

by Michael F. Delany

The Low-down on Grasshopper Sparrow Nests



Photo by D.R. Progulski, Jr.

For the low-down on grasshopper sparrow (*Ammodramus savannarum*) nests, you need to get down low. The well concealed nests are constructed in shallow excavations in the ground. Recent measurements at nests of the endangered Florida subspecies (*A. s. floridanus*) provide the first quantitative description of grasshopper sparrow nest sites.

The Florida grasshopper sparrow is endemic to the south-central prairie region of the state, and was listed as endangered because of its restricted distribution, loss of habitat, and population decline. Breeding aggregations are known from only six locations, with a total estimated breeding population of fewer than 1,000 birds. Basic information on nesting ecology was needed to develop management plans for the sparrow. Nest structure and features of the nest site may have important implications for reproductive success and

population stability. If the population continues to decline and nears extinction, the recovery plan recommends that captive propagation be initiated. Information on nests and nest sites from a wild population would be important if that drastic effort becomes necessary.

To gather that information, we studied Florida grasshopper sparrow nests on a 1,729 acre (700-hectare) prairie at the Avon Park Air Force Range in Highlands County, Florida. Observations of adults delivering food to nestlings and of females flushed from incubation helped us find the nests. The nests and features of the surrounding vegetation were measured after young fledged or after the nest failed.

We found 20 nests containing eggs or young. Nest cup rims were level with the ground and all nests were domed (nest material covered more than 50 percent of the cup). Most were constructed of

A well concealed Florida grasshopper sparrow nest. Vegetation density was higher at nests than at other sites within the bird's breeding territory.

Photo by M.F. Delany



wiregrass (*Aristida* sp.) and bluestem (*Andropogon* sp.), with a soft inner lining of road grass (*Eleocharis baldwinii*). The average nest diameter was 4 inches (10 centimeters). Primary vegetation shielding the nest was dwarf live oak (*Quercus minima*) and saw palmetto (*Serenoa repens*). Vegetation density was higher at nests than at other areas within the breeding territory. Nest openings were oriented in the direction of the lowest vegetation density.

Nest site selection appears to be influenced by the availability of small clumps of dense vegetation within low-density patches 13 feet (4 meters) in diameter. Dense vegetation may conceal the nests and reduce the risk of predation. Grasshopper sparrows usually approach the nest on the ground, and low vegetation density near the nest would facilitate access. An exposed area at the nest opening also would allow a quick exit by the female and make predator distraction displays more visible.

The sparrow probably cannot adapt to habitat perturbations that remove potential nest sites. Since its listing in 1986, habitat loss on private lands has caused Florida grasshopper sparrows to abandon six former breeding locations. Some of those abandoned sites were mechanically cleared and planted with bahia grass (*Paspalum* sp.), pangola grass (*Digitaria* sp.), and American joint vetch (*Aeshynomene americanus*) to improve cattle grazing. Others were plowed and planted with bahia grass for sod production. The sparrow's preference for dense clumps of vegetation within more open patches may restrict nest placement. These vegetation features did not exist at abandoned breeding locations.

Frequent burning (2-3 year intervals) maintains prairie grasslands in an open early successional stage, and appears to promote suitable nesting habitat. Prescribed fires may improve habitat for Florida grasshopper sparrows at other locations. The sparrow seems responsive to habitat restoration, and the creation of additional nesting habitat



near breeding locations may allow some populations to expand. Cattle grazing may also have a role. The low stocking rates (less than 1 cow and calf per 21 acres or 8.7 ha) and short duration grazing (up to 21 days, followed by longer periods of exclusion) on the study area seemed compatible with the sparrow's nesting requirements.

The breeding success of ground-nesting grassland birds is usually less than 50 percent, with most nest loss attributed to predation. Despite a high reproductive potential (an average clutch size of four eggs, and two to three nesting attempts per year), predation may limit recovery efforts for Florida grasshopper sparrows. More information on factors influencing nesting outcome is needed to determine conservation strategies for this rare bird.

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