Range extension and new habitat for the Critically Endangered Royal Cinclodes *Cinclodes aricomae*

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Cinclodes aricomae es una especie que está categorizada globalmente como Críticamente Amenazada (CR). Es una especie fuertemente confinada a bosques de *Polylepis* y la población global se estima en 230–280 individuos. En agosto y noviembre de 2012, observamos *C. aricomae* en el Área de Conservación Regional (ACR) del Ecosistema del Nevado del Huaytapallana, que se ubica en el departamento de Junín, entre 11°35'–11°58'S y 74°48'–75°17'W (22.406,5 ha), con una altitud comprendida entre 4.500 y 5.768 msnm. La cobertura vegetal y de musgos en las rocas donde observamos a *C. aricomae* se hallan en un riesgo crítico por quemas anuales, acciones propias de fiestas religiosas locales, forestación con especies exóticas y sobrepastoreo. Esta situación ha obligado a la especie a refugiarse en grandes roquedales y alimentarse en zonas de difícil acceso para los humanos. Al mismo tiempo, se está atentando directamente a esta cabecera de cuenca y los glaciares que son la principal fuente de agua para los valles de Huancayo y alrededores.

Royal Cinclodes *Cinclodes aricomae* is a Critically Endangered species[1] restricted to a few localities in south-east Peru (Cuzco, Apurímac, Puno, Ayacucho and Junín)[1–3,9,10,15] and adjacent La Paz, Bolivia[13,14], where it is closely associated with *Polylepis* and *Gynoxys* forests[3–8] on Andean slopes and ridges at 3,500–4,800 m[12]. The species is a habitat specialist that forages mostly by probing and turning over moss and leaf litter that accumulates in moister parts of the forest[9,10].

The species has suffered from widespread destruction of its restricted habitat due to firewood collection and overgrazing. In the 1990s, *Polylepis* / *Gynoxys* forests covered c.10% of their estimated potential range in Bolivia, and possibly < 3% in most of Cuzco[7], while in 2010 the global population of the cinclodes was estimated at just 231–281 birds[1]. This dire situation has prompted several initiatives to protect and restore *Polylepis* forests, including that led by Asociación Ecosistemas Andinos (ECOAN) at Cordillera Vilcanota (Peru)[1,3].

Here, we report the discovery of a new locality for Royal Cinclodes in the Área de Conservación Regional (ACR) Huaytapallana, Junín, where this species apparently persists in the absence of *Polylepis* / *Gynoxys* forests.

The ACR Huaytapallana was designated on 21 July 2011 (Decreto Supremo no. 018-2011-MINAM), and covers 22,406 ha at elevations of 4,500–5,557 m in the districts of Quilcas, El Tambo, Huancayo and Pariahuanca, prov. Huancayo, and the district of Comas, prov. Concepción, both in Junín. The site is an important water catchment area for the adjoining towns including Huancayo, with high-elevation wetlands (*bofedales*) and lakes fed by snowmelt from the surrounding peaks and glaciers, which drain into the río Mantaro basin. The area has an annual precipitation of c.773 mm, high air moisture of c.94% and a cool climate, with daytime temperatures ranging from 12ºC to -2ºC, and -5ºC to -15ºC during the night[16]. The ecosystem services provided by this area, historically overlooked by both planners and politicians[5], were among the principal reasons for its designation as a protected area.

The mountains and *nevados* of this area possess great cultural significance and recreational value for local people, with many people visiting the area for hiking, sightseeing and religious ceremonies. This visitor pressure, combined with grazing by cattle and llamas, and anthropogenic fires in the mountains, have impacted their more accessible parts.

Observations

In August 2012, CAC, ACC & OJS and representatives from the Gerencia de Recursos y Medio Ambiente de la Región Junín visited ACR Huaytapallana as part of an agreement to establish and manage new protected areas in this part of Peru. The initial survey covered several sites, including Abra Huaytapallana, at c.4,600 m. The flatter terrain adjacent to the pass has several small lakes surrounded by *bofedales*, with drier patches covered by grassy *páramo* (Fig. 1). Adjoining slopes are mostly covered by rocks and talus erosion from cliffs at higher elevations.

On 21 August 2012, while following the main trail from the pass to *nevado* Huaytapallana, we found a Royal Cinclodes. The bird showed all of the field marks of the species (notably robust bill, rufous wingbars, streaked chest and prominent supercilium), which is familiar to CAC, who has worked with the species at all of the sites where it is known to occur in southern Peru during the past 20 years.

Figure 1. Área de Conservación Regional Huaytapallana, August 2012 (C. Aucca / ECOAN)

Figure 2. Royal Cinclodes *Cinclodes aricomae*, Área de Conservación Regional Huaytapallana, Junín, Peru, 21 August 2012 (Oscar J. Santander / ECOAN)

The bird was foraging in the moss on a large rock by a single clump of *Gynoxys* (11°56'53"S 75°02'53"W; 4,614 m). The bird then flew, low above ground, to some boulders c.400 m distant, where it was relocated, again probing clumps of moss. It was fairly tame and permitted photography (Fig. 2). After a while, the bird took flight, moving higher upslope, whereupon we lost sight of it. It was not heard to vocalise nor was it seen to display. Other bird species recorded there were Ancash Tapaculo *Scytalopus affinis*, Peruvian Sierra Finch *Phrygilus punensis* and White-winged Diuca Finch *Diuca speculigera*.

In the early morning of 9 December 2012, CAC & FO visited the same area, finding it snow-covered (Fig. 3). At 08h34, during a brief search of the same area visited in August, a Royal Cinclodes was observed probing for invertebrates in the moss and lichen growing on larger rocks. The bird was quite tame and approachable, and was photographed (Figs. 4–5); we observed it until 09h35.

The bird methodically searched for invertebrates in the moss and lichens, spending several minutes

Figure 3. Royal Cinclodes *Cinclodes aricomae* locality, Área de Conservación Regional Huaytapallana, Junín, Peru, 9 December 2012 (Fábio Olmos)

Figure 4. Royal Cinclodes *Cinclodes aricomae*, Área de Conservación Regional Huaytapallana, Junín, Peru, 9 December 2012 (Fábio Olmos)

Figure 5. Royal Cinclodes *Cinclodes aricomae*, Área de Conservación Regional Huaytapallana, Junín, Peru, 9 December 2012 (Fábio Olmos)

inspecting each small area, probing the moss with its bill, and at times tearing pieces of moss to search for prey. It was impossible to identify the latter with certainty, but two items appeared to be insect pupae, seemingly of moth species. Small

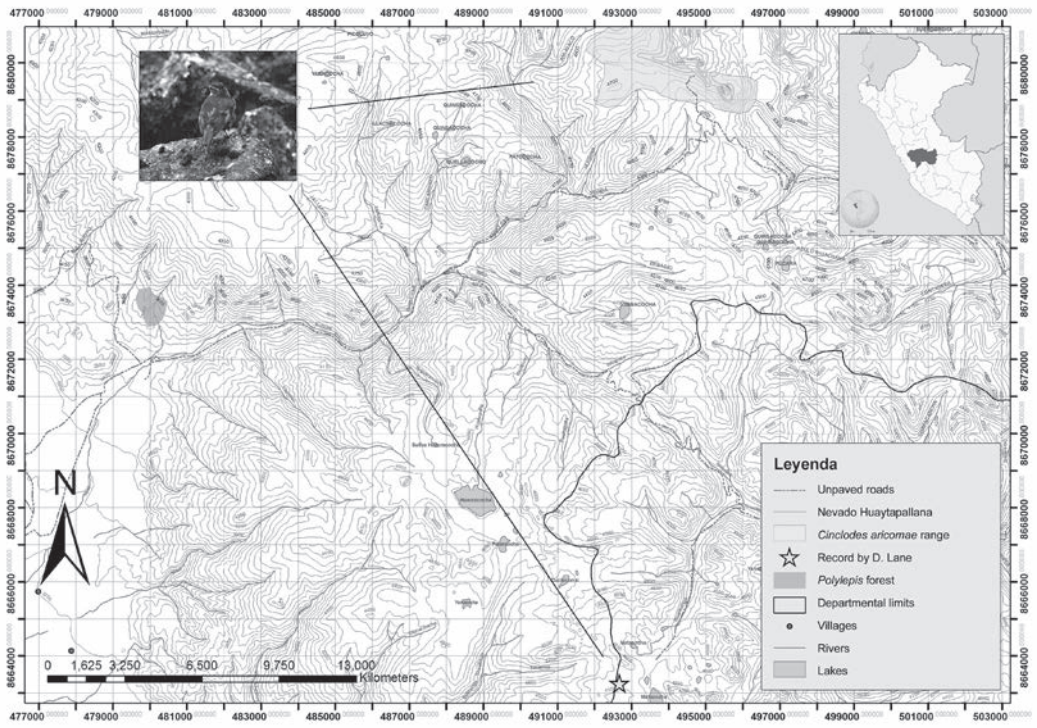

Figure 6. Distribution of Royal Cinclodes *Cinclodes aricomae* in Peru (Source: ECOAN)

moths and caddisflies (Trichoptera) became active as temperatures rose.

Foraging was observed on surfaces of boulders and the ground, notably where there was a dense cover of moss and lichen. The bird was also observed to forage under larger rocks within accumulations of moss and plant debris, including where debris such as plastic bags and bottles were present. As the majority of the area was snow-covered, the bare ground protected by the rocks afforded an opportunity to forage.

Feeding bouts were interspersed by periods when the bird would perch on an exposed rock, preening and stretching, or would remain quietly where it had been foraging. Once, it was observed to fly quickly several tens of metres, and was briefly seen pursuing what appeared to be another Royal Cinclodes before both birds were lost to view. It was impossible to assess if this was territorial behaviour, or if the bird was following its mate. After a few minutes, the bird reappeared in the original area and resumed foraging. Again, it was not heard to sing or seen to display.

On 23 September 2013, CAC, AC, A. Morales, M. Varrillas and J. Ventura, from the Gobierno Regional de Junín, visited the same spot, but the area was disturbed by up to 500 people engaged in *pagos a la tierra*, an ancient tradition, where food, drink and other goods are offered to the mountain. The entire area was dry and much disturbance was evident in the vicinity of the moss-covered boulders where the bird had been observed previously.

A one-hour search failed to locate any Royal Cinclodes but, at 10h00, we searched the boulders higher upslope, which supported healthier-looking moss and this, along with other vegetation, made the area appear 'greener'; there was also less evidence of cattle presence. A pair of Royal Cinclodes was located foraging on the moss-covered rocks and were being followed by a third bird that was perhaps a juvenile. The birds flew further upslope, where initially just one was relocated. However, what was assumed to be the same pair subsequently reappeared, and at 12h00 all three flew away together.

Other birds recorded in the area included Cream-winged Cinclodes *Cinclodes albiventris*, Streak-throated Canastero *Asthenes humilis*, Ancash Tapaculo, Cinereous Ground Tyrant *Muscisaxicola cinereus*, White-winged Diuca Finch, Plumbeous Sierra Finch *Phrygilus unicolor* and Peruvian Sierra Finch.

Discussion

This record establishes a new northernmost limit for *C. aricomae*. Previously, the species was known

from as far north as Pariahuanca[15], just over 12 km to the south-east, and Otishi, prov. Tambo, in Ayacucho[2] (Fig. 6). Huaytapallana lies three km from the nearest relict patch of *Polylepis* (< 30 trees) in Acopalca district. A larger *Polylepis* forest, known as El Dorado, lies 30 km distant in Paccha district, Junín (Fig. 6). The most surprising fact concerning our observations is the absence of *Polylepis* and scarcity of *Gynoxys* within a several-kilometre radius, and the overall limited tree cover in the area. There are only a few small *Polylepis* and *Gynoxys* along the road from Huancayo, far from the Royal Cinclodes site.

The dense cover of moss including clumps on boulders and adjacent rock walls apparently provides adequate foraging habitat, since observations were made in August and December 2012, and September 2013. This microhabitat, although patchy, may potentially harbour invertebrate populations of sufficient density to support *C. aricomae*. Nevertheless, it is unknown to date if the species can breed successfully in the area.

Royal Cinclodes is known to occur at very low densities, with just two adults and a juvenile in 1.71 km^2 of *Polylepis* at Cordillera Vilcanota[11], and the species might be even scarcer at Huaytapallana. The area of Huaytapallana surveyed has many boulders with a moss cover of 40–50%, raising the possibility of more Royal Cinclodes within inaccessible areas.

This is the first time that *C. aricomae* has been recorded in a habitat other than *Polylepis* / *Gynoxys* forests, although CAC has recorded several instances, during pronounced dry spells, of individuals away from *Polylepis* forest, searching for food in nearby *bofedales* and wetter areas at Canchayoc, near Abra Malaga[3] and Mantanay in the Cordillera Vilcanota.

Our observations and that at Pariahuanca[17] suggest the possible presence of a population of *C. aricomae* in the mountains of Junín using, at least to some extent, a different habitat to *Polylepis* / *Gynoxys*, and that the species either occurs naturally in other habitat or has been forced to adapt due to deforestation. Further surveys are required to assess the species' current status in the area.

Despite its protected status, Huaytapallana faces several threats, including fires set by local people to encourage growth of new pasture, forestation with exotic trees and trampling of vegetation by visitors along with associated accumulation of rubbish. All of these issues can be tackled by appropriate management and the engagement of local people, as with other projects undertaken by ECOAN during the past 12 years at sites such as Abra Malaga[3].

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