

## The ecology and vocalisations of Banded Ground-cuckoo *Neomorphus radiolosus*

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El Cuco-Hormiguero Franjeado *Neomorphus radiolosus* es un ave rara, con problemas de conservación y cuya información sobre comportamiento y biología es deficiente. Cualquier dato adicional en este aspecto representa un instrumento importante para su conservación. Presentamos nuevos datos sobre su compartamiento en base a individuos observados en la Estación Biológica Jatun Sacha Bilsa, Esmeraldas, Ecuador, y la Reserva El Pangan, Nariño, Colombia.

### Introduction

Banded Ground-cuckoo *Neomorphus radiolosus* is endemic to the Pacific slope of the Andes in south-west Colombia and north-west Ecuador. Within this highly restricted range, it is regarded as rare and local<sup>2</sup>, based on a very small number of records<sup>1,5,7</sup> and assigned Vulnerable Red Data Book status<sup>1,2,3</sup> owing to this paucity of records, endemic status and lack of any biological information on the species. Until 1992, there were only three confirmed records of the species in Colombia since 1956, and only one confirmed record in Ecuador since 1936<sup>1</sup>. Given this almost complete lack of knowledge, any new information on the species' ecology is vital for conservation and management plans.

*Neomorphus radiolosus* was observed for the first time in Estación Biológica Jatun Sacha Bilsa in the Mache-Chindul hills of north-west Ecuador (00°22'N 79°45'W) on 6 and 15 September 1996<sup>6</sup>. In February 1998, BLL and KSB visited the reserve again and found *N. radiolosus* with relative ease following recognition of the species' vocalisations, which are described here, together with field notes on behaviour and number of individuals observed. During 1997, RS visited the newly established nature reserve "El Pangan" in Nariño, south-west Colombia and, with ease, observed the species on each of three short visits to the site.

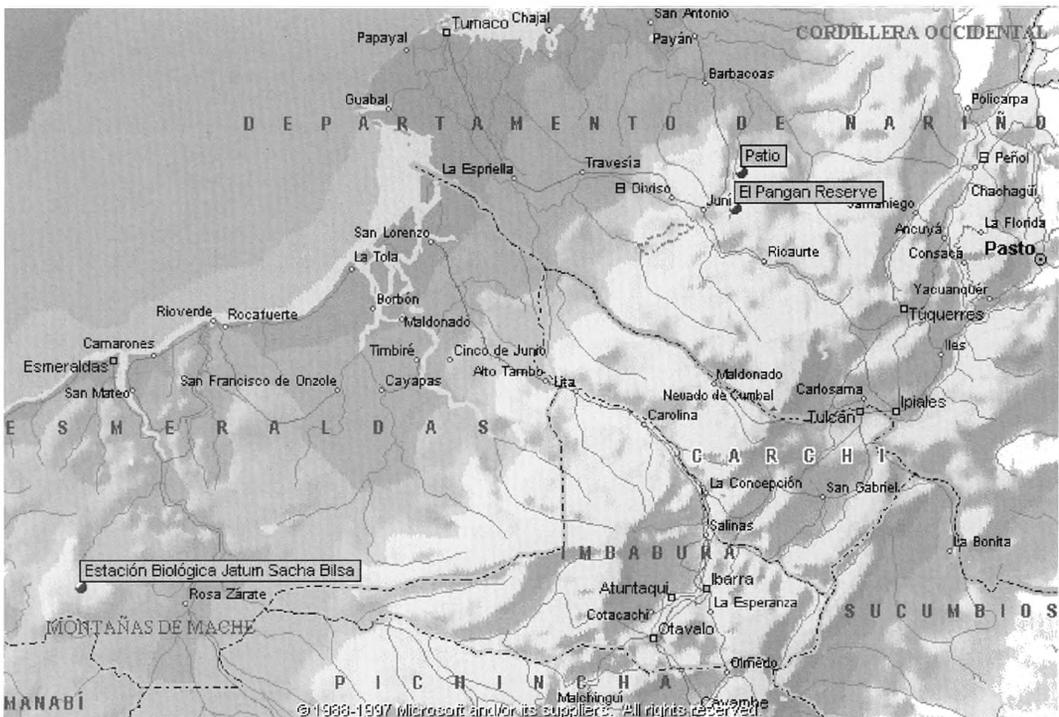


Figure 1. Map of Ecuador and adjacent Colombia showing the position of locations mentioned in the text.

### Notes on *Neomorphus radiolosus* from Ecuador

On 8 February 1998, BLL observed one bird for an hour (from 13h00) within a mixed-species flock foraging at an army ant swarm. The observation took place 400 m inside an extensive area of primary forest, with a narrow understorey vegetation strata. The foraging flock was principally composed of Ocellated Antbird *Phaenostictus mcleannani*, and to a lesser extent Plain-brown Woodcreeper *Dendrocincla fuliginosa*, Immaculate Antbird *Myrmeciza immaculata* and Bicolored Antbird *Gymnophithys leucaspis*.

On 18–20 February 1998, BLL and KSB encountered an individual vocalising in an area of secondary forest within extensive primary forest. The behaviour of this bird was different from that in the first observation, it being less concerned by the observers' presence and, if disturbed, would leave and then quickly return when it perceived no threat. This individual was quite confiding, although it was perhaps an immature without experience. It did not correspond to the description of adults, as the barring on the underparts and back was ochraceous and not white (except on parts of the breast). The bluish sheen of the head and the adult collar was absent, while the typically sky-blue ocular patch was greyish (post-ocular) and sky-blue (pre-ocular). When motionless the birds' plumage served as an excellent camouflage. However, the brilliant blue ocular area draws attention, especially as this bare skin can be expanded and contracted. It has been noted by Sick<sup>9</sup> that some *Thamnophilidae* with bare, brightly coloured ocular areas can also vary their size, this having some possible signaling function.

This *Neomorphus* spent the entire time in this small secondary forest patch foraging for arthropods and occasionally made short, very fast sprints which were so sudden and ended so abruptly they made following the bird very difficult. These short sudden sprints startled nearby Ocellated Antbirds, but it was difficult to determine if this behaviour was an intrinsic element in its feeding strategy or was designed to distract and eliminate competitors such as *Formicariidae*. The bird would normally stand on the ground or perch on fallen logs. Foraging consisted of scouring live leaves and stems of the understorey, as well as examining tree trunk bases from the ground. The bird would stand stationary, with only the crest rising and falling in a rhythmical manner. When it sighted prey, it would quickly run forward to capture it. When it consecutively caught prey items, it immediately performed an excited zig-zag running pattern that kicked up dead leaves. On five occasions, this individual was found at the same site, usually perched on several logs which it appeared to use as favoured viewpoints. Three days after this observation, BLL encountered and observed for 75 minutes a group of c.50 pecca-

ries *Tayassu* spp. at the same site, without encountering the *Neomorphus*.

### Notes on *Neomorphus radiolosus* from Colombia

In Colombia, *N. radiolosus* has been known since 1956 only from three records in dptos. Valle (Alta Anchicaya, at 600 m, in 1989) and Cauca (Munchique National Park in 1988)<sup>1</sup>. In dpto. Nariño, the species is well-known to local hunters (at least five hunters independently identified this species from a plate<sup>5</sup>) in primary forest at Patio beside the Río Nambi (01°27'N 78°02'W, at 550 m)<sup>8</sup>. The indigenous Awá hunters called the species "correlona" (fast runner). Local hunters furnished further information on its behaviour, including its association with large groups of Collared Peccary *Tayassu tajacu*. They reported the species as fairly common (seen every few months), indicating that it may be localised (as searches at lower and higher elevations failed to locate it), but perhaps not uncommon in suitable areas<sup>8</sup>.

The first confirmed Colombian records since 1989 come from a recently established private reserve El Pangan (named after Long-wattled Umbrellabird *Cephalopterus penduliger*) in west Nariño<sup>10</sup>. The reserve is situated on the slopes of the Río Nambi valley, 10 km north of Junín, Municipio de Barbacoas (01°21'N 78°04'W). The reserve protects an area of c.1,000 ha of primary forest along an altitudinal gradient from 620–1,700 m.

On 11 June 1997 *Neomorphus* was encountered during a two-day visit to the reserve by RS. At 16h30 an adult was closely observed following an army ant swarm, accompanied by Esmeraldas Antbird *Sipia rosenbergi*, *Gymnophithys bicolor*, *Myrmeciza immaculata* and *Dendrocincla fuliginosa*. Alarmed by RS, the bird jumped onto a horizontal branch 3 m above ground for several seconds, then flew to the other side of a small stream and into denser vegetation where it disappeared. The observation took place in the transition zone of extensive primary forest with a 10 ha patch of 15-year-old secondary forest at 650 m.

A second visit, on 19 September 1997 at 09h30, located *Neomorphus* just 400 m south-west of the previous locality. The habitat was, in comparison, undisturbed primary forest with a relatively open understorey, at 710 m. This bird was watched for 15 minutes accompanying a foraging flock of *Dendrocincla fuliginosa*, *Gymnophithys bicolor*, *Myrmeciza immaculata*, *Phaenostictus mcleannani* and a pair of Checker-throated Antwren *Myrmotherula fulviventris*, all associated with an army ant swarm. A pair of adult *Neomorphus* joined the flock and foraged very actively, running and hopping on branches, roots or small bushes from 0.5–1.0 m above the ground. Both birds snapped their bills frequently, but no other vocalisation was noted.

On 29 January 1998, a pair was located following an army ant swarm, in primary forest (780 m) just 500 m from the previous observation in September (and were perhaps the same individuals). The birds reacted nervously to RS at a distance of 15 m and flew 4 m up into a tree, where they waited on a horizontal branch bill-snapping, and raising and lowering their crests, until RS retreated. All of these three observations of *Neomorphus* come from an area of less than 1 km<sup>2</sup>. Reliable observations of the species were also made by a local hunter 1 km outside El Pangan reserve at 1,050 m (01°22'N 78°05'W).

Patio, where local hunters reported the species<sup>8</sup> as not uncommon, is just 10 km downriver along the Río Nambí from El Pangan reserve. Interestingly, campesinos called the species "Seinero" (running with the peccaries) as opposed to the indigenous name "correlona". The owners of the El Pangan reserve reportedly saw the species twice with groups of peccaries, and once found an individual surprisingly following a group of four cattle that had escaped from a farm and entered the forest on a narrow path.

### Vocalisations

On 18 February 1998, between 2–4 *Neomorphus* were heard calling and tape-recorded from 14h00–15h30 in the secondary forest patch at Jatun Sacha Bilsa described above. Only two birds were heard calling simultaneously and vocalisations emanating from a new direction may have merely reflected a bird rapidly changing location. The two individuals alternated their vocalisations and increased the intensity slowly, before decreasing to near-silence. Each session lasted c.4 minutes and the birds were separated by c.80 m. BLL located one calling bird while it was interacting with another c.15 m away. Fig. 2 presents a sonogram of *N. radiolosus*.

The vocalisation of *Neomorphus* sounds like the deep moo of a cow, initially similar to Long-wattled Umbrellabird *Cephalopterus penduliger* (locally called "avetoro", the bull bird) or Ruddy Quail-dove *Geotrygon montana*. The song of *Neomorphus* has a frequency range of 300–380 Hz. Fig. 2 demonstrates that the song rises over c.2 seconds from 300–320 Hz to 320–380 Hz, before falling to 320 Hz. *Cephalopterus penduliger* vocalisations are maintained at 400–480 Hz (100 Hz higher) throughout, with no significant variation. *Neomorphus* repeated its call every c.5 seconds, while *Cephalopterus penduliger* only pause for c.2 seconds between calls.

The birds were in a regenerating forest patch 3–5 m tall, with dense vines and a few mature trees. One individual continued calling as BLL approached to within 5 m, but then became silent. When playback was used the bird responded but appeared cautious. Subsequent vocalisations could not be heard due to the onset of rain. During the following

two days, only one bird was heard very sporadically. KSB returned to the site on 22 occasions during February–October 1998 but made only a few auditory observations, although on one such occasion, the bird vocalising proved to be *Geotrygon montana*.

The vocalisations described for *N. radiolosus* appear typical of *Neomorphus* (N. Krabbe and R. S. Ridgely *in litt*; M. Lysinger pers. comm. to BLL), although acoustically this is the least known genus of the Cuculidae<sup>4</sup>. It was impossible to determine the type of vocalisation we recorded, but it may have been a territorial call or song.

### Conservation

Despite knowledge of the species vocalisations and habits, and following repeated intensive searches of understorey foraging flocks and army ant swarms, it is apparent that *N. radiolosus* has a relatively low population density. It is further evident that the species depends on primary forest—while also seen foraging in secondary forest—as it rarely wanders far from vast tracks of undisturbed forest. Considering its dependence on large areas of primary forest, current rapid and uncontrolled conversion of lowland wet forests to agriculture in the Ecuadorian and Colombian Chocó presents a very real and imminent threat to *N. radiolosus*. Furthermore, conservation progress is hampered by wholly inadequate and ineffective governmental protective measures of national parks in the region. Together with Plumbeous Forest-falcon *Micrastur plumbeus*, Baudó Guan *Penelope ortoni*, and *Cephalopterus penduliger*, these four Chocóan endemics' depend-

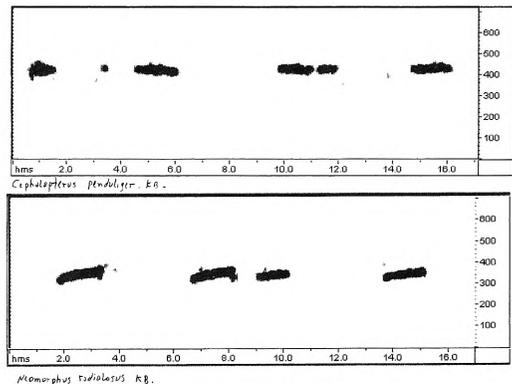


Figure 2. Sonograms of *Neomorphus radiolosus* song recorded by BLL at Estación Biológica Jatun Sacha Bilsa, Ecuador, 18 February 1998; prepared by N. Krabbe.

ence on extensive tracts of wet foothill primary forest place them as one of the highest conservation concerns in the Americas. Future conservation strategies should concentrate on ecological studies of these key species and on developing a network of private protected areas in the foothills of Ecuador and Colombia.

We hope that this new vocalisation description and the ecological information presented here will spur future observations in north-west Ecuador and south-west Colombia, thus uncovering natural history information vitally needed to produce and implement conservation strategies for this little-known species.

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