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C. TOM RAINEY, D.V.M. WILLIAM G. BOSTICK, JR. DON WRIGHT THOMAS L. HIRES, SR. MRS. GILBERT W. HUMPHREY
 Miami Winter Haven Orlando Lake Wales Miccosukee

ROBERT M. BRANTLY, Executive Director
 ALLAN L. EGBERT, Ph.D., Assistant Executive Director



Little River Ranch
 Route 7, Box 3055
 Quincy, FL 32351
 (904) 627-9674

November 17, 1989

Mr. Jerry L. Holloman, Manager
 St. Vincent National Wildlife Refuge
 P. O. Box 447
 Apalachicola, FL 32320

Dear Mr. Holloman:

Here is a copy of our report on the black rail surveys we conducted last spring. Please share this with anyone that you think would be interested. These results, in a somewhat different form, have been submitted to the Florida Field Naturalist and may be published next Spring.

We appreciate your excellent cooperation in helping make this pilot survey a success. If I can be of help with other wildlife surveys you are involved in, please don't hesitate to call.

Sincerely,

Douglas E. Runde, Ph. D.
 Nongame Survey Coordinator

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 GFC 1-3-4

cc: Brian Millsap

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FINAL PERFORMANCE REPORT
Nongame Wildlife Section
Division of Wildlife
Florida Game and Fresh Water Fish Commission

Project: Survey and Monitoring (7616)
Study: Black Rail Pilot Survey
Period covered: 1 September 1988 - 31 August 1989
Principal Investigators: Douglas Runde, Survey and Monitoring
Coordinator
Peter Southall, Regional Nongame
Biologist, Northeast Region
Julie Hovis, Regional Nongame Biologist,
Central Region
Rochelle Renken, Nongame Biologist
Prepared by: Douglas Runde

SUMMARY

Aural surveys using tape recorded calls proved to be an efficient and effective way to survey large expanses of shallow marsh for black rails (Laterallus jamaicensis). Approximately 28 to 31 rails were detected at 15 different sites in Florida in the spring and summer of 1989. We recommend further extensive surveys to determine current status and distribution of this elusive bird. If such surveys suggest an uncertain future for black rails and more detailed monitoring is deemed necessary, then detailed research will be needed to refine the call count method.

INTRODUCTION

The black rail is a tiny elusive bird inhabiting dense emergent vegetation, wet meadows, moist soil, and high fresh and salt marshes (Eddleman et al. 1988). This species is rarely encountered, even by dedicated bird watchers, and therefore very little is known about its status and distribution; its narrow habitat tolerances make it susceptible to well planned and tightly focused surveys.

The Florida Game and Fresh Water Fish Commission's Nongame Wildlife Program completed a ranking of all 670 vertebrate taxa in the state according to biological vulnerability and current state of knowledge of distribution (Millsap et al. in press). The black rail ranked 5th on the list of priority species needing attention to determine current distribution within the state. Until this information is available, little else can be done to protect or manage this rail.

Because of the cryptic nature of rails and the dense vegetation typical of their habitats, aural surveys have become the principal means of surveying rail populations. Playing taped calls increases the calling rate of several rail species (see Glahn 1974, Johnson and Dinsmore 1986). Previous studies of the black rail in the western United States by Repking and Ohmart (1977), Evens et al. (1986) and Eddleman (pers. commun.) laid the ground work for this pilot study. We evaluated the feasibility of using systematic aural surveys to determine the current distribution of the black rail in Florida's vast expanses of high elevation marshes characterized by shallow water or moist soil.

STUDY AREAS AND METHODS

To evaluate the feasibility of systematic aural surveys we identified areas where black rails had recently been encountered and reported in American Birds, or were thought to be likely to occur. We located several accessible survey sites in upper tidal marshes along Florida's western and northern Gulf Coast, two freshwater marshes in eastern central Florida, and a single site along the northern Atlantic coast (see Appendix for details).

Thirty-one surveys of 17 different sites were conducted between April and July of 1989. Surveys consisted of call count routes with 10 - 30 stations spaced 60 to 100 m apart. Tidal marshes were surveyed at night or in the morning during periods of high tide. Due to its small size the black rail is likely to be confined to shallow water or moist soil marshes. By surveying vast salt marshes at high tide, we believe that we increased the probability of detecting rails as they are forced to the upper edges of marshes. (Some birds may however retreat to high ground and floating mats of vegetation within tidal marshes.) Shallow freshwater marshes were surveyed primarily in the late evening.

Tape recordings of the ki ki doo call followed by the grrr call were played for 2 min. at each call count station. We listened for a response for at least 1 min. before moving to the next station. Call count routes varied in length and configuration depending upon the size and configuration

of the marsh, water depths, and presence of deep tidal channels. Transects were feasible in the freshwater marshes, and along dikes or roads. Routes in tidal marshes varied greatly in orientation and we had our best success following irregular marsh/upland edges.

RESULTS AND DISCUSSION

We detected between 27 and 31 individual black rails in areas of high marsh with moist soil or very shallow (≤ 4 cm) water. Only 1 was seen. Carefully planned aural surveys using tape recorded calls appear to be an effective and efficient method to determine presence of black rails in extensive marsh systems. Further use of this method will readily provide new information on black rail distribution.

We successfully detected black rails in both fresh and salt marshes during both morning and night surveys. Encounters were too few to determine which period is most efficient, but we believe that future surveys of tidal marshes should be timed to coincide with high tides in either the late-evening or early morning hours. Future surveys of fresh marshes should be conducted in the early morning; loud night-time choruses of anurans can invalidate aural surveys for rails.

On calm nights and mornings, the 100 m spacing of call stations seemed acceptable. Informal tests of the audibility of the taped calls played at full volume suggested that this distance was not excessive. On calm nights the calls were audible to us at distances up to 150 m.

If further extensive distributional surveys suggest that the status of the black rail is uncertain, then further research will be needed to refine the call count technique for this species. This technique, as we used it, only detects the presence of calling rails. But if more detailed information (e.g., presence/absence and relative abundance, in space and time) is needed, then studies on the calling and response behavior of black rails will be needed. We suggest considering the approaches of Evens et al. (1986), Kaufman (1988), Glahn (1974) and Eddleman (pers. commun.). We have located two areas with potentially large breeding populations of black rails in north Florida that would be suitable for these types of studies: St. Vincent and St. John National Wildlife Refuges, and Jena Wildlife Management Area.

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Table 1. Summary of black rail detections in north and central Florida, 1989.

Site Name	County	Date	No. Detected	Latitude	Longitude	USGS Quadrangle	Township	Range	Section	
Lake Woodruff NWR ¹	Volusia	23-May	1	29 06.5'	81 23'	Lake Woodruff	22 S	29 E		
St. John's NWR	Brevard	02-May	4 - 6	28 33'	80 54'	Titusville SW	22 S	34 E	27 NE	
		24-May	1	28 33'	80 54'	Titusville SW	22 S	34 E	27 NE	
		30-Jun	1	28 33'	80 54'	Titusville SW	22 S	34 E	27 NE	
St. Vincent's NWR	Franklin	04-Apr	1	29 41.0'	85 07.0'	West Pass				
		04-Apr	1	29 40.5'	85 06.5'	West Pass				
		24-Apr	3	29 39.2'	85 05.7'	West Pass				
		25-Apr	5	29 39.8'	85 05.3'	West Pass				
St. Mark's NWR	Wakulla	26-Apr	1 - 2	30 06.5'	84 06.5'	Cobb Rocks	4 S	2 E	26 NW	
Porter Island		24-May	1	30 01'	84 22'	Spring Creek				
Jena WMA ²	Levy	07-Jun	5	29 32'	83 23'	Steinhatchee SW				
		27-Jul	1	29 32'	83 22'	Steinhatchee SE				
Big Bend WMA (Tide Swamp Unit)	Taylor	16-Mar	1	29 40.5'	83 25.0'	Steinhatchee	9 S	9 E	22 SW	
		16-Mar	1	29 47.5'	83 34.0'	Keaton Beach	8 S	7 E	12 SE	
		26-Jul	1	29 46.5'	83 33.8'	Keaton Beach	8 S	8 E	19 NW	
Total										
			27 - 31							

¹ U.S. Fish and Wildlife Service National Wildlife Refuge

² Florida Game and Fresh Water Fish Commission Wildlife Management Area

Appendix. Black rail survey sites in north and central Florida, 1989.

Site Name	County	Date	Black Rails Detected?
Lake Woodruff NWR ¹	Volusia	01-May	N
		23-May	Y
		30-Jun	N
St. John's NWR	Brevard	02-May	Y
		24-May	Y
		30-Jun	Y
St. Vincent's NWR	Franklin	04-Apr	Y
		05-Apr	N
		05-Apr	N
		24-Apr	Y
		25-Apr	Y
St. Mark's NWR	Wakulla	26-Apr	Y
		27-Apr	N
		28-Apr	N
Mashes Island		25-May	N
Wakulla Beach		25-May	N
Porter Island		24-May	Y
Jena WMA ²	Levy	07-Jun	Y
		27-Jul	Y
Big Bend WMA (Tide Swamp Unit) (Hagen's Cove) (Dallus Creek) (Spring Creek Unit) Aucilla WMA (Hickory Mound)	Taylor	16-Mar	Y
		16-Mar	Y
		08-Jun	N
		15-Mar	N
		26-Jul	Y
		15-Mar	N
		15-Mar	N
12-Jul	N		
Fort Island Ozello	Citrus	16-Jun	N
		14-Jun	N
Aripeka	Hernando	13-Apr	N
Fort George	Duval	26-Apr	N

¹ U.S. Fish and Wildlife Service National Wildlife Refuge

² Florida Game and Fresh Water Fish Commission Wildlife Management Area