

First breeding records of Black-chinned Mountain-tanager *Anisognathus notabilis* and first nesting records in the wild of Blue-winged Mountain-tanager *A. flavinucha* with ecological notes

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Se reportan las primeras informaciones sobre anidación de *Anisognathus notabilis* y las primeras descripciones de nidos silvestres de *A. flavinucha*. Los datos fueron colectados durante estudios ornitológicos entre 1996–1998 en la vertiente pacífica de los Andes en el dpto. Nariño, suroccidente de Colombia. Tres nidos de *A. notabilis* fueron encontrados en un filo de montaña del Valle de Pialapi a 1.740–1.780 m de altitud. La vegetación de la localidad corresponde a bosque húmedo premontano con el dosel peldonado y árboles altos sobresalientes con abundantes epifitas. *A. flavinucha* presenta otras preferencias de hábitat para anidación. Los tres nidos de esta especie fueron encontrados en bordes de bosque y todos en la planicie de la Reserva Natural La Planada (c.1.850 m). Las observaciones sugieren la anidación cooperativa en estas especies y la influencia del fenómeno climático El Niño en la época reproductiva. La abundancia poblacional baja y las preferencias para anidación de un hábitat singular hacen de *A. notabilis* una especie sensible a la destrucción del bosque primario.

Introduction

I present the first breeding records of the relatively little-known Black-chinned Mountain-tanager *Anisognathus notabilis* and descriptions of the previously unknown nests in the wild of Blue-winged Mountain-tanager *A. flavinucha*. The species are closely related and were formerly placed in a separate genus, *Compsocoma*⁶. My observations were made during a 1996–1998 study of the biogeography and altitudinal migration of Thraupidae tanagers conducted on the Pacific slope of the Andes in Nariño, Colombia⁹. Fieldwork was centred on La Planada Nature Reserve (01°05'N 77°24'W), which protects c.2,500 ha of humid premontane forest, and the adjacent río Pialapi Valley (01°08'N 77°59'W) within the Awá-Indian reserve (Municipio Ricaurte, dpto. Nariño), where even larger areas of primary forest exist.

Distribution

Monotypic *A. notabilis* is restricted to the Chocó Endemic Bird Area (EBA 041)⁸ and occurs on the Pacific slope from the headwaters of the río San Juan, within the departments of Chocó and Risaralda in Colombia, south to El Oro and west Loja in Ecuador. The species' altitudinal range is 800–2,200 m (once to 300 m in west Nariño and once to 2,750 m)^{5,6}. On the Pacific slope in Nariño it has been recorded at 1,200–2,200 m, where it is sympatric with *A. flavinucha cyanopterus* at 1,400–2,850 m⁹. Within its wide range, from montane coastal Venezuela south along both Andean slopes to central Bolivia, *flavinucha* is recorded at 900–2,750 m, and nine subspecies have been described.

Habitat preferences

Literature information on the habitat preferences of *A. notabilis* includes wet mossy montane forest and forest edges⁶. Based on more than 250 observations in Nariño, I suggest that *A. notabilis* depends on primary forest and tolerates only a low degree of habitat degradation⁹. It sometimes occurs at forest edges, but only leaves closed forest to visit tall trees near its borders, where primary forest meets anthropogenic cleared areas. I never recorded the species in secondary forest. *A. notabilis* favours naturally broken forest on ridges or steeper slopes. It was recorded very few times on the plateau at La Planada, although this area is largely cloaked in primary forest. Within the reserve, the species was principally restricted to ridges and the slopes of the río Pialapi Valley. Primary or nearly undisturbed forest, as well as topography, appear to be the key limiting factors affecting its distribution. Habitat preferences for *A. flavinucha* (c.400 observations) are less specific and included primary forest in the premontane and montane vegetation zones, forest borders and second growth. Topographic preferences were not recorded for this species, as it occurs on the plateau of La Planada Nature Reserve, as well as on ridges where it is syntopic with *A. notabilis*.

Breeding biology

In 1997–98 three nests of *A. notabilis* were found, all on the same ridge in Pialapi Valley at 1,740–1,780 m. Natural vegetation was humid premontane forest. Undisturbed primary forest, with a rather open canopy (taller tree crowns often not touching), was prevalent on the ridge and steep slope to the

south, with characteristic tall emergents that carry a heavy epiphytic load. The northern slope of the ridge is gentle and more heavily disturbed, with areas of pasture interspersed with patches of primary forest.

On 26 April 1997 the first nest (A) was found in an emergent tree (*Eschwehliera*, Lecytidaceae, height: 21.2 m) with a less developed canopy, on the ridge, at 1,740 m. It was constructed within a clump of moss and epiphytes (Bromeliaceae, Ericaceae, Orchideaceae) between the two main branches at a height of 14.6 m. The nest itself was not visible and it was impossible to climb the tree. Two entrances to the nest, one at the side and one below, were identified.

The second nest (B), found on 5 May 1997 only 25 m from the first, was also constructed within a heavy moss and epiphytic growth 13.4 m up in a decaying tree 18.5 m high. In the upper part of the dead trunk a pair of Golden-olive Woodpecker *Piculus rubiginosus* was breeding, and Pacific Tuftedcheek *Pseudocolaptes johnsoni* and Blue-and-white Swallow *Notiochelidon cyanoleuca* were feeding young in abandoned woodpecker holes.

On 10 April 1998 the third nest (C) was discovered c.350 m from the previous nest sites at 1,780 m. The nesting tree, on the upper part of the south slope of the ridge, was a high emergent *Psidium* sp. (Myrtaceae) loaded with growths of epiphytes and moss. In one such clump, 16.5 m high, the entrance to the nest was located. All three nests were in the same habitat, high emergents with heavy epiphytic growths, and all were at similar heights.

On 26 April 1997 three adults were observed carrying food to a nest (A). When an adult arrived with food, juveniles could be heard begging in the nest. The other adults waited with food at the top of the nesting tree or on the nearby exposed canopy until the first adult left. Generally the three adults arrived and disappeared together while uttering loud contact calls. Visits by single birds were made while the other adults guarded the nesting territory. On several occasions, other bird species (Flame-faced Tanager *Tangara parzudaki* or Tropical Kingbird *Tyrannus melancholicus*) that entered the territory were mobbed by one or two adults.

Most identified food items were relatively large flying insects (*Coleoptera*, *Hymenoptera*, *Lepidoptera*) or fruits (*Alchornea*, *Clusia*, *Miconia*). Many captured insects were taken in the air. Usually the adults hawked 5–20 m from exposed branches within c.50 m of the nesting tree, apparently with a high success rate. This technique, which is very similar to that of Tropical Kingbird, was previously undescribed for *A. notabilis*. Adults always captured more than two insects before returning to the nest.

Nest A was visited five times until 2 May 1997, when the three adults were still present within the nesting territory, but no nest activity was registered.

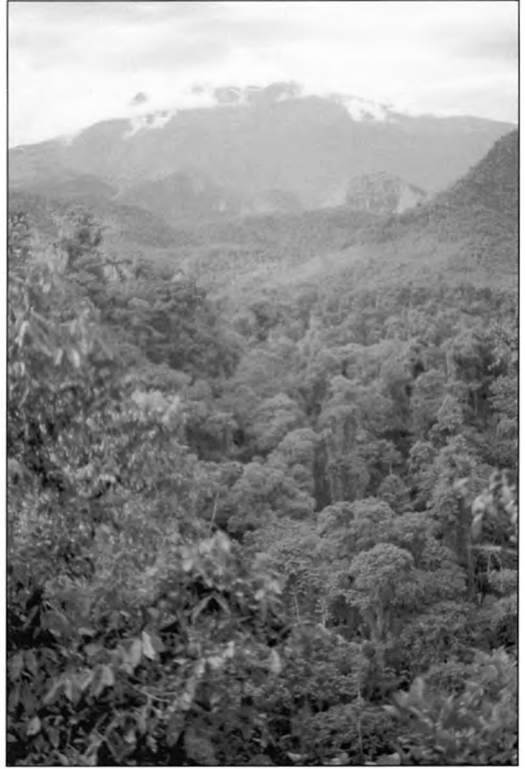
After several hours of observation I concluded that the nest had probably been predated. On 5 May 1997 the same three adults were observed on a strong horizontal branch within the canopy close to the nesting tree. One adult (probably a male) fed another adult (probably female) with an insect and was aggressive towards the third (probably another male). A few moments later the pair copulated on the branch and flew to a nearby tree (site of nest B). Later the same day one was observed carrying nesting material (moss, dry leaves), with the other two in attendance. On the next visit to the nesting site, on 30 May 1997, the adults were feeding intensively; in one hour (08h50 to 09h50) they fed seven times. On 4–5 June 1997 they were regularly observed waiting with food at the nest entrance and trying to motivate the nestlings to leave the nest by calling intensively and fluttering their wings. On 6 June three fledglings being fed by the adults were noted near the nesting tree. During observations over the next month the six were always present within this territory. At nest C three adults were also observed carrying food during 10 to 17 April 1998, but information concerning breeding success is unavailable. Although breeding *A. notabilis* were not studied daily it can be inferred that the incubation period occupies 12–14 days and nestlings take 13–15 days to fledge.

In comparison to *A. notabilis*, *A. flavinucha* has different nest-site preferences. Three nests of *A. flavinucha* were discovered on the plateau of La Planada Nature Reserve, at 1,850 m. On 18 May 1997 an individual was observed carrying nest material and constructing a nest on a horizontal branch of a *Piper* tree (Piperaceae), densely covered in tree-fern leaves and bamboo (*Chusquea*) at 3.5 m height, in an anthropogenic forest border of disturbed humid premontane forest. The nest was observed regularly and, on 29 May 1997, an adult (probably female) was noted incubating. Four other adults were identified as breeding helpers, which fed the female, predominantly at the nesting tree. On 8 June 1997 juveniles were heard begging, but were only fed by the female who received food items from the helpers. Subsequent to 10 June other individuals visited the nest and fed the young directly. On 22 June the nest was empty and c.50 m away the family was observed feeding two dependent juveniles within the canopy of an *Inga* tree. In September 1997 the two juveniles were still begging and all seven individuals were present in this territory until December 1997.

The nest was collected and will be housed at the Instituto de Ciencias Naturales, Bogotá. The nest of *A. flavinucha* was previously known from captivity⁶. The collected nest (diameter 12.4 cm, height 8.6 cm) is an open cup (diameter 6.4 cm, depth 3.8 cm) with soft but substantial walls; nesting material includes rootlets, green moss, ferns,



1



2



3



4



5



6

Figure 1. Habitat of Black-chinned Mountain-tanager *Anisognathus notabilis* within the Pialapi Valley, Colombia (Ralf Strewe)

Figure 2. La Planada Nature Reserve, Colombia, with Volcán Cumbal in the background (Ralf Strewe)

Figure 3. Nesting tree of Black-chinned Mountain-tanager *Anisognathus notabilis* (Ralf Strewe)

Figure 4. Nesting habitat of Blue-winged Mountain-tanager *Anisognathus flavinucha* (Ralf Strewe)

Figure 5. Black-chinned Mountain-tanager *Anisognathus notabilis* at the entrance to the nest (Ralf Strewe)

Figure 6. Blue-winged Mountain-tanager *Anisognathus flavinucha* at the nest (Ralf Strewe)

leaves and fine vegetable fibres in the outer part, with finer moss and dry bamboo leaves in the inner part.

On 18 April 1998 a second nest was found at the edge of young second growth and higher secondary forest (age c.20 years). It was on a branch fork in the canopy of an *Elaegia* tree (Rubiaceae) within a dense clump of bamboo (*Chusquea*) 7.5 m high. On 27 April 1998 an adult was found incubating and four breeding helpers were present. However, visits to the area in May registered no

breeding activity.

On 5 June 1998 a third nest was discovered at a forest border by the main path crossing the plateau of La Planada, constructed on a horizontal branch close to the trunk, within the canopy of a *Clusia* tree overgrown with bamboo, at a height of 6.5 m. Two adults were carrying food and no breeding helpers were noted. Unfortunately it was impossible to record data concerning breeding success.

All three nest sites were at forest borders on the plateau of La Planada, and were located in very dense canopies of large-leaved trees (*Clusia*, *Elaegia*, *Piper*) overgrown with bamboo (*Chusquea*) and at similar heights.

My data suggest that the breeding period for *A. flavinucha* does not differ from *A. notabilis*.

Breeding territories of the two species did not overlap within the study area. Although *A. flavinucha* was recorded within the breeding territories of *A. notabilis*, no breeding territory of *A. flavinucha* was found on the ridge of the Pialapi Valley, and *A. notabilis* was never observed within breeding territories of *A. flavinucha*. The closest distance between nests of the two species was 1.1 km. Although both occur regularly within mixed-species flocks (c.40 observations) without interspecific competition, their breeding territories are strictly separated. Food ecology and habitat use of the two species will be discussed elsewhere¹.

Discussion

My observations confirm cooperative breeding in *Anisognathus*. Breeding pairs of *A. notabilis* were accompanied by one or two adults, while up to five breeding helpers were identified for *A. flavinucha*. Different breeding seasons for the two species in 1997 and 1998 were identified. In 1997 the first breeding activity was recorded in mid-April, but in 1998 the first breeding activities were noted in late February, probably initiated by the abnormal dry season in January/February caused by El Niño. The influence of El Niño on the breeding avifauna of the Pacific slope in Nariño will be analysed elsewhere¹⁰.

Precise distribution, habitat preference and breeding ecology data of the two *Anisognathus* species are needed to interpret their ecological requirements. *A. flavinucha* is distributed from coastal Venezuela to central Bolivia within a wide altitudinal range, and its occurrence in disturbed forest habitats makes it less sensitive to the destruction of premontane and montane forests. The limited range of *A. notabilis* within the Chocó EBA, at 800–2,200 m, its specific habitat preference for primary forest on ridges and steep slopes, and the low population densities recorded within the study area make the species vulnerable to habitat destruction. Along a 2 km transect (at 1,870–2,100 m) on the ridge north of the La Planada plateau only two

breeding territories were found. Another transect (distance 2 km, at 1,840–1,680 m), in the PIALAPI Valley, contained three breeding territories of *A. notabilis*. This locality is outside the reserve and thus unprotected. As most of La Planada Nature Reserve is not used by *A. notabilis*, only a small population of the species is protected within it.

A. flavinucha reaches higher population densities within the study area than *A. notabilis*. Along a transect on the plateau of La Planada (distance 2 km, at 1,850 m) four territories with families of 4–9 individuals were noted. Similar or higher population densities were recorded in the montane zone above 2,400 m.

The Pacific region is under increasing pressure as new roads are constructed, promoting an influx of settlers, conversion of primary forest into pasture and agricultural fields, mining and new exploitation by timber companies^{1,2,8}. The study area still supports a large expanse of humid premontane forest, especially within the Awá Indian territory. During the study period (1996–1998) striking changes in the forest cover of the area were noted, with accelerated logging, especially of emergents, which *A. notabilis* depends on, and burning of large areas during dry periods caused by El Niño⁹. Continued destruction of premontane forests within the Pacific region in Colombia and Ecuador may require the inclusion of *A. notabilis* within the IUCN Near-threatened category.

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