

## FIRST DESCRIPTION OF THE NEST AND YOUNG OF THE AGILE TIT–TYRANT (*UROMYIAS AGILIS*)

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**Primera descripción del nido y de los pichones del Cachudito Agil (*Uromyias agilis*).**

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### INTRODUCTION

The Agile Tit–Tyrant (*Uromyias agilis*) is a high elevation tyrant flycatcher (Tyrannidae) found in the Andes of Ecuador, Colombia, and Venezuela (Fitzpatrick 2004). The species is uncommon to locally common in upper montane cloudforest from 1800 to 3500 m elevation, with a strong preference for *Chusquea* bamboo stands (Fjeldsø & Krabbe 1990, Ridgely & Greenfield 2001, Fitzpatrick 2004).

The taxonomy of the Agile Tit–Tyrant and its congener, the Unstreaked Tit–Tyrant (*Uromyias agraphia*), has been disputed for decades. The Agile Tit–Tyrant was first described by Sclater (1888) and placed in the genus *Uromyias* by Hellmayr (1927). Hellmayr recognized the Agile Tit–Tyrant as a close relative of the *Anairetes* tit–tyrants, but placed it in a distinct genus because of several morphological differences. Smith (1971) placed both species back into *Anairetes*, citing similar-

ities with the more recently–described Ash-breasted Tit–Tyrant (*Anairetes alpinus*). Lanyon (1988) examined the syrinxes of both *Uromyias* species and found them nearly indistinguishable from *Anairetes*, but found that the nasal septum of *U. agraphia* lacked all of the derived characters common to the *Anairetes* lineage (*U. agilis* not examined). Lanyon (1988) used his findings, in combination with the morphological differences recognized by Hellmayr (1927), to justify maintaining the distinct genus, *Uromyias*. Roy *et al.* (1999) used mitochondrial DNA (mtDNA) sequence data to construct a phylogeny of the six *Anairetes* species and the Agile Tit–Tyrant (Unstreaked Tit–Tyrant not sampled). The analysis nested the Agile Tit–Tyrant within the *Anairetes* clade, finding it to be most closely related to the Black-crested Tit–Tyrant (*A. nigrocristatus*) and the Pied-crested Tit–Tyrant (*A. reguloides*). Because of this, the authors recommended replacing the two *Uromyias* species



FIG 1. Clockwise from upper left: adult Agile Tit-Tyrant defending the nest during measurement of the nestlings; the nest of the Agile Tit-Tyrant, found at 3480 m in the Ecuadorian Andes in a stand of Chusquea; one of the two nestlings, photographed one day after the nest was found; and invertebrates found in the nest.

back into the genus *Anairetes*, stating that the morphological traits used by Hellmayr &

Lanyon are “not phylogenetically informative” (Roy *et al.* 1999: 74).

Clearly the dispute over the taxonomy of the Agile Tit–Tyrant is yet to be fully resolved. Differences in several heritable, morphological traits suggest that *Uromyias* tit–tyrants are genetically distinct (Hellmayr 1927, Lanyon 1988), while limited neutral mtDNA data suggest a close relationship between *Anairetes* and *Uromyias* tit–tyrants (Roy *et al.* 1999). The natural history and breeding biology of these species, and of the other tit–tyrants, is poorly known. To date, there is no published description of the nests or nestlings for either of the species in the genus *Uromyias* and only limited nest data for three of the six *Anairetes* species: the Tufted Tit–Tyrant (*A. parulus*), the Yellow-billed Tit–Tyrant (*A. flavirostris*), and the island endemic Juan Fernandez Tit–Tyrant (*A. fernandezianus*) (Pässler 1922, Johnson 1967, Naroksy & Salvador 1998, de la Pena 2001, Mezquida 2002, Fitzpatrick 2004, Hahn 2006). A better understanding of the breeding biology and natural history of the tit–tyrants, in combination with increased molecular data, will aid in resolving the phylogeny and taxonomy of these species.

From a nest in Northeastern Ecuador, we provide a description of nest placement, adult behavior at the nest, the nestlings, nest construction, and ectoparasites found in the nest. We contrast our findings with the limited descriptions available for *Anairetes* nests so that our findings might contribute to clarification of the phylogenetic relationships among the tit–tyrants.

*Nest placement and dimensions.* We found an Agile Tit–Tyrant nest at 3480 m elevation in montane Andean forest just above the town of Papallacta, Napo Province, Ecuador (00.363°S, 078.154° W). The nest was in a small (~ 5 m diameter) stand of *Chusquea* bamboo (Poaceae, unknown species). The stand was surrounded by typical mixed montane Andean forest vegetation. Average height of trees in the stand was approximately 4.5 m.

The nest was situated 4.3 m up in 4.8 m tall *Chusquea* at the edge of the stand, and contained two young at 10:30h (EST) on 2 November 2006 (Fig. 1). The nest was a small open cup composed primarily of *Chusquea* leaves and was placed in a crotch created by approximately 70 small leaf shoots (2–3 mm diameter) and the main stem (7 mm diameter). The nest was pressed against the main stem and intertwined with several of the leaf shoots. The placement provided the nest with 360° lateral concealment. We measured nest dimensions following fledging (so measurements are likely slightly different from initial dimensions). The cup-shaped nest had inner dimensions of 5 x 5.5 cm in width at top of cup and 5 cm depth, and outer dimensions of 14.5 x 14 cm width at top of cup and 12 cm height, with approximately 3 cm of loose material hanging below the nest. Overall, the nest was larger than nests described for the three *Anairetes* species (Pässler 1922, de la Pena 2001, Mezquida 2002, Hahn 2006). The placement of the nest was higher than any of the described *Anairetes* nests (Pässler 1922, Naroksy & Salvador 1998, de la Pena 2001, Mezquida 2002), except for two exceptionally high Juan Fernandez Tit–Tyrant nests (seven of nine nests placed at or below 3.1 m, two nests placed at 4.8 and 8.8 m above the ground) (Hahn 2006).

*Adult behavior.* When we initially discovered the nest, we observed two adults, presumably the male and female, feeding the nestlings. Both adults have also been observed feeding at Tufted Tit–Tyrant (Pässler 1922, Naroksy & Salvador 1998, PRM pers. observ.) and Juan Fernandez Tit–Tyrant nests (Hahn 2006). The adults were fairly bold, bringing in food despite our presence less than 5 m from the nest. The adults tended to arrive together, at intervals of approximately 3–5 min. We returned the following day (3 November) to measure and photograph the nestlings. At this

time, both adults came in to aggressively defend the nest, making flights towards us to within 1 m, alarm-calling, and bill-snapping.

*Nestling description.* At the time of measurement, the two nestlings were alert and active, with primary pin feather sheaths broken 1–2 cm, rectrix pin feathers broken halfway, still coming in, approximately 1/5<sup>th</sup> the length of adult tail. The juvenal plumage was distinct from that of the adults (Fig. 1), most notably in the presence of wing bars, a buff crown, and a complete absence of streaking. The juvenal plumage was similar to that illustrated in Fjeldså & Krabbe (1990, plate XLVI) with the exception of no streaking and buff (not white) underparts. The juvenal plumage of the Juan Fernandez Tit–Tyrant has been similarly described as lacking streaking that is characteristic of adults (Hahn 2006). Description of juvenal plumage is not available for other *Anairetes* species. Details of the juvenal plumage are as follows: median stripe dark gray with rich buff crown becoming darker and joining towards the back of the head; supercilium dark gray extending to nape; lores peppered buff and dark gray, extending to the front crown and below eye to the cheek; chin, throat, breast extending onto sides of neck, belly, flanks, and undertail coverts clean pale buff, with no streaking; nape dark gray; back, scapulars, uppertail coverts dark brown; tail dark gray with rich buff edgings on outer rectrices and tips of all rectrices; wing dark gray, with light buff edgings on secondaries and tertials (not primaries); coverts dark gray with brown distal edgings, and two strong, rich buff wing bars (same color as crown). Long dark gray down was present on head; sparse on back and wing coverts. Bare parts: mandible bright orange; gape bright yellow–orange; maxilla dark gray on top giving way to orange at the edges; mouth lining bright orange; legs, feet, nails, dark gray, with paler regions on distal side of tarsus and elbow. The iris was dark

chestnut brown. We measured the nestlings' body mass ( $\pm 0.1$  g) using a Pesola scale and tarsus length ( $\pm 0.1$  mm) using a caliper. Both nestlings had identical measurements: 9.5 g body mass and 20.5 mm tarsus length.

*Nest components.* On 8 November, we returned to the nest and found it empty, presumably fledged, though we did not see the adults or fledglings. We collected the nest, air dried it, and separated it into each of its components, and then recorded dry mass of each component. We identified an inner lining, distinguishable from the outer cup, and weighed its components separately. By mass, the inner lining was composed of 54.9% *Chusquea* leaves (1.87 g), 20.2% avian body feathers (0.69 g) from several species, dominated by Great Thrush (*Turdus fuscater*), but also including Scarlet-bellied Mountain-Tanager (*Anisognathus igniventris*), and Barred Fruiteater (*Pipreola arcuata*), 17.8% fine strips of *Chusquea* fibers (0.61 g), 3.5% lichen (0.12 g), 2.6% dried vine shoots (0.09 g), 0.8% dried leaves (0.03 g), and one small dried twig (0.2%, 0.01 g). Total dry mass of the inner lining was 3.4 g. The innermost layer of the lining was entirely comprised of avian body feathers. The outer cup was comprised, by mass, of 88.0% *Chusquea* leaves (12.53 g), 7.8% moss (1.11 g), 2.6% lichen (0.36 g), 0.9% dried vine shoots (0.12 g), 0.6% small dried twigs (0.08 g), and 0.2% dried leaves (0.02 g). Total mass of the outer cup was 14.2 g. The nest composition was similar to that of the three *Anairetes* species for which nests have been described in that it was an open cup with feather lining, but differed in the predominance of *Chusquea* leaves which are not reported to be significant components of other tit–tyrant nests (Pässler 1922, Johnson 1967, Naroksy & Salvador 1998, de la Pena 2001, Hahn 2006).

*Ectoparasites.* While measuring the nestlings, and subsequently when taking apart the nest,

we discovered several parasitic larvae of an unknown species (Fig. 1). These larvae were small (~ 5 mm length), buff-colored, and appeared to consume the blood of the nestlings, as several were visibly engorged with blood. Only as we separated the nest into its components did we discover the potential adult form of the larvae – a beetle of the Staphylinid family. The beetles were present in similar numbers in the nest (approximately 70 individuals), and were approximately the same size. None of the descriptions of *Anairetes* nests report presence (or absence) of ectoparasites. We found the same ectoparasitic larvae, however, on the nestlings and in the nest of Black-crested Warbler (*Basileuterus nigrocristatus*) at Papallacta (3285 m) in *Chusquea* (> 50 larvae), and on a nestling Brown-bellied Swallow (*Notiochelidon murina*) at Papallacta Pass (4250 m), in a nest built within an abandoned burrow of Bar-winged Cinclodes (*Cinclodes fuscus*) (< 10 larvae).

Unfortunately the balance of similarities and differences that we find between the Agile Tit-Tyrant and *Anairetes* tit-tyrants does not currently allow clarification of the taxonomy of the species; rather it highlights our need of increased knowledge of the natural history and breeding biology of this group.

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