CHANGES IN DISTRIBUTION AND ABUNDANCE

Brown Jay (*Cyanocorax morio*) © David J. Krueper

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ADDITIONS TO THE BREEDING AVIFAUNA OF THE LOWER RIO GRANDE VALLEY OF TEXAS

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Abstract. The breeding avifauna of the Lower Rio Grande Valley (LRGV) of Texas has experienced many changes during the 20th century, primarily because of declines in native habitats due to land being converted to agriculture and urban habitats. This paper summarizes changes in breeding avifauna from 2003–2007 in the area. Breeding has been confirmed for Cooper's Hawk (*Accipiter cooperii*), Eurasian Collared-Dove (*Streptopelia decaocto*), and Mangrove Yellow Warbler (*Dendroica petechia*) for the first time, and for Gray-crowned Yellowthroat (*Geothlypis poliocephala*) and Ferruginous Pygmy-Owl (*Glaucidium brasilianum*) after periods of apparent absence. Short-tailed Hawk (*Buteo brachyurus*) is a possible breeder, based on an unsuccessful, interspecific pairing with Swainson's Hawk (*Buteo swainsoni*). Red-shouldered Hawk (*Buteo lineatus*) and Rose-throated Becard (*Pachyramphus aglaiae*) are possible breeders, with territorial adults present in remnants of suitable riparian habitat. Loggerhead Shrike (*Lanius ludovicianus*) continues to expand its breeding distribution in urban areas of the LRGV. The breeding status of other previously confirmed breeders, such as Yellow-green Vireo (*Vireo flavoviridis*) and Tamaulipas Crow (*Corvus imparatus*), continues to be in flux. Continued changes are to be expected, given human population growth and habitat-related changes expected in this rapidly growing metropolitan area.

Key words: bird distribution, breeding birds, habitat changes, Lower Rio Grande Valley, riparian habitats, Texas, urban habitats.

ADICIONES A LA AVIFAUNA DE CRIANZA DEL BAJO RÍO GRANDE DE TEXAS

Resumen. La fauna avícola de crianza de la región baja del Valle del Rio Grande de Tejas ha sufrido muchos cambios durante el siglo 20 debido a la disminución de los nichos ecológicos nativos causados por la transformación de la tierra a la agricultura y al desarrollo urbano. Este artículo sumariza los cambios en la crianza de la fauna avícola durante el período 2003-2007 en la región. Se ha confirmado la crianza del halcon de Cooper (*Accipiter cooperii*), la tórtola turca (*Streptopelia decaocto*) y el chipe amarillo (*Dendroica petechia*) por vez primera. Se confirmó también crianza después de períodos de corta ausencia del buho mascarita piquigruesa (*Geothlypis poliocephala)*. El halcón de cola corta (*Buteo brachyurus*) es un posible criador basado en un apareamiento no exitoso e interespecífico con el halcón Swainson (*Buteo swainsoni*). El aguililla pechirrojiza (*Buteo lineatus*) y el mosquero-cabezón degollado (*Pachyramphus aglaiae*) son posibles criadores con adultos territoriales presentes en residuos de adecuados nichos riparianos. El verdugo americano (*Lanius ludovicianus*) continua expandiendo su distribución de cria en áreas urbanas de esta región de Tejas. El estado presente de otros criadores antes confirmados tales como la cazadora (*Vireo flavoviridis*) y el cuervo de Tamaulipas (*Corvus imparatus*) continua en flujo. Se esperan cambios continuos por el crecimiento de la población humana además de cambios de nichos relacionados que se esperan en la rápida área de crecimiento urbano.

The breeding avifauna of the Lower Rio Grande Valley (LRGV) of southernmost Texas (Cameron, Hidalgo, Willacy, and Starr Counties; Fig. 1) contains a mixture of species of temperate and tropical distributions. Species at or near the northern limits of their breeding ranges include Plain Chachalaca (*Ortalis vetula*), Red-billed Pigeon (*Patagioenas flavirostris*), and Altamira Oriole (*Icterus gularis*), while species at or near their southern range limits include Swainson's Hawk (*Buteo swainsoni*), Chimney Swift (*Chaetura pelagica*), and Western Kingbird (*Tyrannus verticalis*). In addition, species typical of the US–Mexican border region, such as Black Phoebe (*Sayornis nigricans*) and Black-tailed Gnatcatcher (*Polioptila melanura*), reach their eastern range limits in the LRGV (Oberholser 1974, Benson and Arnold 2001, Lockwood and Freeman 2004, Brush 2005).

Many bird species of the US–Mexico border region are declining as a consequence of rapidly growing human populations and associated habitat changes, while other species are increasing or extending their ranges in response to habitat types found in expanding urban and suburban landscapes (Lockwood and Freeman 2004, Brush 2005). In addition, climate change may be affecting bird distribution and abundance (Brush 2005; Table 1 for an overview of historical changes in the LRGV breeding avifauna prior to the current study period). With urban growth accelerating in recent decades in

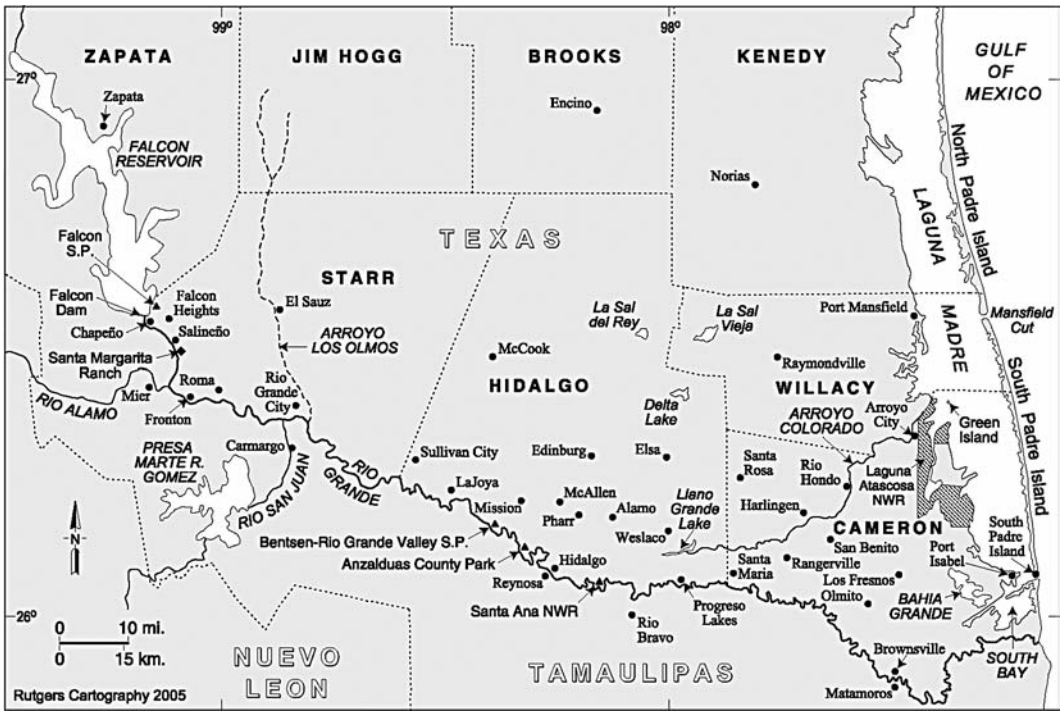

FIGURE 1. Map of the Lower Rio Grande Valley of Texas.

the LRGV, it is essential to monitor changes in breeding bird communities in order to conserve and manage them. The goal of this paper is to update the population status and/or distribution of breeding bird species in the LRGV, focusing on those species whose status changed during the past five years as well as species of conservation concern.

METHODS

From 1 January 2003–30 June 2007, I focused on confirming the presence and breeding of species which had not previously bred in the LRGV and on others that had declined or whose status was uncertain. I also obtained information from published and unpublished sources concerning the status and distribution of LRGV breeding birds. In the case of unpublished information, I assessed whether the observer had enough experience with the species and whether enough information concerning the species and evidence of nesting was presented to warrant inclusion here.

I considered breeding confirmed if the observer saw one or more of the following: nests with eggs or young; repeated visits by adults carrying food to a nest whose contents were not visible to the observer, or fledged young near each other or to a nest and dependent on adults for food (Benson and Arnold 2001). I considered breeding probable if a pair was seen in the same area or was near a nest on at least two occasions, with at least one week between observations. I considered nesting possible if an adult was seen in the same area on at least two occasions with at least one week between observations, or if an adult showed clear territorial behavior (singing, display flights, territorial defense, nest building), or other nest-associated behaviors such as apparent incubation. Observations with no publication citation or observer's name listed are my own.

RESULTS

During 2003–2007, several species were found nesting in the LRGV for the first time. These included species whose main range is in the temperate zone, and others which are tropical in distribution, as well as more widespread species. Other species were documented renesting in the LRGV after a period of absence, while others failed to breed successfully.

Cooper's Hawk (*Accipiter cooperii*)

A broadly distributed breeder in the US and southern Canada, Cooper's Hawk is known to

TABLE 1. LONG-TERM CHANGES IN THE BREEDING AVIFAUNA OF THE LOWER RIO GRANDE VALLEY OF TEXAS, 1877–2002. THE DIRECTION OF THE SPECIES' MAIN BREEDING RANGE FROM THE LRGV IS SHOWN (E.G., RED-SHOULDERED HAWK IS FOUND PRIMARILY TO THE NORTH OF THE LRGV).

North	South	Uncertain
Species originally breeding regularly[a] but by 1987–2002 absent or extremely rare as breeders		
Red-shouldered Hawk (*Buteo lineatus*)	Rose-throated Becard (*Pachyramphus aglaiae*)	
Common Tern (*Sterna hirundo*)	Gray-crowned Yellowthroat (*Geothlypis poliocephala*)	
Blue-gray Gnatcatcher (*Polioptila caerulea*)	White-collared Seedeater (*Sporophila torqueola*)	
Yellow-breasted Chat (*Icteria virens*)		
Summer Tanager (*Piranga rubra*)		
Orchard Oriole (*Icterus spurius*)		
Species originally absent but by 1987–2002 breeding regularly[a]		
Rock Pigeon[b] (*Columba livia*)	Hook-billed Kite (*Chondrohierax uncinatus*)	Cattle Egret[b] (*Bubulcus ibis*)
Western Kingbird (*Tyrannus verticalis*)	Green Parakeet (*Aratinga holochlora*)	Black Phoebe (*Sayornis nigricans*)
Purple Martin (*Progne subis*)	Red-crowned Parrot (*Amazona viridigenalis*)	Cave Swallow (*Petrochelidon fulva*)
Barn Swallow (*Hirundo rustica*)	Ringed Kingfisher) (*Megaceryle torquata*)	
Loggerhead Shrike (*Lanius ludovicianus*)	Tropical Kingbird (*Tyrannus melancholicus*)	
European Starling[b] (*Sturnus vulgaris*)	Brown Jay (*Cyanocorax morio*)	
Lesser Goldfinch (*Carduelis psaltria*)	Clay-colored Robin (*Turdus grayi*)	
House Sparrow)[b] (*Passer domesticus*)	Altamira Oriole (*Icterus gularis*)	

[a] Regular breeding indicates confirmed breeding in more than one location for more than one year (modified from Brush 2005).
[b] Exotic species, not native to North America.

nest in Brooks and Kenedy Counties, immediately north of the LRGV (Benson and Arnold 2001; G. A. Proudfoot, pers. comm.). It is now a confirmed breeder in the LRGV. The first known LRGV nesting was at Bentsen-Rio Grande Valley State Park (hereafter, Bentsen) in 2003 (Brush 2005). Single displaying adults were seen at Sabal Palm Grove, near Brownsville, in 2003 (W. S. Clark, pers. comm.) and at Bentsen on 29 May 2007 (M. Gustafson, pers. comm.). Single adults were observed giving alarm calls at Santa Ana National Wildlife Refuge (hereafter, Santa Ana) in 2005 (W. S. Clark, pers. comm.) and in May 2007. In April–June 2007, a pair produced two young at a nest in Alamo, Hidalgo Co., ca. 11 km north of Santa Ana (K. Hackland, pers. comm., photos).

RED-SHOULDERED HAWK (*BUTEO LINEATUS*)

Broadly distributed in the eastern half of the US as far as the eastern two thirds of Texas, Red-shouldered Hawk was once a fairly common species in the LRGV in summer, with confirmed breeding records in Cameron and Hidalgo Counties (Oberholser 1974). Declining riparian habitat has impacted this species negatively and it is now only a possible breeder in the LRGV. There are no recent nesting records since successful (1994) and unsuccessful (1995) nests at Santa Ana (Brush and Cantu 1998, Brush 2005). Recently, two adults were observed in the same tree at Santa Ana on 22 December 2006, and one adult and two juveniles were seen flying together in southwestern Cameron County, on 13 March 2005. Those observations were likely of wintering (non-breeding) birds. An adult was seen at a nest (status unknown) ca. 1 km downstream from Salineño, Starr County, on 20 February 2005 (S. G. Monk, pers. comm.). Because nesting activity may begin in early March (Brush 2005), the nest might have been active at that time. More recently, an adult was seen at Santa Ana on 16 June 2007.

Short-tailed Hawk (*Buteo brachyurus*)

Short-tailed Hawk, a widespread tropical species, was originally absent from the US–Mexico border region. It has expanded northward into the border area, with first records for Texas (LRGV) in 1989, Nuevo León in 1996, and Chihuahua and New Mexico in 2005 (Williams et al. 2007). Short-tailed Hawk was first seen in central Texas (Edwards Plateau) in 1995 (Lockwood and Freeman 2004, Williams et al. 2007). This species is now a possible breeder in the LRGV. Individuals have been observed during the summer in the LRGV, e.g., 6 June–2 July 1996 at Santa Ana. Birds have been seen during spring migration, e.g., 12 April 2003 at Sabal Palm Grove (Lockwood 2004), and 14 April 2007 at Bentsen (W. S. Clark, pers. comm.). They have also been seen during other summers; e.g. 20 June–20 July 2003 and 20 June–4 July 2004 at Santa Ana (Lockwood 2004, 2005) and a light-morph individual at Sabal Palm Grove from 31 March–27 May 2004. The last-mentioned bird paired with a Swainson's Hawk and nested unsuccessfully (Lockwood 2005).

Eurasian Collared-Dove (*Streptopelia decaocto*)

Eurasian Collared-Dove was introduced to the Bahamas in the mid-1970s, became established in Florida by the late 1980s, and subsequently spread rapidly across the southern US (Romagosa 2002). The species was first noted in the LRGV in 1999 (Brush 2005), and was first noted on an LRGV Breeding Bird Survey (BBS) route in 2003, when eight birds were reported in northeastern Cameron County (Sauer et al. 2006). Eurasian Collared-Dove is now a confirmed breeder in the LRGV. Various observers have noticed birds in display flights, entering possible nesting trees, or showing other signs of nesting. For example, on 3 June 2007, an adult chased a male Great-tailed Grackle (*Quiscalus mexicanus*) from a school campus in western Edinburg, Hidalgo County, but no nest was found. On 26 May 2007, two juveniles were seen in urban habitat on South Padre Island. Those birds remained in dense foliage and, when approached to within 5 m, flew only 20 m away, suggesting recent fledging. On 8 June 2007 at a public park in western Edinburg, a male, which had been vocalizing regularly from the top of a light pole, descended to near ground level and fed one full-grown juvenile by regurgitation. One other vocalizing male was present at the same time.

Ferruginous Pygmy-Owl (*Glaucidium brasilianum*)

Primarily a tropical species, reaching the US only in southern Arizona and southern Texas, Ferruginous Pygmy-Owl once occurred in woodlands throughout the LRGV. By the mid-20th century, Davis (1966, 1974) determined it to be rare, probably due to extensive habitat loss. This species was not reported from Santa Ana or Bentsen between the 1960s and the early 2000s, but birds were reported regularly from Starr County and the oak-mesquite savannahs and woodlands in Kenedy and Brooks Counties. immediately north of the LRGV (Lockwood and Freeman 2004). Ferruginous Pygmy-Owl is now a confirmed breeder in the LRGV, after >40 yr of uncertain status. After one pygmy-owl was seen in 1994 on a ranch in northeastern Hidalgo County, a nest-box study was begun there in 1995 (G. A. Proudfoot, pers. comm.). From 1999–2006, many broods were raised in nest-boxes, and 163 pygmy-owls have been banded at the ranch (G. A. Proudfoot, unpubl. data and here). Ferruginous Pygmy-Owls were re-discovered at Bentsen in September 2002, by Charles and Louise Gambill (Brush 2005). As of April-May 2007, J. S. Rose (pers. comm.) estimated two territorial pairs at Bentsen, although nesting has not been confirmed there.

Buff-bellied Hummingbird (*Amazilia yucatanensis*)

A tropical species whose range extends into southern Texas, Buff-bellied Hummingbird is a confirmed breeder in the LRGV, nesting regularly from Santa Ana and the Edinburg-McAllen area eastward (Brush 2005). It occurs only in moister woodlands with tropical sage (*Salvia coccinea*) or Turk's cap (*Malvaviscus drummondii*), or in urban areas with natural or artificial nectar sources (Brush 2005). However, Buff-bellied Hummingbird appears to be expanding its breeding distribution westward in the LRGV. A nest was completed by 15 April 2007 at Bentsen, a location historically lacking suitable nectar sources until tropical sage and Turk's cap were planted around the new park headquarters in 2004. Eggs were incubated for about 2 wk until the nest was depredated (M. Gustafson, pers. comm.).

Rose-throated Becard (*Pachyramphus aglaiae*)

Rose-throated Becard, a tropical species with breeding records only in southern Arizona and southern Texas, was historically a confirmed but rare breeder in the LRGV. Always considered

rare (Davis 1966, 1974), Rose-throated Becards nested successfully in the LRGV in the 1940s, 1960s, and 1970s (Brush 2005). However all known recent nesting attempts in the 1990s and the early 2000s have been unsuccessful (Brush 2000, 2005), and the species is currently considered only a possible breeder in the LRGV. A female nested unsuccessfully at Santa Ana in 2003 (observed 9 March–28 June; Lockwood 2004) and 2006 (observed 20 May–22 June; Lockwood 2007). John C. Arvin saw a female at Santa Margarita Ranch, Starr County, on 6 June 2004 (Lockwood 2005), in a county where the species has never been known to nest. With continued declines in tall riparian forest and isolation from existing populations in Nuevo León and Tamaulipas (Brush 2005), re-establishment of a breeding population is unlikely.

Loggerhead Shrike (*Lanius ludovicianus*)

The historical status of the widespread Loggerhead Shrike in the LRGV has been debated, with some short-term visitors (Sennett 1878, Griscom and Crosby 1926) assuming that it bred, while resident ornithologists and those carefully examining seasonal distribution of specimen records pointed out the lack of breeding-season records (Davis 1974, Phillips 1986). Although declining in the second half of the 20th century in much of the US (Cade and Woods 1997), Loggerhead Shrikes expanded their range south into the LRGV within the past 25 yr. The species has been a confirmed breeder since 1988 (Brush 2005). The first nest was near Alamo, Hidalgo County, and more recently nests have been found throughout southern Hidalgo County. A total of 15 nests were found in Edinburg, McAllen, Mission, Weslaco, and Mercedes during 2005–2007. In Cameron County, a pair of shrikes was seen in April 2004 and March–April 2005, ca. 6 km north of Harlingen, Cameron Co. (C. Watenpool, pers. comm.). Pairs were seen at four additional locations in Harlingen in 2005 (W. S. Clark and P. Wade, pers. comm.), the easternmost suspected breeding sites in the LRGV.

All pairs or nests have been seen in urban habitats such as golf courses, city parks, school yards, and office parks. In most cases, the birds forage regularly over regularly mown grass lawns or infrequently cut grass of vacant city lots. They tend to avoid foraging in dense, tall grass, or residential areas with dense vegetation. On 22 May 2007, an adult was seen in an agricultural area with scattered houses, between Edinburg and Delta Lake, but no nests or pairs have been found in agricultural areas, native grasslands, or open wooded habitats. In the LRGV, eight of nine BBS sightings of Loggerhead Shrikes were recorded since 1991, indicating their period of establishment (Sauer et al. 2006).

Yellow-green Vireo (*Vireo flavoviridis*)

A widely distributed tropical species, Yellow-green Vireo was confirmed breeding in the LRGV in 1943 (Davis 1945) but has been considered a rare breeder since then. The most recent known nesting was at Laguna Atascosa National Wildlife Refuge (NWR) in 1988 (Brush 2005). It is now considered a possible breeder in the LRGV. Birds are seen annually in small numbers in riparian remnants and wooded residential areas of southern Hidalgo and Cameron Counties. For example, there has been a singing male on the same territory in Brownsville during the summers of 2004–2007 (M. Gustafson, pers. comm.). Birds are most regularly seen at Sabal Palm Grove, where a maximum of three were observed together from 7 June–17 August 2004, suggesting possible nesting (Lockwood 2005). Additional field work may reveal a small number of nests in areas where birds are most consistently seen.

Brown Jay (*Cyanocorax morio*)

Although a few Brown Jays were observed in the LRGV between 1890 and 1910, the species began to establish itself as a breeding species in the 1970s. The first nest of this tropical species in the United States was found in 1974, between Salineño and Roma, Starr County. Using riparian forests, Brown Jays soon spread upstream to Falcon Dam and downstream to Roma (Brush 2005). No additional nests were found until 9 May 1996, when Marty Bray and I found a female apparently incubating, accompanied by one other adult and two other birds of uncertain age. That nest was depredated by 25 May 1996 (Brush 2005).

The largest single-day count during the mid-1990s was of 17 birds that Marty Bray and I counted on 20 August 1994, as we canoed between Chapeño and Fronton. J. C. Arvin (pers. comm.) estimated an LRGV population of about 100 individuals during that period. During the late 1990s and early 2000s, a very severe drought period for the LRGV and the surrounding region, Brown Jays were seen in much smaller numbers consisting of two flocks of <10 individuals total, only at or near the feeding stations at Chapeño and Salineño (Brush 2005, Lockwood 2007). J. Puschock (pers. comm.) reported an adult carrying a stick across the Rio Grande at Chapeño on 20 or 21

July 2003, but no nests were found during 2003–2007. Although additional field work is needed, Brown Jay is currently only a possible breeder in the LRGV. Given its apparent isolation from the closest known population along the Sierra Madre Oriental from Monterrey, Nuevo León, south into Tamaulipas, there must be concern over the future of the LRGV Brown Jays.

Tamaulipas Crow (*Corvus imparatus*)

Tamaulipas Crow, endemic to northeastern Mexico, invaded the LRGV in 1968 (Oberholser 1974). During 1968–1971, hundreds to thousands of birds were observed in the Brownsville area, and it was confirmed as a breeder in 1989, when four nests were found east of Brownsville (Brush 2005). The species was regular in small numbers at the Brownsville Municipal Landfill through most of the 1990s, but nests were neither sought nor found. Tamaulipas Crows were less regularly seen at the landfill in the late 1990s and early 2000s, but observers found a few nests in eastern Brownsville during that period (Lockwood and Freeman 2004, Brush 2005). Today this species remains a confirmed nester in very small numbers. For example, two adults and two juveniles were seen in Brownsville from early May to late July 2004, but no nest was reported (Lockwood 2005). J. C. Arvin and D. Benn (pers. comm.) saw six pairs building nests in Brownsville on 27 March 2005, and at least 16 birds (including adults and juveniles) were seen in the same area from late March–late July 2005 (Lockwood 2006). In 2007, only one nest was found in Brownsville (B. Buchanan and J. Odgers, pers. comm.). The Tamaulipas Crows nesting in Brownsville may be isolated from the main population center of southern Tamaulipas (J. C. Arvin, pers. comm.), so any possible losses in the LRGV population due to extreme weather or other causes would be difficult to replace.

Blue-gray Gnatcatcher (*Polioptila caerulea*)

Widespread across most of the US and the Mexican Highlands, the breeding status of Blue-gray Gnatcatcher in the LRGV has long been unclear (Oberholser 1974, Phillips 1991). In the late 1870s, the species nested in Hidalgo County, but Blue-gray Gnatcatchers were never a common nesting species (Oberholser 1974, Brush 2005). The most recent active nest was reported in 1921 near Port Isabel (Oberholser, unpubl. data). Davis (1974) stated that there were no definite June records and that it was not a breeder. Currently, the species is a very rare summer resident and possible breeder in the LRGV. A singing male was observed at Estero Llano Grande State Park near Weslaco, on 24 June 2006 (R. Zamora, pers. comm.). Daniel Jones saw a pair at La Sal del Rey, Lower Rio Grande Valley NWR on 20 May 2007, but the pair could not be relocated on 22 May. Early fall migrants, sometimes seen in late June or early July, confuse the breeding status of local birds. Additionally, the species is a common winter resident and migrant throughout the region (Phillips 1991, Brush 2005).

Yellow Warbler (*Dendroica petechia*)

The Mangrove Yellow Warbler (presumably *D. p. oraria*; Parkes and Dickerman 1967) was first recorded in the Port Isabel area, Cameron County, in 1978 and again in 1990 (Lockwood and Freeman 2004). These were the first records of the Mexican subspecies, characterized by a completely chestnut head in the adult male, in the United States (Lowther et al. 1999). This subspecies appears to be expanding northward from southeastern Tamaulipas. One seen near Port Isabel 1 December 2003–1 March 2004 (S. Colley, pers. comm.), and an adult male at the mouth of the Rio Grande (Boca Chica area) 17 April–5 May 2004 (Lockwood 2005), preceded a major invasion of the species. About 30 were seen near Port Isabel, from August–December 2004 (Lockwood 2006).

Yellow Warbler is now a confirmed breeder for the LRGV. At least one fledgling was fed by an adult male near Port Isabel on 14 May 2007 (J. Bax and S. Colley, pers. comm.). A nest with one egg was found in the same area on 28 May 2007, and five eggs were counted in that nest on 5 June 2007 (S. Colley, pers. comm.). All birds have occurred on tidal flats dominated by black mangrove (*Avicennia germinans*), which has re-established itself throughout much of the Lower Laguna Madre area since the severe freezes of 1983 and 1989. Black mangrove is generally 2–3 m tall and usually grows in strips less than 200 m wide in its Texas range (Tunnell and Judd 2002), but this narrow band of habitat is still usable by Mangrove Yellow Warblers.

Gray-crowned Yellowthroat (*Geothlypis poliocephala*)

In the late 1800s, Gray-crowned Yellowthroat, a tropical species, was commonly encountered by ornithologists in the LRGV. It bred at Hidalgo (1880) and near Port Isabel (1921), and >34 specimens were taken in the Brownsville area from 1890–1894 (Oberholser 1974; Oberholser, unpubl. data; Lorenz et al. 2006). This, the only breeding population in the United States, disappeared in

the early 20th century, possibly due to loss of wetlands or associated habitats. Subsequently, the Gray-crowned Yellowthroat was recorded very rarely in Cameron Co. until 1988, when the species was rediscovered at Sabal Palm Grove (Lockwood and Freeman 2004). A probable breeding pair was found in northwestern Webb Co. in 1997 (Woodin et al. 1998), a few territorial males were observed in 1999 and 2000 at Santa Ana (Brush 2005), and a male was observed at Sabal Palm Grove from 8 February–12 August 2004. One to two individuals were recorded there from 8 December 2004–30 June 2005 (Lockwood 2006).

Today, the Gray-crowned Yellowthroat can again be considered a confirmed breeder in the LRGV. On 25 June 2005, a nest with four recent hatchlings was discovered at the Sabal Palm Grove, and the male was banded on 29 June (Lorenz et al. 2006). Although the nest had been depredated when re-checked on 30 June 2005, 1–2 individuals continued to be seen in the area through 17 May 2007 (J. Paz, pers. comm.). The grass-dominated fields with scattered small woody plants, which the birds used at Sabal Palm Grove, are similar to those used in Tamaulipas (Brush 2005). The birds breeding recently in the LRGV are likely of the northeastern Mexican-LRGV subspecies, *G. p. ralphi*, but no in-hand examination has been carried out to confirm this.

Summer Tanager (*Piranga rubra*)

Widespread across the southern United States and also occurring in north-central Mexico, Summer Tanager vanished as a breeding species from the LRGV in the early 1970s as riparian forest deteriorated due to lack of flooding and was lost due to clearing for agriculture (Oberholser 1974, Brush 2005). However, the species may be making a modest comeback and is again a confirmed breeder in the LRGV. A completed nest with a few female breast feathers was found ca. 5 km southwest of Mission in 1999 (Brush 2005). On 8 July 2006 a pair fed at least two fledglings on a ranch in northeastern Hidalgo Co. (K. Hunke, pers. comm.), and two males were seen in the same location on 12 May 2007. The species remains common in live oak (*Quercus virginiana*) forest patches and strips of tall riparian forest 30–190 km north of the LRGV (Lockwood and Freeman 2004).

White-collared Seedeater (*Sporophila torqueola*)

The White-collared Seedeater, a widespread tropical species, was once considered common in wetlands and moist grassy areas along the Rio Grande and resacas (oxbow lakes) in the LRGV (Davis 1966, Oberholser 1974). It then declined, becoming uncommon in the 1960s and extremely rare in the 1970s (Davis 1966, 1974; Oberholser 1974). Reasons for the decline are poorly understood, since weedy habitat remains widespread in the LRGV. Extensive pesticide application to the greatly expanded cotton acreage and increased cowbird numbers may have been important (Oberholser 1974). Seedeaters still breed in Zapata and Webb Counties immediately upstream of the LRGV (Woodin et al. 1999, Lockwood and Freeman 2004). A singing male was observed in moist resaca-edge habitat at Santa Ana NWR on 18 May 2007, but there has been no evidence of recolonization of the LRGV. It is therefore considered only a possible breeder in the LRGV.

House Finch (*Carpodacus mexicanus*)

Common and widespread across much of North America and most of Mexico, the House Finch is a very rare winter resident in South Texas south of Laredo and Rockport, including the LRGV (Lockwood and Freeman 2004). The species is absent from the coastal plain of eastern Mexico (Howell and Webb 1995). A singing male was seen at Roma, Starr County, on 21 April 2007, and two pairs were observed regularly at the University of Texas-Texas Southmost College campus, Brownsville, for at least 2 wk in May 2007 (P. Wade pers. comm., photos of two males from those pairs taken on 17 May 2007). It is not known why House Finches, which are well-adapted to both urban and rural areas, have been slow to colonize the LRGV, but based on the recent observations, they are now probable breeders. Incidentally, a singing male in Ciudad Mante, southwestern Tamaulipas, 29 May 2007, may indicate an attempted range expansion in Tamaulipas as well.

DISCUSSION

Establishment or recolonization of several avian species has occurred in the LRGV in recent years. For species such as Gray-crowned Yellowthroat and House Finch, the first step in recolonization or colonization seems to be winter residency by small numbers of individuals (Brush 2005). The probable source of colonists for tropical species is eastern Mexico (Tamaulipas and southern Nuevo León), while temperate or US–Mexican border species may spread downstream along the Rio Grande or directly south through South Texas toward the LRGV. Summer Tanager and Ferruginous

Pygmy-Owl probably spread south from the remaining oak forests immediately north of the LRGV (Proudfoot and Johnson 2000, Lockwood and Freeman 2004).

Species such as Mangrove Yellow Warbler, that became established for the first time as breeders may have taken advantage of habitat expansion or recovery, such as the re-establishment of black mangrove since severe freezes of 1983 and 1989, which killed or severely stunted this frost-sensitive species (Lonard and Judd 1991, Tunnell and Judd 2002). Presumably, the warblers spread north from their nearest known breeding range in southeastern Tamaulipas (Howell and Webb 1995), but it is not known whether the species also occurs in northeastern Tamaulipas. Another opportunistic and rapidly expanding tropical species, the Clay-colored Robin (*Turdus grayi*), established itself in the late 1990s in riparian forest and expanding urban forests and became widespread in the LRGV and upstream to Laredo (Brush 2005).

Breeding distributions of well-established species like Buff-Bellied Hummingbird may be dependent upon management practices such as planting native nectar sources. For Red-shouldered Hawk and Rose-throated Becard, which depend on tall riparian forest near water, habitat management has proven more difficult. Water is often in short supply or cannot be delivered to desiccated forests, with resultant loss of lush riparian forests and associated wetlands along many stretches of the lower Rio Grande. A pilot flooding project in a riparian forest patch at Santa Ana enhanced tree survival and reproduction, but was on too small a scale to help those avian species (Brush 2005)

For tropical species which are at the northern edge of their breeding range, such as Tamaulipas Crow and Brown Jay, isolation from other breeding populations may be contributing to their decline. Both Tamaulipas Crows and Brown Jays are now very rare or absent in northern Tamaulipas (J. C. Arvin, pers. comm.). Although there have been no obvious changes in their preferred LRGV habitats, any impacts of drought might be more difficult for a small population to recover from.

For some species, such as White-collared Seedeater, the reasons for population declines and failure to recolonize historically-occupied habitats remain unclear. Plant species thought to provide suitable habitat, such as giant reed (*Arundo donax*), common reed (*Phragmites australis*), and shorter grasses are common in the LRGV. However, perhaps the area is too fragmented to allow recolonization, or some other unknown, crucial habitat feature is missing (Eitniear 1997, 2004).

Preference for or tolerance of urban habitats has aided Loggerhead Shrikes and Eurasian Collared-Doves in their establishment in the LRGV. The apparently successful colonization of Loggerhead Shrikes is noteworthy, given the species' decline in much of the US and Canada. The urban habitats used in the LRGV resemble the savannah or parkland habitat often used by shrikes elsewhere. Boal et al. (2003) also noted urban nesting by shrikes in Tucson, Arizona. In a semiarid climate such as within the LRGV, use of irrigated habitats may ensure a more reliable food source. If shrikes are in fact better adapted to wetter coastal habitats, they may be able to establish themselves in coastal Tamaulipas, as some recent observations suggest (Wauer 1998, Ramírez-Albores et al. 2007). Eurasian Collared-Doves were at first limited to grain elevators, where seed abundance is greatest, but they have since spread into other urban habitats as they have begun breeding. The species has spread south throughout the lowlands of Tamaulipas in the early 2000s (T. Brush, unpubl. data), mainly in agricultural areas.

Some predictions can be made about future breeding status and distribution of new additions to the LRGV avifauna. Although some species appear well established, others may be susceptible to extreme weather events. For examples, future severe freezes could have considerable impact on the Mangrove Yellow Warbler, which breeds in freeze-sensitive black mangrove habitat. The future status of other species that are spreading north, such as Short-tailed Hawks, are largely unpredictable, due to uncertainties about their habitat and foraging requirements. If current climatic and habitat trends continue, several urban-tolerant tropical species, such as Blue-gray Tanager (*Thraupis episcopus*) and Social Flycatcher (*Myiozetetes similis*), both of which bred in southern Nuevo León in 2007 (Gómez de Silva 2007), may eventually be added to the LRGV breeding avifauna. Several other species have moved northward in eastern Mexico in the past decade, such as Ivory-billed Woodcreeper (*Xiphorhynchus flavigaster*) and Scrub Euphonia (*Euphonia affinis*; Garza-Torres et al. 2003; Brush, in press). Species such as the last two, dependent on high-quality riparian or other moist forests will probably have a harder time colonizing than urban-adapted species. Continual change should be expected in the LRGV's avifauna, given population growth and related habitat changes expected in this rapidly growing metropolitan area on the US–Mexican border.

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