

**THE GRAY KINGBIRD (*Tyrannus dominicensis*),
NORTHERN FLORIDA TO NORTH CAROLINA**

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The Gray Kingbird (*Tyrannus dominicensis*) breeds from northern Colombia and Venezuela, excluding Central America, northward to extreme southeastern North Carolina (Brunswick County) and the Florida Panhandle. Gray Kingbirds nest in small numbers on the southeastern Atlantic and eastern Gulf coasts of North America, but at widely separated locations and at irregular intervals. North of Florida, Gray Kingbirds have been found nesting only a few times, most often on the coast of Georgia. None has nested in South Carolina since the 19th century. In North Carolina the first confirmed nesting was in 1997. Since the early 1960s, nonbreeding (vagrant) birds have become more frequent on the Atlantic coast in spring, and some linger into the breeding season (May-June). This paper reviews the occurrence of the Gray Kingbird in the northeastern part of its range, from northwestern Florida and neighboring Alabama to North Carolina, and discusses the possible factors affecting its breeding distribution on the southeastern Atlantic coast.

DISTRIBUTION BY STATE

South Carolina.—South Carolina has at least 73 reports, including six breeding records that occurred before 1894. In 1832, John Bachman was informed that a pair was nesting on the Charleston Peninsula on the campus of the College of Charleston. The nest was destroyed, but Bachman was told of another nest of the same pair. The birds continued nesting in the college-yard, rearing two broods each season for at least three more years (Audubon 1834). It is probable that a female collected in 1840 by Audubon (American Museum of Natural History # 306308), was from this population.

A. T. Wayne (1894) found South Carolina nests on Sullivan's Island (Charleston County) on 27 May 1885 and 30 May 1893. No more Gray Kingbirds were reported until 17 May 1927, when Wayne (1927) found a lone bird near Mt. Pleasant (Charleston County). In the following 30 years, Gray Kingbirds were seen only seven times.

In the late 1950s the Gray Kingbird began appearing more regularly. It next appeared on 19 November 1956, in Aiken County, 160

km from the coast (Odum and Norris 1957). In 31 of 56 years (1958-2012), there were 59 reports of vagrant (nonbreeding) kingbirds, 51 from the coast and eight from the coastal plain.

Five of the coastal sightings were in the nesting season (May-June). Although no nests were found, breeding may have occurred in two years. On 11-13 May 1984, two ("a pair") were seen together on Fripp Island (Jasper County) in appropriate nesting habitat (T. K. Patterson, *Chat* 48:100, 1984). On 13 July 1993 at Debidue Beach (Georgetown County), Lex Glover (*Chat* 58:106, 1993) saw two adults accompanied by an "immature". Although he stated that "breeding took place this year", an immature could be capable of sustained flight, and its fledging location is unknown.

Coastal nonbreeding Gray Kingbirds have occurred most often in spring (April-May, 28 of 51 reports). They have been reported six times in the breeding season (June-July) and 18 times in fall (August-October). The eight birds that appeared inland in the fall were far north of their normal range, and may be classified as "reverse migrants". DeSante (1983) proposed that such individuals have inherited faulty navigational systems, and as a result migrate in a direction opposite that of their primary migrational path (180° misorientation). These vagrants are more likely to be found at inland sites (DeSante 1983).

The 28 Gray Kingbirds found in spring on the South Carolina coast may represent cases of the birds' overshooting their traditional breeding range. Overshooting may result from following winds, and appears to occur most often in inexperienced juveniles. Adults may disperse farther north because of weather conditions, but also from a failure to turn off their migratory drive. Such birds usually appear along the coast (Armistead and Illiff 2003). Veit and Petersen (1993) point out that overshooting could lead to northward range expansions, and extralimital birds should be classified as pioneers rather than vagrants.

North Carolina.—From 1957 to 2009, North Carolina had at least 51 reports from the coast; 12 in fall, 4 in spring, and 35 during the breeding season (May-June). Nesting may have occurred at Southport Village (Brunswick County) in 1957. For several weeks beginning 28 June, a "group" of the kingbirds was present, and on 21 August, Cecil Appleberry watched four, one of which he suspected "might be a bird of the year" (Chamberlain 1957). During 1-21 June 1996, two Gray Kingbirds were seen associating at Ft. Caswell, Brunswick County, 8 km northwest of Cape Fear. Nesting was confirmed in 1997 at the same place, where, on 21 June, a nest that contained two eggs was photographed by Wayne Irwin (Davis 1998). Apparently no further information is available concerning its nesting in North Carolina. Cape Fear is now the northernmost nesting locality of the Gray Kingbird in North America.

In North Carolina, Gray Kingbirds have been seen only twice outside the tidal zone. Unlike South Carolina, where all seven inland sightings have been on the coastal plain, the two North Carolina birds were seen farther inland, one in the Piedmont in West Raleigh, 16 April 1959 (Funderburg and Soots 1959), and one in the Blue Ridge region at North Wilkesboro, 5 August 1966 (Parnell 1966). Both inland sightings are unusual because of their distances from the coast (Raleigh, 190 km; N. Wilkesboro, 350 km). The Raleigh report appears to be the only spring record from the interior of the Carolinas.

Georgia.—At least ten breeding records from six localities are known for Georgia. Gray Kingbirds may have nested in Georgia as early as 1853, when S. W. Wilson was reported to have collected a 3-egg clutch on 8 June, sometime between 1853 and 1865, on either St. Simon's Island (Glynn County) or in Wayne or McIntosh counties (Bailey 1883). Although Wilson gave descriptions and measurements of the eggs, and Bailey examined them, the record has been questioned (Eyels 1941) because of the inexact locality and date, and the fact that the eggs seem to have been lost.

The first verifiable Georgia nesting occurred in 1938, on Cockspur Island, when on 17 July, Eyels (1938) climbed a Chinaberry tree (*Melia azedarach*) and found a nest containing three eggs. The eggs hatched by 17 July, and the nestlings were photographed (published in the *Savannah Morning News*, 22 July 1938). A second nest was found on 24 June 1939 at the same locality in another Chinaberry, but it was destroyed during dredging operations (Eyels 1941). Apparently, this was the last breeding attempt on Cockspur Island.

In Georgia in the 31 years of 1978-2008, Gray Kingbirds were seen during at least 15 breeding seasons, but were confirmed nesting only eight times, in seven years, at five localities. A nest with two young was found on Sea Island, 11 June 1978 (LeGrand 1979). In 1983 the kingbirds nested on Sea Island again. A pair nested on Jekyll Island in 1989, and two pairs nested there in 1994, one at the island's convention center and one at the north end of the island (Sewell 1995). At the latter site, two adults and three young were seen together on 15 August. At the former location, adults were feeding two young on 27 August. On 9 October this pair or another was noted feeding young cowbirds (*Molothrus* sp.) at the convention center. A pair nested at the convention center in 1996 also (Sewell 1996). On the mainland Gray Kingbirds nested in Brunswick in 1993 (Moore 1993) and near Savannah in 2007 (S. Wagner *in* Davis 2007). Gray Kingbirds apparently have not been recorded nesting in successive years at these localities. Blankenship (2008) suggested that since Gray Kingbird sightings have increased in recent years, these kingbirds may be nesting at more than five sites. They also

may breed more regularly at those locations where they have been reported to nest only intermittently.

Northern Florida and eastern Alabama.—The northernmost Florida breeding site in 1952 was in Duval County (Grimes 1953). Sprunt (1954) stated that Gray Kingbirds were common only as far north as Matanzas Inlet, St. Johns County, 150 km south of Brunswick, Georgia. Stevenson and Anderson (1994) noted that the kingbird was once more common and widespread, at least as far north as the mid-Atlantic coast of Florida (Brevard County), but after 1955 it steadily decreased. Surveys conducted on Merritt Island National Wildlife Refuge in 1983-1986 found no Gray Kingbirds (Breininger 1990). According to Kale et al. (1992), the Gray Kingbird bred at least four times in northern Brevard County, 1991-1992, but no further information is available. The Florida breeding bird atlas did, however, show one confirmed breeding record farther north, in St. Johns County (Kale et al. 1992).

On the Atlantic coast of Florida the northernmost verified breeding locality is now northern Duval County, at Mayport, about 73 km south of Brunswick County, Georgia. On 7 July 1993 a pair and two juveniles were seen at Mayport, “the first local breeding report in several years.” On 3 July 2003, ten, including two dependent young were noted there (R. Clark *in* Pranty 2004).

The Florida Panhandle, from Franklin to Escambia counties, is a stronghold of the Gray Kingbird in northern Florida. In July 1990 Douglas McNair found 13 pairs at Alligator Point, St. James Island, and stated that the kingbird was “possibly more common.” Hurricanes *Opal* and *Erin* in 1995 may have eliminated Gray Kingbirds in the region. Breeding was not confirmed again until summer 2000, when Bob Duncan (Florida Field Naturalist 29: 38, 2001) reported that pairs bred sparingly around Gulf Breeze, although they had not returned to Ft. Pickens, a frequently used nesting location, since the hurricanes. The next summer, Gray Kingbirds bred in downtown Pensacola and at Gulf Breeze, but still had not returned to their “traditional stronghold” at Ft. Pickens (Pranty 2002). It is not known to what extent the kingbirds bred on the Panhandle from 2001 through 2005. Pairs bred at Gulf Breeze and Pensacola in summer 2006 (B. Duncan, *in* Pranty 2007).

In 2009, Gray Kingbirds were reported breeding in five areas in the extreme western Panhandle (Pranty 2010). Near Pensacola, Gray Kingbirds nested in adjacent Baldwin County, Alabama, in 1950 (Stevenson 1951). They nested regularly on the Alabama coast until fall 1997, when Hurricane *Danny* appears to have eliminated them as breeders (Purrington 2006). In 2006, Gray Kingbirds were watched feeding a fledgling at Orange Beach, Alabama, about 20 km southwest

of Pensacola. (McKay 2006). Also in that year, a pair possibly nested farther west, on Dauphin Island in May-June (M. S. VanHoose *in* Purrington 2006).

DISCUSSION

As indicated by the few times they have been found nesting, the wide separation between breeding sites, and apparent discontinuity of breeding attempts, Gray Kingbirds reach the northern limit of their breeding range in Georgia and the Carolinas. In the 19th century, the Gray Kingbird nested on the Atlantic coast north of Florida at least seven times, six on the central coast of South Carolina and once in Georgia. In the 20th century, there was no verification of breeding in South Carolina, although there is suggestive evidence that it nested there in 1984 and perhaps 1993. On the Georgia coast, however, at least eight breeding attempts have been documented since 1939, the northernmost on the South Carolina border at Savannah. Increased sightings in Georgia and the Carolinas since the 1970s may be indicative of a northward range expansion. Indeed, in 1997 Gray Kingbirds were verified breeding in Brunswick County, North Carolina. From Savannah, this represented a 370 km extension of this kingbird's 1997 southeastern U.S. distribution.

There are several possible reasons for the Gray Kingbird's apparently discontinuous occurrence between Florida and North Carolina. The first is inadequate observer coverage, a hypothesis supported by the pattern of reports from Georgia and South Carolina, where the species has traditional breeding sites that have not been monitored regularly. It also seems that no systematic surveys, which could provide information on the absence as well as presence of kingbirds, have been conducted from year to year. These oversights are perhaps related to paucity of research support, but also to the inaccessibility of potential nesting localities, such as remote sea islands and gated communities. To determine the dynamics of the kingbird's range expansion, it will be necessary to monitor the nesting activities of as many pairs as possible. It is especially important when pairs are found at new sites, that these locations are checked in subsequent years (Blankenship 2008).

Alternatively, gaps in the Gray Kingbird's range may be real. Their distribution on the Gulf Coast has been affected by three hurricanes occurring since 1995. Hurricanes may cause direct mortality of adults, and the kingbirds' poorly constructed nests, located on the coastline, may not survive tropical storms (Smith and Jackson 2002). Hurricanes also destroy nesting substrates. The disappearance of nesting Gray Kingbirds on Santa Rosa Island, Florida, was related

to loss of vegetation during Hurricane *Irene*. The kingbird's breeding season extends into the period when most storms occur (Stevenson and Anderson 1994). Birds nesting on the Atlantic coast would also be affected by hurricanes.

The current source of Gray Kingbirds on the southeastern Atlantic seaboard may be the Gulf Coast, where the species is known to breed regularly as far north as the Panhandle of Florida (Kale et al. 1992, Smith and Jackson 2002). It was found breeding in Alabama in 1950 (Stevenson 1951), and Mississippi in 1976 (Weber and Jackson 1977). Records of large autumnal congregations on the west coast of Florida (for example, in 2001: 63 at Weekiwachee on 13 September and 50+ at Bayport on 6 October), suggest the possibility that Gray Kingbirds found in the Carolinas and Georgia fledged on the Gulf Coast, and after wintering in the West Indies, drifted northeastward during spring migration.

The Gray Kingbird colonized Florida from the West Indies, and remains restricted to regions with coastal, neotropical climates (Smith and Jackson 2002). As world temperatures rise, more Gray Kingbirds may colonize the southeastern coast (Woolfenden and Robertson 2006). But if the severity and frequency of hurricanes increase, the kingbird's distribution may remain fragmented. Gray Kingbirds have benefited from the clearing of forests for agriculture. They also are tolerant of humans. In Puerto Rico and Hispaniola they nest near dwellings in urban and suburban situations (Smith and Jackson 2002, pers. obs.), although to what extent this has occurred in North America is not known. Some human-altered landscapes, those with large, treeless malls, factories, stadiums and casinos may provide few resources for reproduction, and the proliferation of such areas may inhibit the spread of Gray Kingbirds on the Atlantic Coast. Smith and Jackson (2002) point out that determining the effects of urbanization on Gray Kingbirds is an area in need of research.

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