

FIRST DESCRIPTION OF THE NEST AND EGGS OF THE PLAIN-FLANKED RAIL (*RALLUS WETMOREI*)

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Primera descripción del nido y los huevos de la Polla de Wetmore (*Rallus wetmorei*).

Key words: Plain-flanked Rail, *Rallus wetmorei*, eggs, mangrove, nest, Venezuela.

INTRODUCTION

The Plain-flanked Rail (*Rallus wetmorei*) is a Venezuelan endemic species deserving urgent attention from a conservation perspective. This bird was first described in the mid-1940s (Zimmer & Phelps 1944), and after a few other observations during the following 10 years, it went unrecorded for almost three decades, until rediscovered in 1999 (Hilty 2003). It is restricted to a small area along the central coast of Venezuela where it is known from eight localities (Taylor 1996), but in recent years, it has been found in only five of these sites (Rodríguez-Ferraro & Lentino in prep.). The Plain-flanked Rail is considered Endangered at global (BirdLife International 2000, IUCN 2011) and national (Rodríguez & Rojas-Suárez 2008) scales, and it is emblematic as one of the bird species with highest

conservation priorities in Venezuela (Rodríguez *et al.* 2004). Main threats for this rail are the loss and deterioration of mangrove habitat as a consequence of expanding touristic developments and activities derived from petrochemical industries (Rodríguez & Rojas-Suárez 2008). These problems even exist within the boundaries of the few protected areas (three national parks and one wildlife refuge) where the species is known to occur.

Recovery efforts of endangered birds have been hampered by the lack of basic knowledge on their biology, thus, research focused on determining biological characteristics of threatened species is urgently needed for promoting the conservation of such species (Derrickson *et al.* 1998). In particular, there is a great need for studies focusing on restricted-range and/or threatened species of

rails because of their high susceptibility to extinction and the lack of basic information about their biology due to the secretive habits of most representatives (Taylor 1996). For example, very little is known about the basic natural history and ecology of the Plain-flanked Rail, and, up to date, no data have been published (known) on its breeding biology (Taylor & van Perlo 1998). From the nine species of the genus *Rallus*, nests of the Plain-flanked and Madagascar (*R. mada-gascariensis*) Rail are still undescribed (Taylor 1996). Here we give the first description of nests and eggs for this species and provide further information on its breeding habits.

METHODS

As a part of a larger project aiming to assess the current distribution, population status and phylogenetic relationships of the Plain-flanked Rail, we visited two localities within Morrocoy National Park, northeastern Falcón state, in western Venezuela (Fig. 1). On 29 May 2012, we were searching for rails using recorded calls (Boesman 2006) with an iPod connected to a mini amplifier speaker, and one rail answered repeatedly from the same location. When we tried to look for the bird, we found a nest. After that, during following days when rails responded to playback, nearby mangrove trees were checked for nests. When a nest was found, we recorded its status: 1) active: with eggs, 2) hatched: with pieces of at least one shell around, and 3) empty; type of nest material and plant species used as support. The following measurements were taken of each nest: diameter, nest height (distance between upper and lower rim of the nest), height from ground (measured as the shortest distance between the nest lower rim to the floor), height from water (measured as the shortest distance between the nest lower rim to water surface), height of supporting plant

(measured from the top of the crown). In the case of active nests, we measured eggs with a caliper (± 0.1 mm) and weighted using a spring scale (± 0.25 g). We also recorded behavioral observations of individuals seen close to the nests. Because of the existence of two color morphs (pale and dark) for this species (Hilty 2003), and the lack of information about morph geographical distribution, we also recorded color characteristics of birds observed near nests.

RESULTS AND DISCUSSION

Nest location. Between 29 and 31 May 2012, we found nine nests of the Plain-flanked Rail. Of these, three were located in the center of the national park (Fig. 1), along the road to the town of Agua Salobre and very close to Inparques rangers post (10°51'N, 68°19'W) and six were found in the southeastern portion of the park at Punta Brava (10°47'N, 68°18'W). These nests represent the first reported for this species.

Nesting sites and nest structure. Most nests (6) were located in areas dominated by black mangrove (*Avicennia germinans*) and some of them (3) were in areas with a mixture of small black and red (*Rhizophora mangle*) mangroves. Five nests were located in the border of mangrove patches and water (< 1 m from nest), such as the first nest we found, which was located in a patch between two small water channels (Fig. 2A). The nest of the Plain-flanked Rail is an elevated platform built with black mangrove twigs and leaves (Figs 2B–D), but the amount of leaves varied among nests. Mean dimensions of nine nests are presented in Table 1. Platforms were well concealed and placed either at the base of a black mangrove tree or on mangrove roots (Table 1). Nests were very low and five of them were in inundated areas (Table 1). Nests were similar to those built by other species in the genus, both

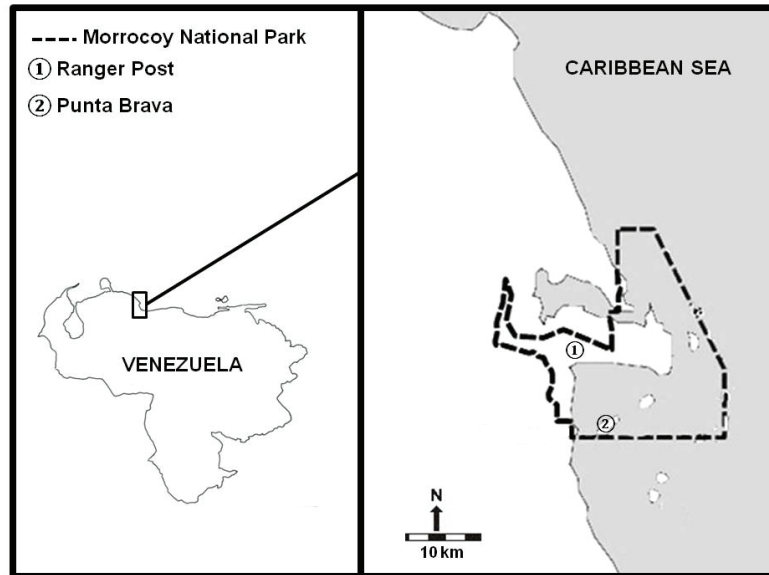


FIG. 1. Study site and location of nests of Plain-flanked Rail at Morrocoy National Park, western Venezuela.

in size and general architecture (Kozicky & Schmidt 1949, ffrench 1991, Taylor 1996, Jenkins 1999, Gaines *et al.* 2003). The two active nests we found had ramps built with twigs and leaves used by incubating rails to go into the nest; these ramps were absent in empty nests. A study on the nesting habits of the closely related Clapper Rail (*Rallus longirostris*) in California also found that active nests had a ramp but empty ones do not (Massey *et al.* 1984).

Breeding season. Only two nests were active (Figs 2B–C), six were empty but undisturbed (Fig. 2D) and one probably hatched recently, because it had one egg that was cold and wet, and an eggshell was found ~ 1 m from the nest. This egg and one empty nest were collected and deposited at the Colección Ornitológica Phelps (COP) in Caracas, Venezuela. These data confirm that breeding occurs in May, as has been suggested previously (Collar *et al.* 1992, Taylor 1996) based on breeding

condition of collected birds in April and May. Two juvenile rails deposited at COP were also collected in May 1951. The length of the breeding season requires further investigation because there are also juveniles at this museum collected in September 1945. Additional studies are needed to assess whether there are two breeding peaks or a long breeding season extending from April to September. For Clapper Rails in Trinidad, Belcher & Smooker (1934) indicated that breeding season goes from April to December, but ffrench (1991) restricted it between May and June.

Clutch size and egg characteristics. Clutch size of the two active nests found in Punta Brava and close to Inparques ranger post was six and seven eggs, respectively. These values are within the ranges reported for the Clapper Rail in Trinidad (ffrench 1991) and North America (Kozicky & Schmidt 1949, Massey *et al.* 1984, Schwarzbach *et al.* 2006) as well as



FIG. 2. Nests of Plain-flanked Rail found at Morrocoy National Park, western Venezuela, in May 2012. A) Nesting habitat, arrow indicates specific location of first nest found. B) Seven-egg nest with incubating adult. C) Active nest with a clutch of six eggs. D) Empty nest found at the base of a black mangrove (*Avicennia germinans*) tree. Photographs by A. Rodríguez-Ferraro.

for the Water Rail (*R. aquaticus*) in Britain and Ireland (Jenkins 1999). Since nests were checked only once there is the possibility that the six-egg clutch may have been incomplete (i.e., additional eggs may have been laid after our visit).

Eggs of the Plain-flanked Rail were buffy with dark reddish-purple spots concentrated on the wider end, similar to those reported from Clapper Rail (Belcher & Smooker 1934, French 1991, Baicich & Harrison 1997). Mean egg measurements were as follows: width = 29.6 ± 0.8 mm (range = 28.2–30.8 mm, $N = 14$) and length = 42.1 ± 2.0 mm (range = 39.1–43.9 mm, $N = 14$). Mean egg

mass was 20.5 ± 1.0 g (range = 18.5–22.0 g, $N = 14$). These measurements were also very similar to the description of Clapper Rail eggs in North America (Kozicky & Schmidt 1949) and Trinidad (Belcher & Smooker 1934).

Similarities in nest structure and egg characteristics between Plain-flanked and Clapper rails are expected because of the close relationship between these two species. The Plain-flanked Rail forms a superspecies together with Clapper and King Rail (Chan *et al.* 2006), and it has been suggested that this species may be an aberrant color morph of the Clapper Rail (Olson 1997).

TABLE 1. Characteristics of nests of the Plain-flanked Rail (*Rallus wetmorei*) at Morrocoy National Park, western Venezuela. Height from ground is the distance from nest base to ground and height from water is the distance from nest base to water surface. Asterisks indicate absence of water where nest was located.

Nest	Nest characteristics						Supporting plant
	Status	Diameter (cm)	Nest height (cm)	Height from ground (cm)	Height from water (cm)	Height of supporting plant (m)	
1	active	24.5	7.5	16.0	---	4.5	<i>Avicennia germinans</i>
2	empty	26.0	7.5	8.0	---	3.0	<i>Avicennia germinans</i>
3	empty	28.0	6.0	9.0	---	2.0	<i>Avicennia germinans</i>
4	hatched	28.0	8.5	18.0	15.0	2.0	<i>Avicennia germinans</i> / <i>Rhizophora mangle</i>
5	active	25.0	10.5	23.0	---	2.5	<i>Rhizophora mangle</i>
6	empty	27.0	9.5	6.0	0.0	3.0	<i>Avicennia germinans</i>
7	empty	30.0	6.0	23.0	20.0	2.5	<i>Avicennia germinans</i>
8	empty	20.0	9.0	19.0	15.0	2.5	<i>Avicennia germinans</i> / <i>Rhizophora mangle</i>
9	empty	22.0	5.5	14.0	12.0	2.0	<i>Avicennia germinans</i>
Mean \pm SD		25.6 \pm 3.1	7.8 \pm 1.7	15.1 \pm 6.3	12.4 \pm 7.5	2.7 \pm 0.8	

Rails' behavior. In all cases, Plain-flanked Rails vocalized very close to their nests. The only adult observed incubating was a normal (i.e., pale) morph of the Plain-flanked Rail (Fig. 2B). This rail was so tenacious that it remained very close to the nest (< 50 cm) when we were measuring eggs and nest. While this occurred, this bird performed a display running from one side to the other along a distance of 2 m and uplifting its wings. Once, it also approached and pecked ARF. During two days, we made observations of this nest and the incubating adult was always a pale morph, but we cannot ascertain that it was the same individual. The other active nest was also in the territory of a pale morph pair, as well as the four empty nests; the remaining two empty nests were in the territory of a dark morph pair.

Plain-flanked Rails seem to be fairly tolerant to human presence around their nests, if these are not disturbed. The nest with the incubating adult was very close to several

dumped glass bottles, and fishermen went nearby this nest several times a day, and the adult rail never left it.

Four of the empty nests were located very close to each other (5–20 m apart) and found in an area where only one pair of rails responded to broadcasted calls, which seems to be a single territory. We cannot ascertain that these nests were successful, predated, or abandoned, or if these nests could be “brood” nests, such as those described by Massey *et al.* (1984) for the Clapper Rail. Brood nests are built by rails after eggs hatch and used for night roosting. It is unclear to what extent brood nest building occurs also in the Plain-flanked Rail, but it is an interesting behavior that deserves further investigation.

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