SHORT COMMUNICATION

First record of the gray-legged tinamou, Crypturellus duidae, and other poor-soil specialist birds from peatlands in the Putumayo River basin, Loreto, Peru

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ABSTRACT

Crypturellus duidae (Tinamidae) is a poor-soil specialist with isolated populations in Amazonia, and is considered restricted to white-sand forest habitats. We report the first record of C. duidae in a peatland forest in northern Peru, in the Putumayo River basin. Our record extends the known distribution of C. duidae between two disjoint areas of occurrence in Peru and Colombia, and shows its presence in peatland forest, another forest type on nutrient-poor soils. Additionally, we report the presence of other poor-soil specialist bird species that were previously registered in peatlands. Together with the new record of C. duidae, these bird records provide evidence of the diversity of poor-soil specialists in peatland forests.

KEYWORDS: Mauritia flexuosa, palm swamps, white-sand forests, Amazonia

RESUMEN

Crypturellus duidae (Tinamidae) es considerada un ave especialista de suelos pobres, con poblaciones aisladas y restrictas a bosques sobre arena blanca en Amazonía. En este trabajo reportamos el primer registro de C. duidae en un bosque de turbera al norte de Perú, en la cuenca del Río Putumayo. Nuestro registro extiende la distribución conocida de C. duidae entre dos áreas de ocurrencia disjunta entre Perú y Colombia, y muestra su presencia en bosques de turbera, otro tipo de bosque sobre suelos pobres en nutrientes. Adicionalmente reportamos la presencia de otras aves especialistas de suelos pobres anteriormente registradas en turberas. En conjunto con el nuevo registro de C. duidae, esos registros de aves proporcionan evidencia de la diversidad de especialistas de suelos pobres en bosques de turberas.

PALABRAS-CLAVE: Mauritia flexuosa, pantanos de palmeras, bosque sobre arena blanca, Amazonía

In the Loreto region, in the northern Peruvian Amazon, white-sand forests are a distinctive collection of forest types characterized by high stem densities (roughly 1000 stems > 10 cm DBH per hectare), a canopy as low as 5 m (García-Villacorta et al. 2003), and a distinctive floristic assemblage dominated by specialist trees (Zárate et al. 2015). The avifauna is also distinctive and includes a variety of specialist species such as Polioptila clementsi Whitney and Álvarez, 2005, Neopelma chrysocephalum Pelzelm., 1868, Zimmerius villarejoi Álvarez and Whitney, 2001, among others (Álvarez et al. 2012; Álvarez et al. 2013; Borges et al. 2016; Díaz-Alván et al. 2017; Socolar et al. 2018).

The gray-legged tinamou, Crypturellus duidae J.T. Zimmer, 1938 (Tinamidae) is a poorly known species distributed disjunctly on nutrient-poor white-sand forests across northern South America (Schulenberg et al. 2010; BirdLife

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International 2017; Borges et al. 2017). In Peru, the species is known exclusively from white-sand forests in the Nanay and middle Tigre river basins (Álvarez and Whitney 2003; Díaz-Alván et al. 2017). The species is apparently absent from extensive white-sand forests along the Morona River and south of the Amazonas River (O’Shea et al. 2015; Schmitt et al. 2017).

Recent work in Loreto has documented extensive peatland forests in swampy river floodplains (Draper et al. 2014). Forests that receive floodwaters are frequently dominated by the palm *Mauritia flexuosa* L.f., while domed ombrotrophic peatland swamps, that receive water and nutrients only from precipitation, and not through connections with water currents, such as minerotrophic peatlands (Lähteenoja et al. 2009), resemble white-sand forests in several important ways, including severe nutrient limitation, stunted physiognomy, and low epiphyte loads (Draper et al. 2014). Moreover, while these forests are severely depauperate in tree species, the few that are present are often shared with white-sand forests and include white-sand specialists (Zárate et al. 2013; Draper et al. 2018). The avifauna of ombrotrophic peatlands also shows clear white-sand affinities. For example, recent records indicate that peatlands along the lower Tigre River, in Loreto-Peru, harbor white-sand specialists (Díaz-Alván et al. 2017).

Here, we report a record of *Crypturellus duidae* from a peatland forest in the Putumayo River basin in Loreto, Peru. In addition to being the first record of *C. duidae* from a peatland forest, this is the first record of the species in Peru far from white sand and its known occurrence areas in the upper Nanay River basin in Peru and in the Chiribiquete region of Colombia (Álvarez et al. 2003).

From 14 August to 11 September 2017 we surveyed bird communities in peatlands and *terra firme* forests dominated by the palms *Mauritia flexuosa* and *Oenocarpus bataua* Mart., respectively, along the upper Putumayo River, Loreto, Peru. In the vicinity of our sampling site, we assessed habitat in 20 x 50 m tree plots (Stohlgren et al. 1995; Judd et al. 1999). On 1 September 2017, near the town of Santa Rita, on the Yubineto River, we recorded the distinctive song of *Crypturellus duidae* from a peatland dominated by *M. flexuosa* (1°00′02.12″S, 74°19′39.35″W; Figure 1). The song was recorded at 07:25 a.m. using an LG H502 smartphone and the RecForce II application for Android system. The voice-recording is available in the Xeno Canto library (XC429170, www.xeno-canto.org). In addition to the voice-recorded individual, we detected two further individuals vocalizing nearby.

Habitat at the site consisted of palms with scattered dicot trees growing on waterlogged substrate. The canopy height varied roughly between 12 to 19 m, with emergent trees and palms as tall as 25 m. Stem densities (≥ 10 cm DBH) varied between 78 and 96 stems per 0.1 ha, of which 17 to 23 stems involved the dominant palm *M. flexuosa*. Other common tree species included *Oxandra cuneata* Diels, *Euterpe precatoria* Mart., *Gynometra spruceana* Benth., *Virola pavonis* (A. DC.) A.C. Sm., among others.

Apart from *Crypturellus duidae*, we recorded in the upper Putumayo study area a number of other bird species with white-sand forest affinity in peatlands, *terra firme* forests, and non-peatland floodplain forest (Table 1). Our records represent a new habitat and an extension of the known distribution range of *C. duidae* in Peru. Amazonian peatlands are geologically ephemeral formations, with radiocarbon dates for the onset of peat accumulation generally of a few thousand years ago (Lähteenoja et al. 2012; Roucoux et al. 2013). Thus, the occurrence of *C. duidae* on isolated peatlands in northern Loreto, coupled with the presence of a variety of poor-soil specialist species in the surrounding *terra firme*, suggests that *C. duidae* might maintain low-density populations across a vast forest area between known populations near Iquitos, Peru and in Chiribiquete, Colombia.
While peatland pole forest (a type of ombrotrophic peatland different in physiognomy and composition of plant species than peatland dominated by M. flexuosa; Draper et al. 2014, 2017) is known to harbor a variety of white-sand specialist birds (Díaz-Alván et al. 2017), our records of C. duidae and other poor-soil specialist species recorded on peatlands are the first from peatlands dominated by M. flexuosa (peatland palm swamp) (Draper et al. 2014, 2017). Because M. flexuosa palm swamps dominate a vast area of northern Peru (Draper et al. 2014), these records suggest that some of these species might be more widely distributed than previously thought.

The mechanisms governing habitat selection for C. duidae and other white-sand specialists are not well known. It is perhaps noteworthy that the vast majority of C. duidae records from the Nanay basin are from white-sand forests on waterlogged substrates with a deep layer of organic humus (“varillal húmedo”; J. Socolar, personal observation), which may affect the foraging or nesting ecology of C. duidae. On white-sand, C. duidae is often associated with dense understory stands of the palm Euterpe catinga, which do not exist at the Putumayo site, though its congener E. precatoria is relatively common. It is also possible that C. duidae is a dietary specialist on fruit or invertebrate resources that are restricted to moist-poor-soil forests.

As in Peru, in other countries, C. duidae is considered an indicator species of white-sand forest (Hurd et al. 1995; Borges et al. 2016, 2017). However, there is a previous record of C. duidae within the Chiribiquete National Park, in a flooded forest with a structure similar to forests that grow on poor soils (Álvarez et al. 2003). Although it is known that there are peatlands in the Guayana Highland landscape (including the Serranía de Chiribiquete) (Zinck and Huber 2011), it is not known whether the record of C. duidae was related to a peatland forest. The presence of species with isolated populations, such as C. duidae and other poor-soil specialist birds in the upper Putumayo region suggests the existence of previously unrecognized poor-soil bird assemblages across northernmost Peru, which possibly afford connectivity between populations on the Guianan shield and populations near Iquitos (Socolar et al. 2018).

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