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Recent Records and Survey Methods for the Black Rail in Florida

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A tiny and elusive bird, the Black Rail (*Laterallus jamaicensis*) inhabits dense emergent vegetation, wet meadows, moist soil, and high fresh and salt marshes (Eddleman et al. 1988). Rarely encountered, even by dedicated bird watchers, very little is known about the population status and distribution of this rail in Florida. Due to their small size, Black Rails are usually confined to shallow water or moist soil marshes (W. Eddleman, pers. comm.). These narrow habitat tolerances make Black Rails susceptible to well planned and tightly focused surveys.

The Florida Game and Fresh Water Fish Commission's Nongame Wildlife Program recently reviewed 670 vertebrate taxa in the state and ranked them according to their biological vulnerability and the current state of knowledge regarding their distribution and status (Millsap et al., in press). The Black Rail ranked fifth on a resulting list of priority taxa judged potentially vulnerable to extirpation for which current data on distribution are limited. Until such basic information is available, little can be done to protect or manage the Black Rail in Florida.

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), Manolis (1978), Evens et al. (1986), and Eddleman (pers. comm.) laid the groundwork for this pilot survey. Our goal was to evaluate the feasibility of using systematic aural surveys to determine the current distribution of the Black Rail in Florida's vast expanses of high elevation marsh. We located several accessible survey sites in upper tidal marshes along Florida's western and northern Gulf Coast, and two freshwater marshes in east-central Florida (see Table 1). We conducted 31 surveys at 15 different tidal or freshwater marshes in north and central Florida between March and July, 1989.

Surveys consisted of call count routes, with 10-30 stations spaced 60-100 m apart. Tape recordings of the *ki ki doo* call followed by the *grrr* call (Reynard 1974, Hardy 1986) were played for 2 minutes at each call count station. One or two observers listened for a response for at least 1 minute 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; but, routes in tidal marshes varied greatly in orientation and

Table 1. Results of Black Rail call count surveys in north and central Florida, 1989.

Site name	County	Latitude	Longitude	Survey date	No. rails detected
Lake Woodruff NWR[1]	Volusia	29° 06.5′	81° 23′	01 May	0
				23 May	1
				30 Jun	0
St. Johns NWR	Brevard	28° 33′	80° 54′	02 May	4-6
				24 May	1
				30 Jun	1
St. Vincent NWR	Franklin	29° 41.0′	85° 07.0′	04 Apr	1
		29° 40.5′	85° 06.5′	04 Apr	1
				05 Apr	0
		29° 39.2′	85° 05.7′	24 Apr	3
		29° 39.8′	85° 05.3′	25 Apr	5
St. Marks NWR	Wakulla	30° 06.5′	84° 06.5′	26 Apr	1-2
				27 Apr	0
				28 Apr	0
Porter Island		30° 01′	84° 22′	24 May	1
Mashes Island		29° 58.5′	84° 21.5′	25 May	0
Wakulla Beach		30° 06.5′	84° 15.5′	25 May	0
Jena WMA[2]	Dixie	29° 32′	83° 23′	07 Jun	5
		29° 32′	83° 22′	27 Jul	1
Big Bend WMA (Tide Swamp Unit)	Taylor	29° 40.5′	83° 25.0′	16 Mar	1
		29° 47.5′	83° 34.0′	16 Mar	1
		29° 46.5′	83° 33.8′	26 Jul	1
Total					28-31

[1]U. S. Fish and Wildlife Service National Wildlife Refuge.
[2]Florida Game and Fresh Water Fish Commission Wildlife Management Area.

length. Here we had our best success along irregular marsh-upland edges. Shallow freshwater marshes were surveyed between 2100 and 0430 hr (DST); tidal marshes were surveyed at various times during the night or in the morning to coincide with high tides. By surveying coastal marshes at high tide, we suspect that the probability of detecting Black Rails was increased as they likely concentrated in the shallow upper edges of marshes.

We detected between 28 and 31 individual Black Rails (Table 1) in areas of high marsh with moist soil or shallow (≤4 cm) water. We saw only one Black Rail. 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 coincide with high tides in either the late evening or early morning hours. Surveys during high spring tides may be most successful. Because loud night time choruses of anurans can invalidate aural surveys for rails, future surveys of fresh marshes may best be conducted in the early morning. Conducting night time surveys during periods of drought or high atmospheric pressure may help to minimize this problem as well.

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

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. Further extensive surveys are needed to determine the current status and distribution of this elusive bird. If future surveys suggest declines in abundance or distribution and population monitoring is deemed necessary, additional research will be necessary to refine the call count method. Our technique detects only the presence of calling rails. Information on presence or absence, relative abundance, or density will require detailed studies on the calling and response behavior of Black Rails (e.g., Glahn 1974, Evens et al. 1986, Kaufmann 1988). Three areas with potentially large breeding populations of Black Rails in Florida that appear suitable for such studies are the St. Vincent and St. Johns National Wildlife Refuges and Jena Wildlife Management Area (Table 1).

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