
January 2000

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Recommended Citation

Delany, Michael F.; Lockley, Timothy C.; Pranty, Bill; and Scheuerell, Mark D. (2000) "Stomach Contents of Two Nestling Florida Grasshopper Sparrows," *Florida Field Naturalist*. Vol. 28 : Iss. 2 , Article 8.
Available at: <https://digitalcommons.usf.edu/ffn/vol28/iss2/8>

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STOMACH CONTENTS OF TWO NESTLING FLORIDA GRASSHOPPER SPARROWS

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In this note we describe the stomach contents of two nestling Florida Grasshopper Sparrows (*Ammodramus savannarum floridanus*). Information on diet may be helpful in evaluating food resources used by this endangered subspecies (USFWS 1988). We believe this is the first information on the stomach contents of nestling Grasshopper Sparrows.

On 19 May 1997, the carcass of a Florida Grasshopper Sparrow estimated to be nine days old was salvaged from a nest presumably destroyed by a predator at Three Lakes Wildlife Management Area, Osceola County (27°47'N 81°06'W). On 6 July 1997, the carcass of another nestling estimated to be three days old was salvaged from a flooded nest at Avon Park Air Force Range, Highlands County (27°37'N 81°19'W) (Pranty 2000). Stomachs were removed and preserved in 70% isopropyl alcohol. Stomach contents were examined with a dissecting microscope and identified to the lowest possible taxon. Contents were deposited in the Florida Museum of Natural History (UF 41164, UF 41165).

Orthopterans were the most important food for the two nestling Florida Grasshopper Sparrows, comprising 63% of the total number of food items and 71% of all arthropods consumed (Table 1). Previous information on foods used by Grasshopper Sparrows is limited to stomach samples from adults, and observations of adults feeding young. Insects, mostly grasshoppers, are the major summer diet of adults throughout the species' range (Vickery 1996). Insects and spiders comprised 69 percent, and vegetation comprised 31 percent of the stomach contents of nine adults and one "young" Florida Grasshopper Sparrow examined by Howell (1932), with grasshoppers, crickets, beetles and weevils, moths and their larvae, flies, and bugs taken in the greatest quantity. Vegetation included seeds of sedges, grasses, and stargrass (*Hypoxis* sp.). Wiens (1969) reported that Lepidopteran larvae were the most frequent food fed to nestling Grasshopper Sparrows (*A. s. pratensis*) in Wisconsin.

Food is usually not considered a limiting resource for opportunistic grassland birds (Wiens 1973, Wiens and Rotenberry 1979). However, Kaspari (1991) found that Grasshopper Sparrow (*A. s. pratensis*) nests with high food delivery rates produced more offspring. Low seed production may limit some wintering populations (Pulliam and Dunning 1987).

Grasshopper Sparrows are ground-dwelling birds, and bare ground is critical for effective foraging (Vickery 1996). The Florida subspecies occupies prairie grasslands maintained in an open, early successional stage by prescribed fire every 2-3 years (Delany et al. 1985). Grasshopper species composition and relative abundance varies with grassland vegetation (Kemp et al. 1990) and fire frequency (Evans 1984), and may affect prey availability for sparrows at some locations.

Table 1. Stomach contents of nestling Florida Grasshopper Sparrows from Three Lakes Wildlife Management Area¹ (Osceola County) and Avon Park Air Force Range² (Highlands County), 1997.

Item	Number of items	Percent of total number
INSECTS		
Katydid (<i>Orchelimum</i> sp.)	5 ¹	15.6
Grasshoppers (<i>Melanoplus</i> sp.)	2 ²	6.3
Scudder's mantis (<i>Oligonicella scudderi</i>)	1 ²	3.1
unidentified orthopterans	12 ^{2,3}	37.5
Click beetle (<i>Elateridae</i>)	1 ¹	3.1
Ground beetle (<i>Carabidae</i>)	1 ¹	3.1
Two-lined spittlebug (<i>Prosapia bicincta</i>)	1 ¹	3.1
Fly (<i>Tabanidae</i>)	1 ¹	3.1
Parasitic wasp (<i>Braconidae</i>)	1 ¹	3.1
ARACHNIDS		
Wolf spider (<i>Lycosa helluo</i>)	1 ¹	3.1
Orb weaver spider (<i>Acantheperia venusta</i>)	1 ¹	3.1
Jumping spider (<i>Habronattus calcaratus</i>)	1 ²	3.1
SEEDS		
Sedge (<i>Scleria</i> sp.)	1 ¹	3.1
Unidentified seeds	3 ¹	9.4
TOTAL	32	100.0

³Number estimated from pairs of mandibles.

Additional information on prey availability and diets of nestlings and year-round diets of adults is needed to assess food resources for Florida Grasshopper Sparrows. Information on food items reported here may be useful in designing sampling procedures for potential prey (e.g., sweep net samples for grasshoppers and pitfall traps for spiders).

This work was supported by a cooperative agreement between Avon Park Air Force Range and Florida Fish and Wildlife Conservation Commission, funded by the Department of Defense. D. G. Cook and P. B. Walsh effectively promoted this effort. We thank G. B. Edwards, Jr., J. B. Heppner, and D. Ruhl for taxonomic assistance. J. A. Gore, J. S. Greenlaw, S. A. Nesbitt, W. Post, J. A. Rodgers, Jr., and D. A. Wood reviewed previous manuscript drafts.

LITERATURE CITED

- DELANY, M. F., H. M. STEVENSON, AND R. MCCracken. 1985. Distribution, abundance, and habitat of the Florida Grasshopper Sparrow. *Journal of Wildlife Management*. 49:626-631.
- EVANS, E. W. 1984. Fire as a natural disturbance to grasshopper assemblages of tallgrass prairie. *Oikos* 43:9-16.
- HOWELL, A. H. 1932. *Florida bird life*. Coward-McCann, New York.
- KASPARI, M. 1991. Central place foraging in Grasshopper Sparrows: opportunism or optimal foraging in a variable environment? *Oikos* 60:307-312.

- KEMP, W. P., S. J. HARVEY, AND K. M. O'NEILL. 1990. Patterns of vegetation and grasshopper community composition. *Oecologia* 83:299-308.
- PRANTY, B. 2000. Three sources of Florida Grasshopper Sparrow mortality. *Florida Field Naturalist* 28:27-29.
- PULLIAM, H. R., AND J. B. DUNNING. 1987. The influence of food supply on local density and diversity of sparrows. *Ecology* 68:1009-1014.
- U. S. FISH AND WILDLIFE SERVICE. 1988. Recovery plan for Florida Grasshopper Sparrow. U.S. Fish and Wildlife Service, Atlanta.
- VICKERY, P. D. 1996. Grasshopper Sparrow (*Ammodramus savannarum*). In *The birds of North America*, no. 239, (A. Poole and F. Gill, Eds.). The Academy of Natural Sciences, Philadelphia, and the American Ornithologists' Union, Washington, D.C.
- WIENS, J. A. 1969. An approach to the study of ecological relationships among grassland birds. *Ornithological Monographs* No. 8.
- WIENS, J. A. 1973. Pattern and process in grassland bird communities. *Ecological Monographs* 43:237-270.
- WIENS, J. A., AND J. T. ROTENBERRY. 1979. Diet niche relationships among North American grassland and shrubsteppe birds. *Oecologia* 42:253-292.