)
140. Blue Grosbeak (0) (*Guiraca caerulea*)
141. Painted Bunting (1) (*Passerina ciris*)
142. Dickcissel (0) (*Spiza americana*)
143. Bobolink (0) (*Dolichonyx oryzivorus*)
144. Red-winged Blackbird (0) (*Agelaius phoeniceus*)
145. Western Meadowlark (3) (*Sturnella neglecta*)
146. Yellow-headed Blackbird (3) (*Xanthocephalus xanthocephalus*)
147. Rusty Blackbird (0) (*Euphagus carolinus*)
148. Common Grackle (0) (*Quiscalus quiscula*)
149. [Boat-tailed Grackle] (0) (*Quiscalus major*)
150. Brown-headed Cowbird (1) (*Molothrus ater*)
151. Orchard Oriole (1) (*Icterus spurius*)
152. Baltimore Oriole (0) (*Icterus galbula*)
153. American Goldfinch (0) (*Carduelis tristis*)

Inge and the Nueces River, Woodhouse noted that the mesquite on both sides of the road was dead for several miles. Dead mesquites were also seen the following day between the Nueces River and Turkey Creek. No conjecture on the cause of the death of the mesquites or effect on bird or other animal life is given in the diary.

The land became more arid as the party moved westward and, on 17 May, while camped at Rio Piedras Pintas [Pintas Creek in Kinney County], Woodhouse noted that ".. birds and flowers [are] scarce." The following evening, nests of Boat-tailed Grackle (*Quiscalus major*) and Red-winged Blackbird (*Agelaius phoeniceus*) were seen in rushes along the Arroyo Zoquete and a White-faced Ibis (*Plegadis chichi*) was collected by Dr. Smith. On 19 May at the camp below San Felipe Springs near present-day Del Rio, Woodhouse collected an Eastern Screech-Owl (*Otus asio*) and Capt. Samuel G. French shot an Anhinga (*Anhinga anhinga*). The following day, Woodhouse visited the springs and, accompanied by Charles Wright and John H. Clark, explored a distance of two miles downstream. Although an excellent habitat for birds, Woodhouse's diary contains no mention of other birds seen or collected along the San Felipe.

From San Felipe Springs, the group proceeded to Painted Caves near the Devil's River and then up the valley of the river for a number of miles. A downpour of rain on 23 May caused the river to rise preventing further travel. On 26 May, while the wagon train crossed the river, Woodhouse spent the day in the field and collected the holotype and a paratype of the Black-capped Vireo. These specimens were probably collected at the springs near the settlement of Juno in northern Val Verde County (Sexton and Tomer 1990). On the next day, the wagon train moved away from the Devil's River onto the prairie where Woodhouse collected a "Tufted Partridge," this presumably being a Montezuma Quail (*Cyrtonyx montezumae*).

The expedition crossed the Pecos River on 31 May. On 5 June, in the rushes along Escondido Creek, Capt. French collected Blue-winged Teal (*Anas discors*) and Northern Shoveler (*Anas clypeata*). At Escondido Spring, Woodhouse shot a Red-tailed Hawk (*Buteo jamaicensis*) but noted that birds of all kinds had been "exceedingly rare" since leaving Live Oak Creek nearly a week earlier. Ducks were also abundant at Commanche Springs, but no mention was made of birds at Limpia Creek. On 14 June, Woodhouse reported seeing Burrowing Owls (*Athene cunicularia*) at the Prairie Dog town near Wild Rose Pass.

On 19 June, the wagon train arrived at the Rio Grande where only a "few birds, nothing new" were seen. During the next five days, the group traveled upriver. At the first camp, Woodhouse noted a "great number" of Northern Mockingbird (*Mimus polyglottos*). On the following day, he saw his first Greater Roadrunner (*Geococcyx californicus*), and, on the next day, several specimens of an unidentified "pheasant quail" were collected. As the wagon train neared San Elizario on 23 June, a great number of "plumed quail" [Gambel's Quail, *Callipepla gambelii*] were seen but apparently not collected. The expedition arrived at El Paso on 24 June. On 29 June the party departed for Santa Fe, and Woodhouse left Texas with no further mention of the sighting or collection of birds.

SPECIMENS AND PUBLICATIONS

Woodhouse's diary contains numerous references to the collection of birds. It is likely that most of these freshly-killed birds were used only for identification

purposes and that museum skins were not prepared. The skins prepared by Woodhouse were later deposited with the Academy of Natural Sciences of Philadelphia and the National Museum of Natural History (Woodhouse 1851c, 1851d). A total of 66 specimens representing 30 species taken in Texas have been identified in the accession records of these two institutions. Twenty-four (36%) of the 66 known specimens are sparrows. Descriptions of the holotypes of the Black-capped Vireo and Cassin's Sparrow were published by Woodhouse immediately after returning to Philadelphia in 1852. Woodhouse's report on the birds observed or collected during the expedition was published in 1853. The list of birds in this report includes those birds recorded in Texas, New Mexico, and California during 1851–1852, as well as species encountered while Woodhouse was working with surveys of Indian Territory in 1849 and 1850. The composite list consists of 238 species, 153 of which are stated or implied to occur in Texas. The commentary accompanying each entry rarely gives specifics as to the locality where the species was encountered or whether the record is based on a sighting or a specimen. Frequently, the location is simply given as "Texas" or, in a few cases, "from the Gulf of Mexico to the Pacific Ocean."

TEXAS ORNITHOLOGY PRIOR TO 1851

Knowledge of the birds of Texas was scanty and highly regionalized when Woodhouse arrived in 1851. The Texas Panhandle was the region first investigated by men of scientific training. Edwin James of the Long Expedition made observations of the birds along the Canadian River during the summer of 1820 (Thwaites 1905). These records were later supplemented by Lt. James W. Abert whose survey party passed through the same area in September 1845 (Carroll 1941). Thomas Drummond collected birds at Velasco during the spring of 1833 which were sent to William Jackson Hooker at the University of Glasgow (Geiser 1948). These records were apparently never published. John James Audubon and Edward Harris later collected near Galveston Island during April and May 1837 (Geiser 1948). The journal kept by Harris includes a list of 165 species seen or shot in Texas (Street 1948). A few of these records were later incorporated into Audubon's publications, but the complete list of birds seen was never published.

The Lower Rio Grande Valley was also an area of ornithological study. Audubon's son, John Woodhouse Audubon, arrived at the mouth of the Rio Grande in 1849 as a member of an expedition headed overland through Mexico to California (Audubon 1984). Birds collected by Audubon around Ringgold Barracks near present-day Rio Grande City were sent to George N. Lawrence in New York City (Lawrence 1852a, 1852b). Additional specimens collected at Ringgold Barracks during 1850 by Capt. John P. McCown were also sent to Lawrence. In 1853, McCown also published an annotated list of 18 species seen at Ringgold Barracks, Fort Brown, and along the Neuces and San Antonio Rivers (McCown 1853).

Birds encountered between San Antonio and El Paso were studied in 1850 by Col. George A. McCall. In February and March, McCall traveled the military road from San Antonio to El Paso to Santa Fe, returning to San Antonio by the same route during October and November. His annotated list of 68 species seen in Texas and New Mexico names 28 species seen in Texas, including several species not seen by Woodhouse in the following year (McCall 1851).

About 1851, the naturalists associated with the survey of the boundary between

the United States and Mexico began their collection of birds along the Rio Grande of Texas. These collections continued through 1855 and results were published in 1859 (Baird 1859). Woodhouse made the acquaintance of two of the boundary survey naturalists, Charles Wright and John Clark, while camped at San Felipe Springs (Woodhouse 1851a). It can be assumed that there was a mutual exchange of information between the three men regarding birds and the objectives of their respective expeditions.

COMMENTARY ON SELECTED SPECIES

ANHINGA (*Anhinga anhinga*). Anhinga were seen by John J. Audubon at Buffalo Bayou on the Texas coast in 1837 (Oberholser n.d.) and on Cibolo Creek between New Braunfels and San Antonio by Ferdinand Roemer in 1846 (Roemer 1935: 151). The Anhinga (ANSP #37247) taken below San Felipe Springs in Val Verde County apparently represents the first specimen collected in Texas.

WHITE-FACED IBIS (*Plegadis chihi*). The bird collected at Arroyo Zoquete, Kinney County, was reported by Woodhouse (1853b:98) to be a Brazilian Ibis (*Ibis gauranaca*), a species not previously known from the United States. This "species" is now synonymized with the White-faced Ibis. The bird collected by Woodhouse seems to represent a first specimen record for the state. Other early records include a specimen taken at Frontera, El Paso County, in 1852 by Charles Wright and a sighting at San Elizario, El Paso County, about 1852 by C. B. Kennerly (Oberholser n.d.).

BRANT (*Branta bernicla*). Woodhouse's assertion that Brant were "abundant in the large streams" of Texas is not accepted by modern workers. Oberholser (1974) found only 14 definite records of this species and declared it to be extremely rare and seasonally irregular. The Texas Bird Records Committee, as of 30 November 1998, listed 17 records of this species in the state (Lasley 1998).

ESKIMO CURLEW (*Numenius borealis*). Woodhouse had second thoughts about the Eskimo Curlew seen on 8 March between Victoria and Mitchell's Ranch. Although mentioned in his diary, this species is not included in the published report. Eskimo Curlew were first observed in 1850 by G. A. McCall along the Rio Grande in El Paso County (McCall 1851).

GAMBEL'S QUAIL (*Callipepla gambelii*). This species was first seen by S. G. French in 1849 during his reconnaissance of the road between San Antonio and El Paso (French 1850). French incorrectly identified the species as the California Quail (*Callipepla californica*). The species was next reported by G. A. McCall who saw them along Limpia Creek, Jeff Davis County, in 1850 (McCall 1851). Woodhouse's record of this species is based on six specimens collected in the vicinity of El Paso (ANSP #12549, #s 12556-58; NMNH #83840).

MONTEZUMA QUAIL (*Cyrtonyx montezumae*). This quail was first seen in 1849 by S. G. French along the road between San Antonio and El Paso. French had no name for this bird, but accurately described its coloration and habitat (French 1850:52). The species was reported by G. A. McCall (1851) as frequently seen between the Devil's and Pecos Rivers in 1850. Woodhouse's report thus represents the second formal record of this species in Texas. The specimens recorded in Woodhouse's diary as collected on 27 May along the Devil's River have not been located.

BLACK-BILLED CUCKOO (*Coccyzus erythropthalmus*). Woodhouse saw a

"few" of these birds in Texas and Indian Territory. Edward Harris and J. J. Audubon saw this species at Galveston in 1837 (Street 1948), but their record was never published. Woodhouse's report apparently represents the first published record of this species in Texas.

GOLDEN-FRONTED WOODPECKER (*Melanerpes aurifrons*). The earliest published records include a report from western Texas in 1837 (Baird 1855) and from Rio Grande City by J. P. McCown in 1850 (Lawrence 1852b). Woodhouse found this species "abundant" around San Antonio, but not seen west of the Devil's River. He was also the first to report the preference of this species to forage on mesquite trees. A single specimen (ANSP #12264) was collected at San Antonio.

LADDER-BACKED WOODPECKER (*Picoides scalaris*). Woodhouse was apparently the first to report this species from Texas. Five specimens (ANSP #s 12077& 37134-37) were collected at San Antonio. The species was seen as far west as the Pecos River. The form reported by Woodhouse was later described as *P. s. symplectus,* a new subspecies known as the Texas Woodpecker (Ridgway 1914).

PILEATED WOODPECKER (*Dryocopus pileatus*). In 1837, J. J. Audubon observed this species on the roof of a house on Galveston Island (Ford 1957). Woodhouse saw the Pileated Woodpecker in Indian Territory (Tomer 1974) and, based on its historical distribution, he could have also seen it at Galveston or along the road between Indianola and San Antonio. Oberholser (n.d.) does not acknowledge Woodhouse's report of this species in Texas.

SAY'S PHOEBE (*Sayornis saya*). Woodhouse observed this species "frequently in western Texas." This species was first collected at Frontera, El Paso County, on 3 April 1850 by J. H. Clark (Oberholser n.d.). The bird (ANSP #12279) collected by Woodhouse on 28 March 1851 apparently represents the second specimen from Texas.

VERMILION FLYCATCHER (*Pyrocephalus rubinus*). This flycatcher was first collected near Rio Grande City by J. P. McCown in 1850 (Lawrence 1852b). Woodhouse's collection near Quihi on 8 May 1851 represents a second record for the state.

GREAT CRESTED FLYCATCHER (*Myiarchus crinitus*). Edward Harris and Audubon saw this bird at Galveston in 1837 (Street 1948). A bird (ANSP #12288) collected by Woodhouse at San Antonio on 28 April 1851 apparently represents the first specimen taken in Texas.

FISH CROW (*Corvus ossifragus*). The Fish Crow was reported to occur in Indian Territory, Texas, New Mexico, and California. Woodhouse may have seen Fish Crow at Galveston. His report of Fish Crow in Indian Territory, New Mexico, and California represents either an error in typography or a mis-identification (Tomer 1997). Oberholser (n.d.) makes no mention of Woodhouse's report of Fish Crow in Texas.

BLACK-CRESTED TITMOUSE (*Parus bicolor atricristatus*). The type specimen of this subspecies was collected near Rio Grande City, Starr County, in 1849 by John Woodhouse Audubon (Cassin 1852). The collection of specimens by Woodhouse at San Antonio (ANSP #12107) and Quihi (ANSP #37227) represents the second and third records for the state.

BELL'S VIREO (*Vireo bellii*). This species was described by Audubon from a

specimen collected in Missouri in 1843 (Deignan 1961). Woodhouse's collection of a specimen (ANSP #12528) on the Rio San Pedro (Devil's River) on 24 May 1851 represents the first record for Texas.

BLACK-CAPPED VIREO (*Vireo atricapillus*). The holotype (NMNH #15040) and a paratype of this undescribed species were collected at springs near Juno, Val Verde County (Woodhouse 1852, Sexton and Tomer 1990). The species was first illustrated in black and white by R. H. Kern from the type specimen (Woodhouse 1853c, p.75) and later in color by John Cassin (1856).

WARBLER SPP. Nineteen species of wood warblers were recorded by Audubon and Harris during their visit to Texas in the spring of 1837 (Street 1948). Most of these observations were never published. Seventeen species of warblers were reported by Woodhouse and, thus, his observations represent the first records of several species from Texas. All of Woodhouse's warbler records are apparently based on sightings rather than specimens.

GREEN-TAILED TOWHEE (*Pipilo chlorurus*). This species was described by Audubon in 1839 based on birds observed in Idaho by J. K. Townsend. A more complete description was made by William Gambel in 1846 from a specimen taken in the Rocky Mountains (Cassin 1856). Woodhouse's collection of a specimen (ANSP #12459) along Salado Creek near San Antonio on 28 March 1851 represents the first record from Texas and the second specimen to be taken in the United States.

EASTERN TOWHEE (*Pipilo erythrophthalmus*). Edward Harris recorded in his diary having seen this species at Galveston in 1837 (Street 1948). Woodhouse found towhees to be common in Texas, and his report seems to represent the first published record for the state.

CASSIN'S SPARROW (*Aimophila cassinii*). The holotype (NMNH #12531) of this species was collected on 25 April 1851 on the prairie near San Antonio (Deignan 1961). Woodhouse gives the habitat of this species as "western Texas," suggesting that other individuals were observed but not collected.

VESPER SPARROW (*Pooectes gramineus*). Woodhouse described this species as "abundant from the Atlantic to the Pacific Ocean, and in Texas." Ridgway (1901) believed that the bird reported by Woodhouse was the Western Vesper Sparrow (*P.g. confinis*). The three birds (ANSP #12487 & 12525; NMNH #83865) collected by Woodhouse at San Antonio apparently represent the first specimens taken in Texas.

BLACK-THROATED SPARROW (*Amphispiza bilineata*). This species was first collected in 1849 near Rio Grande City, Starr County, by J. W. Audubon (Cassin 1852). The bird (ANSP #12488) taken by Woodhouse on 20 May 1851 along the Devil's River represents the second specimen taken in Texas.

LARK SPARROW (*Chondestes grammacus*). Three specimens (ANSP #s 12484, 37177, 37178) were taken at San Antonio, and the species was described as "abundant on the prairies of Texas." The birds collected at San Antonio apparently represent the first specimens from Texas.

GRAY-HEADED JUNCO (*Junco hymenalis caniceps*). The type specimen of this subspecies was collected by Woodhouse in the San Francisco Mountains of New Mexico and, together with paratypes from western Texas and Mexico, was described under the name of *Struthus caniceps* (Woodhouse 1853a). Oberholser (n.d.) credits Woodhouse with the first report of this subspecies in Texas. The

Texas specimens were, however, not collected by Woodhouse but were part of an earlier collection housed at the Academy of Natural Sciences in Philadelphia.

BOAT-TAILED GRACKLE (*Quiscalus major*). This species and the Great-tailed Grackle (*Quiscalus mexicanus*) were once considered to be conspecific (A.O.U. 1998). Boat-tails are resident along the upper and central Texas coasts (T.O.S. 1995a) and could have been seen by Woodhouse at both Galveston and Indianola. The birds observed on 18 May 1851 nesting in the rushes along Arroyo Zoquete in Kinney County were undoubtedly Great-tailed Grackle rather than Boat-tails as indicated in Woodhouse's diary. It thus appears that Woodhouse did not consider these two forms to be separate species, believing instead that the Boat-tailed Grackle was "abundant throughout" Texas.

ORCHARD ORIOLE (*Icterus spurius*). Edward Harris saw the Orchard Oriole at Galveston in 1837 (Street 1948). It was first collected by J. P. McCown on the lower Rio Grande River during 1850 (Lawrence 1852b). The bird (ANSP #12492) collected by Woodhouse at Quihi on 8 May 1851 represents a second specimen record for the state.

RECORDS FROM EASTERN TEXAS

Blue-winged Teal (*Anas discors*), Mississippi Kite (*Ictinia mississippi*), Carolina Parakeet (*Conuropsis carolinensis*), Red-cockaded Woodpecker (*Picoides borealis*), Ivory-billed Woodpecker (*Campephilus principalis*), Greater Prairie-Chicken (*Tympanuchus cupido*), and Baltimore Oriole (*Icterus galbula*) were specifically stated by Woodhouse (1853c) to occur in "eastern" Texas. The meaning of this vague geographical term can be clarified by a comparison of diary entries and published accounts of the same observation. For example, Woodhouse's diary (1851b) mentions large numbers of white-tailed deer (*Odocoileus virginianus*) seen along the road that runs northwest from Indianola to San Antonio. His published account describes this species as being seen in "eastern" Texas (Woodhouse 1853b). It is, therefore, clear that Woodhouse conceptually divided the state into eastern and western portions by a north-south line passing through San Antonio.

Galveston was the first location in eastern Texas visited by Woodhouse. Although his diary makes no mention of excursions outside the city or of birds seen or collected in the area, it must have been here that he "observed" the Ivory-billed Woodpecker. Ducks and prairie chickens were sold in the Galveston markets, and Baltimore Oriole and Mississippi Kite could have been seen within the city. Mounted specimens may also have been seen in the business establishments of the city. The occurrence of Carolina Parakeet in Texas was widely known among the general public (Edward 1836, Von Wrede 1844) and, if not actually seen, it may have been included by Woodhouse based on the word of trusted confidants. All species recorded in eastern Texas, with the exception of Carolina Parakeet and Ivory-billed Woodpecker, could also have been seen between Indianola and San Antonio.

ACCOMPLISHMENTS IN TEXAS

Woodhouse traversed 4 of the 8 ornithological regions of Texas: Coastal Prairie, Central Prairie, Edwards Plateau, and Trans-Pecos (T.O.S. 1995b). The distance

traveled overland from Indianola to El Paso was approximately 813 miles, most of it through areas minimally affected by human activities (Fig. 2).

Woodhouse's account, at the time of its publication, was the most comprehensive overview of the avifauna of Texas that was available. The lack of voucher specimens and specific locality data for many species diminished the value of the report, yet it was extensively cited by contemporary ornithologists such as John Cassin (1856). In later years, Woodhouse's work was overshadowed by the voluminous and more detailed reports published by the United States-Mexican Boundary Survey and the various Pacific Railroad surveys.

Why Woodhouse decided to include the bird data obtained in Indian Territory with the observations made on the Zuni-Colorado Rivers Expedition is unknown. Perhaps it was because many species were shared between Indian Territory and Texas, as well as between these two areas and locations further west. Whatever his reason, this combined presentation provided valuable information on the extended distribution of a large number of species.

Two species new to the fauna of North America were collected by Woodhouse in Texas. His observations also extended the range of several extralimital species into Texas. Equally important, the discovery of several warblers during spring migration provided some of the first information on the route and timing of the passage of these species through Texas.

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LITERATURE CITED

AMERICAN ORNITHOLOGISTS' UNION. 1998. Check-list of North American birds. Lawrence: Allen Press, Inc.

AUDUBON, J.W. 1984. Audubon's western journal, 1849-1850. Tucson: Univ. of Arizona Press.

BAIRD, S.F. 1855. List of birds inhabiting America, west of the Mississippi not described in Audubon's Ornithology [pp. 327–335]. In Exploration and Survey of the Valley of the Great Salt Lake of Utah, by Howard Stansbury. Philadelphia: Lippincott, Grambo & Co.

———. 1859. United States and Mexican Boundary Survey, Vol. 2, Pt. 2. Birds of the Boundary, pp. 1–33 (1987 reprint, The Texas State Historical Association).

CARROLL, H.B. 1941. The journal of Lieutenant J. W. Abert from Bent's Fort to St. Louis in 1845. Panhandle Plains Historical Review 14:1–113.

CASSIN, J. 1852. Descriptions of new species of birds. Proc. Acad. Nat. Sci. Philadelphia. 6:202–203.

———. 1856. Illustrations of the birds of California, Texas, Oregon, British and Russian America. Austin: The Texas State Historical Association (1991 reprint).

DEIGNAN, H. G. 1961. Type Specimens of Birds in the United States National Museum. Smithsonian Institution, USNM Bull. 22.

EDWARD, D. B. 1836. The History of Texas. Austin: Texas State Historical Association (1990 reprint).

FORD, A. 1957. The bird biographies of John James Audubon. New York: The McMillan Co.

FRENCH, S. G. 1850. A report in relation to the route over which a government train moved from San Antonio to El Paso del Norte. 31st Congress, 1st Session, Senate Executive Doc. No. 64.

GEISER, S. W. 1948. Naturalists of the Frontier. Dallas: SMU Press.

LASLEY, G. 1998. Texas review list. Texas Bird Records Committee web site (http://members.tripod.com/~trbc/reviewsp.htm).

LAWRENCE, G. N. 1852a. Additions to North American ornithology, Nos. 1 and 2. Ann. Lyc. Nat. Hist. New York 5:117–119, 123–124.

———. 1852b. Descriptions of new species of birds of the genera *Conirostrum* D'Orb. et Lafr., *Emberhagra* Less., and *Xanthornus* Briss., together with a list of other species not heretofore

noticed as being found within the limits of the United States. Ann. Lyc. Nat. Hist. New York 5: 112–117.

McCALL, G. A. 1851. Some remarks on the habits, etc., of birds met within western Texas, between San Antonio and the Rio Grande, and in New Mexico; with descriptions of several species believed to have been hitherto undescribed. Proc. Acad. Nat. Sci. Philadelphia 5:213–224.

McCOWN, J. P. 1853. Facts and observations from notes taken when in Texas. Ann Lyc. Natural History of New York 6:9–14.

OBERHOLSER, H. C. [n.d.] Typescript of The bird life of Texas. Center For American History, Univ. of Texas at Austin.

———. 1974. The bird life of Texas. Austin: Univ. of Texas Press.

RIDGWAY, R. 1901. The birds of North and Middle America, Pt. I. Bull. 50, U.S. National Museum.

———. 1914. The birds of North and Middle America, Pt. VI. Bull. 50, U.S. National Museum.

ROEMER, F. 1935. Texas. San Antonio: Standard Printing Company (1995 reprint, Eakin Press).

SEXTON, C. W., AND J. S. TOMER. 1990. Clarification of the type locality of the Black-capped Vireo. Bull. Tex. Ornith. Soc. 23:2–5.

STREET, P. B. 1948. The Edward Harris Collection of birds. Wilson Bull. 60:167–184.

TEXAS ORNITHOLOGICAL SOCIETY. 1995a. Checklist of the birds of Texas. Austin: Capital Printing.

———. 1995b. State regions. TOS Newsletter. 43(3):7.

THWAITES, R. G. 1905. Early western travels, 1748–1846. Vol. 16, Pt. 3 of James' account of S. H. Long's expedition, 1819-1820. Cleveland: A. H. Clark Co.

TOMER, J. S. 1974. The ornithological work of S. W. Woodhouse in Indian Territory. Bull. Okla. Ornith. Soc. 7:17–54.

———. 1997. The first listing of Oklahoma birds. Bull. Okla. Ornith. Soc. 30:13–21.

TOMER, J. S. AND M. J. BRODHEAD. 1992. A naturalist in Indian Territory. Norman: Univ. of Oklahoma Press.

VON WREDE, F. W. 1844. Sketches of life in the United States of North America. Waco: Texian Press (1970 reprint).

WOODHOUSE, S. W. 1851a. Diary, January 1851 to 20 May 1851. Acad. Nat. Sci. Philadelphia Library, Coll. 387, B(1).

———. 1851b. Diary, 21 May 1851 to 15 July 1851. Acad. Nat. Sci. Philadelphia Library, Coll. 387, B(2).

———. 1851c. Texas specimen entries in Bird Specimen Catalog. Manuscript, Academy of Natural Sciences of Philadelphia, Department of Ornithology, Philadelphia.

———. 1851d. Texas specimen entries in Bird specimen Catalog. Manuscript, Smithsonian Institution, National Museum of Natural History, Division of Birds, Washington, D. C.

———. 1852. Descriptions of new species of birds of the genera *Vireo* Vieill., and *Zonotrichia* Swains. Proc. Acad. Nat. Sci. Philadelphia 6:60–61.

———. 1853a. Description of a new snow finch of the genus *Struthus*., Boie. Proc. Acad. Nat. Sci. Philadelphia 6:202–203.

———. 1853b. Mammals, pp. 44–57. In Report of an expedition down the Zuni and Colorado rivers by Captain L. Sitgreaves. 32nd Congress, 2nd Session, Senate Doc. No. 59.

———. 1853c. Birds, pp. 58-105. In Report of an expedition down the Zuni and Colorado rivers, by Captain L. Sitgreaves. 32nd Congress, 2nd Session, Senate Executive Doc. No. 59.

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TEXAS BIRD RECORDS COMMITTEE REPORT FOR 1998

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The Texas Bird Records Committee (hereafter "TBRC" or "committee") of the Texas Ornithological Society requests and reviews documentation on any record of a TBRC Review List species (available from the author; see Haynie 1998 or TBRC web page at http://members.tripod.com/~tbrc/). Annual reports of the committee's activities have appeared in the Bulletin of the Texas Ornithological Society since 1984. The committee reached a final decision on 206 records during 1998: 150 records of 65 species were accepted and 56 records of 43 species were not accepted, an acceptance rate of 72.8% for this report. Included under the accepted category were six records of three species pertaining to specimens collected prior to 1988. There were 227 observers who submitted documentation (to the TBRC or to other entities) that was reviewed by the committee during 1998.

In 1998 the TBRC accepted first state records of Black-capped Petrel, Arctic Tern, Dark-billed Cuckoo and Red-breasted Sapsucker. Photographically documented records of Berylline Hummingbird and Slate-throated Redstart were also accepted during 1998, moving these two species from the presumptive list to the state list. A sight record of Black Swift was accepted during 1998, thus adding the species to the presumptive list. In addition, Eurasian Collared-Dove (*Streptopelia decaocto*) was added to the state list based on the rapid expansion of this introduced species into Texas. These actions brought the official Texas State List to 613 species in good standing. This total does not include the five species listed on the Presumptive Species List.

In addition to the review of previously undocumented species, any committee member may request that a record of any species be reviewed. The committee desires written descriptions as well as photographs, video, and audio recordings if available. Information concerning a Review List species may be submitted to the committee secretary, Greg Lasley, 305 Loganberry Court, Austin, Texas 7874-6527 (email: glasley@earthlink.net). Guidelines for preparing rare bird documentation can be found in Dittmann and Lasley (1992).

The records in this report are arranged taxonomically following the AOU Checklist of North American Birds (AOU 1998). A number in parentheses after the species name represents the total number of accepted records in Texas for that species at the end of 1998. The numbers of accepted records are also listed for Pacific Loon, Audubon's Shearwater, Band-rumped Storm-Petrel, Lesser Black-backed Gull, Glaucous Gull, Bridled Tern, Tropical Kingbird, and Clay-colored Robin, eight species recently removed from Review List A, though retained on Review List B. All observers who submitted written documentation or photographs of accepted records are acknowledged by initials. If known, the initials of those who discovered a particular bird are in boldface but only if the discoverers submitted supporting documentation. The TBRC file number of each accepted record will follow the observers' initials. If photographs or video recordings are on file with the TBRC, the Texas Photo Record File (TPRF) (Texas A&M Uni-

versity) number is also given. If an audio recording of the bird is on file with the TBRC, the Texas Bird Sounds Library (TBSL) (Sam Houston State University) number is also given. Specimen records are denoted with an asterisk (;*) followed by the institution where the specimen is housed. The information in each account is usually based on the information provided in the original submitted documentation; however, in some cases this information has been supplemented with a full range of dates the bird(s) was present if that information was made available to the TBRC later. All locations in italics are counties.

TBRC Membership.—Members of the TBRC during 1998 who participated in decisions listed in this report were: John Arvin, Chair, Keith Arnold, Academician, Greg Lasley, Secretary, Brush Freeman, Petra Hockey, Mark Lockwood, Terry Maxwell, Martin Reid, Willie Sekula, and Barry Zimmer. During 1998, Petra Hockey was elected as a new member and John Arvin retired from the committee. Lockwood replaced Arvin as committee Chair. The Academician and Secretary were re-elected.

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Additional Abbreviations.—AMNH = American Museum of Natural History; AOU = American Ornithologists' Union; BBNP = Big Bend National Park; MUM = Manchester University Museum, Manchester, England; NWR = National Wildlife Refuge; SP = State Park; TCWC = Texas Cooperative Wildlife Collection (Texas A&M University); UT Pan American = University of Texas Pan American at Edinburg.

ACCEPTED RECORDS

Red-throated Loon (*Gavia stellata*) (34). One at Lake Tawakoni, *Rains*, on 27 February 1994 (**RK**; 1994-141). Up to three at Cooper Lake, Delta, from 18 January–23 March 1998 (**M&KW**, JDu; 1998-31; TPRF 1587). One at Lake Tawakoni, *Rains*, from 1 January–14 March 1998 (**RR**, MW; 1998-19; TPRF 1564). One at Galveston, *Galveston*, from 1 April to 3 May 1998 (RWe, GL, GS, DD, JWh, MI, DB; 1998-53, TPRF 1599).

Red-necked Grebe (*Podiceps grisegena*) (13). One at Lake Lewisville, *Denton*, from 29–30 March 1998 (**LH**; 1998-99; TPRF 1580). This bird was in breeding plumage, something rarely observed in Texas.

Yellow-nosed Albatross (*Thalassarche chlororhynchos*) (3). One found dead on

San Jose Island, *Aransas*, on 11 July 1997 (**TA**; 1997-129; TPRF 1651; *TCWC 13338).

Black-capped Petrel (*Pterodroma hasitata*) (2). One off Port O'Connor, *Calhoun*, on 28 May 1994 (**DP, T&PF, MAu, ME, DB, SW, PG, LA**; 1996-129; TPRF 1631). One off Port O'Connor, *Calhoun*, on 26 July 1997 (**DP, ME, LyB, PH, RGr, SH, RPe, MGa, NB, TFe, MGr**; 1997–118, TPRF 1633). These records represent the first records for Texas.

Greater Shearwater (Puffinus gravis) (9). One found dead near Port Aransas, *Nueces*, on 29 June 1998 (**TA**, GL; 1998-94; TRPF 1619; *TCWC 13368). Another found near death of San Jose Island, *Aransas*, on 30 July 1998 (**TA**, GL; 1998-115; TRPF 1677; *TCWC 13369). One was recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 26 July 1997 (**DP, ME, LyB, PH, RGr, SH, RPe, MGa, NB**; 1997-119).

Manx Shearwater (*Puffinus puffinus*) (6). One found dead on North Padre Island, *Kenedy*, on 13 September 1997 (**BSa**, MC; 1997-147; TPRF 1630; *TCWC 13329).

Audubon's Shearwater (*Puffinus lherminieri*) (24). Up to five individuals were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 29 June 1996 (**DPe, BMc**; 1996-192; TPRF 1642). Two individuals were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 27 July 1996 (**DPe**; 1996-194; TPRF 1641). Up to 18 individuals were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 23 August 1997 (**ML, ME, GL**; 1997-141; TPRF 1629). Up to 16 were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 26 July 1997 (**DP, LyB, RGr, RPe**; 1997-120 TPRF 1637).

Leach's Storm-Petrel (*Oceanodroma leucorhoa*) (18). One was found on a pelagic trip out of Port O'Connor, *Calhoun*, on 29 June 1996 (**DPe, BMc**; 1996-195, TPRF 1643). One was found on North Padre Island, *Kleberg*, on 7 June 1997 (**TA**, GL; 1997-130; TPRF 1652; *TCWC 13327). Two were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 28 June 1997 (**DP, ME, BFr, RGr**; 1997-103). Two were recorded on a pelagic trip out of Port O'Connor, *Calhoun,* on 26 July 1997 (**DP, LyB, RGr**; 1997-122). One was found on a pelagic trip out of Port O'Connor, *Calhoun*, on 23 August 1997 (**JG, BFr, ML, GL, ME**; 1997-139).

Band-rumped Storm-Petrel (*Oceanodroma castro*) (19). Up to 11 individuals were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 29 June 1996 (**DPe, BMc**; 1996-191). Up to nine individuals were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 27 July 1996 (**DPe**; 1996-193; TPRF 1644). Up to 29 were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 28 June 1997 (**DP, ME, BFr, RGr**; 1997-102; TRPF 1634). Up to 43 were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 26 July 1997 (**DP, LyB, RGr, RPe**; 1997-121; TRPF 1634). Up to 23 were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 23 August 1997 (**GL, ML, BFr**; 1997-140; TPRF 1628).

Red-billed Tropicbird (*Phaethon aethereus*) (3). One was found on North Padre Island, *Kleberg*, on 7 June 1997 (**TA**; 1997-133; TPRF 1653; *TCWC 13339).

Jabiru (*Jabiru mycteria*) (7). A specimen, found dead, at La Sal Vieja, *Hidalgo*, in September 1972 (*UT Pan American) was located during 1998 (TPRF 1673).

One at Laguna Atascosa NWR, *Cameron*, on 11 August 1997 (**JMa**; 1997-138; TPRF 1656).

Brant (*Branta bernicla*) (17). One "American" Brant from the Katy Prairie, *Fort Bend*, in November 1971 (**KG**; 1998-43; TPRF 1563; *TCWC 13337). The specimen is a mount donated to the TCWC.

Eurasian Wigeon (*Anas penelope*) (26). A male at Anzalduas County Park, *Hidalgo*, from 12 February to 7 March 1997 (SB, SM1, AW or, HP, RWe; 1997-52; TPRF 1582).

Masked Duck (*Nomonyx dominica*) (52). One at Cullinan Park, *Fort Bend*, from 23 February to 4 April 1998 (TE, MGr, HB, PSh, MDo; 1998-30; TPRF 1594). A male on the Buena Vista Ranch, *Cameron*, from 16 April to 30 May 1998 (**TCo**; 1998-140; TPRF 1664). Three specimens were located in 1998, one from near Faysville, *Hidalgo*, on an unknown date (*UT Pan American; TPRF 1674), one from eastern *Hidalgo* on 23 December 1980 (*UT Pan American; TPRF 1675), and one from Shamrock, *Willacy*, on 23 November 1986 (*UT Pan American; TPRF 1676).

Northern Goshawk (*Accipiter gentilis*) (12). One 7 miles east of Sunray, *Moore*, on 3 February 1995 (**BFr, PH**; 1995-16). One at Grand Prairie, *Dallas*, on 18 March 1995 (**KN**; 1995-52). One on FM 3395 near the *Moore/Hutchinson* line on 20 February 1997 (**SW**; 1997-155). One at Buffalo Lakes NWR, *Randall*, on 1 November 1995 (**RWi**; 1998-137; TPRF 1663).

Short-tailed Hawk (*Buteo brachyurus*) (8). One at Santa Ana NWR, *Hidalgo*, on 15 February 1997 (**KT**; 1997-41).

Eskimo Curlew (*Numenius borealis*) (18). Two specimens were located in 1998, one collected in 1861 at an unspecified location (*MUM B.09395) and another where the location and date of collection are unknown (*AMNH 738187).

Curlew Sandpiper (*Calidris ferruginea*) (8). One at Port Arthur, *Jefferson*, on 24 November 1994 (**JWh**; 1994-186). One at Galveston, *Galveston*, from 30 April to 2 May 1997 (**PDH, JMc**, DP, ER; 1997-80; TPRF 1625).

Ruff (*Philomachus pugnax*) (21). One at Arlington, *Tarrant*, from 29 August to 4 September 1998 (**EW**, JWS, MDi, M&KW, SC, JMc, BSt, LH; 1998-122; TPRF 1618).

Red Phalarope (*Phalaropus fulicaria*) (25). One at Fort Hancock, *Hudspeth*, on 17 November 1996 (**CEa**; 1997-18). One at Arlington, *Tarrant*, from 10-15 September 1998 (**MR**, JWS, MDi, KR, SC, JMc, DHa; 1998-127; TPRF 1670).

Little Gull (*Larus minutus*) (29). An adult at Mountain Creek Lake, *Dallas*, from 25 December 1996 to 17 February 1997 (**KN**, JDu, M&KW, TT; 1997-43). A first-winter bird at Mountain Creek Lake, *Dallas*, on 28 November 1997 (**RGr, KN**; 1997-163). An adult at Mountain Creek Lake, *Dallas*, on 7 December 1997 (**RR**; 1997-174).

Black-headed Gull (*Larus ridibundus*) (15). One at Lake Wright Patman, *Bowie/Cass*, on 28 December 1996 (**CM**; 1997-3). One at Mountain Creek Lake, *Dallas*, on 9 February 1997 (**KN**; 1997-49). One at Cooper Lake, *Delta/Hopkins*, from 26 October 1997 to 14 February 1998 (**MW**, RGr, BFr; 1997-162; TPRF 1596). One at Arlington, *Tarrant*, from 24 January to 23 March 1998 (**JMc**, MGa, MR, JWS, RGu, PSu, GL, MW, MO; 1998-16; TPRF 1597). One at Arlington, *Tarrant*, from 1–21 March 1998 (**MR**, MW; 1998-42; TPRF 1608).

California Gull (*Larus californicus*) (48). An adult at Galveston, *Galveston*,

from 1 December 1996 to mid February 1997 (**DP**, JMc, RPe; 1997-61; TPRF). An adult at Mountain Creek Lake, *Dallas*, on 25 December 1996 (**KN**; 1997-48). Another adult was at San Antonio, *Bexar*, from 7 December 1996 to 3 January 1997 (**WS**; 1997-15; TPRF 1572). Up to four at Corpus Christi, *Nueces*, from 14 February to 22 March 1997 (**WS**, J&BRi; 1997-66; TPRF 1616). An adult was at El Paso, *El Paso*, on 21 January 1998 (**BZ**; 1998-37; TPRF 1593).

Thayer's Gull (*Larus thayeri*) (39). A first winter bird at Galveston, *Galveston*, from 25 November to 28 December 1993 (**RU**, DP; 1994-56; TPRF 1647). An adult was at Corpus Christi, *Nueces*, from 28 February to 8 March 1996 (**GS**, WS; 1996-31; TPRF 1621). A first winter bird was at San Antonio, *Bexar*, on 3 January 1997 (**WS**; 1997-14; TPRF 1577). A first winter bird was at Corpus Christi, *Nueces*, from 25 January to 5 April 1997 (**WS**, J&BRi; 1997-64; TPRF 1617). Another first winter bird was at Clint, *El Paso*, on 28 January 1997 (**BZ**; 1997-45; TPRF 1561). A first winter bird was at El Paso, *El Paso*, from 28 January to 2 February 1997 (**JPa**, BZ; 1997-53; TPRF 1561). Another first winter bird was at Brownsville, *Cameron*, from 22 February to 1 March 1997 (**BMc, WS**; 1997-65).

Lesser Black-backed Gull (*Larus fuscus*) (87). One adult at Corpus Christi, *Nueces*, from 8–30 March 1996 (**WS**; 1996-87; TPRF 1626). One adult at Galveston, *Galveston*, on 16 November 1996 (**JSt**; 1996-168; TPRF 1645). An adult at Laguna Atascosa NWR, *Cameron*, on 30 December 1996 (**CDu**; 1997-27). Another adult was at Beaumont, *Jefferson*, on 30 December 1996 (**JWh**; 1997-62). Up to five were at Brownsville, *Cameron*, from 4 January to 1 March 1997 (**BRo**, SMl, BMc; 1997-32). Up to five at Corpus Christi, *Nueces*, from 25 January to 1 April 1997 (**WS**, J&BRi, GL; 1997-69; TPRF 1615). A first winter bird was in *El Paso* on 28 January 1997 (**BZ**; 1997-44; TPRF 1581).

Glaucous Gull (*Larus hyperboreus*) (73). One in *Jefferson* on 15 April 1995 (**CEa**; 1995-79). One at East Beach and Bolivar Flats, *Galveston*, from 16 November 1996 to 29 March 1997 (**JSt**, JWh, DR, DP, BB, JRa, PG, CDu, DT; 1996-167 & 1997-12, TPRF 1584).

Great Black-backed Gull (*Larus marinus*) (28). One at Port Aransas, *Nueces*, on 27 September 1988 (**TA**; 1996-187; TPRF 1658). One at Mustang Island, *Nueces*, on 9 November 1996 (**JM**; 1997-107; TPRF 1659). One at Brownsville, *Cameron*, on 11 February 1997 (**SMl**; 1997-51).

Kelp Gull (*Larus dominicanus*) (3). One at Padre Island National Seashore, *Kleberg*, on 4 May 1996 (**WS**; 1996-88; TPRF 1627).

Black-legged Kittiwake (*Rissa tridactyla*) (66). One at Midland, *Midland*, from 16–19 December 1997 (**PaD**, LEG, SO, FW, JMc; 1998-8; TPRF 1592). One first winter bird at Possum Kingdom Lake, *Young*, on 28 December 1996 (**KN**; 1997-47). One at Bolivar Peninsula, *Galveston*, on 25 April 1997 (JRa, MRR; 1997-111). One at Calaveras Lake, *Bexar*, on 26 November 1998 (**WS, MR, J&BRi**; 1998-143; TPRF 1609).

Sabine's Gull (*Xema sabini*) (49). One at Greenville City Lake, *Hunt*, from 18–19 November 1997 (**MW**, RGr, CEA, MAu; 1997-161; TPRF 1574). One found on a pelagic trip out of Port O'Connor, *Calhoun*, on 20 September 1997 (**ME, RGr, JA**; 1997-145). One at Fort Bliss, *El Paso*, on 11 September 1998 (**BZ**; 1998-136; TPRF 1672). Up to five at Lake Lewisville, *Denton*, from 11–17 Sep-

tember 1998 (RGr, JWS, BSt, LH; 1998-128; TPRF 1613). One at Tornillo Reservoir, *El Paso*, from 18–20 September 1998 (**BZ**, JPa; 1998-133; TPRF 1671).

Arctic Tern (*Sterna paradisaea*) (2). An adult at McNary Reservoir, *Hudspeth*, from 5–7 June 1997 (**JPa**, BJ; 1997-98; TPRF 1614). One immature bird on a pelagic trip out of Port O'Connor, *Calhoun*, on 26 July 1997 (**DP, ME, LyB, PH, RGr, SH, RPe, MGa, NB, TFe, MGr**; 1997-117; TPRF 1636). These represent the first accepted records for the state.

Bridled Tern (*Sterna anaethetus*) (21). Three were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 29 June 1996 (**DP, BMc**; 1996-196; TPRF 1646). Several individuals were observed on a pelagic trip out of Port O'Connor, *Calhoun*, on 27 July 1996 (**DP**; 1996-197, TPRF 1640). Over 100 were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 28 June 1997 (**DP, ME, BFr, RGr, AWor**; 1997-106; TPRF 1635). Three were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 26 July 1997 (**DP, LyB, RGr**; 1997-123; TPRF 1639). Up to 14 individuals were recorded on a pelagic trip out of Port O'Connor, *Calhoun*, on 23 August 1997 (**BFr, ML, GL**; 1997-139).

Mangrove Cuckoo (*Coccyzus minor*) (7). One at Quintana, *Brazoria*, on 11 May 1997 (**DV**, MGr; 1997-90; TPRF 1665).

Dark-billed Cuckoo (*Coccyzus melacoryphus*) (1). One at Weslaco, *Hidalgo*, on 10 February 1986 (**CC**; 1995-115; TPRF 1600; *LSUMZ). This represents the first Texas and United States record.

Black Swift (*Cypseloides niger*) (1). A group of four were in the Franklin Mountains, *El Paso*, on 22 August 1985 (**JDo**; 1994-172). This represents the first accepted record for Texas, but since no photographs, specimens or sound recording were obtained, Black Swift is placed on the Presumptive List.

White-collared Swift (*Streptoprocne zonaris*) (4). One at Brownsville, *Cameron*, on 18 May 1997 (**BSu**; 1997-101; TPRF 1666).

Green Violet-ear (*Colibri thalassinus*) (23). One at Bastrop SP, *Bastrop*, on 5 July 1996 (**BFr**; 1996-89). One near Henderson, *Rusk*, from 13–17 June 1997 (**HDG**; 1997-113; TPRF 1657).

Green-breasted Mango (*Anthracothorax prevostii*) (6). One at Corpus Christi, *Nueces*, from 3–8, and 21 November to 21 December 1997 (**J&VS**, CW, PBe, PH, BSB, KBa, RGr, WS, GS; 1997-150; TPRF 1632).

Broad-billed Hummingbird (*Cynanthus latirostris*) (26). A male at Fort Davis, *Jeff Davis*, from 23 May to 10 July 1998 (GL; 1998-81; TPRF 1573).

White-eared Hummingbird (*Hylocharis leucotis*) (9). One male at Davis Mountains Resort, *Jeff Davis*, from 31 July to 23 August 1997 (**M&ME**, GL, CSe, DB, ML, BFr; 1997-125; TPRF 1649).

Berylline Hummingbird (*Amazilia beryllina*) (2). One at Davis Mountains Resort, *Jeff Davis*, from 17 August to 4 September 1997 (**M&ME**, KBr, LHe, CH, CR, GL, MAd, ML, CSe, DB, JWS, RGr; 1997-137; TPRF 1661). This represents the first photographed record for Texas and places this species on the State List.

Costa's Hummingbird (*Calypte costae*) (6). One at Rio Grande Village, BBNP, *Brewster*, on 26 April 1997 (**BJ, HPL**; 1997-105).

Lewis's Woodpecker (*Melanerpes lewis*) (34). One at Midland, *Midland*, from 28 December 1996 to 1 January 1997 (**BLu, GP**; 1997-16). One, possibly more, near Bakersfield, *Pecos*, from 2–31 January 1997 (**MC**, RBa, FB; 1997-24). One at San Angelo, *Tom Green*, from 11 March to 28 April 1997 (TM; 1997-85).

Red-breasted Sapsucker (*Sphyrapicus ruber*) (1). One adult at McGregor, *McLennan*, on 27 February 1996, (**AG, FB**; 1997-175; TPRF 1586). This represents an amazing first record for Texas. Lockwood and Shackelford (1998) provide details of this unexpected record.

Sulphur-bellied Flycatcher (*Myiodynastes luteiventris*) (8). One at Pine Canyon, BBNP, *Brewster*, on 28 July and 10 August 1997 (**GL, CSe**, BFr; 1997-124; TPRF 1648).

Tropical Kingbird (*Tyrannus melancholicus*) (13). Two at Harlingen, *Cameron*, from 2–3 February 1997 (**OC**; 1997-33). One at Cottonwood Campground, BBNP, *Brewster*, on 17 June 1997 (**RT**; 1997-116).

Thick-billed Kingbird (*Tyrannus crassirostris*) (13). One at Rio Grande Village, BBNP, *Brewster*, from 11–17 June 1997 (**GC**, JWi; 1997-108).

Fork-tailed Flycatcher (*Tyrannus savana*) (11). Two at Austin, *Travis*, from 6–7 May 1997 (**ML**, BFr, AD; 1997-79; TPRF 1624). One near Anahuac NWR, *Chambers*, on 17 May 1997 (**CD**; 1997-154). Another near Anahuac NWR, *Chambers*, on 13 September 1997 (**DS, SK**; 1997-144).

Rose-throated Becard (*Pachyramphus aglaiae*) (22). A male at Santa Ana NWR, *Hidalgo*, from 30 July to 3 October 1997 (**TB**, EH, DJ; 1997-134; TPRF 1660).

Yellow-green Vireo (*Vireo flavoviridis*) (16). One at Sarita, *Kenedy*, on 20 April 1997 (**AJ, JBa**; 1997-99). One at the Kenedy Ranch, *Kenedy*, 11 May 1997 (**BFr, DS**; 1997-83).

Black-whiskered Vireo (*Vireo altiloquus*) (12). One at High Island, *Galveston*, on 10 May 1997 (**DV, T&PF, BB, JCa**; 1997-95).

Clark's Nutcracker (*Nucifraga columbiana*) (13). One at Midland, *Midland*, on 28 December 1996 (**BLu**; 1997-13).

Clay-colored Robin (*Turdus grayi*) (51). Two at Fronton, *Starr*, from 23 April to 8 June 1997 (**BFr**, ML, DHe; 1997-75). Up to three at Bentsen-Rio Grande SP, *Hidalgo*, from 14 Nov 1997 to 3 April 1998 (CEa, CSe, GL, ML, M&AC, PSv, GM, MGr, FB; 1997-169; TPRF 1598). One at Corpus Christi, *Nueces*, from 4 December 1997 to 11 January 1998 (M&AC, E&NA; 1998-45; TPRF 1575). Up to three at McAllen, *Hidalgo*, from 4–27 April 1998 (**JG, BZ**, PBa, J&BRi, RBe, TL, JKi, BMc, M&AC; 1998-52; TPRF 1583).

Rufous-backed Robin (*Turdus rufopalliatus*) (5). One near Santa Elena Canyon, BBNP, *Brewster*, on 14 February 1997 (**MP**, 1997-42).

Bohemian Waxwing (*Bombycilla garrulus*) (8). One at Lubbock, *Lubbock*, on 17 November 1996 (**JHa**; 1997-26). One at Texline, *Dallam*, on 12 January 1997 (**JO**; 1997-38; TPRF 1590). One 8 miles north of Rosenberg, *Fort Bend*, on 7 February 1997 (**SW**, 1997-30).

Red-faced Warbler (*Cardellina rubrifrons*) (16). One at Boot Canyon, BBNP, *Brewster*, on 23 April 1997 (**AP**; 1997-74).

Slate-throated Redstart (*Myioborus miniatus*) (2). One in the Davis Mountains, *Jeff Davis*, on 2 August 1997 (**JKa, GL, CSe, FJ**; 1997-126; TPRF). This represents the first photographed record for Texas and places this species on the State List.

Rufous-capped Warbler (*Basileuterus rufifrons*) (12). One at Lake Amistad, *Val Verde*, from 27 December 1997 to 6 March 1998 (**CW, SS**, WS, J&BRi, PSv; 1998-44; TPRF 1595).

Baird's Sparrow (*Ammodramus bairdii*) (25). One at Rio Grande Village,

BBNP, *Brewster*, from 4–6 May 1996 (TG, AB, BG; 1996-74). One five miles north of Balmorhea, *Reeves*, on 21 December 1996 (**KBr**; 1997-20).

Golden-crowned Sparrow (*Zonotrichia atricapilla*) (20). One along RR 1832, *Jeff Davis*, on 28 November 1995 (**BFr, PH**; 1995-150). One at El Paso, *El Paso*, from 16–19 November 1997 (**JPa**, BZ; 1997-164).

Yellow-eyed Junco (*Junco phaeonotus*) (7). One at Guadalupe Mountains N.P., *Culbertson*, on 25 November 1996 (**T&PF**; 1997-91). One at El Paso, *El Paso*, on 13 January 1997 (**MLA**; 1997-56).

Blue Bunting (*Cyanocompsa parellina*) (20). One female at Laguna Atascosa NWR, *Cameron*, on 16 November 1996 (**LoB**; 1996-153). One adult male and one adult female, possibly others, at Bentsen-Rio Grande SP, *Hidalgo*, 30 November 1996 to 29 March 1997 (**JHe**, OC, KE, BRo, SMl, LSp, J&PCu, BeF, RGr, D&ES, JW, RD, BMc, KP, BLy; 1996-172; TPRF 1579). A male at Santa Margarita Ranch, *Starr*, on 15 February 1997 (**OC, DJ**; 1997-55). Up to four at Bentsen-Rio Grande SP, *Hidalgo*, from 28 November 1997 to 15 March 1998 (BMc, RA, ML, MO, BeF, GL, M&AC, GM, J&BRi, PSv, MQ, SB, MGr, FB, DB; 1998-9, TPRF 1588; *TCWC 13335).

Shiny Cowbird (*Molothrus bonariensis*) (5). One male at Port O'Connor, *Calhoun*, on 19 April 1997 (**PH**; 1997-73).

Common Redpoll (*Carduelis flammea*) (5). Ten at Davis Mountains Resort, *Jeff Davis*, from 2–26 December 1996 (**C&SF**; 1997-19).

Lawrence's Goldfinch (*Carduelis lawrencei*) (12). Four at Terlingua Ranch, *Brewster*, on 22 October 1996 (**JHi**; 1997-17). Ten at Pinto Canyon, *Presidio*, from 26 January to 13 February 1997 (**MAd**, AWor; 1997-34). Up to 23 at El Paso, *El Paso*, from 19–26 January 1997 (**JPa**, JZ, BZ; 1997-22; TPRF 1585).

UNACCEPTED

A number of factors may contribute to a record being denied acceptance. It is quite uncommon for a record to not be accepted because the bird was obviously misidentified. More commonly, a record is not accepted because the material submitted was incomplete, insufficient, superficial, or just too vague to properly document the reported occurrence while eliminating *all* other similar species. Also, written documentation or descriptions prepared *entirely from memory* weeks, months, or years after a sighting are seldom voted on favorably. It is important that the simple act of not accepting a particular record should by no means indicate that the TBRC or any of its members feels the record did not occur as reported. The non-acceptance of any record simply reflects the opinion of the TBRC that the documentation, as submitted, did not meet the rigorous standards appropriate for adding data to the formal historical record. The TBRC makes every effort to be as fair and objective as possible regarding each record. If the committee is unsure about any particular record, it prefers to err on the conservative side and not accept a good record rather than validate a bad one. All records, whether accepted or not, remain on file and can be resubmitted to the committee if additional substantive material is presented.

Pacific Loon (*Gavia pacifica*). One (1996-86) at Lake Balmorhea, *Reeves*, on 17 April 1996.

Red-necked Grebe (*Podiceps grisegena*). One (1994-181) at Corpus Christi, *Nueces*, from 19–20 November 1994.

Band-rumped Storm-Petrel (*Oceanodroma castro*). Seven (1996-93) at Surfside, *Brazoria*, on 6 May 1996.

Glossy Ibis (*Plegadis falcinellus*). One (1995-32) at Anahuac NWR, *Chambers*, on 27 January 1995.

Greater Flamingo (*Phoenicopterus ruber*). One (1995-27) at Laguna Atascosa NWR, *Cameron*, from 14 February 1995 through at least the spring of 1998. Photographs examined by the committee strongly suggest that this individual was a member of the African subspecies of Greater Flamingo.

American Black Duck (*Anas rubripes*). One (1997-50) at Lubbock, *Lubbock*, from 13 January to 5 May 1997. The committee expressed concerns about the origin of this bird. It had an oversized band on one leg and the condition of its flight feathers suggested that it might have been in captivity.

Eurasian Wigeon (*Anas penelope*). One (1996-76) at Lake Amistad, *Val Verde*, from 2–5 February 1996. One (1997-29) at Denison, *Grayson*, from 4 January - 23 March 1997. The bird present at Denison show plumage characters that strongly suggested a hybrid with *A. americana*. Potential hybridization could not be eliminated in the other record.

Broad-winged Hawk (*Buteo platypterus*). One (1997-37) at Lake Worth, *Tarrant*, on 21 December 1996. Broad-winged Hawk is not a review species, however, a member of the committee asked that this record be reviewed.

Short-tailed Hawk (*Buteo brachyurus*). One (1997-11) at Santa Ana NWR, *Hidalgo*, on 6 September 1996.

Swainson's Hawk (*Buteo swainsoni*). Two (1997-157) at Laguna Atascosa NWR, *Cameron*, on 5 January 1997. Details from December-January reports of Swainson's Hawk are requested for review by the TBRC as a Review List B species. There are very few well-documented midwinter records of this species from Texas.

Rough-legged Hawk (*Buteo lagopus*). One (1997-146) at Corpus Christi, *Nueces*, on 27 September 1997. Rough-legged Hawk is not a review species, however, a member of the committee asked that this record be reviewed.

Northern Jacana (*Jacana spinosa*). One (1997–46) at Pharr, *Hidalgo,* on 4 March 1997.

Semipalmated Sandpiper (*Calidris pusilla*). One (1997–58) at Laguna Atascosa NWR, *Cameron,* on 10 January 1997. Details from December–January reports of Semipalmated Sandpiper are requested for review by the TBRC as a Review List B species. There are no well-documented midwinter records of this species from Texas.

Sharp-tailed Sandpiper (*Calidris acuminata*). One (1996-113) at San Antonio, *Bexar,* on 12 September 1996.

Purple Sandpiper (*Calidris maritima*). Two (1997-82) on West Galveston Island, *Galveston,* on 19 April 1997.

Black-headed Gull (*Larus ridibundus*). One (1997-173) at Rockport, *Aransas,* on 1 April 1997.

Heermann's Gull (*Larus heermanni*). One (1997-168) at Tornillo Reservoir, *El Paso,* on 5 April 1997.

Mew Gull (*Larus canus*). One (1997-63) at Galveston, *Galveston,* on 26 January 1997.

California Gull (*Larus californicus*). One (1996-115) at Lake Tawakoni, *Rains,*

from 31 May to 11 June 1996. One (1997-23) at White Rock Lake, *Dallas,* on 17 January 1997. Two (1997-94) at Crystal Beach, *Galveston,* on 12 April 1997. Two (1996-91) at Galveston, *Galveston,* on 19 April 1996. One (1997-104) at Galveston, *Galveston*, on 30 April 1997. One (1997-110) at Balmorhea Lake, *Reeves*, on 29 April 1997. Two (1997-115) at Bolivar Flats, *Galveston*, from 25 May to 12 July 1997.

Iceland Gull (*Larus glaucoides*). One (1995-33) from *Jefferson* on 18 December 1994.

Glaucous Gull (*Larus hyperboreus*). One (1996-12) at Boca Chica, *Cameron*, on 28 December 1995.

Kelp Gull (*Larus dominicanus*). One (1996-81) at Matagorda Island, *Calhoun*, on 16 April 1996.

Ruddy Ground-Dove (*Columbina talpacoti*). One (1997-57) at Bentsen-Rio Grande SP, *Hidalgo*, on 21 March 1997.

Blue Ground-Dove (*Claravis pretiosa*). Two (1997-170) at Salineo, *Starr*, on 19 November 1997. Although the description was suggestive, the committee did not think that the details were sufficient to document a first United States record.

Vaux's Swift (*Chaetura vauxi*). One (1997-149) at El Paso, *El Paso*, on 19 October 1997. Although the details provided were very suggestive, documenting this species may require a specimen and the committee remains conservative where this species is concerned.

White-eared Hummingbird (*Hylocharis leucotis*). One (1995-87) at Laguna Meadows, BBNP, *Brewster*, on 24 June 1995.

Costa's Hummingbird (*Calypte costae*). One (1995-165) at El Paso, *El Paso*, on 4 January 1995.

Lineated Woodpecker (*Dryocopus lineatus*). One (1997-54) at Falcon Heights, *Starr*, from 23–26 February 1997. The written details were very suggestive, however the committee felt that the submitted materials were not strong enough to document a first U.S. record.

Dusky-capped Flycatcher (*Myiarchus tuberculifer*). One (1996-37) at Sabal Palm Grove, *Cameron*, on 1 February 1996. One (1997-112) at Pine Canyon, BBNP, *Brewster*, on 10 May 1997.

Thick-billed Kingbird (*Tyrannus crassirostris*). One (1997-76) in *Zavala* on 2 April 1997.

Black-capped Vireo (*Vireo atricapillus*). One (1997-156) near Uvalde, *Uvalde*, on 30 December 1996. Black-capped Vireo is not a review species, however, a member of the committee asked that this record be reviewed. There are no winter records for this species in the United States.

Yellow-green Vireo (*Vireo flavoviridis*). One (1995-123) at Falcon Dam, *Starr*, on 13 May 1972.

Black-capped Chickadee (*Poecile atricapillus*). Four (1997-96) in *Dallas* from 10 March to at least May 1997.

Black-capped Gnatcatcher (*Polioptila nigriceps*). One (1997-136) at Rio Grande Village, BBNP, *Brewster*, on 8 August 1997. There are no accepted records for this species from Texas.

Varied Thrush (*Ixoreus naevius*). One (1996-67) at the Turkey Creek Unit, Big Thicket National Preserve, *Hardin*, on 6 April 1996.

Aztec Thrush (*Ridgwayia pinicola*). One (1997-151) at Longhorn Cavern SP, *Burnet*, in 1991 or 1992.

Slate-throated Redstart (*Myioborus miniatus*). One (1997-72) in northwestern *Bexar* on 17 April 1997. One (1997-89) at Cedar Hill SP, *Dallas*, on 27 May 1997.

Gray-crowned Yellowthroat (*Geothlypis poliocephala*). One (1996-23) at Santa Ana NWR, *Hidalgo*, on 27 Dec 1993. One (1996-14) at San Ygnacio, *Zapata*, from 31 December 1995 to 27 May 1996.

Blue-black Grassquit (*Volatinia jacarina*). One (1997-109) at Santa Ana NWR, *Hidalgo*, on 6 December 1996.

Sage Sparrow (*Amphispiza belli*). One (1997-147) at Rio Grande City, *Starr*, on 14 September 1996. Sage Sparrow is not a review species, however, a member of the committee asked that this record be reviewed.

Baird's Sparrow (*Ammodramus bairdii*). One (1996-132) at Big Bend NP, *Brewster*, on 5 May 1996. One (1997-93) at Davis Mountains SP, *Jeff Davis*, on 30 November 1996. One (1997-21) at Lake Balmorhea, *Reeves*, on 21 December 1996.

Shiny Cowbird (*Molothrus bonariensis*). One (1997-81) at Fort Worth, *Tarrant*, on 3 May 1997. One (1997-153) at Goose Island SP, *Aransas*, on 9 November 1997.

Common Redpoll (*Crduelis flammea*). One (1997-92) in the Davis Mountains, *Jeff Davis*, on 30 November 1996. Two (1997-171) north of La Joya, *Hidalgo*, 6–13 November 1997.

LITERATURE CITED

AMERICAN ORNITHOLOGISTS' UNION. 1998. Check-list of North American birds, 7th ed. American Ornithologists' Union.

DITTMANN, D. L., AND G. W. LASLEY. 1992. How to document rare birds. Birding 24:145–159.

HAYNIE, C. B. 1998. Texas bird records committee report for 1995. Bull. of the Tex. Ornith.

LOCKWOOD, M. L., AND C. E. SHACKELFORD. 1998. The occurrence of Red-breasted Sapsucker and suspected hybrids with Red-naped Sapsucker in Texas. Bull. of the Tex. Ornith. Soc. 31:2–6.

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USE OF DEER-PROOF FENCE POSTS BY CAVITY NESTING BIRDS IN SOUTH TEXAS

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ABSTRACT.—Extensive brush control activities in the South Texas Plains have eliminated many suitable cavity nesting trees. Increased interest in white-tailed deer management has resulted in the construction of deer-proof fences, some with creosote-treated posts. Surveys revealed cavities in treated fence posts were readily used by species, such as Golden-fronted Woodpeckers and Tyrant Flycatchers, as nesting sites. Although creosote-treated fence posts are readily used by cavity nesters, further investigation into the toxicity of creosote is warranted.

In recent history, south Texas rangelands have changed from a grassland savanna to a dense thorn woodland (Archer et al. 1988). In the last 50 years, ranchers have used brush management techniques in an attempt to revert these brushlands back to grasslands to increase livestock production. Brush control has been conducted with various mechanical, chemical, and pyric treatments. Mechanical treatments, such as root plowing, can be devastating to the woody plant community (Allison and Rechenthin 1956) and result in the elimination of suitable cavity nesting sites.

Landowner revenues in south Texas have become increasingly dependent upon wildlife related enterprises, with prices for white-tailed deer (*Odocoileus virginianus*) hunts in excess of $3,500 (Payne et al. 1987). As a result, deer management activities have increased, with many landowners erecting deer-proof fences (high-fences) to contain deer within their properties. South Texas land-holdings under high-fence is estimated at 728,745 ha (J. Rutledge pers. comm.). Many high-fences have been constructed with treated lumber posts, which may serve as suitable nesting sites for cavity nesting birds. Damage and use of creosote treated utility poles and fence posts by woodpeckers in south Texas is extensive (Dennis 1967), and woodpeckers use creosote-treated utility poles as nesting sites (Schemnitz 1964, Rumsey 1970). Secondary cavity nesting birds also readily use nest boxes (McComb and Noble 1981, Pogue and Carter 1995); however, use of fence posts and other wooden structures as nesting sites in south Texas is not well documented. The objective of our survey was to investigate the use of deer-proof fencing posts as nesting sites by cavity nesting birds in south Texas.

The survey was conducted on the 6,154 ha Chaparral Wildlife Management Area in the western South Texas Plains (Hatch et al. 1990). Climate is characterized by hot summers and mild winters with an average daily minimum winter (January) temperature of 5°C, an average daily maximum summer (July) temperature of 37°C, and a growing season of 249 to 365 days (Stevens and Arriaga 1985). Average precipitation is 55 cm with peaks in late spring (May–June) and early fall (September–October). Topography is nearly level to gently sloping and elevation ranges between 168 and 180 m. Plant communities are dominated by the Mesquite (*Prosopis glandulosa*)-Granjeno (*Celtis pallida*) association (Mc-

Lendon 1991). Mesquite is the dominant woody species found on the area. Other common shrubs include granjeno, brasil (*Condalia hookeri*), and several species of acacia (*Acacia spp.*). Prominent herbaceous species include Lehmann lovegrass (*Eragrostis lehmanniana*), an introduced perennial, hooded windmillgrass (*Chloris cucullata*), hairy gramma (*Bouteloua hirsuta*), partridge pea (*Chamaecrista fasciculata*), and croton (*Croton spp.*). Prior to 1969, mechanical brush control treatments such as chaining, roller-chopping, and root plowing were applied to about 70% of the study area. Since 1969, no mechanical or chemical treatments have been applied to the study site.

In 1983, a deer-proof fence was installed around the 38 km perimeter of the study area. The fence was constructed of creosote-treated pine posts, metal T-posts, net wire, and barbed wire. Wooden posts were placed at intervals of about 32 m. Wooden posts extended an average of 2.4 m above the soil surface and had an average diameter of 22 cm.

A survey of 1,468 wooden posts was conducted during July 1990. Each post was surveyed once. All excavated holes were recorded. Holes were classified as nest cavities if the hole extended into the heart of the post and had a 90° downward turn. Occupancy of nest cavities was determined from observed eggs or young, an adult bird entering or exiting the cavity upon approach, an adult bird flushed from the cavity, or the presence of fresh nesting material in the cavity. Birds (National Geographic Society 1987) and eggs (Harrison 1979) were identified using standard field guides.

RESULTS

Forty-five percent of surveyed fence posts contained one or more excavated holes (938 holes in 657 posts). Nineteen percent of surveyed posts contained one or more nest cavities (312 nest cavities in 281 posts). Twenty-two percent of nest cavities showed signs of current or recent occupation. Nine nest cavities contained fresh nesting material although no adult birds were observed entering or exiting the cavity. Golden-fronted Woodpeckers (*Melanerpes aurifrons*) were observed exiting or entering nine nest cavities that did not contain eggs or young. Forty-nine nest cavities had either eggs or young present. Golden-fronted Woodpeckers occupied 53% of the active nest cavities containing eggs or young (Table 1). Other species occupying nest cavities were Ladder-backed Woodpecker (*Picoides scalaris*), Bewick's Wren (*Thryomanes bewickii*), and Tyrant Flycatchers (*Myiarchus spp.*).

DISCUSSION

Dennis (1967) reported Ladder-backed Woodpeckers were responsible for most damage and nest cavity excavations in creosote-treated fence posts. Most nest cavities in our survey were occupied by Golden-fronted Woodpeckers; however, the species of woodpecker responsible for the initial excavations was unknown.

Although our survey was conducted late in the nesting season, the data show a fair representation of those species prone to use creosote-treated post in the South Texas ecosystem. Surveys during peak nesting may reveal more extensive use by those species shown to use creosote-treated posts as nesting sites.

Based on visual inspections, many posts containing nesting cavities appeared to deteriorate at a more rapid rate than expected, indicating inferior quality and

Table 1. Number of occupied nest cavities containing eggs or young, number of eggs present, and number of young present by species in nest cavities in deer-proof fence posts on the Chaparral Wildlife Management Area, Dimmit and LaSalle Counties, Texas, 1990.

Species	Cavities occupied	Eggs present	Young present
Golden-fronted Woodpecker			
Melanerpes aurifrons	27	44	31
Ladder-backed Woodpecker			
Picoides scalaris	4	11	1
Bewick's Wren			
Thryomanes bewickii	5	11	5
Ash-throated Flycatcher			
Myiarchus cinerascens	11	30	6
Brown-crested Flycatcher			
Myiarchus tyrannulus	2	7	3
Great Crested Flycatcher			
Myiarchus crinitus	1	2	2
Tyrant Flycatcher			
Myiarchus sp.	1	4	

the need for replacement of about one in every four posts to maintain the integrity of the fence. Old posts with active nest cavities and posts suitable for nesting sites were retained, and new posts installed adjacent to posts needing replacement.

Creosote-treated posts are toxic to eggs and hatchling birds resulting in nest failures (Rumsey 1970). However, weathering may reduce or eliminate the toxicity of creosote fumes making treated posts suitable nesting sites. Although treated wooden deer-proof fence posts appear to provide suitable nesting sites for cavity nesting species, the extent of creosote treatment may determine nest success by cavity nesting birds. As a result of creosote toxicity to eggs and young, longer time periods may be necessary before successful nesting can occur in posts treated with high levels of creosote.

Although portions of the study area received various mechanical brush control treatments in the past, natural cavities are relatively common and were not considered a limiting factor resulting in use of deer-proof fence posts by birds. Cavity-nesting species may be more dependent on artificial structures, such as deer-proof fence posts, in areas subjected to broad and recent brush control. It is recommended that landowners erecting deer-proof fences use treated wooden posts to provide potential nesting sites for cavity nesting birds. Most creosote-treated posts are treated with 159 kg of creosote per m^3 (B. Gee, pers. comm.). Posts with light creosote treatments (<159 kg/m^3) may further benefit cavity nesting birds. Further investigation of the time necessary for the toxicity of creosote treated posts to reach levels safe for eggs and young, as well as the toxicity of other wood preservative treatments needs to be addressed.

LITERATURE CITED

ALLISON, D. V., AND C. A. RECHENTHIN. 1956. Root plowing proved best method of brush control in south Texas. J. Range Manage. 9:130–133.

ARCHER, S., C. SCIFRES, C. R. BUSSHAM, AND R. MAGGIO. 1988. Autogenic succession in a subtropical savanna: conversion of a grassland to thorn woodland. Ecol. Monogr. 58:111–127.

DENNIS, J. V. 1967. Damage by golden-fronted and ladder-backed woodpeckers to fence posts and utility poles in south Texas. Wilson Bull. 79:75–88.

HARRISON, H. H. 1979. A field guide to western bird's nests. Houghton Mifflin Company. Boston, MA.

HATCH, S. L., K. N. GANDHI, AND L. E. BROWN. 1990. Check list of the vascular plants of Texas. Tex. Agric. Exp. Sta. Misc. Pub. MP-1655.

MCCOMB, W. C., AND R. E. NOBLE. 1981. Nest-box and natural-cavity use in three mid-south forest habitats. J. Wildl. Manage. 45:93–101.

MCLENDON, T. 1991. Primary description of the vegetation of south Texas exclusive of coastal saline zones. Texas J. Sci. 43:13–32.

NATIONAL GEOGRAPHIC SOCIETY. 1987. Field guide to the birds of North America. National Geographic Society. Washington D. C.

PAYNE, J. M., R. D. BROWN, AND F. S. GUTHERY. 1987. Wild game in Texas. Rangelands 9:207–211.

POGUE, D. W., AND W. A. CARTER. 1995. Breeding biology of secondary cavity-nesting birds in Oklahoma. Southwest. Nat. 40:167–173.

RUMSEY, R. L. 1970. Woodpecker nest failures in creosoted utility poles. Auk. 87:367–369.

SCHEMNITZ, S. D. 1964. Nesting association of pileated woodpecker and yellow-shafted flicker in a utility pole. Wilson Bull. 76:95.

STEVENS, J. W., AND D. ARRIAGA. 1985. Soil survey of Dimmit and Zavala Counties, Texas. U. S. Department of Agriculture.

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SHORT COMMUNICATIONS

OBSERVATIONS OF SURVIVAL BY A GOLDEN-FRONTED WOODPECKER WITH AN INJURED TONGUE

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Members of the woodpecker family possess a number of structural bill and tongue adaptations that allow them to readily exploit subsurface food items (Burt 1930, Short 1982). While some generalizations may be made regarding these modifications, many are variable among species depending upon the foraging modes most frequently employed (Wallace 1974). Tongues specifically are often highly extensible, barbed, and covered with a thick, sticky saliva. These characteristics allow the tongue to be used to reach into crevices to extract prey items from deep within a foraging substrate (Winkler et al. 1995). The tongue of the Red-bellied Woodpecker (*Melanerpes carolinus*), which can be extended more then 35 mm beyond the tip of the bill (Williams 1977), is efficiently used to explore natural cracks to the extent that almost no time is spent excavating (Kilham 1963). Kujawa (1984) suggested the same point for the morphologically similar Golden-fronted Woodpecker (*M. aurifrons*).

While not the dominant mode of foraging for Golden-fronted Woodpeckers, probing with the tongue is used consistently year-round (Selander and Giller 1959, Askins 1981, Kujawa 1984), and may constitute over 20% of all foraging seasonally (Kujawa 1984). For this reason, damage to the tongue could be detrimental to the survival of an individual. Here I report on observations over a period of nine months of a female Golden-fronted Woodpecker with a tongue visibly broken to the extent that it was not usable while foraging.

I observed this bird from July 1995 through April 1996 during a study of Golden-fronted Woodpecker territoriality in west-central Texas. The study area was located at San Angelo State Park, Tom Green County, Texas and included the North Concho River Day Use Area and Bald Eagle Creek Campground. Vegetation was predominantly a pecan (*Carya illinoinensis*) and mesquite (*Prosopis glandulosa*) dominated parkland in which the understory was controlled by regular clearing and mowing. A thin band of riparian woodland was located along the banks of the North Concho River (<10 m on either side of the river). This relatively dense woodland was dominated by hackberry (*Celtis laevigata*), western soapberry (*Sapindus saponaria*) and pecan trees. Observations were made with 7 × 35 binoculars or a 25 × spotting scope from distances of 10 to 100 m.

It is unknown how the individual's tongue was injured, but it appeared to be broken such that about 2 cm of the tongue tip projected permanently outward at the base of the bill horizontally and nearly perpendicular to the length of the bill.

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The tongue was a darker gray than that of a typical tongue (pers. obs.), and the barbs, which are typically readily seen, were not apparent.

I first saw the injured female Golden-fronted Woodpecker 7 July 1995 and subsequently that same summer on 12 July and 11 August 1995. She was followed for about 1–½ h each of these days. After 11 August 1995, she was not seen again until 14 February 1996 despite weekly visits to the area. From 14 February through 4 April 1996, this female was observed for one to four hours a day, one or two days per week. On each day the female was observed, all movements were recorded and notes kept on her foraging behavior. Despite the time lapsed between the last sighting during the summer of 1995 and the return during the spring of 1996, I am confident that the observations were of the same female. The injury was the same and the nape was distinctly narrower and more orange than that of other females on the study site.

During the summer of 1995, the female moved around the study site without appearing to recognize any home range boundaries. I observed no direct interactions with conspecifics except for occasional vocal exchanges. All foraging observed was gleaning, which is the picking of food items from the foraging substrate (Kujawa 1984), in the peripheral branches of mesquite and pecan trees.

During 1996, the female returned during the initial establishment of breeding territories by resident woodpeckers (Husak 1997). On 8 March she began intruding into an occupied territory and actively chasing and supplanting the female of the resident pair (both members of this pair were color-banded). This was the last day I observed the color-banded female. By 21 March, the female with the broken tongue was exchanging breeding displays with the male of that pair including "bill waving," "bill pointing," "hunched posturing," and "reverse mounting" (displays and names based on those described by Husak 1996). The pair occupied a 5.1 ha territory they defended against all conspecifics (Husak 1997). An active nest was never found within the territory and the female was last seen flying from the territory on 4 April 1996. She flew more than 300 m from territorial boundaries and out of view. The male was last seen on 12 April. Within five days the territory was re-occupied by a new pair. While on the study site during the spring, the only observed foraging mode of the injured female was gleaning from the peripheral branches and major limbs of pecan and mesquite trees.

These observations suggest that even without the use of her specialized tongue, this Golden-fronted Woodpecker carried out relatively normal activities for a prolonged period of time. This female successfully acquired a mate and defended a territory. It may well be that the relatively generalized (Kujawa 1984) and plastic (Selander and Giller 1963) foraging behavior of this species allows for compensation of the loss of one foraging "tool." Because Golden-fronted Woodpeckers predominantly glean year-round, especially in spring (Selander 1966, Askins 1981, Kujawa 1984), sufficient food items may be obtained without probing.

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LITERATURE CITED

ASKINS, R. A. 1981. Foraging ecology of temperate-zone and tropical woodpeckers. Ph.D. dissertation, Univ. of Minnesota, Minneapolis.

BURT, W. H. 1930. Adaptive modifications in the woodpeckers. Univ. Calif. Publ. Zool. 32:455–524.

HUSAK, M. S. 1996. Breeding season displays of the Golden-fronted Woodpecker. Southwest. Nat. 41: 441–442.

———. 1997. Seasonal variation in territorial behavior of the Golden-fronted Woodpecker (*Melanerpes aurifrons*). M.S. thesis, Angelo State University, San Angelo, Texas.

KILHAM, L. 1963. Food storing in Red-bellied Woodpeckers. Wilson Bull. 75:227–234.

KUJAWA, K. I. 1984. Foraging behavior of the Golden-fronted Woodpecker (*Melanerpes aurifrons*) in the San Angelo, Texas region. M.S. thesis, Angelo State University, San Angelo, Texas.

SELANDER, R. K. AND D. R. GILLER. 1959. Interspecific relations of woodpeckers in Texas. Wilson Bull. 71:107–124.

——— AND ———. 1963. Species limits in the woodpecker genus *Centurus* (Aves). Bull. Am. Mus. Nat. Hist. 124:215–273.

SHORT, L. L. 1982. Woodpeckers of the world. Delaware Mus. Nat. Hist. Monogr. No. 4.

WALLACE, R. A. 1974. Ecological and social implications of sexual dimorphism in melanerpine woodpeckers. Condor 76:238–248.

WILLIAMS, J. B. 1977. Community organization of bark foraging birds in central Illinois. Ph.D. dissertation, Univ. of Illinois, Urbana.

WINKLER, H., D. A. CHRISTINE, AND D. NURNEY. 1995. Woodpeckers: a guide to the woodpeckers of the world. Houghton Mifflin Co., New York.

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NEST SITES OF CURVE-BILLED THRASHERS AT A RURAL DWELLING IN SOUTHERN TEXAS

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The nests of Curve-billed Thrashers (*Toxostoma curvirostre*) in the brushland of southern Texas are usually placed in yuccas, spiny shrubs, or trees (Fischer 1980, Tweit 1996). Although thrashers commonly nest near rural dwellings, there seems to be only a single report (Sennett 1878) of this species using an artificial structure for placement of its nest. This note presents examples of man-made structures and the trees used for nesting by thrashers at the ranch home of John Casto near Millett, La Salle County, Texas.

Thrashers have fledged young for several years in the yard and corral adjacent to the ranch home using spanish dagger (*Yucca treculeana*), Engelmann's prickly pear (*Opuntia engelmannii*), Arizona ash (*Fraxinus velutina*), and a pine tree (*Pinus* sp.) for placement of their nests. Abandoned nests have been found on three occasions in open-sided sheds. Two of these nests were on the beam beneath the eaves whereas the third was on a board lying across two adjacent rafters. Thrashers have also started, but never completed nests under the eaves that overhang the porches above the front and back doors of the ranch house. In the spring of 1997, thrashers placed material in a nest box (floor 20 × 20 cm, depth 15 cm, diameter entrance 6.4 cm) on a utility pole. A nearly complete nest was assembled

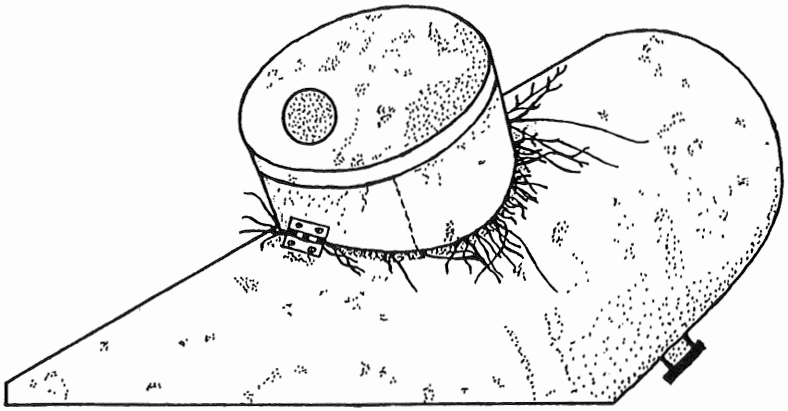

Fig. 1. Nest of Curve-billed Thrasher within the valve and meter cover of a butane tank.

before the thrashers abandoned this site to construct a nest in a nearby anacua tree (*Ehretia anacua*).

Thrashers have also attempted on several occasions to build their nests under the valve and meter cover of a butane tank located near the ranch house. These nests were always found and removed prior to completion thus thwarting the efforts of the thrashers. However, in the spring of 1998 a nest was completed and eggs laid without being detected (Fig. 1). The nest with three eggs was discovered on 21 March 1998. Eggs were still present on 29 March but by 4 April there were three downy chicks in the nest. On 14 April two of the young thrashers flew from the nest when the cover was raised for observation. The remaining bird fledged on the following day.

The entrance hole into the dome-shaped valve cover was 8.9 cm (3.5 in) in diameter and 78.7 cm (31 in) above the ground. Diameter of the cover was 40.6 cm (16 in) and its height 25.4 cm (10 in) on the long side and 16.5 cm (6.5 in) on the short side. At night, the thrasher would sit on the nest facing the opening.

Another nest, presumably built by the same birds that nested under the valve cover, was later found in a Chinese arbor vitae (*Thuja orientalis*) near the butane tank. This nest, placed at a height of 1.4 m (4.5 ft), contained two eggs on 19 May but by 23 May they were gone, presumably taken by predators. The thrashers then moved to a screwbean (*Prosopis pubescens*) about 50 m (55 yds) away where by 26 May they completed a nest in which the first of two eggs was laid on 29 May. Both eggs were gone when the nest was checked on 2 June.

Thrashers also nested during the spring of 1998 in an open-sided shed near the ranch house. The nest was set 2.6 m (8.5 ft) from the ground under the overhang of the roof and on top of the timber supporting the corner of the shed. Construction of the nest began on 9 June and was completed on 11 June. The first of four eggs was laid the following day. Only two of the eggs hatched and these young fledged on 8 July.

The last nesting effort during the spring of 1998 was initiated on 16 July. The nest was placed in a clump of mistletoe (*Phoradendron tomentosum*) located 4.6

m (15 ft) above the ground in a honey mesquite (*Prosopis glandulosa*). No eggs were laid and the nest was abandoned following completion.

Mimids rarely use man-made structures for placement of their nests. There are, however, reports of Northern Mockingbirds (*Mimus polyglottos*) using nest boxes and of their nests being found under the eaves or on the rafters of buildings (Bent 1948, Derrickson and Breitwisch 1992). There are also reports of Bendire's Thrasher (*Toxostoma bendirei*) nesting under the eaves of a carport (England and Laudenslayer 1993) and of a Long-billed Thrasher (*Toxostoma longirostre*) nesting "in and back of a water spouting" on a house (Oberholser n.d.).

Sennett (1878) found the nest of a Curve-billed Thrasher beneath the roof in the broken side of a thatched outhouse in Hidalgo, Texas. The Nest Record Cards at the Cornell Laboratory of Ornithology contain seven reports of the use of man-made structures by Curve-billed Thrashers. Two of these nests were in nest boxes, 2 in sheds, 2 on shelves or ledges, and one on "another structure." Nests have also been found in the cavities made by woodpeckers in live oak (Benners 1887) and sycamore trees (Willard 1923). These reports and the observations described herein suggest that Curve-billed Thrashers and other mimids are perhaps more adaptable in the placement of their nests than previously believed.

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LITERATURE CITED

BENNERS, G. B. 1887. A collecting trip in Texas. Ornithologist and Oologist 12:48–52, 65–69, 81–84.

BENT, A. C. 1948. Life histories of North American nuthatches, wrens, thrashers and their allies. Bull. U. S. Natl. Mus. No. 195.

DERRICKSON, K. C. AND R. BREITWISCH. 1992. Northern Mockingbird (*Mimus polyglottos*). The birds of North America, No. 7 (A. Pool, P. Stettenheim, and F. Gill, Eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Wash., D.C.

ENGLAND, A. S. AND W. F. LAUDENSLAYER, JR. 1993. Bendire's Thrasher (*Toxostoma bendirei*). The birds of North America, No. 71 (A. Pool and F. Gill, Eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Wash., D.C.

FISCHER, D. H. 1980. Breeding biology of Curve-billed Thrashers and Long-billed Thrashers in southern Texas. Condor 82:392–397.

OBERHOLSER, H. C. n.d. Typescript of The bird life of Texas (microfilm). Center for American History, Univ. of Texas at Austin.

SENNETT, G. B. 1878. Notes on the ornithology of the lower Rio Grande of Texas, from observations made during the season of 1877. Bull. U. S. Geol. and Geog. Surv. Terr. 41:1–66.

TWEIT, R. C. 1996. Curve-billed Thrasher (*Toxostoma curvirostre*). The birds of North America, No. 235 (A. Poole and F. Gill, Eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Wash., D.C.

WILLARD, F. C. 1923. Some unusual nesting sites of several Arizona birds. Condor 25:121–125.

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