

## DESCRIPTION OF THE NEST AND PARENTAL BEHAVIOR OF THE BARE-CROWNED ANTBIRD (*GYMNOCICHLA NUDICEPS*)

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### Descripción del nido y comportamiento parental del Hormiguero Calvo (*Gymnocichla nudiceps*).

**Key words:** Nest description, parental behavior, brooding, Bare-crowned Antbird, Thamnophilidae, *Gymnocichla nudiceps*.

Along the northeastern slope of the volcano Rincón de la Vieja in the Cordillera de Guanacaste of Costa Rica (10°49'N 85°20'W), I discovered a nest of a Bare-crowned Antbird (*Gymnocichla nudiceps*). Like most aspects of this species' biology, the nest of the Bare-crowned Antbird is poorly known, having only recently been described in the secondary literature with few details (Zimmer & Isler 2003). Here I provide the first formal nest description for this species with the first notes on nestling provisioning behavior.

I discovered the nest on 6 June 2007 when I flushed a male from the nest. The nest was located next to a path in the Caribbean foothills (approx. 500 m elevation) near Las Bromelias Lodge, Buenos Aires, Costa Rica. The trail ran through regenerating, second-growth forest, with a small, fast-flowing stream on one side, and a scrubby marshy depression on the other. The surrounding forest had a dense, vine-rich understory and a canopy height of approximately 25 m with the largest trees approximately 30 cm d.b.h.. I observed

the nest from a concealed location at a distance of 15 m for 4 h (09:00 to 12:00 h and 14:00 to 15:00 h).

The nest was constructed 11 cm above the ground, supported by broad, horizontal plant stems (*Philodendron* sp. Araceae). The nest was a dome-shaped structure of thin fibers (plant stems, vines, and rootlets) interwoven with dead leaves (Fig. 1A). The lateral circular entrance was north-facing and was well concealed by many large elliptical and arrowhead-shaped plant leaves (*Philodendron* sp.). The spherical nest cup was unlined and constructed of the same thin fibers as the remainder of the nest. The exterior dimensions of the nest were 19 cm high by 19 cm wide. The dimensions of the nest entrance were 8 cm high by 8.5 cm wide, and the floor of the nest (where the nestlings lay) was 4 cm below the nest entrance.

When flushed from the nest, the adult male dropped to the ground a few meters away before flying a short distance further along the trail, remaining concealed behind



FIG. 1. The dome-shaped nest of a Bare-crowned Antbird hidden among the thick vegetation on the forest floor in the Caribbean foothills of northwestern Costa Rica (A). The nest cup containing two young, dark-colored nestlings (B). The adult female brooding the nestlings (C).

low branches. When followed, the bird left the general area and sang several times from the swampy depression, approximately 20 m from the nest. The nest contained two, dark-

skinned and featherless nestlings, whose eyes were closed and who did not beg when the nest was touched (Fig. 1B). Based on these criteria I estimated nestling age at approxi-

mately 1-2 days. Upon returning to the nest 1 h later, I found the adult female brooding the nestlings (Fig. 1C). When flushed, she performed a distraction display consisting of wing drooping and fluttering combined with short flights of 1-2 m away from the nest. I followed the female along the trail as she continued this display until I was approximately 20 m from the nest, after which she flew at an angle perpendicular to the trail. When both the male and female returned to the nest shortly thereafter, they performed various vocalizations, including a dry “chitrrr” rattle repeated every 5 s, a characteristic ant-bird “reeaa” and, occasionally, a harsh “chidic”, often combined with vigorous tail pumping.

Observations over the remainder of the morning and early afternoon (250 min total observation time) revealed that both the male and female brought food to the nest. Food items delivered to nestlings consisted of small spiders and small brown insect larvae. The male and female visited the nest 3 times each during the observation period. The male did not remain on the nest and brood the young. However after two of her visits, the female remained on the nest for a total of 86 min (66 and 20 min) for a brooding rate of 20.6 min/h.

To this date, the only known nest of this species has been reported by Zimmer, who describe a nest found in northwest Costa Rica as “domed, constructed from finely woven twigs on inside, covered with dead leaves and strips of palm fronds around top and sides, entrance hole taller than it was wide, placed c. 1-2 m above ground in top-centre of broken-off understory palm (built where fronds join trunk and surrounded by trapped leaf litter, so that nest appeared to be part of litter)” (Zimmer & Isler 2003). While the shape and construction of this nest was similar to the nest I discovered, there appears to be some variation in the height and placement of this species’

nest. Zimmer (unpubl.) also states that the male participates in incubation. Taken together with my observations, it is clear that parents share incubation, brooding, and nestling provisioning duties in this species.

The genus *Gymnocichla* is monotypic. However, birds in the closely-related polyphyletic genera *Myrmeciza* (Irestedt *et al.* 2004, Brumfield *et al.* 2007) provide interesting points of comparison. Within this genus, the closest relatives of *G. nudiceps* are *M. fortis*, *M. goeldii*, *M. melanocephala*, and *M. immaculata* (Brumfield *et al.* 2007). *M. fortis* has been reported to nest close to the ground on a ‘small mound of leaf litter’ with a ‘short horizontal entrance tunnel’ leading to a domed nest interior ‘neatly lined with interwoven plant fibers’ (Wilkinson 1997). In contrast to the structure, yet in support of the placement of the nest described in this study, *M. goeldii* has been reported to lay eggs in a cup nest of dried leaves and twigs placed directly on the ground (Zimmer & Isler 2003). *M. melanocephala* however, has been reported to nest off the ground in a deep cup partially covered with dead leaves forming a chamber (Zimmer & Isler 2003). The nest of *M. immaculata* has yet to be formally described. Nest structure and placement within the aforementioned species show significant variation. Taken together with previous findings by Zimmer (unpubl.), the present study provides evidence for variation in nest structure and placement within a single species, exhibiting behavioral characteristics shared with several closely related taxa. Additionally, the diversion display produced by the female when flushed from the nest is similar to broken-wing distractions that have been documented in the related genera *Myrmeciza* (Willis & Oniki 1972) and *Myrmoborus* (Londoño 2003), suggesting a possible phylogenetically conserved behavior in contrast to the variation seen in nest structure and placement. This nest observation represents the first formal description of the nest of the

Bare-crowned Antbird with notes on parental behavior.

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