

**DISCOVERY AND HABITAT USE OF BLACK RAILS
ALONG THE CENTRAL FLORIDA GULF COAST**

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On the morning of 20 December 1997, Barnwell, Robinson, and other biologists found the carcass of a Black Rail (*Laterallus jamaicensis*) in a tire rut in a salt marsh at Weekiwachee Preserve, Hernando County. The rail (Archbold Biological Station; ABS 1323, a male) apparently had been run over the previous evening by the same biologists as they baited black bear (*Ursus americanus*) traps! Three days later, on the Aripeka-Bayport Christmas Bird Count (CBC; Pranty and Hansen 1998), David Goodwin and Erik Haney heard a Black Rail respond to tape playback in a salt marsh between Bayport and Pine Island, about 12 km north of the Weekiwachee Preserve location. We suspected that Black Rails must be present elsewhere in the region, so we initiated surveys at four sites in spring 1998.

Methods.—Initial surveys took place at Weekiwachee Preserve. Once we were familiar with Black Rail habitat, we surveyed two other publicly-owned sites with suitable habitat: Crystal River State Buffer Preserve in Citrus County and Werner-Boyce Salt Springs State Park in Pasco County. We also surveyed the CBC site and all saltmarsh habitat up to 2.5 km to the north and south. Formal surveys were performed during mornings (ca. 0700-0900) and evenings (ca. 1930-2130) from 2 March to 5 April 1998. To rule out the possibility that all of the rails encountered in 1998 were solely migrants or winter residents, we resurveyed Weekiwachee Preserve on 24 June 2000. Outside of these periods, we encountered Black Rails informally during the course of other fieldwork, including post-dawn surveys during CBCs. Most surveys were conducted on days with little or no wind, and surveys generally followed the methodology of Runde et al. (1990) and the recommendations of Legare (1996). We recorded Black Rail calls onto 30-second loop tapes and broadcast them from portable tape players. We copied the *Kic-kic-kerr* (i.e., *Kick-ee-doo*) and *Growl* calls from Peterson (1991), and the *Kic-kic-kerr* and *Churt* calls from Elliott et al. (1997). At each station, we played the tape for 2-5 minutes, alternating with periods of silence to listen for responding rails. We provide numbers of Black Rails encountered during our surveys (Table 1) and do not attempt to estimate the overall population size at any site. Identification of marsh vegetation was aided by Tobe et al. (1998).

Survey results.—We found 27 Black Rails at three sites: Crystal River State Buffer Preserve, Weekiwachee Preserve, and Werner-Boyce Salt Springs State Park (Table 1). None of these sites previously was known to support Black Rails. Most rails (17 of 27; 62%) were found at Weekiwachee Preserve (Table 1). Effort at the sites varied: Weekiwachee Preserve was surveyed repeatedly; a single site at Crystal River State Buffer

Table 1. Results of cursory Black Rail surveys of selected public lands in Citrus, Hernando, and Pasco counties, 1998-2003. December dates refer to Christmas Bird Count surveys. We show the number of rails encountered during each survey; some individuals at Weekiwachee Preserve and Werner-Boyce Salt Springs State Park likely were detected multiple times. We estimate that we encountered 17 different rails at Weekiwachee Preserve, and 8 rails at Werner-Boyce Salt Springs State Park.

Date	Site	T/R/S	Habitat	Rails
5 April 1998	Crystal River State Buffer Preserve, Citrus County	T19S, R17E, S17	non-tidal sawgrass marsh	2
7 March 1998	Pine Island to Bayport, Hernando County	T22S, R16E, S13, S24; T22S, R17E, S18, S19, S30	tidal <i>Juncus</i> and <i>Spartina</i> marshes	0
2 March 1998	Weekiwachee Preserve, Hernando County	T23S, R16E, S24	non-tidal sawgrass marsh	5
7 March 1998	"	"	"	6
18 March 1998	"	"	"	1
28 March 1998	"	"	"	9
23 December 1998	"	"	"	1
27 December 1999	"	"	"	2
24 June 2000	"	"	"	2
19 December 2000	"	"	"	1
19 December 2001	"	"	"	2
23 December 2002	"	"	"	2
15 March 1998	Werner-Boyce Salt Springs State Park, Pasco County	T25S, R16E, NW $\frac{1}{4}$ S9	non-tidal sawgrass marsh	2
29 December 2000	"	"	"	2
10 August 1999	"	T25S, R16E, S8	"	2
25 October 2003	"	T25S, R16E, SE $\frac{1}{4}$ S4	"	4

Preserve was surveyed three times; and three sites at Werner-Boyce Salt Springs State Park were surveyed once or twice each. Most Black Rails found during our surveys were heard only, but we observed two individuals at Weekiwachee Preserve. We did not locate any Black Rails at or near the CBC site.

Habitat.—The coastlines of Citrus, Hernando, and Pasco counties contain many thousands of hectares of marshes. Most of these marshes are composed of tall, dense stands of needlerush (*Juncus roemerianus*) that are unlikely to support Black Rails due to tidal fluctuation. We encountered no Black Rails in the few *Juncus* marshes that we surveyed. We also did not detect rails in short-stature, tidal and non-tidal cordgrass (*Spartina alterniflora* and *S. cynosuroides*) marshes. Rather, all the Black Rails that we encountered inhabited short (<50 cm), open patches of non-tidal sawgrass (*Cladium jamaicensis*) that grew in the uppermost (i.e., “highest”) marshes. Some of these sawgrass patches were tiny (<1 ha) and abutted coastal hydric hammocks composed primarily of cabbage palms (*Sabal palmetto*) and pines (*Pinus* spp.). Many of the Black Rails that we discovered were located within a few meters of these forests, and a few rails called from within a sparse coverage of mature cabbage palms. Other plants found in association with Black Rail habitat at our survey sites were eastern redcedar (*Juniperus virginiana*), common buttonbush (*Cephalanthus occidentalis*), marsh elder (*Ira frutescens*), perennial glasswort (*Sarcocornia perennis*), Virginia saltmarsh mallow (*Losteletzkya virginica*), muhly (*Muhlenbergia* spp.), and numerous other grasses and forbs. This vegetation grew in a mosaic that included patches of bare or sparsely vegetated ground and patches of shallow water in natural and artificial (e.g., tire ruts) depressions. A bedrock of limestone was found at or just below the ground surface at each site.

Discussion.—Along the central Gulf coast of Florida, Stevenson and Anderson (1994) reported Black Rails occurring in Citrus, Hillsborough, Manatee, Pinellas, and Sarasota counties. Only one of these reports confirmed breeding: an adult accompanied by young 9.6 km east of Clearwater, Pinellas County, on 11 May 1927 (Howell 1932, Stevenson and Anderson 1994). From mid-March through July 1989, Runde et al. (1990) encountered Black Rails at 15 sites along the Gulf coast from Franklin County to Taylor County, at Lake Woodruff National Wildlife Refuge in Volusia County, and at St. Johns National Wildlife Refuge in Brevard County. Many of these sites were not previously known to support Black Rails. Although our surveys likewise were cursory and did not confirm breeding of Black Rails at any site, we extended the known distribution of Black Rails along the Florida Gulf coast south to central Pasco County. Furthermore, the results of Runde’s et al. (1990) and our studies indicate that even brief surveys can add to our knowledge of this little-known species.

We believe that we encountered most or all of the rails that inhabited the few patches of high marsh at Weekiwachee Preserve, but we undoubtedly overlooked many rails at Crystal River State Buffer Preserve and Werner-Boyce Salt Springs State Park, sites that contain much high marsh habitat. Suitable habitat appears to be locally common in salt marshes of Citrus, Hernando, and Pasco counties, so it seems likely that dozens or perhaps even hundreds of additional Black Rails remain to be discovered. Nearly all of the rails that we encountered were located along or near the 5-foot contour line shown on United States Geological Survey topographic quadrangle maps. If Black Rails are limited to this narrow elevational zone, then future surveys may be able to target suitable habitat by examining topographic maps. Additionally, patches of open sawgrass marshland were visible as lighter-colored polygons on infrared aerial photographs, which may further aid survey efforts.

Runde et al. (1990) recommended surveying eastern Panhandle and Big Bend marshes during high tides, when Black Rails would be concentrated along the upper edges of marshes. In central Florida, where the marshes are wide, the Black Rails we encountered were located considerable distances from flowing water—more than 1.5 km in some cases. The only surface water present were small rain puddles, so it was not necessary to time

our surveys according to tides. Runde et al. (1990) conducted surveys between 2100 and 0430. We found that rails responded readily to tape playback up to two hours after sunrise. Surveys after 0900, however, appeared to elicit considerably fewer responses from rails. Our findings matched Legare's (1996) results from Dixie and Brevard counties, Florida. In a study of Black Rails in California, Spear et al. (1999) determined that the periods of greatest response to tape playback were during the 90 minutes following sunset and preceding sunrise. Based on data gathered in Florida, Legare et al. (1999) recommended surveying for Black Rails 0-120 minutes after sunset and before sunrise.

Black Rails vary significantly in response to tape playback depending upon time and season of surveys, sex and breeding condition of individuals, and other factors (Legare et al. 1999, Spear et al. 1999). Based on field trials in Florida using radio telemetry, males responded nearly equally with the *Kic-kic-kerr* (48%) and *Growl* (46%) calls, while the *Churt* call (6%) was rare. Females responded mostly with *Churt* calls (65%), less frequently with the *Growl* (29%), and rarely with *Kic-kic-kerr* (5%; Legare 1996, Legare et al. 1999). We did not record the frequency of the calls that we heard, but the *Churt* call was rare. The *Churt* call also was more difficult to hear compared to the other calls, and usually was uttered only once, which matched Legare's (1996) findings. Many Black Rails that responded to our tape playbacks appeared to give both *Kic-kic-kerr* and *Growl* calls, and at least two individuals responded with lengthy periods of *Kic-kic-kerr* calls given in quick succession. On a few occasions, Black Rails gave unprompted *Kic-kic-kerr* calls prior to our use of tape playback.

Although Black Rail habitat at Weekiwachee Preserve and Werner-Boyce Salt Springs State Park are bordered by subdivisions, the threat of additional habitat loss from coastal development is minor, since most high marshland along the Florida Gulf coast between St. Marks National Wildlife Refuge and Werner-Boyce Salt Springs State Park now is under public ownership (Jue et al. 2001). Williams et al. (1999) documented a replacement of coastal hydric hammocks by salt marsh at Waccasassa Bay, Levy County, during 1992-1995. They attributed forest loss to a mean sea level rise of 1.5 mm/year between 1939 and 1994. Their study suggested that high marshland may also be at risk from increasing salinity rates due to rising seas. Effects of such habitat changes to Black Rail populations occupying coastal areas along Florida's Gulf coast are unknown and deserve study.

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