

## NOTES

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**A PREVIOUSLY UNKNOWN POPULATION OF FLORIDA GRASSHOPPER SPARROWS ON AVON PARK AIR FORCE RANGE**

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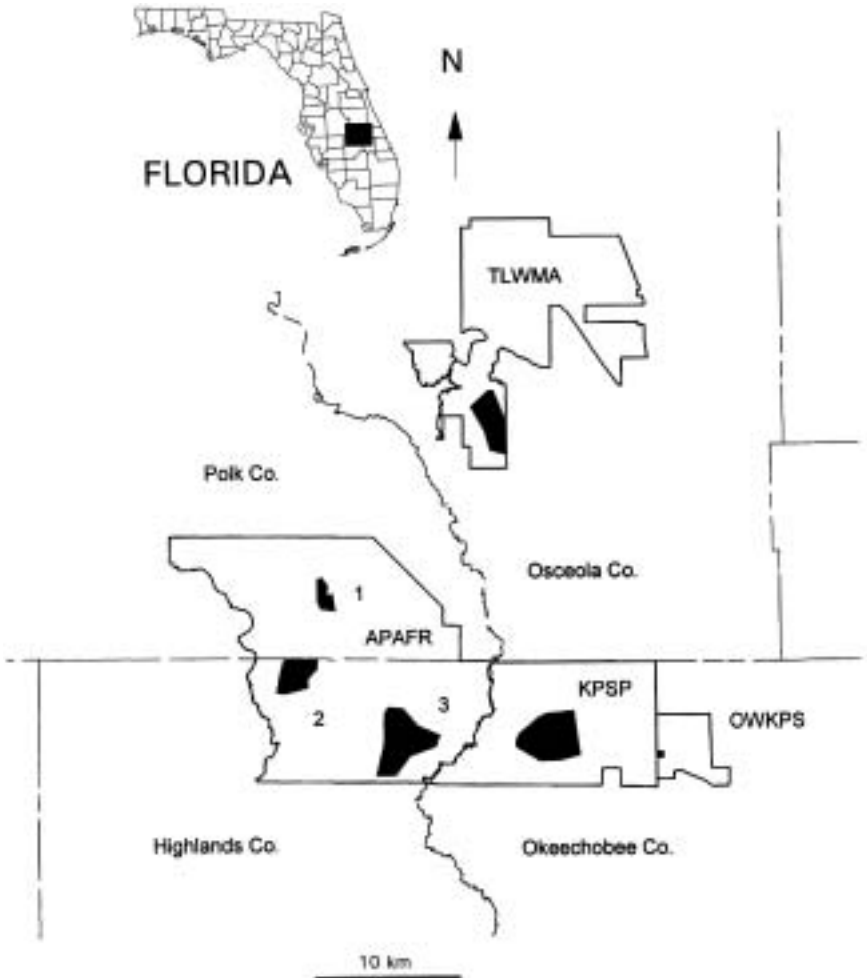
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The Florida Grasshopper Sparrow (*Ammodramus savannarum floridanus*) was listed as endangered because of its restricted distribution, loss of habitat, and population decline (USFWS 1988). Five extant populations are heretofore known on protected lands (Delany 1996, Shriver and Vickery 1999). We report the discovery of a population of Florida Grasshopper Sparrows and provide information on the current known range, status, and management of the subspecies.

On 19 April 1997, during a survey for Northern Bobwhites (*Colinus virginianus*), P. B. Walsh heard a singing male Florida Grasshopper Sparrow on Bravo Range, Avon Park Air Force Range (APAFR), Polk County (27°41'N 81°17'W) (Fig. 1). He has conducted annual bobwhite surveys at this location since 1993 and no Grasshopper Sparrows were previously detected. The location is an aerial bombing and gunnery range used by fighter and bomber aircraft, and artillery and mortar gunnery from ground-based weapons systems. Over 1,000 high explosive rounds and several thousand nonexplosive rounds strike the location annually (Anon. 1997). Ordnance-ignited wildfires are frequent (>1/year) and occur year round. Prescribed burns are conducted during the winter (December-March) on areas that did not burn during wildfires. The 206 ha grassland was comprised of saw palmetto (*Serenoa repens*), wiregrass (*Aristida* spp.), cut-throat grass (*Panicum abscissum*), and yellow-eyed grass (*Xyris* spp.). The grassland was bordered by open-canopy longleaf pines (*Pinus palustris*), shrubs, wetlands, and a bare ground target area. Soils are mostly Myakka sand and Basinger sand.

Surveys to determine the number and distribution of Florida Grasshopper Sparrows at this location were conducted using a system of 22 grid points. Each point was separated by about 350 m and marked with a 1 m length of galvanized electrical conduit. The coordinates of points were determined with a global positioning system.

Survey methods and population estimation follow Walsh et al. (1995). Visual and auditory observations of Florida Grasshopper Sparrows were recorded during a 5-minute interval at each point during 5-19 May 1997. Observations were made from sunrise to 1000 hrs. One survey was conducted at each point on three separate days. Sparrow locations were recorded in reference to the grid point markers using false-color



**Figure 1.** Map of Florida Grasshopper Sparrow populations on protected lands, 1998. TLWMA = Three Lakes Wildlife Management Area, APAFR = Avon Park Air Force Range, KPSP = Kissimmee Prairie State Preserve, OWKPS = Ordway-Whittell Kissimmee Prairie Sanctuary. For APAFR: 1 = Bravo Range, 2 = Delta Trail/OQ Range, 3 = Echo Range. Distribution surveys were incomplete for KPSP.

infrared maps of the study area. Sparrows observed on different days >203 m apart were considered separate individuals. To obtain an estimate of the total population size, the number of males detected during point counts was doubled, and the number of sparrows of undetermined sex was added. The size of the area used was determined by digitizing the outermost locations of Florida Grasshopper Sparrows and calculating the area of the minimum convex polygon using Arc View GIS 3.0 software (ESRI 1990).

Surveys on Bravo Range located 21 males and one sparrow of undetermined sex, for a minimum population estimate of 43 Florida Grasshopper Sparrows. The birds occupied 198 ha of prairie grassland. Nesting was confirmed on 12 May 1997, when B. Pranty found a nest with four eggs.

Bravo Range is 5.5 km northeast of the nearest population of Florida Grasshopper Sparrows (Fig. 1) and separated by slash pine (*Pinus elliottii*) plantations, longleaf pine forests, and unoccupied prairie grasslands. Land use records (APAFR unpubl. data) indicate Bravo Range was once forested, and we noticed pine stumps where surface soil was displaced from bomb craters. Sparrows probably colonized the site after it was cleared in the 1920s. Frequent ordnance-ignited wildfires since the 1940s have maintained grasslands on Bravo Range in an open, early successional stage preferred by Grasshopper Sparrows (Walsh et al. 1995, Vickery 1996). Florida Grasshopper Sparrows seem to be responsive to habitat restoration (Delany 1996) and their use of a previously forested location supports this contention.

Florida Grasshopper Sparrows appear to be sedentary (Delany et al. 1995) and the Bravo Range population is probably a distinct breeding aggregation. This provides an additional, protected location and an important opportunity towards the recovery of the sparrow. The subspecies could be reclassified as threatened if 50 breeding pairs become established at each of 10 secure, discrete locations throughout its former range (USFWS 1988). However, only four populations meet these criteria (Table 1, Fig. 1).

Since its listing, habitat loss on private lands has caused the sparrow to abandon six former breeding locations (Delany and Linda 1994). Search of a former location (Delany 1996) on private property in DeSoto County during 1996 failed to locate Florida Grasshopper Sparrows (T. F. Dean pers. comm.). A location on private property 11.0 km southeast of Basinger (Okeechobee County) (Delany 1996) has not been searched since 1992 when an unmated male and a mated pair with a nest containing four young were found (Turner and DeLotelle 1992). On 15 May 1997, a male Florida Grasshopper Sparrow was found on River Ranch Acres in Polk County (Pranty 1997), 10 km east of the Bravo Range population.

Current information does not warrant a change in the listing status of the Florida Grasshopper Sparrow. Breeding aggregations are known from only six protected locations with a total population of <1,000 birds (Table 1). However, other populations probably exist and additional distribution surveys are needed to locate occupied sites. Shriver and Vickery (1999) identified 156,000 ha of potential habitat within the historic range of the sparrow. As the Bravo Range population exemplifies, Florida Grasshopper Sparrows can be easily overlooked. Known populations should be monitored each year to determine trends.

The objective of the recovery plan for the Florida Grasshopper Sparrow is to maintain populations and increase distribution and abundance (USFWS 1988). Small populations (<50 pairs) or isolated pairs may provide a focal point for habitat management and the formation of viable populations. Tree and shrub removal, along with prescribed fire, may provide additional habitat to expand some occupied locations. A population of 50 breeding pairs may require 240-1,348 ha of prairie grassland (Delany et al. 1995). Additional information is needed on the effects of land management practices on Florida Grasshopper Sparrows to achieve recovery.

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**Table 1. Florida Grasshopper Sparrow populations and land management on protected lands, 1996-1998.**

Population	County	Number of Singing Males	Estimated Population Size <sup>a</sup>	Land Management
Avon Park Air Force Range (Delta Trail/OQ Range)	Highlands	49 <sup>a</sup>	113	Controlled burns during winter, every 2-3 years. Currently used for military maneuver training. Public hunting. Lightly grazed by cattle.
Avon Park Air Force Range (Bravo Range)	Polk	21 <sup>a</sup>	43	Frequent ordnance-ignited fires, year round. Controlled burns during winter, every 1-2 years. Explosive ordnance impact area. Unhunted. Ungrazed.
Avon Park Air Force Range (Echo Range)	Highlands	67 <sup>a</sup>	142	Same as Bravo Range, except lightly grazed.
Ordway-Whittell Kissimmee Prairie Sanctuary	Okeechobee	2 <sup>b</sup>	4	Controlled burns during summer, every 3 years. Unhunted. Ungrazed.
Kissimmee Prairie State Preserve	Okeechobee	111 <sup>b,c</sup>	222	Controlled burns during summer, every 3 years. Unhunted and ungrazed since 1996.
Three Lakes Wildlife Management Area	Osceola	94 <sup>d</sup>	188	Controlled burns during summer and winter, every 3 years. Public hunting. Ungrazed since 1987.

<sup>a</sup>Methods follow Walsh et al. (1995).

<sup>b</sup>APAFR Surveys, 1997.

<sup>c</sup>Pers. observ. D. W. Perkins, 1998.

<sup>d</sup>Incomplete surveys.

<sup>e</sup>Florida Game and Fresh Water Fish Commission (unpubl. data 1996).

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