

## FIRST DESCRIPTION OF THE NEST AND NESTLINGS OF THE THICKET ANTPITTA (*HYLOPEZUS DIVES*)

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**Abstract** · The Thicket Antpitta (*Hylopezus dives*) is a poorly known inhabitant of the understories of humid tropical forests from eastern Honduras to southwestern Colombia. We studied a nest of the nominate subspecies in the Parque Nacional Volcán Arenal, Costa Rica. This is the first report of the breeding biology for this species, and only the fourth nest description for the genus. The nest, a broad, shallow open cup, and the dark-skinned young nestlings, devoid of natal down, were very similar to those described for other members of the genus. Similarities with the nests and nestlings of *Hylopezus antpittas* suggest that their closest affinities within the Grallariidae are with *Grallaricula* and *Myrmothera antpittas*.

### Resumen · Primera descripción del nido y pichón del Tororoí Ventricanela Colombiano (*Hylopezus dives*)

El Tororoí Ventricanela Colombiano (*Hylopezus dives*) es un habitante poco conocida de los sotobosques de bosques tropicales húmedos del este de Honduras al suroeste de Colombia. Estudiamos un nido de la subespecie nominal que encontramos en el Parque Nacional Volcán Arenal, Costa Rica. Este es el primer reporte de la biología reproductiva de esta especie, y sólo la cuarta descripción nido para el género. El nido, una copa abierta, ancha y poco profunda, y también los polluelos jóvenes de piel oscura y sin plumón natal, son muy similares a los descritos para otros miembros del género. Las similitudes de los nidos y pichones de *Hylopezus* sugieren afinidades cercanas dentro de Grallariidae con los géneros *Grallaricula* y *Myrmothera*.

**Key words:** Central America · Costa Rica · Grallariidae · *Hylopezus dives* · Nest · Nestling · Reproductive biology · Thicket Antpitta

## INTRODUCTION

Following the recent taxonomic revision of the Spotted Antpitta (*H. macularius*) “complex” (Carneiro et al. 2012), there are currently 10 recognized species of *Hylopezus antpittas* (Rensen et al. 2016). Unlike the *Grallaricula* and *Grallaria antpittas*, *Hylopezus antpittas* are species of the lowlands, reaching their highest diversity in the Amazon (Krabbe & Schulenberg 2003). During the past two decades, the reproductive biology of the montane antpittas has received a good deal of attention (see Greeney et al. 2008, Greeney 2012a, Greeney & Jipa 2012), but the nests of only three species of *Hylopezus* are properly described. The Streak-chested Antpitta (*H. perspicillatus*), the only other *Hylopezus* in Central America, is perhaps the best studied (Skutch 1969, 1981; Robinson et al. 2000, 2005; Brawn et al. 2011, Horsley et al. 2016), but nests have also been described for Spotted Antpitta (*H. macularius*) (Tostain 1986) and Masked Antpitta (*H. auricularis*) (Maillard-Z. 2012). Kirwan (2009) made brief observations at an inactive nest, apparently of the Speckle-breasted Antpitta (*H. nattereri*), but a complete description of an active nest for this species is lacking.

The Thicket Antpitta (*H. dives*) is a species of dense, tangled thickets and vegetation along streams and forest edges, generally only found inside mature forest in disturbed areas such as riparian zones and treefalls (Krabbe & Schulenberg 2003, Garrigues & Dean 2007, Greeney 2014). It inhabits the Caribbean slope of Central America, from eastern Honduras southward through Panama, and along the Pacific slope of the Western Andes in Colombia to Nariño, generally below 900 m a.s.l. (Krabbe & Schulenberg 2003). Here we provide the first description of

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the nest and nestlings of the Thicket Antpitta (ssp. *dives*) based on a nest studied in the Parque Nacional Volcán Arenal, Costa Rica.

## METHODS

On 19 September 2012, JDV found a nest of the Thicket Antpitta in the vicinity of Lake Arenal within the Parque Nacional Volcán Arenal (10°27'S, 84°45'W, 580 m a.s.l.). In addition to direct observations of the nest and adults while present at the nest, we used a tripod-mounted video camera (Nikon D7100, Nikon lens 300 mm f4) to record activity at the nest without affecting natural behaviors. The tripod and camera were placed 8 m from the nest and the videos were watched and transcribed at a later date.

## RESULTS

**Chronology and adult behavior.** On 19 September, at around 07:45 h we observed an adult antpitta holding a small arthropod in its bill. Suspecting there was a nest nearby, we attempted to maintain visual contact with the parent, who continued to carry the prey item in its bill while moving furtively and silently across the ground in areas of dense undergrowth. A second adult began to alarm call (a rapid *ptiur-ur-ur-ur-ur-ur-ur-u* repeated at intervals of 8–10s) from fairly exposed perches, 10 cm above the ground, as if to distract our attention from the adult with food. Eventually, we located the open-cup nest, and set up our video camera to monitor activity beginning around 15:15 h. During 40 min of video, the adults brought food to the nest only four times. The first prey item was a green, unidentified arthropod, roughly 0.1 times the length of the adult's bill (*ca.* 12.5 mm; HFG unpubl.). The adult was unable to feed the nestling, and after 6 min of repeated attempts to feed it, left the nest carrying the prey item with it. On the second arrival the adult successfully delivered a small earthworm (*Oligochaeta*), roughly 1.5 times the length of the adult's bill. The third prey was a green lepidopteran larva (about same size as its bill), after which one of the nestlings produced a fecal sac which was quickly ingested by the adult. Shortly after consuming the feces, the parent settled over the nestlings (Figure 1) for 10 min before the arrival of the second adult which brought an unidentified black arthropod. Upon the arrival of the second adult to the nest rim, the brooding adult stood to allow the nestlings to beg and receive the prey item, after which both adults silently left the nest. The following day, at 07:00 h, we again set up the video camera. During the first 18 min of video, an adult arrived only once, feeding a dark, unidentified arthropod to one of the nestlings and then consuming the fecal sac produced by the just-fed nestling. Following this, it settled over both nestlings to brood for 10 min before silently leaving the nest. After being left unattended for five minutes, one of the nestlings was fed

a single unidentified arthropod by an adult, after which it turned around and produced a fecal sac that was immediately ingested by the adult. The nestlings were brooded for 10 min by this adult before our monitoring of the nest terminated. Both nestlings were still in the nest, appearing little-changed in appearance, at 16:10 h the following day. Both adults remained in the undergrowth out of view while making alarm vocalisations. We were not able to return until 26 September, seven days after discovery of the nest. At this time the nest was empty but appeared undisturbed and there were no signs of the parents during several minutes at the nest. Given that the nestlings were unlikely to have been old enough to leave the nest (HFG pers. observ.), we feel that it is highly likely that they were eaten by a predator during the five days between our final visits.

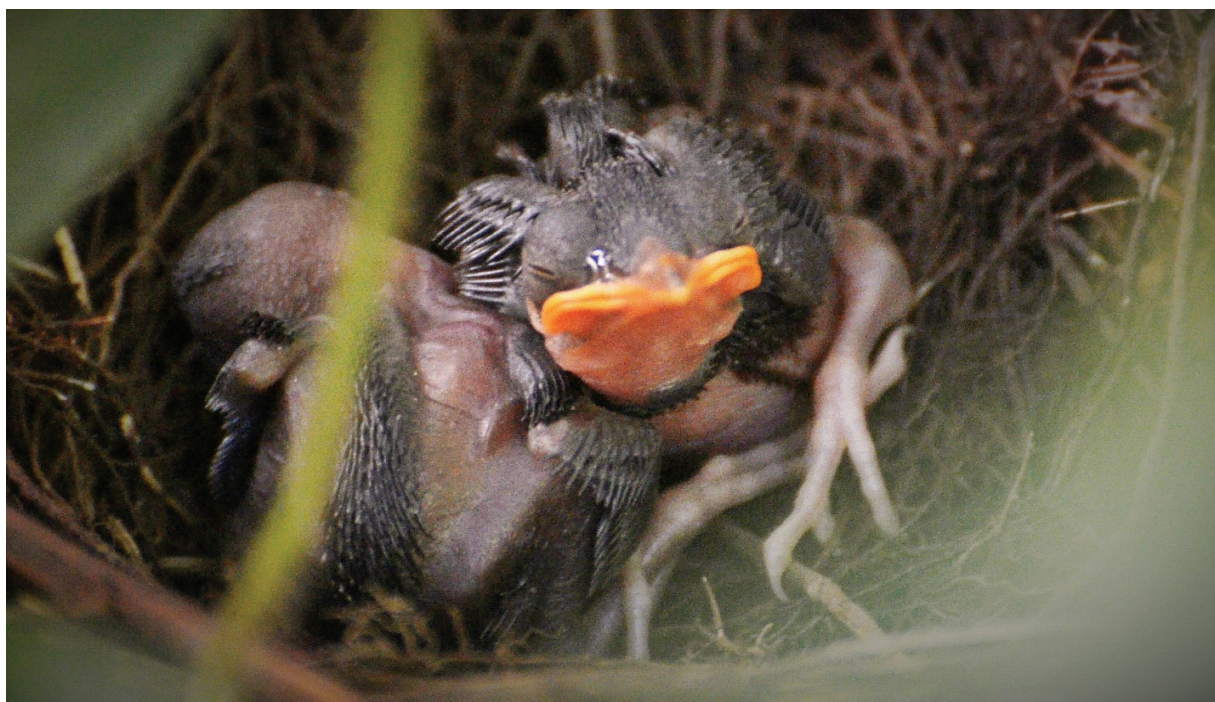
**Nest placement and architecture.** The nest was a shallow, saucer-like cup located only 1 m from the edge of an infrequently-traveled but well-maintained footpath cutting through dense understory vegetation. The bulk of the cup was composed of small sticks that were loosely interlaced and mixed with a few dead leaves. The very sparse lining consisted only of a few flexible fibers, only slightly thinner than the twigs of the outer nest. It was built 20 cm above the ground, placed loosely atop several thin, criss-crossed branches in dense, tangled vegetation.

**Nestling appearance and behavior.** On the day of discovery (Figure 2), the two nestlings had their eyes slitted, but not open. Both wing and contour pins were well developed, and we estimate that their primaries were *ca.* half-way emerged from the skin. The only pin feathers to have broken their sheaths, however, were those of the spinal tract in the scapular region, that were just beginning to break at the tips. The emerging fluffy down-like feather tips appeared to be uniformly dull brownish, with little or no hint of reddish as in other *Hylopezus* (HFG pers. observ.). Their skin was blackish to dusky lavender or dusky pinkish and their bills were largely dull orange, washed with dusky. Maxillae were bright orange along the culmen and tomia, yellowish near their tips, which still bore small, white egg-teeth. The inflated rectal flanges were bright orange to yellow-orange. Their mandibles were similar, but almost entirely orange, deeper crimson-orange on the flanges. Mouth linings were bright, clear orange; not as orange-crimson as described for most *Gral-laria* (Greeney et al. 2008). Interestingly, despite capable audio reception on the video camera, we were unable to detect any begging sounds from the nestlings, even as they suddenly threw back their heads and gaped vigorously upon the arrival of adults.

**Additional observations.** In the first week of October, we encountered a second nest, very similar to



**Figure 1.** An adult Thicket Antpitta (*Hylopezus dives dives*) broods two nestlings in nest in Parque Nacional Volcán Arenal, Costa Rica, on 19 September 2012. Photo J.D. Vargas-Jiménez.



**Figure 2.** Two young nestlings of Thicket Antpitta (*Hylopezus dives dives*) in nest in Parque Nacional Volcán Arenal, Costa Rica, 19 September 2012. Photo J.D. Vargas-Jiménez.

the first, and that we believe also belonged to *H. dives*. It was empty upon discovery, but appeared freshly built. It was at a similar height above the ground, was supported in nearly an identical manner,

and was roughly 8 m from the edge of the forest. A pair of Thicket Antpittas was observed in the immediate vicinity of this nest, acting in a very similar, furtive manner as the pair that we had previously studied.



We were unable to follow its progress for long, but we suspect that the eggs were depredated very soon after being laid (before we returned a final time) or, alternatively, that the nest was abandoned prior to clutch initiation.

## DISCUSSION

The nest of the Thicket Antpitta described here is similar in placement and general shape to those described for other *Hyllopezus* (Krabbe & Schulenberg 2003). It is particularly similar to nests of Spotted Antpitta (Tostain 1986) and White-browed Antpitta (*H. ochroleucus*; Greeney et al. 2016), all three being built of little more than a few thin twigs and having little or no differentiated internal lining. Conversely, the described nests of *H. macularius* and *H. perspicillatus* (Skutch 1969, 1981; Robinson et al. 2000, Mailard-Z. 2012) appear to be usually somewhat bulkier and have a better-defined lining of the egg cup. When compared with other genera within the Grallariidae, the shallow, saucer-like form of the nests of *Hyllopezus* appear most similar to *Grallaricula* (Greeney et al. 2008, Greeney & Jipa 2012) and *Myrmothera* (Tostain & Dujardin 1988, Barber & Robbins 2002, Greeney et al. 2005), and less like the bulky, deep-cup nests of *Grallaria* (Greeney et al. 2008, Solano-Ugalde et al. 2009, Greeney & Juiña 2010, 2011, Greeney 2012a).

Like the Streak-chested Antpitta (Skutch 1969, 1981), it appears that the Thicket Antpitta hatches completely devoid of natal down, a trait shared with *Grallaricula* (Greeney 2012b) and *Myrmothera* (Gustavo Londoño pers. comm.) antpittas, but not with *Grallaria* (Greeney et al. 2008, Greeney & Juiña 2011, Greeney 2012a). We were unfortunately unable to observe the nestlings of the Thicket Antpitta during later stages of development, but the newly-emerging postnatal feathers appeared to us to be similar to, though perhaps slightly less reddish than, the post-natal down that covers older nestlings of the Streak-chested Antpitta (Horsley et al. 2016). It is clear, however, that Thicket Antpitta nestlings have strikingly bright-orange coloured bills, gapes, and mouth linings like those of *Grallaria* and *Grallaricula* nestlings (Greeney et al. 2008, Greeney 2012b). Though too few data are available for strong comparisons, the general parental-care behaviors of Thicket Antpittas also appear similar to descriptions for other grallariids (Greeney et al. 2005, 2008), which also have bi-parental care and secretive habits around their nests. As might be predicted, the possible prevalence of earthworms in the diet of the Thicket Antpitta mirrors the nestling diets of the similarly terrestrial *Grallaria* antpittas but not the few data available for the somewhat less-terrestrial *Grallaricula* spp. (Greeney et al. 2004, 2012; Greeney & Miller 2008). While information is still lacking for most species of *Hyllopezus*, the above comparisons provide behavioral and natural history support for the closer relationship between *Grallaricula*, *Hyllopezus*,

and *Myrmothera*, which together are sister to *Grallaria* (Rice 2005).

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