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### OBSERVATIONS ON PARENTAL CARE AND FLEDGING OF WATKINS'S ANTPITTA (*GRALLARIA WATKINSI*)

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**Observaciones sobre el cuidado parental y la salida del nido de la Gralaria de Watkins (*Grallaria watkinsi*).**

**Key words:** *Grallaria watkinsi*, Watkins's Antpitta, brooding, nest, nestling, Ecuador.

While recent years have witnessed the first description of the nests of several species of *Grallaria antpittas* (Freile & Renjifo 2003, Price 2003, Kofoed & Auer 2004, Martin & Dobbs 2004, Greeney & Martin 2005, Greeney *et al.* 2006), as a whole, little is known of the ecology of this enigmatic genus (Krabbe & Schulenberg 2003). In particular, with the possible exceptions of Moustached Antpitta (*G. allenii*) (Freile & Renjifo 2003, Londoño *et al.* 2004, Greeney & Gelis 2006) and Scaled Antpitta (*G. guatemalensis*) (Edwards & Lea 1955, Miller 1963, Rowley 1966, Dobbs *et al.* 2001, 2003), we still know very little concerning the details of *Grallaria* reproduction (Greeney *et al.* 2008).

Watkins's Antpitta (*G. watkinsi*) is largely restricted to the Tumbesian region of south-western Ecuador and northwestern Peru. Although the avian fauna of this region has been studied previously (e.g., Marchant 1959, Best *et al.* 1996), only one nest of Watkins's Antpitta has been described (Martin & Dobbs 2004). Here we provide information on

parental care from a second nest discovered in Ecuador near Macará on the Peruvian border.

*Nest.* On 18 April 2006, at the Jocotoco Foundation's Jorupe Reserve (04°22'S, 79°54'W, 650 m), we discovered a nest of Watkins's Antpitta situated 4 m up in a dense vine tangle. The tangle was located at the top of a 6 m high bank, along the edge of a rarely used road. The nest was a bulky cup of dead leaves, sticks, and mud, sparsely lined with thinner dark twigs and fibers. While the inclusion of mud was not readily apparent until we took the nest apart, it formed a significant portion of the nest, seemingly used to cement the otherwise fragile structure of sticks and leaves. The nest was tucked within the vegetation of a small, spiny tree, approximately 50 cm from the edge of the vine tangle and roughly 40 cm from the top. The nest was supported by at least three small branches (1 cm diameter). The surrounding habitat was a dense, low canopy forest (approximately 8–9 m), composed of many spiny shrubs, small trees, and

flaccid vines. Over half of the understory vegetation was composed of *Simira* sp. (Rubiaceae). One large, emergent *Ceiba* sp. overhung the site. Outside dimensions of the nest were *ca.* 21 cm diameter by 6.5 cm tall with the inner cup measuring 11 cm in diameter by 5 cm deep.

*Nestlings.* When we discovered the nest, it contained two nestlings, densely covered in gray down, which fledged eight days later (26 April) at 06:30 h (EST). Other than having a more extensive and dense covering of down, the nestlings were as described by Martin & Dobbs (2003). Using known nestling periods reported for other *Grallaria* (*G. guatemalensis*, 17–19 days; *G. alleni*, 15–17 days; *G. ruficapilla*, 18 days) (Dobbs *et al.* 2001, Greeney & Gelis 2006, Martin & Greeney 2006), we estimate that the nestlings observed here were 10–11 days old on our first day of observation.

*Nestling provisioning.* We videotaped behavior at the nest from 06:15–14:20 h on 19 April, from 06:15–18:15 h on 24 April, and from 06:15–06:35 h on the day of fledging (26 April), for a total of 20.4 h. For the following observations, means are given with  $\pm$  SD. During this time we observed 53 adult arrivals to the nest, always with prey. Two adults brought food to the nestlings, which usually included multiple arthropod prey items, but included at least one worm on 15% of visits. Nestlings produced 37 fecal sacs, all but three of which were consumed by adults at the nest. On the first two days of filming nestlings were fed at a rate of 1.2 and 1.3 feeds per nestling per hour and produced 0.7 and 1.1 fecal sacs per nestling per h, respectively.

*Brooding.* Unlike other antpittas we have observed, the adult Watkins's Antpitta spent a great deal of time perched on the rim of the nest, apparently vigilant, but not in contact with the nestlings. On the first two days of observation (7 and 2 days prior to fledging), an adult was present at the nest 95% and 76%

of the time, respectively. During these days of observation, adults spent 76% and 29% of their time at the nest brooding (standing or crouched directly over the nestlings), and the rest of the time perched on the rim, usually in a position so as to block sunlight from hitting the nestlings. Mean brooding bouts ( $n = 22$ ) were  $23.6 \pm 19.9$  min, and mean periods of time at the nest not brooding were  $9.7 \pm 16.6$  min ( $n = 50$ ). The mean period of adult presence at the nest, irrespective of activity, was  $25.7 \pm 21.8$  min. Adults were frequently at the nest simultaneously, spending 6.8% and 2.3% of the day together, during each of the first two observation days. Adults sang 96 times while on the nest, always while alone, and in 10 bouts ranging from 1–21 songs (bouts separated by  $>5$  min, mean bout =  $9.6 \pm 7.5$  songs). During a total of 16.7 h of adult time at the nest during the first two days, the singing rate was 5.8 songs/h. As adults usually switched places while at the nest, we confirmed that both adults sing from the nest. Watkins's Antpitta occasionally leaned into the nest cup and rapidly probed with its bill, much as described for other *Grallaria* (Greeney & Gelis 2006).

*Fledging.* On 26 April, prior to fledging at 06:30 h, the nestlings were fed only twice. At 06:30 h an adult arrived at the nest and fed one of the nestlings. After only 5 s the first adult left as the second arrived and fed the nestlings. Twenty-five seconds after the second adult arrived, and while it was still at the nest, one nestling got onto the rim and leapt towards the ground. Ten seconds later the second nestling followed, flapping vigorously, but able only to retard its descent. The adult remained in the nest, peering about for 1.3 min, then left. No vocalizations were heard at the time of fledging, however, as described for Moustached Antpitta (Greeney & Gelis 2006), the nestlings appeared to be watching something below the nest (presumably the first adult) before they fledged.

*Conclusions.* The nest described here is similar to that described previously for this species (Martin & Dobbs 2004), except for the inclusion of mud. Additionally, it is similar to the nest of Chestnut-crowned Antpitta (*G. ruficapilla*) (Martin & Greeney 2006). Martin & Dobbs (2004) were unable to take apart the Watkins's Antpitta nest they discovered, so the possibility remains that nests of this species regularly include mud. An additional possibility is that, as for Streak-chested Antpitta (*Hylaptes perspicillatus*), Watkins's Antpitta may at least occasionally adopt the nest of other species (Skutch 1969), but we feel this is unlikely.

Based on personal observations at nests of five other species of *Grallaria*, the behavior of Watkins's Antpitta described here differs in two major ways, both relating to the amount of time adults spent on the nest. First, the 76% brooding coverage and 95% adult presence at this Watkins's Antpitta nest was remarkably high compared to other *Grallaria*. Dobbs *et al.* (2003) reported a mean brooding rate of 23.3% for 3 nests of Scaled Antpitta (*G. guatemalensis*), each containing 10–12 day-old nestlings. We observed almost no brooding by Moustached Antpitta adults seven days prior to fledging of the young (1.5%, Greeney & Gelis unpubl.). Second, the  $9.7 \pm 16.6$  min periods of non-brooding nest attendance by Watkins's Antpitta was exceptionally long compared to other *Grallaria*. Dobbs *et al.* (2003) report mean time of adult presence at the nest (when not brooding) as  $< 1.5$  min for Scaled Antpitta, and Greeney & Gelis (unpubl.) observed a mean of  $0.4 \pm 0.2$  min ( $n = 326$  visits, final 7 days of nestling period) for Moustached Antpitta. While these other two *Grallaria* are inhabitants of cool cloud forests, and as such, were likely responding to the nestlings' need for warmth, *G. watkinsi* inhabits dry forests, and we feel the adults were likely protecting nestlings from the strong sun. This protection involved directly stand-

ing over the nestlings (i.e., brooding) and indirectly by shadowing the nestlings while standing on the nest rim.

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