

Nest architecture and breeding activity of the Barred Becard (*Pachyramphus versicolor*) in northeastern Ecuador.

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Abstract

Despite its wide distribution, there are few data published concerning the breeding of the Barred Becard (*Pachyramphus versicolor*). Here we provide the first detailed information for Ecuador, from studies in the northeastern Napo Province. We describe the nest architecture in detail for the first time, as well as provide observations on breeding seasonality and nest site selection.

Key Words: Andes, Barred Becard, egg, nest components, nest site, *Pachyramphus versicolor*.

Resumen

Aunque presenta una amplia distribución, el comportamiento reproductivo del Cabezón Barreteado (*Pachyramphus versicolor*) es poco conocido. Aquí presentamos por primera vez información detallada para Ecuador, con observaciones hechas en la Provincia Napo en el noreste del país. Describimos la arquitectura del nido por la primera vez, y también presentamos observaciones sobre la estacionalidad y sitios de anidación.

Palabras Claves: Andes, Cabezón Barreteado, huevo, materiales componentes del nido, *Pachyramphus versicolor*, sitio de anidación.

One of 17 species of *Pachyramphus*, the Barred Becard (*P. versicolor*) (Fig. 1) is distributed from Costa Rica, south through the Andes to northern Bolivia (Mobley 2004). In Ecuador, this species ranges from 1700-2600 m, on both slopes of the Andes, occasionally as low as 1200 m and as high as 3500 m. Two subspecies are recognized in Ecuador; *versicolor* throughout most of the country and *meridionalis* in the extreme southeast (Ridgely & Greenfield 2001). Not surprisingly, Skutch (1967) provides us with most of the breeding data for this species. He described two nests from Costa Rica (ssp. *costaricensis*), both from afar, and apart from noting that the nests were globular balls and that both adults built and fed nestlings, he was able to provide little other information. Subsequently, Wetmore (1972) described a single egg from Costa Rica, collected in 1900 and deposited in the British Museum. Here we

describe, for the first time in detail, the nest of Barred Becard from eastern Ecuador (ssp. *versicolor*).

We made observations in the vicinity of Yanayacu Biological Station & Center for Creative Studies (00°35'S, 77°53'W), located next to Cabañas San Isidro in the Napo Province, 5 km west of Cosanga. We studied nests found at elevations of 1900-2100 m.a.s.l. We found 9 nests at the following stages in: April (building), May (building, 4 nests), September (building), October (incubation), November (nestling), and December (active nest of unknown stage). After fledging, we collected three nests, dried them at ambient conditions for over 3 months, and then broke them down and weighed their component parts to the nearest 0.1 g. We recorded nest measurements to the nearest 0.5 cm, and egg measurements to the nearest 0.1 mm. All means are given with \pm SD.



Figure 1. Adult male Barred Becard (*Pachyramphus versicolor versicolor*) captured at the Yanayacu Biological Station, Napo, Ecuador, 2100 m, 19 October 2006.

Nest sites and habitat. All nests that we found were in disturbed areas such as pastures and river edges. All nests were in the smaller branches near the tops of the supporting trees; however, nests in other areas may have been overlooked. We feel that it is possible this species may also breed within mature forest, but as it is a species seeming to favor forest edges (Hilty & Brown 1986, Fjeldså & Krabbe 1990, Ridgely & Greenfield 2001), we

suspect that forest nests will likely be found near natural clearings such as tree-falls or streams. Nests ranged in height from 330 m above the ground, with the mean height of 7 nests being 14.4 ± 9.8 m above the ground. Four of 7 nests were in *Alnus acuminata* (Betulaceae) trees, two were in *Tibouchina lepidota* (Melastomataceae), and one in *Miconia* sp. (Melastomataceae).



Figure 2. Nest of Barred Becard (*Pachyramphus versicolor versicolor*) at the Yanayacu Biological Station, Napo, Ecuador, 2100 m. The black arrow indicates the nest entrance.



Figure 3. Inner chamber lining, after removal from the outer nest structure, of Barred Becard (*Pachyramphus versicolor versicolor*) at the Yanayacu Biological Station, Napo, Ecuador, 2100 m.

Nest architecture. Nests were large globular balls of fresh moss mixed with leaves, grass, bark strips, and lichens, and thickly lined with dry strips of grass, bamboo leaves, and bark strips (Fig. 2). The inner chamber was entered through a roughly circular side entrance located roughly in the center of the nest, and with little or no sheltering hood. All three nests that we examined closely had a fair amount of material piled onto the top of the nest structure, with this thatching ranging in thickness from 3-16.5 cm (mean = 8.5 ± 7.1 cm). Total dried weight of 3 nests ranged from 59-79 g (mean = 67 ± 11 g). The thick inner lining (Fig. 3), which covered the entire inner chamber, represented 33 ± 10 % of the total nest weight. The relative percentages

of materials used in nest construction are given in Figure 4, with their relative contributions to the nest lining and outer structure given in Figure 5. Mean nest measurements (cm) of three nests, excluding the thatching on top, were: outer height, 18.8 ± 2.0 ; outer width, 15.8 ± 0.8 ; outer front to back, 15.5 ± 0.9 ; entrance width, 4.0 ± 0.5 ; entrance height, 3.7 ± 0.3 ; inner chamber height, 8.5 ± 0.5 ; inner chamber width (= cup width), 5.2 ± 0.8 ; cup depth, 3.8 ± 1.2 . Though nest entrances were horizontally oriented, and generally without a covering, the thickness of the nest created a short tunnel, on average 4.3 ± 0.6 cm long, measured from the outer lip of the opening to the inner lip of the cup.

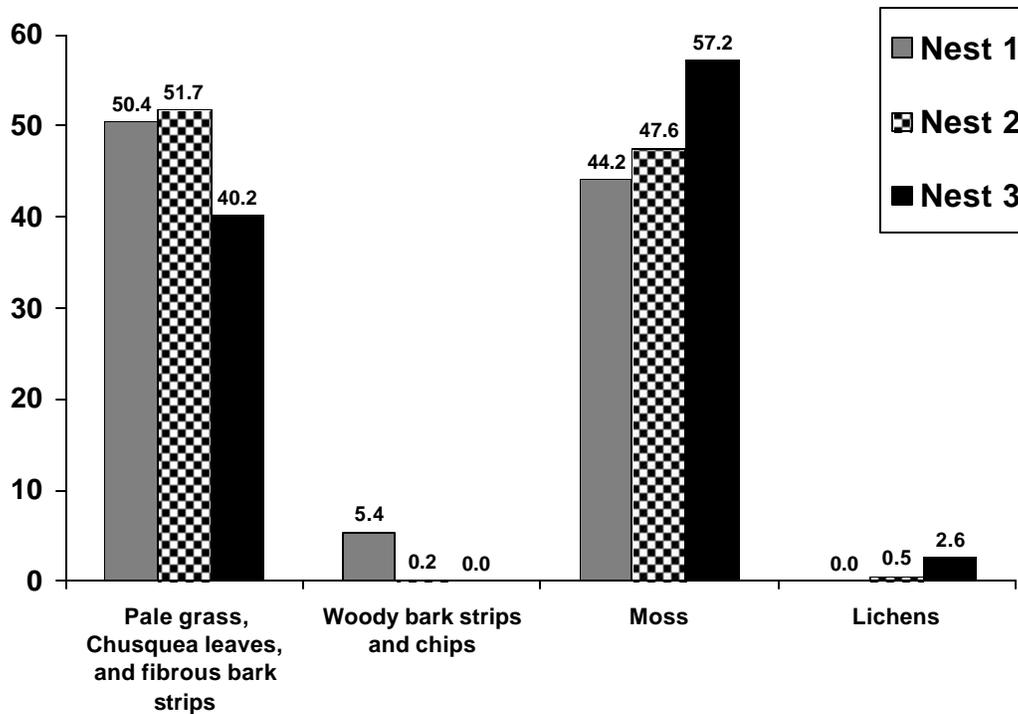


Figure 4. Relative composition, by % of total dry nest weight, of three nests of Barred Becard (*Pachyramphus versicolor*) collected at the Yanayacu Biological Station, Napo, Ecuador, 2100 m.

Eggs. Clutch size was two eggs at two separate nests. At one nest the first egg laid measured 21.0 x 15.3 mm and the second measured 20.6 x 15.4 mm. All eggs (n = 4 eggs, 2 nests) were white with sparse cinnamon, brown, and lavender flecking, creating a ring around the blunt end and closely matching the egg described by Wetmore (1972) from Costa Rica (20.1 x 13.9 mm).

General observations. As Skutch (1967) described from Costa Rica, both sexes participate in nest construction and in provisioning of the nestlings. We have been unable, however, to determine the role of the sexes in incubation. Both sexes are often around the nest during incubation, and we have often seen males singing near the nest while the female was inside. In general, we have found Barred Becards' behavior during breeding to be

confusing and hard to interpret. One pair, which we made observations on for several years, has repeatedly reused the same several nest trees around the Yanayacu Station. The result is that there are many old nests in the area, and often we have seen the pair carrying material from one nest to another one day, then from a third old nest to a fourth the next. At times it appears that several nests are under construction by the same pair in adjacent branches of the same tree. Often 30-40 trips are made by each adult during the course of an hour of observation. During these periods of rapid activity, most of the material is hastily dropped on top of the nest as the parent quickly flies off to gather more. This piling of material on top of the nests is what results in the often thick layer of thatching described above.

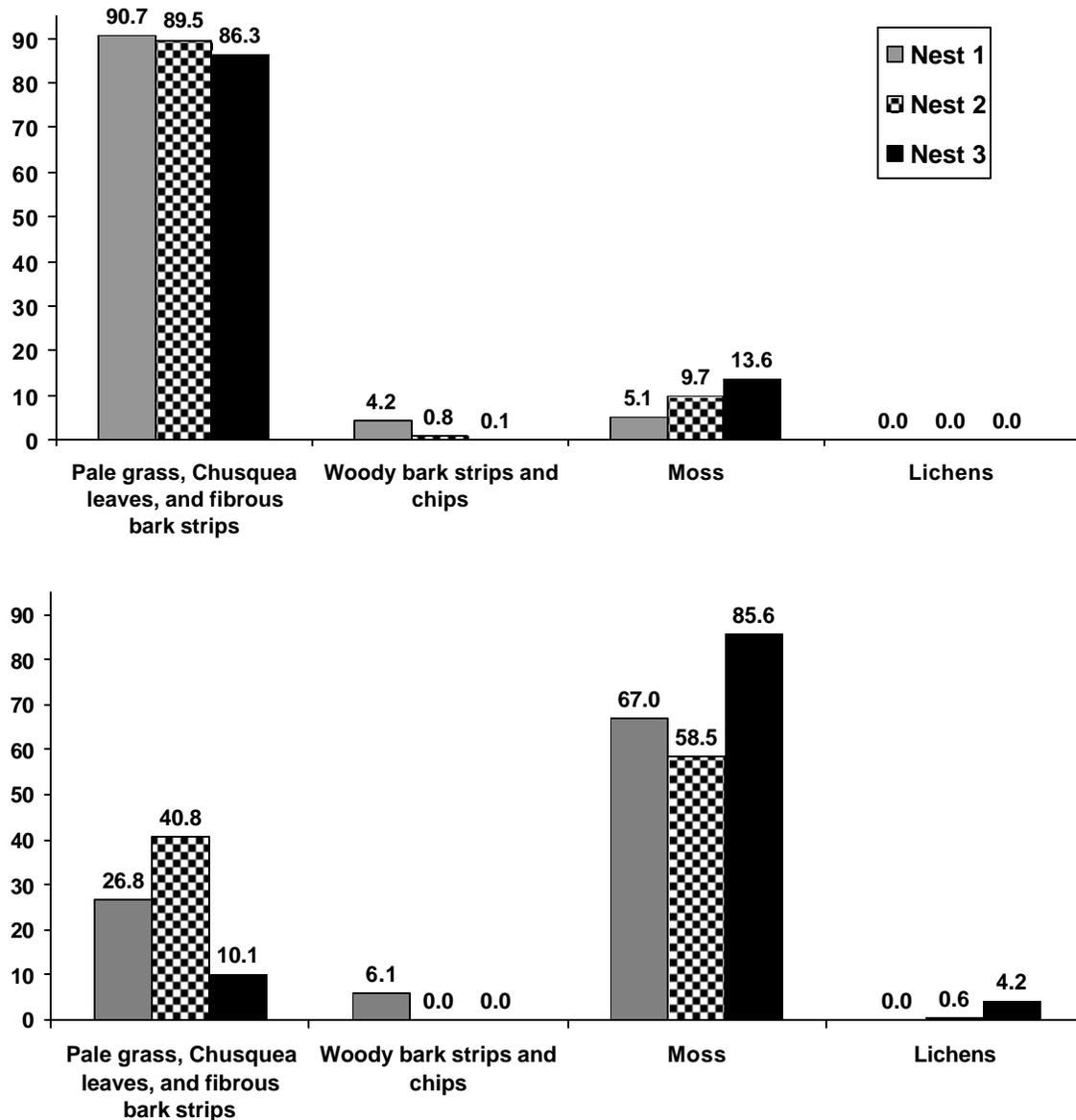


Figure 5. Relative composition of three nests of Barred Becard (*Pachyramphus versicolor versicolor*) collected at the Yanayacu Biological Station, Napo, Ecuador, 2100 m. The upper figure shows the % dry weight of components of just the inner chamber lining (inner nest lining), and the lower figure shows % dry weight of the same components in the outer nest structure (outer nest ball).

Conclusions

Other than fledglings in May, a nest under construction in August in northwest Ecuador (Fjeldså & Krabbe 1990, Greeney & Nunnery 2006), and a juvenile in December from northeastern Ecuador (Fjeldså & Krabbe 1990), nothing has previously been published concerning the Ecuadorian breeding habits of this common species. Thus, while Barred Becard appears to breed during the

latter part of the wet season and through the drier period in northeastern Ecuador, there are still too few data available to assess its breeding seasonality at a country-wide level.

The nests described here are, in general form, similar to those described for other species of *Pachyramphus* becards (West 1976, Haverschmidt & Mees 1994, Skutch 1969, Hilty & Brown 1986, Gelis & Martínez

2000). Until more complete descriptions are published for other species, however, comparisons between and within species are unavailable. We encourage others to examine the details of nest architecture for other species of *Pachyramphus*, and related genera, in order to provide more informative characters for phylogenetic analyses such as performed with other groups (e.g., Zyskowski & Prum 1999).

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