Range extensions for two rare high-Andean birds in central Peru

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El Pardusco *Nephelornis oneilli* es una especie de thraupido recientemente descubierto que es restringido a los bosques enanos del norte de la Cordillera Central de los Andes del Perú. El Cinclodes Real *Cinclodes aricomae* es una especie en peligro crítico restringida a algunos bosques aislados de *Polylepis* en tres departmentos del sur de Perú y pocas localidades en el noroeste de Bolivia. Presentamos registros en la región central de Perú que se aumentan los rangos para las dos especies.

Distributional limits for Andean bird species in Peru remain relatively poorly known because only widely scattered sites have been subject to thorough surveys. This fact is underscored by the high pace of discovery of new taxa and new distributional records by field ornithologists and birdwatchers[13,14]. Gaps in our distributional knowledge for the majority of high-Andean bird species are exacerbated by the difficulty in accessing appropriate habitats, which are often fragmented and widely dispersed across a rugged landscape.

Pardusco *Nephelornis oneilli* is a recently described tanager that is restricted to elfin forests in a narrow band (c.450 km long) of the northern Central Andes of Peru. It was first discovered by ornithologists in 1973[12], and it has since been recorded at sites in the Cordillera Central as far north as 06º56'S, 20 km south-east of Leimebamba, dpto. San Martín[13], and as far south as c.10º37'S, near Millpo, dpto. Pasco, close to the border with Huánuco (Louisiana State University Museum of Natural Science, Baton Rouge, specimens; T. J. Davis *et al*. unpubl. ms.). It generally occurs in elfin forest and at the grass-shrub interface at 3,000–3,800 m. Though reported to be locally common at certain localities[18], its small distribution underscores its global rarity. Furthermore, quantitative data regarding population density, niche breadth and habitat requirements of *N. oneilli* are sorely lacking. Here we describe new sight records and specimens that represent a south-eastward range extension for *N. oneilli* to dpto. Junín.

Royal Cinclodes *Cinclodes aricomae* is a highly endangered furnariid known only from three departments in southern Peru and a handful of localities in adjacent dpto. La Paz, Bolivia. Surprisingly few records have been reported since the first specimen was taken in Bolivia in 1876 (held in The Natural History Museum, Tring)[4], with most records being of singles or pairs[2,6,21,22]. *C. aricomae* is ranked as Critically Endangered by BirdLife International[1] due to its small global distribution[4], intrinsically low population density[9], narrow estimated niche breadth[11], and its preference for remnant patches of primary woodland[10]. Furthermore, *Polylepis* woodlands are severely impacted by several anthropogenic factors[15–17,20] which combine to cause severe habitat loss and prevent woodland regeneration[8]. Here we present photographic documentation of a significant northward range extension to central Peru.

Observations

On 12 August 2006, CCW observed a flock of c.6–8 *Nephelornis oneilli* at the edge of remnant elfin forest habitat, 1.1 km west of Puente Carrizales, dpto. Junín (11º29.325'S 74º53.765'W; 3,520 m; Fig. 1). The monospecific flock slowly traversed a steep south-east-facing slope, stopping to forage in the crowns of shrubs or small trees 2–4 m tall. The birds gave high-pitched call notes as they foraged and flew short distances between shrubs, much as described in Lowery & Tallman[12]. On 14 August at least two additional individuals were observed within a fast-moving mixed-species foraging flock that included several Moustached Flowerpiercer *Diglossa mystacalis*, and at least one Blue-backed Conebill *Conirostrum sitticolor*. Other flocking passerines observed and trapped in the same habitat included Scarlet-bellied Mountain Tanager *Anisognathus igniventris*, Cinereous Conebill *Conirostrum cinereum*, Black-throated Flowerpiercer *Diglossa brunneiventris*, Masked Flowerpiercer *Diglossopis cyanea*, White-throated Tyrannulet *Mecocerculus leucophrys* and Tit-like Dacnis *Xenodacnis parina*. On 12 August, at 16h00, two *N. oneilli* were trapped in a mist-net near the site of the original observation. The stomachs of both birds were filled with small insects. Blood samples were taken for analysis of oxygen-carrying capacity (results to be published elsewhere). Photographs were taken (Fig. 2) and the birds were prepared as study skins. Duplicate frozen tissue samples from each bird were preserved and were deposited, along with the study skins, at the Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos (MUSM; Peru) and the Museum of Vertebrate Zoology of the University of

California-Berkeley (MVZ; USA). Specimen data are as follows: MUSM 27426: field catalogue number CPB073; 17.3 g; left testis 3.4 × 1.9 mm; bursa 2.3 × 1.1 mm; skull 100% ossified; no moult. MVZ 181030: field catalogue number CCW1102; 15.3 g; ovary 4 × 2 mm; ova minute; oviduct convoluted, 3 mm wide; no bursa; skull 100% ossified; light body moult only.

On 16 June 2008, DFL was conducting an avifaunal survey of the Pariahuanca / Mantaro drainage when he spotted a single, silent *Cinclodes aricomae* at the edge of disturbed, remnant high-elevation elfin forest and pasture near km 56 of the Huancayo–Lampa road (c.5 km west-southwest of Lampa, dpto. Junín; 11º59.393'S 74º56.482'W; c.3,700 m). The bird was foraging on the ground and was observed probing moss clumps to capture small to medium-sized arthropods. The bird flew into the fog shortly thereafter and was lost. Next day, DFL refound the (presumed) same individual only a few metres away from where it had been the previous day. Again, it was observed at leisure as it foraged and DFL obtained still photographs and brief digital video of the bird for documentation (Fig. 3). Despite playing the voice of Stout-billed Cinclodes *C. excelsior* (no recording of *C. aricomae* was at hand), the bird did not respond noticeably, nor did it vocalise spontaneously, but instead continued foraging. No other individuals were noticed in the vicinity. The habitat in which this *C. aricomae* was found was high-elevation semi-humid elfin forest, lacking *Polylepis* (Fig. 4). Similar habitat was evident on adjacent ridges around the Pariahuanca Valley, although DFL failed to find any additional *C. aricomae* within the only nearby accessible habitat.

Discussion

The observations reported here extend the range of *N. oneilli* south-east by c.170 km (Fig. 5), increasing the total north to south distribution along the Andes to c.620 km. Further surveys are required to determine the full scope of the distribution in Junín and beyond. This finding demonstrates that the low Tulumayo Valley does not form a distributional limit for this species, and it raises the possibility that *N. oneilli* may occur even further south, perhaps even south of the Mantaro Valley in Ayacucho. Curiously, *N. oneilli* has not been recorded at Maraynioc (= Marainiyoc; 11º22'S 75º24'W; dpto. Junín), 57 km west-northwest of the sightings reported here, despite similar elevations and habitats and extensive historical collections. Specimen data for 313 birds of 94 species collected at Maraynioc were obtained from the following institutions accessed via the ORNIS data portal (http://ornisnet.org) on 27 January 2009: United States National Museum, Washington DC; Academy of Natural Sciences, Philadelphia; American Museum of Natural History, New York; Field Museum of Natural History, Chicago; and Museum of Comparative Zoology, Harvard University, Cambridge, MA. We observed 66 of these 94 species during seven days in the vicinity of the *N. oneilli* observations near Puente Carrizales, suggesting a great deal of similarity between the two sites. We suggest that *N. oneilli* occurs at very low population densities at the southernmost periphery of its range and may have been overlooked by collectors at Maraynioc.

The record of *Cinclodes aricomae* reported here extends its known distribution c.300 km north-west along the east slope of the Andes (Fig. 5). Previously known localities for *C. aricomae* spanned 580 km along a north-west–south-east axis of the Andes. This extension of its known range along the Andes by c.35% suggests positive prospects for its conservation status, which has generally been considered dire[4]. Our observations were consistent with the occurrence of a small breeding population on these ridges and they raise the possibility that the species may occur on other ridges between the Pariahuanca Valley and the nearest known site in dpto. Apurímac. The global population needs to be reassessed, but the major challenge will be to establish the extent of continuity of its distribution between these geographically scattered records. Surveys in appropriate habitat, in Junín, Huancavelica and Ayacucho, will be required to determine whether this new record represents an additional isolated population or whether the species is continuously distributed at low density between Apurímac and Junín. The record was also unexpected due to the lack of *Polylepis* in the area. Apparently, although *C. aricomae* usually is found in *Polylepis* woodland, it is not strictly specialised on *Polylepis*, and it has been found previously in other high-elevation habitats with similar structure (J. Fjeldså pers. comm.).

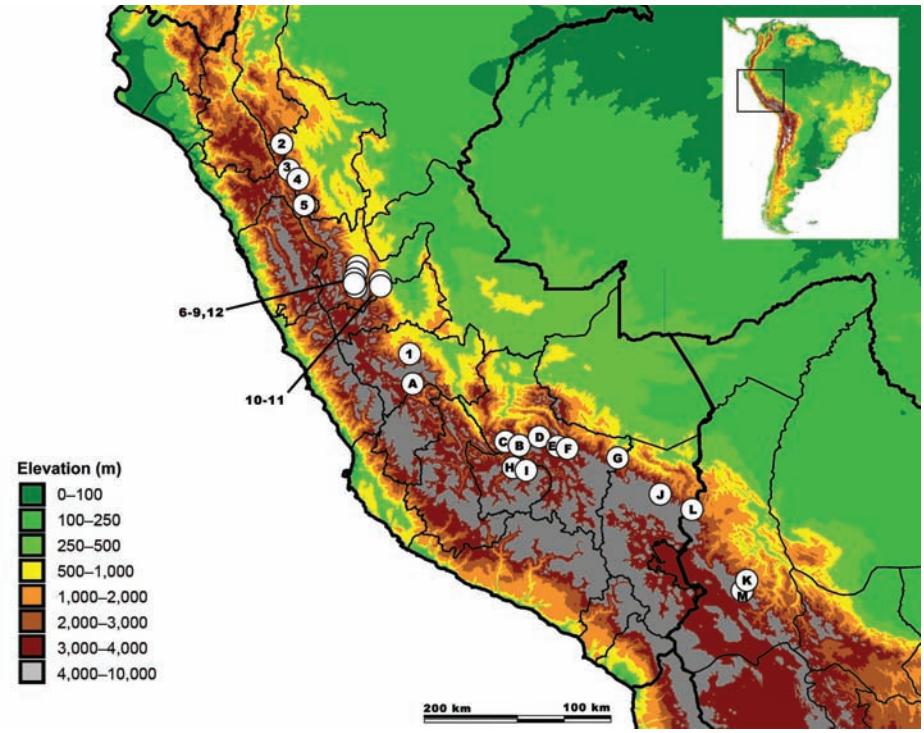
This record fills in a small portion of the c.1,400 km distributional gap between *C. aricomae* and the similar-looking *C. excelsior*, which occurs in the high Andes from Colombia to southern Ecuador. These taxa are presumed sisters based on overall similarity, high-elevation habitats and their frequent treatment in older classifications as conspecifics. Chesser[3] found them to be divergent by only 2.4% in two mitochondrial protein-coding genes (COII and ND3), but the same data were insufficient to confirm their sister status relative to other *Cinclodes*. Overall morphological and behavioural similarity, geographical proximity and prevailing biogeographic patterns in other high-Andean birds support the likelihood that the sighting reported here represents a population undifferentiated from *C. aricomae* populations further south. However, given the potentially disjunct nature of this population, morphometric,

1

2

3

4


6-9,12
10-11
Elevation (m)
0–100
100–250
250–500
500–1,000
1,000–2,000
2,000–3,000
3,000–4,000
4,000–10,000
200 km
100 km

5

plumage-based and genetic comparisons should be made to assess its taxonomic status relative to *C. aricomae* and *C. excelsior*.

In summary, the observations reported here suggest that much more survey work is required to understand the conservation status of birds of high-elevation forests and treeline habitats, especially in the topographically complex region between Junín and Cusco. These species tend to have narrow habitat requirements and correspondingly narrow elevational distributions that increase their potential susceptibility to climate change and habitat destruction.

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Captions to figures on facing page

Figure 1. Valley where Pardusco *Nephelornis oneilli* was found. The shrubs on the left side are the habitat of *N. oneilli*. The road to Satipo is visible on the right (Christopher C. Witt)

Figure 2. Pardusco *Nephelornis oneilli*, 1.1 km west of Puente Carrizales, dpto. Junín, Peru, 12 August 2006 (Christopher C. Witt)

Figure 3. Royal Cinclodes *Cinclodes aricomae*, near the Huancayo–Lampa road, dpto. Junín, Peru, 17 June 2008 (Daniel F. Lane)

Figure 4. Habitat at the locality where Royal Cinclodes *Cinclodes aricomae* was found (Daniel F. Lane)

Figure 5. Our new sites for Pardusco *Nephelornis oneilli* (1) and Royal Cinclodes *Cinclodes aricomae* (A) with respect to previously known localities as compiled by Schulenberg *et al.*[17]). Basemap compiled using DIVA-GIS, version 5.4[6]. Museum acronyms: AMNH = American Museum of Natural History, New York; ANSP = Academy of Natural Sciences of Philadelphia; BMNH = The Natural History Museum, Tring; CM = Carnegie Museum of Natural History, Pittsburgh; FMNH = Field Museum of Natural History, Chicago; LSUMZ = Louisiana State University Museum of Zoology, Baton Rouge; MUSM = Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima; YPM = Peabody Museum of Natural History, Yale University, Cambridge, MA. Localities for *N. oneilli* are marked as follows: (1) Peru, dpto. Junín, 1.1 km west of Puente Carrizales, 11°29.325'S 74°53.765'W (this study); (2) Peru, dpto. San Martín, El Jardin, 06°58.2'S 77°41.4'W[12]; (3) Peru, dpto. San Martín, Puerta del Monte, c.30 km north-east of Alisos, 07°31.8'S 77°28.8'W (LSUMZ specimens); (4) Peru, dpto. San Martín, Pampa del Cuy, 24 km north-east of Pataz, 07°34.8'S 77°27.0'W (MUSM specimens); (5) Peru, dpto. La Libertad, Mashua, east of Tayabamba, on trail to Ongón, 08°12.0'S 77°13.8'W (LSUMZ & MUSM specimens); (6) Peru, dpto. Huánuco, Bosque Cahuincho above Acomayo, 09°40.2'S 76°03.0'W (LSUMZ specimens); (7) Peru, dpto. Huánuco, Bosque Unchog, north-west of Acomayo, 09°40.8'S 76°07.2'W (LSUMZ, AMNH, ANSP, CM, USNM & YPM specimens); (8) Peru, dpto. Huánuco, Quilluacocha, Acomayo region, 09°43.8'S 76°06.0'W (ANSP, FMNH, LSUMZ & MUSM specimens); (9) Peru, dpto. Huánuco, Huncho, Acomayo region, 09°46.2'S 76°04.8'W (ANSP specimens); (10) Peru, dpto. Pasco, 1 km east of Huánuco border on Pozuzo–Panao trail, 09°53.4'S 75°45.0'W (LSUMZ specimens); (11) Peru, dpto. Pasco, Millpo, east of Tambo de Vacas on Pozuzo–Chaglla trail, 09°54.0'S 75°43.8'W (LSUMZ & MUSM specimens); (12) Peru, dpto. Huánuco, Mascarón, uppermost Bosque San Marcos, 18 km west of Panao, 09°54.0'S 76°04.2'W (LSUMZ specimens). Localities for *C. aricomae* are marked with letters as follows: (A) Peru, dpto. Junín, c.5 km west-southwest of Lampa, 11°59.393'S 74°56.482'W (this study); (B) Peru, dpto. Cuzco, Abra Malaga, 13°07.8'S 72°19.2'W[5]; (C) Peru, dpto. Cuzco, Mandorcasa, 13°13.2'S 72°55.8'W[4]; (D) Peru, dpto. Cuzco, Urubamba, Laguna Yanacocha, 13°16.2'S 72°01.2'W (MUSM specimens); (E) Peru, dpto. Cuzco, Ocumare, 13°16.8'S 72°43.2'W[4]; (F) Peru, dpto. Cuzco, Maqui Maqui, 13°16.8'S 71°57.0'W (Constantino Aucca C., unpubl. rep., 2003); (G) Peru, dpto. Cuzco, Bosque de Pumuchanca, 13°31.8'S 70°40.8'W (Constantino Aucca C., unpubl. rep., 2003); (H) Peru, dpto. Apurímac, Cerro Runtacocha, 13°40.2'S 72°48.0'W[3]; (I) Peru, dpto. Apurímac, Layasina, 13°45.0'S 72°40.8'W (Constantino Aucca C., unpubl. rep., 2003); (J) Peru, dpto. Puna, Aricoma, 14°16.8'S 69°46.8'W (ANSP specimens)[1]; (K) Bolivia, dpto. La Paz, Tilo Tilo, Yungas province, 16°10'S 68°00'W (BMNH specimen)[3]; (L) Bolivia, dpto. La Paz, 'three hours walk from Puina', 14°30'S 69°03.10'W[20]; (M) Bolivia, dpto. La Paz, Llampu, 16°15'S 68°01'W[21].

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