

# Breeding Status of the Grasshopper Sparrow in the Coastal Plain of the Carolinas, with Notes on Behavior

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Breeding reports of Grasshopper Sparrows (*Ammodramus savannarum*) from the coastal plain of the Carolinas are few. Craighill found the species in summer at Rocky Mount, N.C. (Pearson et al. 1942). Murphey (1937) said it was common in the Savannah Valley and rare in contiguous uplands around Augusta, Georgia, and Aiken, S.C., during the breeding season, and this probably included localities in the Sandhills. Sprunt and Chamberlain (1949) cited its summer occurrence in Aiken County, presumably based on Murphey's report. Norris (1963) found four singing males in a mowed hayfield in the AEC area, Aiken County, on 4 June 1958. Several pairs and one young were seen near Columbia, Richland County, on 30 July 1952 (Chat 16:103).

I found three breeding localities below the fall line in South Carolina in 1979 (Chat 44:24, 52). Ten to 15 pairs were estimated at Shaw Air Force Base, Sumter County. Ten pairs were estimated at McIntire National Guard Air Base, Richland County. Juveniles were seen at both sites. One adult, acting as if on territory, was seen 10 km SE of Columbia, Richland County, on 12 August.

I found four breeding localities below the fall line in North Carolina in 1981. Three pairs (and several juveniles) were present in Derby, Richmond County. Two birds, including a male singing on territory, were found 15 km S of Rockingham, Richmond County, on 27-28 July. Thirty-five to 40 pairs were estimated at the Laurinburg airport, Scotland County. An estimate in 1982 indicated that perhaps 50 to 60 pairs were present. Ten to 12 pairs were estimated at the Lumberton airport, Robeson County. Juveniles were seen at the last two sites. In addition, R. Davis (Chat 45:24) discovered three singing males on 28 July 1980 at the New Hanover County airport near Wilmington. He saw an adult and a possible juvenile there on 30 July 1981 (Chat 46:25) and an immature was present on 20 August (Chat 46:55). Crutchfield and Mason (Chat 45:110) reported a singing bird near Fayetteville on 18 May 1981.

Additional breeding-season records occur in the coastal plain for Georgia, Florida, and other Southeastern States. One Georgia record, aside from Murphey's report, was of five singing males (one collected) found in a field on 26 July 1947, 5 km E of Marshallville, Macon County (Burleigh, 1958). Norris (1963) cites Denton, who said Grasshopper Sparrows were found below Augusta in summer across the Savannah River from the AEC Plant; Denton (1977) did not mention this locality in the *Annotated Checklist of Georgia Birds*. Several birds were present at two Florida localities north of known sites of the Florida race, *A. s. floridanus*, but the race involved at each of the two sites was unknown (Howell 1932). Breeding in coastal-plain localities also has been recorded from Virginia (Smith 1968), Alabama (Imhof 1976), and other states both north of Virginia and west of Alabama.

The breeding record at Derby is the first for the North Carolina Sandhills, and there are only six published sight records for this region. They are: one on 1 March 1926 near Pinehurst (Skinner 1928); one on 12 November 1978 near Hoffman in the

Sandhills Game Management Area (Chat 43:42); one from 7 February to 17 March 1979 at a feeder in Pinehurst (Carter and Jones 1981); one on 29 April 1979 at Fayetteville (Chat 43:101); another singing near Fayetteville on 18 May 1981 (Chat 45:110); and three near Fayetteville, at Fort Bragg in western Hoke County, on 3 August 1982 (Chat 47:32).

The Derby site is an 8-ha sandy pasture 1 km NW of Derby along SR 1003, and the pasture is 3 to 8 years old. The most numerous plant species are Bermuda Grass (*Cynodon dactylon*) and Plantain (*Plantago aristata*). Marsh-fleabane (*Pluchea camphorata*) is well distributed. Also present are *Haplopappus divarictus*, *Lespedeza* sp., and Dog-fennel (*Eupatorium capillifolium*). The dead stems of last year's growth of many of these forbs provide important perch sites.

Three pairs of Grasshopper Sparrows were present, and juveniles were seen in July. I discovered a nest on 22 May when I saw a Grasshopper Sparrow in or very near it; the bird gave a "rodent run" for 3 m and then flew. The nest depression was 14 cm in diameter and 6 cm deep. The nest surface was level with the ground, and a tuft of grass overlay three-fourths of the top. The nest faced northeast and was on a level, scantily vegetated area. A lespedeza 2 m away was the only prominent perch for 22.5 m. The presence of a fecal sac in the nest and the bird's behavior toward the nest suggest it was occupied in the current year.

I have only general observations on habitat selection of other coastal-plain breeding localities I located in the Carolinas in 1979 and 1981. The McIntire N.G.A.B. was a meadow (1 to 1.5 m high) with moderate stem density and almost no woody vegetation. Both Lumberton airport and Shaw A.F.B. had extensive short (0.3 to 0.6 m) grass with scattered low forbs and shrubs; the former site was partly surrounded by soybean fields. The Laurinburg airport had a great variety of grasses and forbs; woody plants and soybean fields were also present. The two sites near Columbia, S.C., and Rockingham, N.C., were soybean fields and cultivated fields, respectively. Population densities at these sites ranged from low to high, comparable to sites elsewhere in the Grasshopper Sparrow's range (Johnston and Odum 1956, Smith 1968, Whitmore 1979, and others).

Additionally I would like to provide the following incidental local behavioral and habitat notes.

*Foraging habitat and behavior.*—Soybean (*Glycine max*) fields may lie adjacent to Grasshopper Sparrow breeding habitats in the coastal plain of the Southeastern States. Soybean fields, as well as other monoculture crops, may provide alternative food and protection compared to grassland or herbaceous breeding habitats. Sparrows will use soybean fields for cover. I have found no evidence of nests placed in soybean fields. Grasshopper Sparrows may forage on insects and grass seeds within soybean fields. Sparrows may obtain either type of food on the ground or on a soybean plant, though I have not observed sparrows obtaining food while perched in a soybean plant. Soybean plants offer poor mechanical support for alighting sparrows; the plants usually bend over and the sparrow is forced to depart. Sparrows will perch on Johnson Grass (*Sorghum halepense*), *Euphorbia nutans*, or other herbaceous plants that lie within soybean fields, even when these plants are shorter than surrounding soybean plants. I have some observations of sparrows feeding above ground on culms of Johnson Grass. The sheathed stem of Johnson Grass provides adequate support for perching; sparrows

may feed at the distal end of the plant, though most birds perched and ate at least 0.8 m from the top.

*Singing perches.*—Grasshopper Sparrows prefer elevated perches (Smith 1968). Most available perches in forbs in the coastal plain are less than 1.6 m above ground. Fences and a few short woody plants such as Red Cedar (*Juniperus virginiana*) and pines (*Pinus* sp.) are used as perch sites. Airfield structures—runway and taxi lights and Vasi structures—are commonly used as perch sites. One persistent sparrow at the Laurinburg airport used a volleyball net placed 3 m high as well as a signal area cleared for traffic control. Favored singing sites could often be determined without seeing a bird, by the amount of excreta present on plants or man-made structures.

*Heat stress.*—Gular fluttering was often observed on hot days ( $> 30$  C), especially at midday in July and August. Gular fluttering was particularly noticeable in birds perched on airfield structures. I observed no panting until 1000. I observed birds panting in the open after I flushed them from cover. Some of these individuals were flushed from soybean fields, which may provide a cooler microclimate than Grasshopper Sparrows normally find in their breeding habitats.

*Other behaviors.*—The longest distance I observed a bird fly was 40 m. Most flushed or unflushed individuals flew less than 25 m.

Disturbance to Grasshopper Sparrows by moving aircraft appeared minimal. Sparrows continued to sing from runway and taxi lights during aircraft arrivals and departures. Revving-up of powerful aircraft engines prior to takeoff caused nearby singing males to depart, but these birds quickly returned to their perch sites after aircraft departure.

## ACKNOWLEDGMENTS

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## BOOK REVIEW

### BIRDS

John Andrews. 1983. Exeter Books, New York. Illustrated. Bibliography. Index. 80 p. Price not indicated.

This 9 x 12½-inch book is an artistic pleasure, with 180 photos and drawings in full color. Several dozen artists and photographers made contributions. The text brings nothing new to the experienced ornithologist, but the information will be most helpful to the novice. The author covers evolution, flight, migration, courtship, and conservation. Then he discusses habitats—tundra, northern forests, temperate woodlands, tropical forests, grasslands, savannahs, and deserts.

The writing is straight-forward and easy to understand, without talking down to the reader. Many well-done small drawings make it easy to follow the text.—LCF