

Social Differences in Defecation Behavior of Great Blue Herons (*Ardea herodias*)

RANGE D. BAYER

423 SW 9th, Newport, Oregon 97365 USA

Various birds have been reported to defecate when flushed (Fatora 1968), on predators (Andersson and Wiklund 1978), on eggs to repel predators (McDougall and Milne 1978), after leaving a foraging site (Recher and Recher 1972, Schlorff 1978), or at the nest or roost (Tutt 1956; Jones 1962; Kilham 1962, 1971; Dorward 1963; Snow 1963; Montevecchi 1974; Sobey 1977; Yom-Tov 1979). None of these researchers, however, determined differences in defecation behavior related to social dispersion. Here, as part of research on Great Blue Herons (*Ardea herodias*) at foraging areas, I examine differences in defecation behavior of herons with or without feeding territories.

From 1972 to 1978, I studied the foraging behavior of Great Blue Herons during over 1,000 h of observations at the Yaquina estuary (44°38'N, 124°03'W) on the Oregon coast. If I observed a heron defending a foraging site, I classified the heron as territorial. I observed 279 heron defecations at foraging areas. Most (41%) occurred while herons were actively foraging, but herons also commonly defecated while flying (22%), while involved in inter- or intraspecific aggression (1 and 18%, respectively), or after preening or periods of inactivity (18%). I only observed defecation twice at the start of a flight; both times a heron was suddenly disturbed by people or dogs.

Territorial and nonterritorial herons differed in the site of defecation. Territorial herons generally (81%, $n = 56$ defecations) walked, waded, or flew away from the foraging site, defecated, and then returned to within 50 m of the original site. Otherwise, territorial herons defecated at the foraging site and then walked, waded, or flew away. In contrast, nonterritorial herons less commonly (38%, $n = 60$ defecations) left the foraging site, defecated, and returned to the original foraging site. Generally, however, they defecated at the foraging site and then departed (58%). Twice (3%) I observed a foraging nonterritorial heron remain standing in water where it had defecated for 5 min or more. This difference between territorial and nonterritorial herons was statistically significant ($\chi^2 = 17.96$, $P < 0.01$).

Leaving the water to defecate has been implicated in reducing parasite or disease infection (Recher and Recher 1972) or in reducing prey avoidance (Recher and Recher 1972, Schlorff 1978). Many (33%, $n = 189$ defecations) Great Blue Heron defecations occurred in water where diseases or parasites would be readily transmitted. Thus, prey avoidance is more likely the reason why herons left the foraging site either before or after defecating.

The difference in defecation behavior between territorial and nonterritorial herons may be related to the limited foraging area of the territorial heron. A territorial heron would reduce prey avoidance at its foraging site by leaving the foraging site, defecating, and returning, but nonterritorial herons could reduce prey avoidance merely by leaving the site for another foraging area. Alternatively, nonterritorial herons may not leave a foraging site to go to shore, defecate, and return, because such behavior would risk an agonistic encounter with territorial herons whose territories are located along shorelines (unpubl. data).

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Rediscovery of the Rufous-faced Crake (*Laterallus xenopterus*)

PHILIP MYERS AND RICK L. HANSEN¹

Museum of Zoology, University of Michigan, Ann Arbor 48109 USA, and
Ministry of Agriculture, Brazilian Institute for Development of Forests,
Dept. Parques Nacionais Reservas Equivalentes,
Avenida 14 SAIN, 70.000 Brasilia, D.F. Brasil

Laterallus xenopterus, the Rufous-faced Crake, was described from an incomplete skin prepared from a specimen taken at Horqueta, Paraguay (23°24'S, 57°10'W) (Conover 1934, *Auk* 51: 365). A second specimen, taken by Hansen in Brazil, is listed by Sick (1979, *Bull. Brit. Ornith. Club* 99: 115) with a brief description. Recent trapping for small mammals in Paraguay has resulted in the capture of four additional specimens. In this note we provide new information concerning the habitat and appearance of this little-known rail.

The Brazilian specimen, first reported by Sick, was captured on 7 July 1978 in Brasilia National Park, Federal District, Brazil (15°40'S, 48°W), in a snap trap baited with peanut butter, cracked corn, and banana. The trap was set in perennial bunch grass growing in a marsh, in water 3-4 cm deep. The average height of the grass was 53 cm, and it completely covered the ground. Trapping records indicate that the marsh is used extensively by small mammals, especially *Oxymycterus roberti*, *Zygodontomys lasiurus*, and *Cavia fulgida*. The specimen is in the collection of the Museu Nacional, Rio de Janeiro.

Three specimens were taken by Myers, one 6.3 km (male; 16 July 1976) and two 13.3 km (male, 18 August 1978; female, 17 August 1978) NE (by road) of Curuguaty, Departamento Canendiyu, Paraguay (24°43'S, 55°44'W). A fourth specimen (female, 11 July 1979) was taken at the latter locality by R. W. Storer. They entered traps baited with peanut butter and rolled oats. Two were set near the edge of a marsh, in coarse, grass-like vegetation approximately 1.5-2 m in height. Water covered most of the surface to a depth of 2-3 cm. The other two were set in dense bunch grass-like vegetation no more than 30 cm in height, at a place where the surface of the ground was moist but lacked standing water. Several species of monocots were present; the only forms in flower or fruit and therefore identifiable were in the genus *Xyris*. At each site the vegetation formed a dense mat difficult for a large animal to enter, but penetrated by numerous small channels between clumps of grass. Other rails captured in these runways include *Porzana albicollis* and *Laterallus leucopyrrhus*; mammals trapped at these sites included *Oxymycterus delator*, *Akodon cursor*, and *Lutreolina crassicauda*. These specimens (one study skin, one skeleton, one skeleton plus feathers, and one study skin plus partial skeleton) are deposited in the collection of the Museum of Zoology, University of Michigan. The gonads of these Paraguayan specimens were small.

Similar marshes (cañadones or wet campos) commonly form in low areas in eastern Paraguay and adjacent parts of Brazil. Wet campos range from a few to several hundred meters in width and may form a band on gently sloping valley sides between upland cerrado and riparian forests (Eiten 1978, *Vegetatio* 36: 169). The fauna of these areas is poorly studied, and it is likely that *Laterallus xenopterus* is more common than suggested by the number of observations.

Laterallus xenopterus is easily distinguished from its Paraguayan congeners by its uniformly buffy ochraceous or clay-colored foreneck and breast (vs. white with sharply marked rufous sides for *L.*

¹ Current address: 209 W. South Street, Abingdon, Illinois 61410 USA.