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A Pairing Between a Green Heron (*Butorides virescens*) and a Presumed Green x Striated Heron (*Butorides virescens* x *striata*) in Tobago

Floyd E. Hayes and Hardy Delafield Jr.

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Two species of *Butorides* herons are currently recognized: (1) the rufous-necked Green Heron (*B. virescens*) of North America, Central America and the West Indies; and (2) the gray-necked Striated Heron (*B. striata*) of South America (including dark *B. s. sundevalli* of the Galápagos Islands), Eurasia, Africa and Australia (American Ornithologists' Union 1998; Banks *et al.* 2003). Based on an increase in the variability and intermediacy of neck colour in the contact zone between the two species in central Panama and Tobago, the two species are thought to hybridise (Payne 1974; Hayes 2002, 2006; Hayes *et al.* 2013). Because random mating tends to reduce variability around an intermediate phenotype (observable expression of heritable traits), the full range of phenotypes among herons within the two contact zones suggests a tendency towards assortative mating (preferring to mate with one's phenotype) despite occasional hybridisation, supporting their recognition as distinct species (Hayes 2006; Hayes *et al.* 2013). However, there are no published observations of a mixed pair breeding. In this note we provide such evidence for a possible pairing between a hybrid *B. virescens* x *striata* and a *B. virescens* in Tobago.

At 0739 h on 27 March, 2012, we found an adult *Butorides* heron with a tan-coloured neck seemingly intermediate between the gray of *B. striata* and rufous of *B. virescens*, on a nest approximately 5m above the ground at Lowlands, Tobago (Fig. 1). Using a colour photograph of Payne's (1974) hybrid index specimens (Fig. 2), which ranked neck colour of the two species on a scale of 1-9, we scored its neck colour, based on our photos of the upper portion of the neck, as 5, which is intermediate between the normal range of variation within *B. striata* (1-4) and the normal range of variation within *B. virescens* (6-9), suggesting that it was probably a hybrid *B. virescens* x *striata*. Earlier studies suggest that the accuracy of scoring neck colouration is ±1 score (Hayes 2006; Hayes *et al.* 2013).

Another adult *Butorides* heron was perched just 3m away from the nest, flew about 25m away, and returned within a few minutes with a twig, but then got into a fight with two other *Butorides* herons that arrived almost simultaneously in the tree about 4m from the nest. The second adult *Butorides* had a darker rufous neck, indicating it was a *B. virescens*, but we were unable to score its neck colour because it flew off before we obtained a photograph. The other two *Butorides* herons also appeared to be *B. virescens*, including one well photographed with a neck colour score of 8. We suspect that the mate of the nesting heron was the individual that returned to the nest with a twig.

After observing and photographing the herons for about 5 mins, we departed and then returned about 15 mins. later, at 0759, when we observed a darker rufous-necked adult with a neck colour score of 7 on the nest (Fig. 1). Unfortunately, a cloud was passing over at the time so the lighting was not as good, but the neck of the heron was definitely deeper rufous than that of its mate. Scrutiny of our photos revealed a few other characters distinguishing it from the adult first observed on the nest (e.g., more yellow on bill, more sharply defined yellow loral streak, thinner white and thicker black malar streaks). We returned later in the day, at 1745h, and again observed the darker rufous-necked adult on the nest. After taking additional photographs, Hayes climbed the tree and observed at least two bluish eggs in the nest (there may have been more).

Based on a previous study of neck colour variation

Fig. 1. A relatively brown-necked (score of 5) presumed *B. virescens* x *striata* incubating eggs in a nest (left photo) and its more rufous-necked (score of 7) mate, a *B. virescens* (right photo), at Lowlands, Tobago on 27 March, 2012. Photos by Floyd E. Hayes.

Fig. 2. Voucher specimens from the National Museum of Natural History used by Payne (1974) to score neck coloration of *Butorides* for a hybrid index scale. Photo originally published in Hayes (2002).

among 50 individuals of *Butorides* in Tobago, the population is dominated by rufous-necked *B. virescens* with neck colour scores of 7-8 (50%), with a smaller proportion of intermediate individuals with neck colour scores of 4-6 (34%), and a few gray-necked *B. striata* with neck color scores of 1-3 (16%; Hayes 2006). There has been an apparent historical decline in the proportion of intermediate phenotypes in Tobago, which accounted for 72% of 18 specimens collected from 1892-1913 but only 34% of 50 live individuals during 2000-2002, suggesting a recent increase in assortative mating despite occasional hybridisation, and the rapid evolution of reproductive isolation (Hayes 2006). The only previously published data on breeding in Tobago is a simple statement that nesting by *B. virescens* had been "recorded in March" (ffrench 1991:59, 2012:71). Our observations reveal that a presumed hybrid *B. striata* x *virescens* with a neck color score of 5 was mated with a presumably pure *B. virescens* with a neck color score of 7, confirming that mating and successful egg laying occurs between relatively intermediate and relatively pure phenotypes. Further observations of mate choice among *Butorides* herons in Tobago and central Panama may provide further insights on the taxonomic status of the two species.

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Floyd E. Hayes and **Hardy Delafield Jr.**
Department of Biology,
Pacific Union College,
Angwin, CA 94508, USA.
floyd_hayes@yahoo.com