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NOTES ON BIRD SPECIES IN BAMBOO IN NORTHERN MADRE DE DIOS, PERU INCLUDING THE FIRST PERUVIAN RECORD OF ACRE TODY-TYRANT (*HEMITRICCUS COHNHAFTI*)

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ABSTRACT

In the southwestern Amazon Basin, large areas of habitat are comprised predominantly of *Guadua* bamboo. Many bird species occur in or specialize on *Guadua*-dominated habitats, but little is known about the taxonomy, distribution, and evolutionary history of this avian assemblage. During 2011, we surveyed the surroundings of Iberia, an area with many large *Guadua* stands in the southern Peruvian Amazon. We found many *Guadua* specialist bird species and discovered a surprising Andean element to the local avifauna. We present information on *Guadua* specialists, Andean species, birds of open habitats, and avian migration and reproduction. We provide accounts for species of particular interest and an appendix containing an annotated list of all species detected.

INTRODUCTION

Stands of *Guadua* bamboo are a feature of forests in the southwestern Amazon Basin. These stands are often monodominant, or comprised almost entirely of either *Guadua weberbaueri* or *G. sarcocarpa* (Judzeiwicz et al. 1999). *Guadua* stands are a successional habitat, and individual stands grow, flower, and die in cycles of 10-29 years (Judzeiwicz et al. 1999). In the southwestern Amazon, *Guadua*-dominated forests cover an area of 180,000 km^2 spread across Brazil, Peru, and Bolivia (Nelson 1994). *Guadua* stands provide habitat for many bird species, a subset of which are mostly or entirely restricted to this habitat (Parker 1982; Kratter 1997; Parker et al. 1997). Kratter (1997) and Lebbin (2007) categorized 19 and 22 bird species, respectively, as obligate specialists, i.e. species that are nearly or completely restricted to *Guadua* (Kratter 1997, Lebbin 2007). They also considered an additional 13 to 20 species facultative specialists, i.e. species that occur in multiple habitats but are present at highest density in *Guadua*.

Relatively little is known about the birds that specialize on or occur in *Guadua* in the Amazon Basin. Recent studies have provided insights into the foraging ecology, community composition, and population ecology of birds in *Guadua* (Lebbin 2007, Lebbin 2013, Socolar et al. 2013), but the systematics and biogeography of many *Guadua*-associated species remain poorly understood. Since 1983, four new bird species that specialize on *Guadua* have been described (Pierpont and Fitzpatrick 1983, Fitzpatrick and Willard 1990, Lane et al. 2007, Zimmer et al. 2013), and recent range extensions indicate that we have a limited understanding of the geographic distributions of *Guadua* specialists (e.g. Parker et al. 1997, Aleixo et al. 2000). Additional fieldwork is required to refine distributional knowledge of *Guadua* specialists and to obtain material for studies on the patterns and origins of avian diversity in *Guadua*.

During November 2011, we conducted an ornithological inventory near the Peruvian town of Iberia, an area with a high density of *Guadua*-dominated forest. We surveyed the avifauna of two study sites and collected voucher specimens with

genetic samples as well as audio recordings. Here, we present a preliminary assessment of the avifauna of this area and discuss in detail species that were associated with *Guadua*, noteworthy distributional records, and new behavioral observations.

STUDY AREA AND METHODS

Iberia is in northeastern Madre de Dios Region in the southern Peruvian Amazon (-11.40, -69.49; 270 m) along the north bank of the Río Tahuamanu and along the recently completed Interoceanic Highway connecting Peru to Brazil. Typical Amazonian habitats present include upland *terra firme* forest, floodplain forest, and a variety of successional habitats. The area is remarkable for the high density of lowland *Guadua* bamboo, which occurs primarily in dense patches up to several hectares in size. We surveyed all habitats, but focused on *Guadua*, between 15 and 22 November 2011. After most of the team left, JMH continued surveying the area from 23 to 31 November 2011.

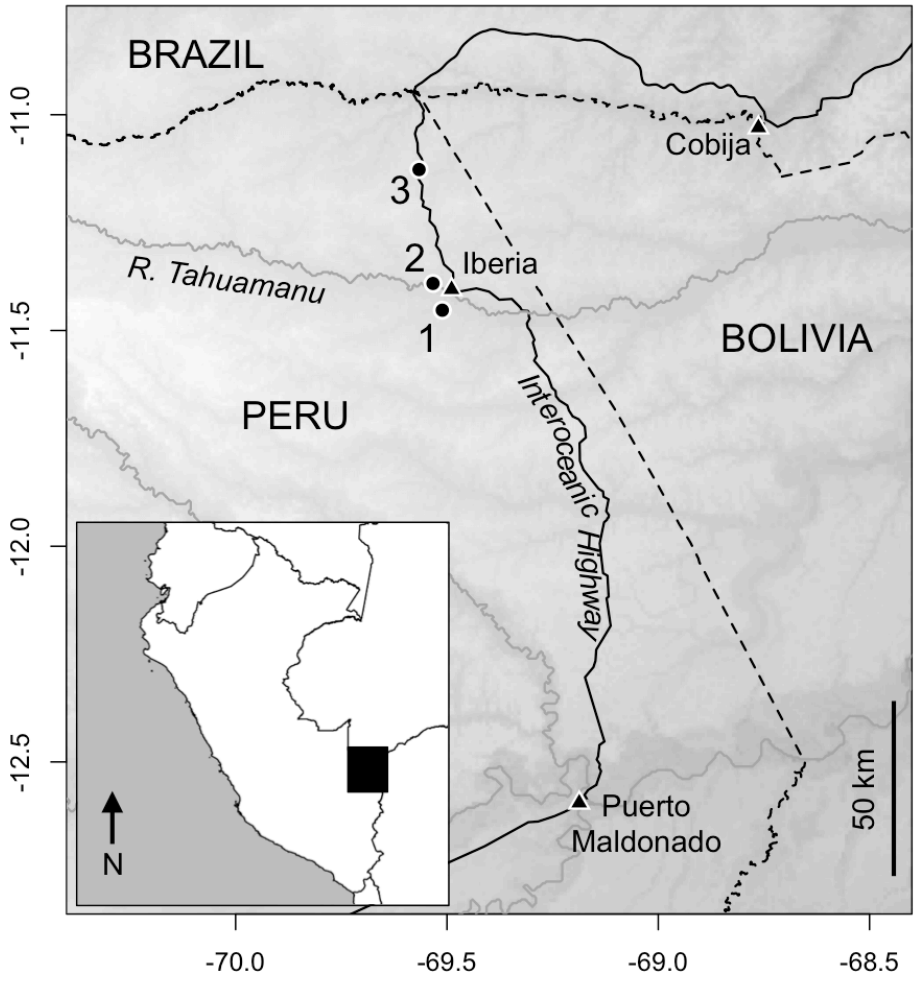

Figure 1: A map of the study area showing the three study localities: (1) Portillo, (2) Oceanía, and (3) Noaya as well as the stretch of Transoceanic Highway where surveys were conducted.

We focused on two sites near Iberia. The first, Portillo (-11.45, -69.51; 300 m), is an area with scattered homesteads within a matrix of *terra firme* forest and *Guadua* in uplands south of the Río Tahuamanu ~5 km south-southwest of Iberia. The second, Oceanía (-11.39, -69.53; 275 m), is an area of pasture with isolated patches of *Guadua* and forest bordering the north bank of the Río Tahuamanu ~5 km west-northwest of Iberia. We also report observations by DFL and Miriam Torres Nuñez from Noaya, Peru (-11.13, -69.57; 280 m) 35 km to the north of Iberia during a separate trip 19 to 22 November 2005. Noaya is primarily secondary growth, with small patches of forest and *Guadua.* During both 2005 and 2011, we also made observations along the Interoceanic Highway between Puerto Maldonado and the Brazil border. We made observations and audio recordings and collected specimens using shotguns each day between 06:00 and 12:00 PET and sometimes between 12:00 and 18:00. We also captured and collected birds using ~20 mist nets positioned in bamboo and *terra firme* forest. Some observational data were deposited in the Avian Knowledge Network using the eBird portal, Cornell Laboratory of Ornithology (CLO), Ithaca, New York, USA. We made digital audio recordings of many species, which were archived at the Macaulay Library (ML), CLO, and the xeno-canto (XC) online bird recording archive (http://www.xeno-canto.org). We collected voucher specimens and tissue samples, which have been deposited at the Centro de Ornitología y Biodiversidad (CORBIDI), Lima, Peru, and the Louisiana State University Museum of Natural Science (LSUMZ), Baton Rouge, Louisiana, USA.

RESULTS AND DISCUSSION

We recorded 415 species of birds representing 60 families (Appendix); of these 155 species are documented with specimens, audio recordings, or photographs. Across sites, we recorded 365 species at Portillo, 238 species at Oceanía, 183 species at Noaya, and 94 species along the Interoceanic Highway.

Guadua Bamboo Specialists

We recorded 36 species characterized as *Guadua* specialists by previous authors (Kratter 1997, Lebbin 2007; see Appendix). Of these, 18 were considered obligate or near-obligate specialists by either Kratter (1997) or Lebbin (2007), and 21 were considered facultative or potentially facultative specialists by either author. There was disagreement between the two authors about whether three species were obligate or facultative (see Appendix). We did not find three species of *Guadua* specialists that we expected to encounter because their distributions include Madre de Dios Region: Yellow-billed Nunbird (*Monasa flavirostris*), Dusky-cheeked Foliage-gleaner (*Anabazenops dorsalis*), and Long-crested Pygmy-Tyrant (*Lophotriccus eulophotes*). Although not addressed in previous treatments of *Guadua* specialization, Acre Tody-Tyrant (*Hemitriccus cohnhafti*) appears to be at least a facultative and, based on our observations, possibly an obligate *Guadua* specialist. We also observed Amazonian Parrotlet (*Nannopsittaca dachilleae*), Rufous-fronted Antthrush (*Formicarius rufifrons*), and Black-faced Cotinga (*Conioptilon mcilhennyi*),

which are not considered *Guadua* specialists but have geographic distributions restricted to the region of the southwestern Amazon where *Guadua* stands are concentrated. The diversity of *Guadua* specialists observed in the Iberia area makes this a prime area for further research on and conservation of these range-restricted species. Unfortunately, at least some of the areas of *Guadua* habitat at Oceanía were clear-cut following our visit (B. Walker, pers. comm.).

Foothill Species

We recorded a few species typically associated with Andean foothills, including Fine-barred Piculet (*Picumnus subtilis*), Stripe-chested Antwren (*Myrmotherula longicauda*), Cabanis's Spinetail (*Synallaxis cabanisi*), Sooty-headed/Yungas Tyrannulet (*Phylloscartes griseiceps/weedeni*), and Green-backed Becard (*Pachyramphus viridis xanthogenys*). Iberia is roughly 250 km from the foothills of the Andes, so the presence of these species in the area is surprising. There are, however, recent records from further to the east in Brazil of *P. subtilis* (Rêgo et al. 2009), *S. cabanisi* (Parker et al. 1997), and *P. viridis xanthogenys* (Aleixo et al. 2008), and *M. longicauda* has been recorded in southeastern Peru as far from the Andes as the Puerto Maldonado area (Schulenberg et al. 2006). This shared component of the avifaunas of Andean foothills and *Guadua*-dominated lowland forest may suggest shared floristic or structural attributes between the habitats. Alternatively, Andean taxa may have invaded *Guadua*-dominated forest due to the absence of competitors that are present elsewhere in lowland areas with taller forest.

Open Habitat Species

Although not a focus of our surveys, open habitats in the study area hosted a number of interesting species. We recorded Small-billed Tinamou (*Crypturellus parvirostris*), Brazilian Teal (*Amazonetta brasiliensis*), Southern Lapwing (*Vanellus chilensis*), Burrowing Owl (*Athene cunicularia*), Southern Caracara (*Caracara plancus*), Grassland Sparrow (*Ammodramus humeralis*), and Red-breasted Blackbird (*Sturnella militaris*), all of which were unrecorded or considered highly localized in the Peruvian Amazon until recently (Schulenberg et al. 2006; B. Walker, pers. comm.). Presumably, these species are expanding from larger areas of open habitats in Bolivia or Brazil as deforestation increases along the Interoceanic Highway.

Migration

We recorded 18 species of migrants, including 11 boreal and three austral migrant species (Parker et al. 1997, Schulenberg et al. 2010). Boreal migrants observed were Spotted Sandpiper (*Actitis macularius*), Greater Yellowlegs (*Tringa melanoleuca*), Solitary Sandpiper (*T. solitaria*), Alder Flycatcher (*Empidonax alnorum*), Olive-sided Flycatcher (*Contopus cooperi*), Eastern Wood-Pewee (*C. virens*), Eastern Kingbird (*Tyrannus tyrannus*), Yellow-green Vireo (*Vireo flavoviridis*), Swainson's Thrush (*Catharus ustulatus*), Scarlet Tanager (*Piranga olivacea*), and Bobolink (*Dolichonyx oryzivorus*). Austral migrants observed were

Variegated Flycatcher (*Empidonomus variegatus*), Crowned Slaty Flycatcher (*E. aurantioatrocristatus*), and Double-collared Seedeater (*Sporophila caerulescens*). Streaked Flycatcher (*Myiodynastes maculatus solitarius*) may have been an austral migrant, but see discussion in the species account for evidence of local breeding. Azure Gallinule (*Porphyrio flavirostris*), Black-and-white Tanager (*Conothraupis speculigera*) and Lesson's (*Sporophila bouvronides*) and Lined (*S. lineola*) seedeaters are likely intratropical migrants, and Red-eyed Vireo (*Vireo olivaceus*) may include either boreal or austral migrants. This migrant diversity is not unexpected at this time of year, when boreal migrants are passing through or arriving and austral migrants are departing for their breeding grounds. Densities of boreal migrants, particularly *C. virens* and *P. olivacea*, seemed high in the mosaic of *Guadua* and *terra firme* forest around Iberia, perhaps because it has the edge-like structure preferred by many migrant species on their wintering grounds (Levey and Stiles 1992).

Reproduction

We observed evidence of breeding in many species during the November 2011 fieldwork. We found active nests of Ornate Hawk-Eagle (*Spizaetus ornatus*), Black-faced Antthrush (*Formicarius analis*), Yellow-browed Tody-Flycatcher (*Todirostrum chrysocrotaphum*), Black-faced Cotinga (*Conioptilon mcilhennyi*), White-winged Becard (*Pachyramphus polychopterus*), and Black-billed Thrush (*Turdus ignobilis*). Additionally, we observed signs of breeding (carrying nesting material, nuptial feeding, copulation, or dependent young) in Rufous-capped Nunlet (*Nonnula ruficapilla*), Chestnut-capped Puffbird (*Bucco macrodactylus*), Great-billed Hermit (*Phaethornis malaris*), Spot-backed Antbird (*Hylophylax naevius*), Goeldi's Antbird (*Myrmeciza goeldii*), Band-tailed Antbird (*Hypocnemoides maculicauda*), Black-spotted Bare-eye (*Phlegopsis nigromaculata*), Rufous-browed Peppershrike (*Cyclarhis gujanensis*), and Magpie Tanager (*Cissopis leverianus*). The observed breeding activity during the time of our survey, November, is not surprising given that the peak breeding season at nearby Cocha Cashu Biological Station in Manu National Park is thought to be between mid-August and mid-November (Terborgh et al. 1990).

Species Accounts

Brazilian Teal (*Amazonetta brasiliensis*).--We observed and photographed 10 *A. brasiliensis* in several man-made ponds scattered along the road between Iberia and Puerto Maldonado (-12.60, -69.19; 200 m) on 22 November 2011. This species has only recently been documented in Peru (B. Walker, pers. comm.), but seems to have colonized rapidly now that the region around Puerto Maldonado and along the Interoceanic Highway has been deforested.

Paint-billed Crake (*Neocrex erythrops*).--We heard and recorded several individuals in pasture at the edge of a scrubby area on the road between Iberia and Oceanía on 15 and 21 November 2011 (ML168801, XC91320-2, XC91337), and along the road south of the Río Tahuamanu toward Portillo on 20 November 2011

(XC91684). This species is rare and local in the Peruvian Amazon (Schulenberg et al. 2006, 2010).

Burrowing Owl (*Athene cunicularia*).--DFL encountered this species in pastures along the Interoceanic Highway north of the Río Madre de Dios on 21 November 2005 (XC146555), and we observed several individuals in pasture on the road between Iberia and Puerto Maldonado on 14 and 22 November 2011. This species has apparently recently invaded open areas here and elsewhere in the Peruvian Amazon (e.g., Harvey et al. 2011).

Fine-barred Piculet (*Picumnus subtilis*).--We encountered several individuals of this species, which had been considered an endemic of southern Peru's foothills (Schulenberg et al. 2006, 2010). Rêgo et al. (2009) published recent records from Acre, Brazil. Our records suggest *P. subtilis* is continuously distributed between the Andean foothills and lowland *Guadua*-dominated habitats in southwestern Amazonia.

Stripe-chested Antwren (*Myrmotherula longicauda*).--This species is primarily a denizen of foothill forest and second growth, particularly with a *Guadua* component (pers. obs.). There are relatively few records from lowland Amazonia, although a population exists in flooded forests of the Pacaya-Samiria area between the ríos Marañon and Ucayali (Begazo and Valqui 1998). DFL audio recorded a bird near Oceanía on 15 November 2011 (XC91324) and observed others near Portillo. These records are among the first from well away from the Andes in southern Peru (Schulenberg et al. 2006).

Chestnut-throated Spinetail (*Synallaxis cherriei*).--One was caught in a mist net at Portillo and collected on 20 November 2011, and another was observed by JMH at Portillo on the same date. Both were in forest understory with scattered *Guadua* bamboo. This species is rare and poorly known in Peru and most records are from the base of the Andes (Schulenberg et al. 2006).

Sooty-headed/Yungas Tyrannulet (*Phyllomyias griseiceps/weedeni*).--MGH and RST first heard what sounded like *P. griseiceps* at Portillo on 16 November 2011, but the bird was distant and unresponsive. On 19 November they found the bird again and managed to track down, observe, record (ML168806), and collect a pair. On 21 November, DFL found and recorded a pair with begging young (XC91692-4) near Oceanía and collected one individual. In Peru, *P. griseiceps* is a bird of foothill forests and dry valleys in the Andes Mountains (Schulenberg et al. 2006, 2010), but our records extend their known range into the Amazon Basin 250 km from the Andes.

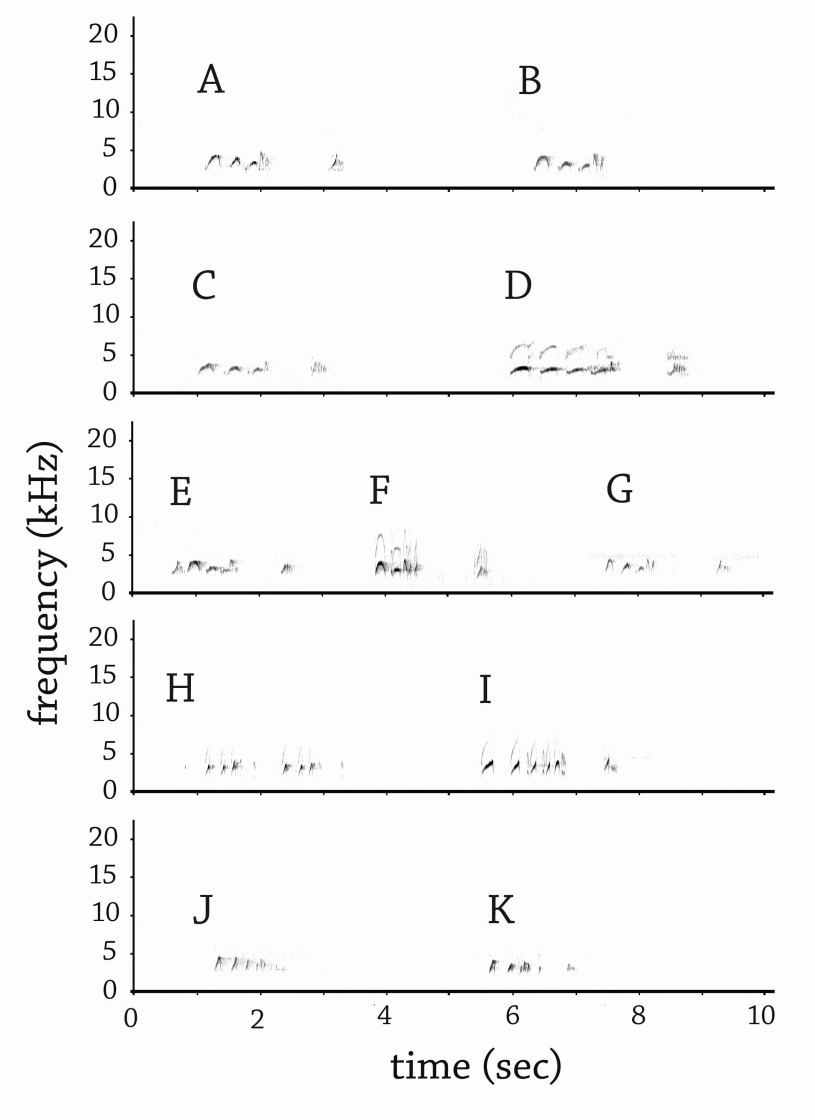

Figure 2. Spectrograms of solo songs from several populations of the Sooty-headed/Yungas Tyrannulet (*Phyllomyias griseiceps/weedeni*) complex to show geographic variation. (A) *P. griseiceps/weedeni* song and rattle (PERU: Madre de Dios Region; Oceanía. 21 November 2011; D. F. Lane. XC91692), (B) *P. griseiceps/weedeni* song only (PERU: Cusco Region; Alto Manguiari. 7 April 2009; M. B. Robbins. ML147381), (C) *P. weedeni* song and rattle (PERU: Puno Region; Curva Alegre. 11 June 2007; D. F. Lane. XC31533), (D) *P. weedeni* song and rattle (BOLIVIA: La Paz Dept.; Cerro Asunta Pata. 6 February 1997; S. Herzog. XC4095), (E) *P. griseiceps* song and rattle (PERU: Ucayali Region; Oventeni. 12 September 2008; M. G. Harvey. ML140477), (F) *P. griseiceps* song and rattle (PERU: San Martín Region; Morro de Calzada. 26 June 2013; D. F. Lane. XC144499), (G) *P. griseiceps* song and rattle (ECUADOR: Napo Province; Jatuncocha. 1 December 1992; P. Coopmans. ML60383), (H) *P. g. griseiceps* song only (ECUADOR: Manabí Province; Parque Nacional Machalilla. 20 January 1991; T. A. Parker, III. ML69555), (I) *P. g. cristatus* song and rattle (VENEZUELA: Zulia State; Río Aricaizua. 24 March 1966; P. A. Schwartz. ML66641), (J) *P. g. pallidiceps* song only (BRAZIL: Amazonas State; Santa Isabel do Rio Negro. 3 April 2012; M. Cohn-Haft), (K) *P. g. pallidiceps* song and rattle (VENEZUELA: Bolivar State; Campamento Río Grande. 5 February 1987; T. A. Parker, III. ML45545). Notice the long introductory notes present in the songs of birds from Madre de Dios (A) and Cusco (B), and their similarity in structure with, but with shorter introductory notes and slightly higher frequencies than, *P. weedeni* (C, D). Birds identified as *P. griseiceps* from the east slope of Peru and Ecuador (E, F, G) are similar to A and B, but have still shorter introductory notes and are at higher frequencies. By comparison, *P. g. griseiceps* (H) lacks the long introductory notes, the terminal jumbled note, and usually repeats its notes. *Phyllomyias g. cristatus* from northwestern Venezuela has similar note structure to *P. g. griseiceps*, but has a terminal jumbled note. *P. g. pallidiceps* from Amazonian Brazil and eastern Venezuela (I, J) have very rapid introductory notes, but their acceleration is more similar to the eastern Andean *P. griseiceps* than to *P. g. cristatus*.

As reported previously from locations in central Peru (Harvey et al. 2011, Robbins et al. 2011), *P. griseiceps* near Iberia sound quite similar to *P. weedeni* of southernmost Peru and Bolivia (Herzog et al. 2008). The two species may represent parts of a cline in vocal (Fig. 2), and possibly plumage, traits. Furthermore, the taxon of *P. griseiceps* that occupies the Andean foothills from Ecuador south is not clear. Fitzpatrick et al. (2004) synonymized all named taxa within *P. griseiceps*, rendering it monotypic, based on a relative absence of morphological variation. This taxonomy does not take into account the strong geographic variation in voice (Fig. 2), however, and may underestimate the number of taxonomically diagnosable units within *P. griseiceps*. Ridgely and Greenfield (2001) suggested that east Ecuadorian birds were nominate *griseiceps* (type locality: Los Rios Prov. in western Ecuador), but populations east and west of the Andes in Ecuador are vocally distinct (Fig. 2). Most Peruvian birds sound rather like eastern Ecuadorian birds, and these populations may be better placed under an existing cis-Andean name such as *P. g. pallidiceps* (type locality: Manaus, Brazil) or may need their own name. Alternatively, it is possible that all eastern Andean populations from Ecuador to Bolivia should be transferred to the species *P. weedeni*. Regardless, variation within this complex requires additional study.

Acre Tody-Tyrant (*Hemitriccus cohnhafti*).--We first heard a strange flycatcher while sitting in camp at Portillo on 16 November 2011. We recorded and collected this individual, which we tentatively identified as a *Hemitriccus* of the "*Snethlagea* group" based on morphology and voice (Cohn-Haft 1996). An additional four individuals were observed, recorded (ML168819, XC97439, XC97441, XC97443), videotaped, and collected over the subsequent four days. After the expedition, recordings and specimens were examined by team members as well as A. Aleixo and M. Cohn-Haft and were assigned to a recently discovered, but undescribed, species known only from Acre, Brazil. Subsequently, this species has been described as *H. cohnhafti* (Zimmer et al. 2013), and our records represent the second locality for the species and the first observations in Peru. Like birds at the type locality (Zimmer et al. 2013), *H. cohnhafti* at Portillo were exclusively in areas of second growth on well-drained, nutrient-poor soils in upland areas. The dominant vegetation here, however, was dead or dying, often collapsed, *Guadua* bamboo with little or no overstory, whereas only scattered thickets of *Guadua* were described from the type locality (Zimmer et al. 2013). Behavior and vocalizations closely matched those described by Zimmer et al. (2013). Individuals were typically solitary, and moved about 1-4 m above ground level calling periodically and sally-gleaning for prey. We expect this species is widespread in *Guadua*-dominated and possibly other successional habitats on upland terraces throughout the region of *Guadua*-dominated forest in the southwestern Amazon Basin.

Rufous Twistwing (*Cnipodectes superrufus*).--We detected this recently described species (Lane et al. 2007) at Portillo on 19 November 2011 and at Oceanía on 15, 17, and 21-31 November 2011. We observed and recorded (e.g., ML168802, XC91332, XC91690) at least 12 individuals, 11 of which were at Oceanía, and collected four. Individuals at Oceanía were distributed in three *Guadua* patches,

often with multiple males within earshot of each other. This species was scarce at Portillo, an area with large amounts of potentially suitable *Guadua* habitat. The local distribution of *C. superrufus* even within apparently suitable habitat may be a result of clustering due to colonial or lekking behavior (suggested by Tobias et al. 2008). The strong sexual size dimorphism exhibited by the two species of *Cnipodectes* (Lane et al. 2007, Tobias et al. 2008) also supports the idea that they have a lekking or polygynous mating system (Payne 1984). One individual collected at Oceanía on 21 November 2011 had been banded on 12 November 2004 (D. J. Lebbin, pers. comm.), representing a longevity record of over seven years. This corresponds well with previous records of longevity in tropical tyrannids (e.g., Snow and Lill 1974, Lentino et al. 2003).

Streaked Flycatcher (*Myiodynastes maculatus solitarius*).--This taxon is widespread as an austral migrant in much of western Amazonia, but its breeding distribution within Peru is still poorly known. Schulenberg et al. (2006, 2010) suggested that its Peruvian breeding range is largely along the Andean foothills of Puno, Cusco, and Madre de Dios Regions, but our observation of a bird inspecting a cavity in a snag in an agricultural field at Portillo on 20 November 2011 (also see XC91682) suggests that the taxon also breeds in lowland Amazonia. We have also encountered several individuals of *M. m. solitarius* on the left bank of the Río Madre de Dios around Reserva Amazonica lodge's clearings and on a nearby river island 1-2 December 2012 and 5 December 2013 (e.g., XC158187). R. Ahlman (pers. comm.) also encountered this form in the Cordillera Escalera, San Martín Region, on 8 January 2011. These records suggest that *M. m. solitarius* is a widespread breeder in the eastern Andean foothills (perhaps as far north as San Martín Region) and amid clearings, edge habitat, and river islands in lowland Amazonia of southeastern Peru north to Ucayali Region.

Three-striped Flycatcher (*Conopias trivirgatus*).--On 20 November 2005, DFL audio-recorded a flycatcher at Noaya that he was unable to see (XC146509), but concluded it was this species later after comparing it to other recordings. JMH collected one female at Portillo on 16 September 2011, representing the first specimen for Madre de Dios Region, while it was moving through the subcanopy of relatively open *terra firme* with its presumed mate. This bird was apparently in breeding condition with a large ovary (8×6 mm), the three largest ova measuring 2, 2, and 1 mm, and a convoluted oviduct 3mm in width. On 19 September 2011 MGH audio-recorded a group of three individuals singing, calling, and bill snapping (ML168815) at Portillo. The only previous records for Madre de Dios Region are observations from the Manu Wildlife Center (Walker et al. 2006; B. Walker, pers. comm.).

Green-backed Becard (*Pachyramphus viridis xanthogenys*).--We observed and audio recorded (ML168803) a pair in emergent trees over bamboo at Oceanía on 15 November 2011, and RST and MGH observed and collected a male on 19 November at Portillo. This species is primarily known from the Andes above 500 m, where it may be associated with the edges of landslides and other clearings

(Lebbin 2004). There are two prior lowland records of this taxon in Acre, Brazil (Aleixo et al. 2008). Our records suggest that there may be a more or less continuous distribution of this "Andean" species from the southern Peruvian Andes through the lowlands into Brazil.

Black-faced Cotinga (*Conioptilon mcilhennyi*).--This cotinga was fairly common in *terra firme* forest both with and without associated *Guadua*. We obtained audio recordings of both the rising whine call and a soft hoot (e.g., XC91559) and collected two males from separate territories, both molting rectrices and remiges as well as undergoing light body molt. On 28 November 2011, JMH found a single *C. mcilhennyi*, presumably a female, building a nest in an isolated leguminous tree (Fabaceae) growing above an overgrown oxbow lake surrounded by *terra firme* forest. The bird's presumed mate was 10 m away in a different tree and called frequently while the first bird worked on the nest. The nest was built on top of a three-way branch fork 8.5 m above the ground in the 12 m tall legume. The small nest was composed entirely of thin twisting whitish fibers, all roughly 5-10 cm in length. There were only a handful of strands of nest material visible on 28 November. This rose to several dozen by 30 November, although the nest was still a small, flat saucer-shaped cup. JMH was not able to return after this date.

JMH had previously seen a single *C. mcilhennyi* perched on the nest branch on 25 November, presumably scouting for potential nest sites in the area. It spent at least 4 min on the three-way fork, slowly turning around several times, repeatedly sitting at different angles and then getting up to try a different position. It vocalized infrequently while at the nest site, but its mate spent the entire time 10 m away in an adjacent tree and vocalized throughout the observation. From 28 to 30 November JMH saw the pair at or near the nest site on six occasions during most daylight hours (07:30-17:30). The nest was watched closely for 2.25 hr on 29 November (14:48 to 17:04). The pair was at the nest only 15% of that time. The presumed female brought material three times, staying for only 5 min on each occasion, followed by absences of 30-45 min. Both birds arrived and departed in quick succession, yet the presumed male always landed a short distance away in a different tree and called frequently. Tobias (2003) also reported mate guarding by the male during the nest-building phase. This behavior has not bee reported in any other member of the Cotingidae (Kirwan and Green 2011). During one visit, an immature Ornate Hawk-Eagle (*Spizaetus ornatus*) at a nest 150 m away began a ten-minute period of calling incessantly and flying around the canopy near its nest. The *C. mcilhennyi* pair immediately flew in, the female without material and the male for the first time landing in the nest tree. They landed in the canopy 5 m from the nest, agitated and calling. Interestingly, one of the two nests described by Tobias (2003) was in the same tree as an active *S. ornatus* nest.

Snow (1982) predicted that *C. mcilhennyi* breeds from September to March due to the high seasonality across it small range. The only prior nesting information on this species is from Tobias (2003), who found a pair building in mid September

and a second pair with well-developed nestlings in late September. Our observations extend the known breeding season of this species by two months.

Long-billed Gnatwren (*Ramphocaenus melanurus obscurus*).--A common species in the *Guadua*-dominated habitats in the study area, we collected four individuals during our 2011 visit and recorded the voices of several in 2005 and 2011 (XC91517, XC91662-3, XC91665, XC91680). *Ramphocaenus m. obscurus* is distinctive among western Amazonian populations of *R. melanurus* in having large white spots on the tips of the outer rectrices and also in having a very distinctive song, which is more likely confused with Dusky-cheeked Foliage-Gleaner (*Anabazenops dorsalis*) than other nearby forms of *R. melanurus* (Fig. 3). Furthermore, *R. m. obscurus* seems to occur in sympatry with dark-tailed forms *R. m. badius* in the Huallaga Valley in San Martín Region, Peru (see XC149288 and XC149314), and *R. m. amazonus* in southwestern Amazonia (e.g., Cusco and Madre de Dios Regions, Peru; see XC149274 and XC63986). In the Huallaga valley, the ecotone between seasonally deciduous forest (inhabited by *R. m. obscurus*) and humid evergreen forest (inhabited by *R. m. badius*) may be the border between these two forms, and DFL has encountered both at the same site in forest spanning this ecotone (see above recordings from San Martín). In southwestern Amazonia, the two forms may separate between the *Guadua*-dominated forest inhabited by *R. m. obscurus* and the non-bamboo humid evergreen forest (perhaps particularly in Andean foothills) inhabited by *R. m. amazonum.* The habitat preference and distribution of *R. m. obscurus* are not unique; Flammulated Pygmy-Tyrant (*Hemitriccus flammulatus*) and Yellow Tyrannulet (*Capsiempis flaveola*) also inhabit seasonally deciduous forest in the Huallaga Valley but *Guadua* in southwestern Amazonia.

The presence of diagnostic vocal and plumage characters in *R. m. obscurus* and it's occurrence in sympatry or near-sympatry with *R. m. amazonum* and *R. m. badius* suggest that it is best treated as a biological species distinct from those two forms. *Ramphocaenus m. sticturus* of Rondônia and Mato Grosso, Brazil and northeastern Santa Cruz Dept., Bolivia, shares the white tail spots of *R. m. obscurus* and the forms have similar vocalizations (see Mayer 1996; Fig. 3), supporting a close relationship. If *R. m. obscurus* is treated as a species separate from other western Amazonian forms, and if *R. m. sticturus* is deemed to be closest to *R. m. obscurus*, then the name *sticturus* would have priority. The remainder of the cis-Andean populations of *R. melanurus* have similar songs to the dark-tailed populations *R. m. amazonum* and *R. m. badius* and are probably best treated as part of that group. We suggest the English name "Chattering Gnatwren" for *R. sticturus* (including *R. m. obscurus*) and "Trilling Gnatwren" for the remainder of the cis-Andean *Ramphocaenus*. Molecular systematics work involving *Ramphocaenus* is being conducted by JK et al., and will be presented elsewhere.

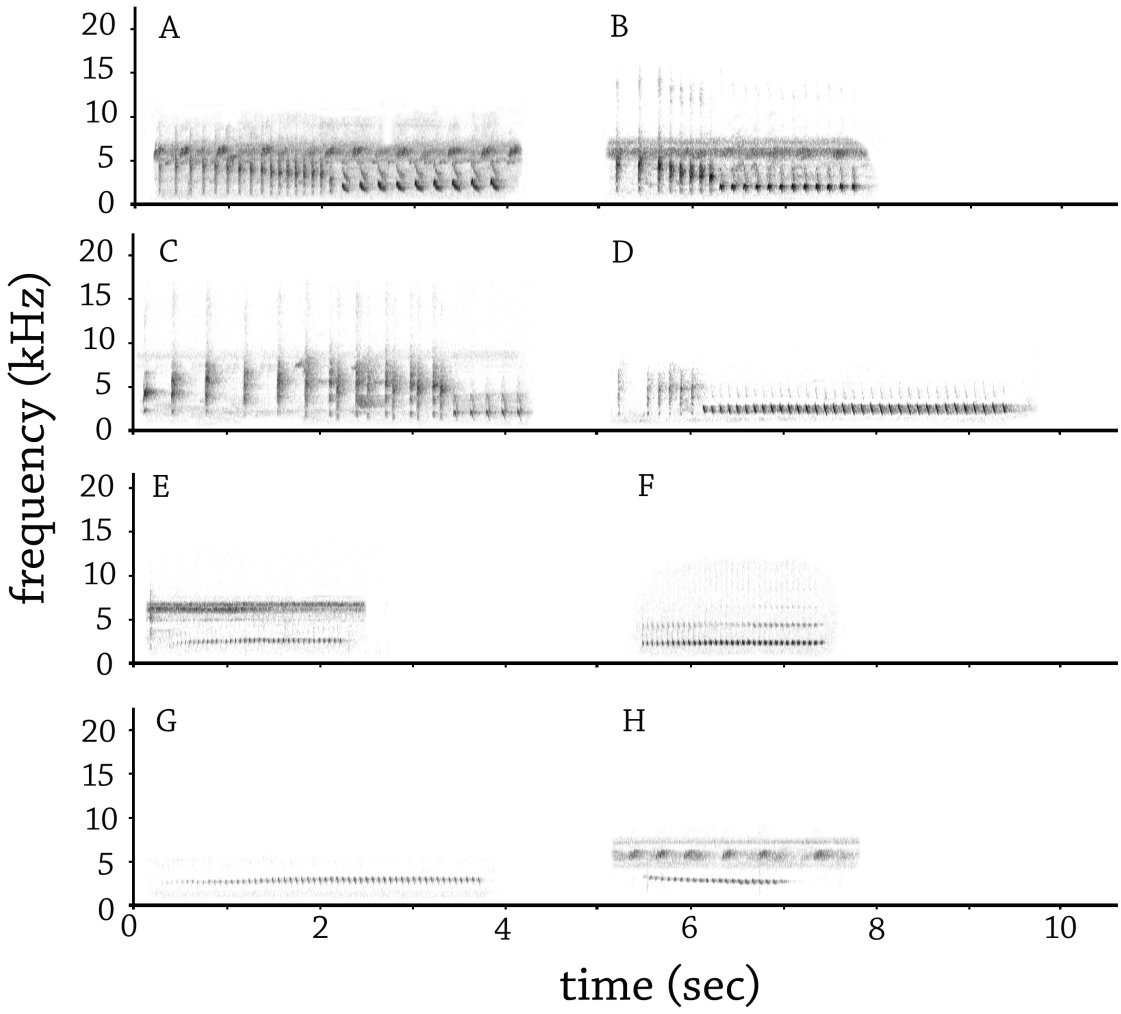

Figure 3. Spectrograms of songs from several populations of Long-billed Gnatwren (*Ramphocaenus melanurus*) from Amazonian Peru: (A) *R. m. obscurus* (PERU: Madre de Dios Region; Portillo. 19 November 2011; D. F. Lane, XC91680), (B) *R. m. obscurus* (PERU: Madre de Dios Region; Portillo. 19 November 2011; D. F. Lane, XC91665), (C) *R. m. sticturus* (BOLIVIA: Santa Cruz Dept.; Noel Kempff Mercado National Park, Flor de Oro. 28 May 1991; T. A. Parker, III. ML80741), (D) *R. m. sticturus* (BOLIVIA: Santa Cruz Dept.; Noel Kempff Mercado National Park, Flor de Oro. 9 March 1994; S. Mayer. XC2342), (E) *R. m. badius* (PERU: Loreto Region; Jeberos. 15 June 2001; D. F. Lane. XC149304), (F) *R. m. badius* (PERU: Loreto Region; Cordillera Azul National Park, Cushabatay camp 2. 17 July 1996; D. F. Lane. XC149300), (G) *R. m. amazonum* (PERU: Cusco Region; Mirador at Atalaya. 19 October 2010; D. F. Lane. XC149274), (H) *R. m. amazonum* (PERU: Madre de Dios Region; Reserva Amazonica on Río Madre de Dios. 4 December 2013; D. F. Lane. XC158174). Note the change in note types over the course of the songs of *R. m. obscurus* and *R. m. sticturus*; both taxa have a series of unmusical "chattered" introductory notes and then switch to a slow-paced musical trill, some individuals even have a short series of intermediate notes between the introductory and terminal note series (e.g., B, C); there is rarely a change in pitch of the trilled terminal notes. Songs of *R. m. badius* and *R. m. amazonum* are rapid, more musical trills that may be short or long, but are typically shorter than the songs of *R. m. obscurus* or *R. m. sticturus*. Songs of *R. m. badius* and *R. m. amazonum* may rise (E), descend (H), or be even (F) in pitch, and rarely have an introductory note (E). Such an introductory note is more frequent when the bird is agitated.

Tropical Gnatcatcher (*Polioptila plumbea parvirostris*).--DFL heard the distinctive song of the western Amazonian form *P. p. parvirostris* on 20 November 2005 at Noaya, and MGH and DFL found and audio-recorded two individuals at Portillo 19-20 November 2011 (ML168818, XC91584). These records represent a range extension of about 200 km to the east of the nearest Peruvian record, which is Cocha Cashu Biological Station (Terborgh et al. 1984), and are some of the few records from southeastern Peru east of the Río Ucayali (Schulenberg et al. 2006).

Black-and-white Tanager (*Conothraupis speculigera*).--A group of at least 3 individuals, including singing males (XC91666, XC91668), was associating with a *Sporophila* flock in a dense, flowering *Guadua* patch at Portillo on 19 November 2011. JMH also observed *C. speculigera* at Oceanía on 21 November. This species is thought to migrate over the Andes to the northern Pacific slope and Marañon valley of Peru and nearby Ecuador to breed (O'Neill 1966, Witt 2005), so its presence at this late date and the singing of the males suggest that these birds were about to depart. As reported by O'Neill (1966), the species was in a habitat here, dense *Guadua* with no overstory, that may approximate the structure of the xeric, vine-covered, seasonally deciduous woodlands where it breeds.

White-lined Tanager (*Tachyphonus rufus*).--A male was observed and documented with a sound recording (XC91586) by DFL in a small patch of shrubby growth in a pasture near Portillo on 18 November 2011. This is the first report of the species from Madre de Dios Region, and the first in southeastern Peru away from the Río Urubamba valley, about 400 km to the southwest (Schulenberg et al. 2006).

Grassland Sparrow (*Ammodramus humeralis*).--Originally known in southeast Peru from the natural grasslands in the Pampas del Heath complex (Schulenberg et al. 2006), the species has been rapidly colonizing anthropogenic clearings in Madre de Dios since at least 2002 (B. Walker, pers. comm.). DFL first noticed the species on the road to the north of the Rio Madre de Dios on 21 November 2005 (XC146552-3).

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Appendix: Annotated list of birds recorded in the Iberia area during our surveys.

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
TINAMOUS	TINAMIDAE				
Gray Tinamou	*Tinamus tao*	O			
Great Tinamou	*T. major*	O		O	
White-throated Tinamou	*T. guttatus*	O			
Cinereous Tinamou	*Crypturellus cinereus*	O	O	O	O
Little Tinamou	*C. soui*	O	O	O	O
Undulated Tinamou	*C. undulatus*	O, S	O	O	O
Brazilian Tinamou	*C. strigulosus*	O			
Black-capped Tinamou*	*C. atrocapillus*	O	O	O	
Small-billed Tinamou	*C. parvirostris*				O
SCREAMERS	ANHIMIDAE				
Horned Screamer	*Anhima cornuta*	O			O
DUCKS	ANATIDAE				
Muscovy Duck	*Cairina moschata*	O	O		
Brazilian Teal	*Amazonetta brasiliensis*				O, P
GUANS	CRACIDAE				
Spix's Guan	*Penelope jacquacu*	O	O	O	
Blue-throated Piping-Guan	*Pipile cumanensis*	O			
Speckled Chachalaca	*Ortalis guttata*	O	O	O	O
GREBES	PODICIPEDIDAE				
Least Grebe	*Tachybaptus dominicus*				O
STORKS	CICONIIDAE				
Wood Stork	*Mycteria americana*		O		

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
CORMORANTS	PHALACROCORACIDAE				
Neotropic Cormorant	*Phalacrocorax brasilianus*				O
HERONS	ARDEIDAE				
Rufescent Tiger-Heron	*Tigrisoma lineatum*	O			
Striated Heron	*Butorides striata*		O		O
Cattle Egret	*Bubulcus ibis*				O
Cocoi Heron	*Ardea cocoi*		O		O
Great Egret	*A. alba*				O
Capped Heron	*Pilherodius pileatus*		O		
Snowy Egret	*Egretta thula*				O
IBISES	THRESKIORNITHIDAE				
Green Ibis	*Mesembrinibis cayennensis*	O, A			O
NEW WORLD VULTURES	CATHARTIDAE				
Turkey Vulture	*Cathartes aura*	O	O	O	O
Greater Yellow-headed Vulture	*C. melambrotus*	O	O	O	
Black Vulture	*Coragyps atratus*	O	O	O	O
King Vulture	*Sarcoramphus papa*	O	O		O
HAWKS	ACCIPITRIDAE				
Gray-headed Kite	*Leptodon cayanensis*			O	
Swallow-tailed Kite	*Elanoides forficatus*	O	O	O	
Black Hawk-Eagle	*Spizaetus tyrannus*	O, A	O		
Ornate Hawk-Eagle	*S. ornatus*	O, A			
Slender-billed Kite	*Helicolestes hamatus*	O	O	O	
Double-toothed Kite	*Harpagus bidentatus*	O			
Plumbeous Kite	*Ictinia plumbea*	O, S, A	O	O	O

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
Tiny Hawk	*Accipiter superciliosus*		O		
Bicolored Hawk	*A. bicolor*			O	
Slate-colored Hawk	*Buteogallus schistaceus*	O	O		
Great Black Hawk	*B. urubitinga*	O			
Roadside Hawk	*Rupornis magnirostris*	O, S	O	O	O
White-browed Hawk	*Leucopternis kuhli*	O			
Gray-lined Hawk	*Buteo nitidus*	O, A	O	O	O
Short-tailed Hawk	*B. brachyurus*	O			
Zone-tailed Hawk	*B. albonotatus*		O		
LIMPKIN	ARAMIDAE				
Limpkin	*Aramus guarauna*		O	O	
RAILS	RALLIDAE				
Gray-necked Wood-Rail	*Aramides cajaneus*	O	O	O	
Uniform Crake	*Amaurolimnas concolor*	O			
Chestnut-headed Crake	*Anurolimnas castaneiceps*	O, A		O	O
Gray-breasted Crake	*Laterallus exilis*	O	O	O	O
Paint-billed Crake	*Neocrex erythrops*	O, A	O, A		
Blackish Rail	*Pardirallus nigricans*			O	
Purple Gallinule	*Porphyrio martinicus*	O		O	
Azure Gallinule	*P. flavirostris*	O, P			
SUNBITTERN	EURYPYGIDAE				
Sunbittern	*Eurypyga helias*		O, A		
PLOVERS	CHARADRIIDAE				
Pied Lapwing	*Vanellus cayanus*	O	O		O
Southern Lapwing	*V. chilensis*				O

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
SANDPIPERS	SCOLOPACIDAE				
Spotted Sandpiper	*Actitis macularius*	O			
Greater Yellowlegs	*Tringa melanoleuca*				O
Solitary Sandpiper	*T. solitaria*		O		
JACANAS	JACANIDAE				
Wattled Jacana	*Jacana jacana*	O			O
PIGEONS	COLUMBIDAE				
Rock Pigeon	*Columba livia*		O		O
Scaled Pigeon	*Patagioenas speciosa*	O	O		
Pale-vented Pigeon	*P. cayennensis*	O		O	O
Plumbeous Pigeon	*P. plumbea*	O			
Ruddy Pigeon	*P. subvinacea*	O	O	O	
White-tipped Dove	*Leptotila verreauxi*	O		O	O
Gray-fronted Dove	*L. rufaxilla*	O	O	O	
Ruddy Quail-Dove	*Geotrygon montana*	O, S		O	
Ruddy Ground Dove	*Columbina talpacoti*	O	O	O	O
Blue Ground Dove	*Claravis pretiosa*	O			
HOATZIN	OPISTHOCOMIDAE				
Hoatzin	*Opisthocomus hoazin*		O	O	O
CUCKOOS	CUCULIDAE				
Little Cuckoo	*Coccycua minuta*	O, S	O		
Squirrel Cuckoo	*Piaya cayana*	O	O	O	O
Greater Ani	*Crotophaga major*		O	O	O
Smooth-billed Ani	*C. ani*	O	O	O	O
Pavonine Cuckoo*/**	*Dromococcyx pavoninus*	O			

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
Rufous-vented Ground-Cuckoo	*Neomorphus geoffroyi*	O			
OWLS	STRIGIDAE				
Tropical Screech-Owl	*Megascops choliba*	O	O	O	
Tawny-bellied Screech-Owl	*M. watsonii*	O	O	O	
Crested Owl	*Lophostrix cristata*	O			
Mottled Owl	*Ciccaba virgata*	O			
Black-banded Owl	*C. huhula*	O			
Amazonian Pygmy-Owl	*Glaucidium hardyi*	O			
Ferruginous Pygmy-Owl	*G. brasilianum*	O	O	O	
Burrowing Owl	*Athene cunicularia*				O
POTOOS	NYCTIBIIDAE				
Great Potoo	*Nyctibius grandis*	O	O	O	
Common Potoo	*N. griseus*	O	O		
NIGHTJARS	CAPRIMULGIDAE				
Common Pauraque	*Nyctidromus albicollis*	O, S	O		O
SWIFTS	APODIDAE				
Gray-rumped Swift	*Chaetura cinereiventris*	O	O	O	
Pale-rumped Swift	*C. egregia*	O, A	O	O	
Amazonian Swift	*C. viridipennis*	O, A			
Short-tailed Swift	*C. brachyura*	O	O		
Fork-tailed Palm-Swift	*Tachornis squamata*	O	O		O
HUMMINGBIRDS	TROCHILIDAE				
White-necked Jacobin	*Florisuga mellivora*	O	O		
Rufous-breasted Hermit	*Glaucis hirsutus*	O		O	
Pale-tailed Barbthroat	*Threnetes leucurus*	O			

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
Reddish Hermit	*Phaethornis ruber*	O, S	O		
White-bearded Hermit	*P. hispidus*	O, S, A	O		
Great-billed Hermit	*P. malaris*	O, S			
Black-throated Mango	*Anthracothorax nigricollis*		O		
Black-bellied Thorntail	*Discosura langsdorffi*	O			
Festive Coquette	*Lophornis chalybeus*	O			
Long-billed Starthroat	*Heliomaster longirostris*	O, S	O, A	O	
Blue-tailed Emerald	*Chlorostilbon mellisugus*	O			
Gray-breasted Sabrewing	*Campylopterus largipennis*	O, S		O	
Fork-tailed Woodnymph	*Thalurania furcata*	O, A	O		
Sapphire-spangled Emerald	*Amazilia lactea*	O, S	O	O	
Golden-tailed Sapphire	*Chrysuronia oenone*	O			
White-chinned Sapphire	*Hylocharis cyanus*	O, A			
TROGONS	TROGONIDAE				
Black-tailed Trogon	*Trogon melanurus*	O	O	O	
Green-backed Trogon	*T. viridis*			O	
Amazonian Trogon	*T. ramonianus*	O			
Blue-crowned Trogon	*T. curucui*	O	O	O	
Collared Trogon	*T. collaris*	O	O		
KINGFISHERS	ALCEDINIDAE				
Ringed Kingfisher	*Megaceryle torquata*	O		O	
Green Kingfisher	*Chloroceryle americana*	S			
MOTMOTS	MOMOTIDAE				
Broad-billed Motmot	*Electron platyrhynchum*	O	O		
Rufous Motmot	*Baryphthengus martii*	O			

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
Amazonian Motmot	*Momotus momota*	O	O	O	
JACAMARS	GALBULIDAE				
Purus Jacamar	*Galbalcyrhynchus purusianus*	O		O	
White-throated Jacamar	*Brachygalba albogularis*	O, S	O	O	
Bluish-fronted Jacamar	*Galbula cyanescens*	O, S	O	O	
Paradise Jacamar	*G. dea*	O, S		O	
Great Jacamar	*Jacamerops aureus*	O			
PUFFBIRDS	BUCCONIDAE				
White-necked Puffbird	*Notharchus hyperrhynchus*	O	O, S		
Chestnut-capped Puffbird*	*Bucco macrodactylus*	O, S			
Striolated Puffbird	*Nystalus striolatus*	O			
Semicollared Puffbird	*Malacoptila semicincta*	O, S			
Rufous-capped Nunlet*/**	*Nonnula ruficapilla*	O, S	O, A		
Black-fronted Nunbird	*Monasa nigrifrons*	O	O	O	
White-fronted Nunbird	*M. morphoeus*	O		O	
Swallow-winged Puffbird	*Chelidoptera tenebrosa*	O	O	O	O
NEW WORLD BARBETS	CAPITONIDAE				
Gilded Barbet	*Capito auratus*	O			
TOUCANS	RAMPHASTIDAE				
White-throated Toucan	*Ramphastos tucanus*	O	O	O	O
Channel-billed Toucan	*R. vitellinus*	O	O	O	O
Lettered Aracari	*Pteroglossus inscriptus*	O, S			
Chestnut-eared Aracari	*P. castanotis*	O	O	O	O
WOODPECKERS	PICIDAE				
Rufous-breasted Piculet*	*Picumnus rufiventris*	O, S	O, S		

English Name	Scientific Name	Portillo	Oceania	Noaya	Interoceanic Highway
Fine-barred Piculet	*P. subtilis*	O	O		
Yellow-tufted Woodpecker	*Melanerpes cruentatus*	O	O, A	O	O
Little Woodpecker	*Veniliornis passerinus*	O, S, A	O	O	
White-throated Woodpecker	*Piculus leucolaemus*	O			
Spot-breasted Woodpecker	*Colaptes punctigula*	O, A	O, A	O	
Chestnut Woodpecker	*Celeus elegans*	O			
Rufous-headed Woodpecker**	*C. spectabilis*	O, A			
Lineated Woodpecker	*Dryocopus lineatus*	O	O	O	
Red-necked Woodpecker	*Campephilus rubricollis*	O, A			
Crimson-crested Woodpecker	*C. melanoleucos*	O	O	O	
FALCONS	FALCONIDAE				
Laughing Falcon	*Herpetotheres cachinnans*	O	O	O	
Barred Forest-Falcon	*Micrastur ruficollis*	O		O	
Lined Forest-Falcon	*M. gilvicollis*	O			
Slaty-backed Forest-Falcon	*M. mirandollei*	O	O		
Buckley's Forest-Falcon	*M. buckleyi*	O	O		
Southern Caracara	*Caracara plancus*				O
Red-throated Caracara	*Ibycter americanus*	O	O	O	
Black Caracara	*Daptrius ater*	O	O		
Yellow-headed Caracara	*Milvago chimachima*	O			
Bat Falcon	*Falco rufigularis*	O	O		
PARROTS	PSITTACIDAE				
Scarlet-shouldered Parrotlet	*Touit huetii*	O			
Amazonian Parrotlet	*Nannopsittaca dachilleae*	O		O	
Tui Parakeet	*Brotogeris sanctithomae*	O, S, A	O	O	

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Cobalt-winged Parakeet	*B. cyanoptera*			O	
Orange-cheeked Parrot	*Pyrilia barrabandi*	O			
Blue-headed Parrot	*Pionus menstruus*	O	O	O	
Yellow-crowned Parrot	*Amazona ochrocephala*	O, A	O	O	O
Mealy Parrot	*A. farinosa*	O	O, A	O	O
Dusky-billed Parrotlet	*Forpus modestus*			O	
White-bellied Parrot	*Pionites leucogaster*	O	O	O	
Black-capped Parakeet	*Pyrrhura rupicola*	O, A			
Dusky-headed Parakeet	*Aratinga weddellii*	O	O	O	O
Red-bellied Macaw	*Orthopsittaca manilatus*	O	O		O
Blue-headed Macaw	*Primolius couloni*	O	O	O	O
Scarlet Macaw	*Ara macao*	O	O	O	
Red-and-green Macaw	*A. chloropterus*	O	O		
Chestnut-fronted Macaw	*A. severus*	O	O	O	O
White-eyed Parakeet	*Psittacara leucophthalmus*	O	O, A	O	O
ANTBIRDS	THAMNOPHILIDAE				
Fasciated Antshrike	*Cymbilaimus lineatus*	O			
Bamboo Antshrike**	*Cymbilaimus sanctaemariae*	O, S, A	O	O	
Great Antshrike	*Taraba major*	O, S	O	O	O
Barred Antshrike	*Thamnophilus doliatus*	O, A	O	O	O
Plain-winged Antshrike	*T. schistaceus*	O, S	O	O	
White-shouldered Antshrike	*T. aethiops*	O			
Dusky-throated Antshrike	*Thamnomanes ardesiacus*				O
Bluish-slate Antshrike	*T. schistogynus*	O, S	O	O	
Plain-throated Antwren	*Isleria hauxwelli*	O			

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Ornate Antwren*	*Epinecrophylla ornata*	O, S	O	O	
Pygmy Antwren	*Myrmotherula brachyura*	O	O	O	
Sclater's Antwren	*M. sclateri*	O, S, A	O	O	
Stripe-chested Antwren	*M. longicauda*	O	O, A		
White-flanked Antwren	*M. axillaris*	O, S		O	O
Long-winged Antwren	*M. longipennis*	O	O		
Ihering's Antwren*	*M. iheringi*	O, S, A	O, S		
Dot-winged Antwren*	*Microrhopias quixensis*	O, S	O	O	
Striated Antbird**	*Drymophila devillei*	O	O, S	O	
Yellow-breasted Warbling-Antbird*/**	*Hypocnemis subflava*	O, S, A	O	O	O
Gray Antbird	*Cercomacra cinerascens*	O, S	O	O	
Blackish Antbird	*C. nigrescens*	O	O		
Manu Antbird**	*C. manu*	O, S, A	O	O	
White-browed Antbird*	*Myrmoborus leucophrys*	O, S	O	O	O
Black-faced Antbird	*M. myotherinus*	O			O
Band-tailed Antbird	*Hypocnemoides maculicauda*	O	O		
Silvered Antbird	*Sclateria naevia*	O	O		
White-lined Antbird**	*Percnostola lophotes*	O, S, A	O		O
Humaita Antbird	*Schistocichla humaythae*	O, A			
Chestnut-tailed Antbird*	*Myrmeciza hemimelaena*	O, S, A	O	O	O
Black-throated Antbird	*M. atrothorax*	O, A	O	O	O
Goeldi's Antbird**	*M. goeldii*	O, S, A	O	O	
Plumbeous Antbird	*M. hyperythra*		O		
Sooty Antbird	*M. fortis*	O, S			
White-throated Antbird	*Gymnopithys salvini*	O, S			

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Spot-backed Antbird	*Hylophylax naevius*	O, S	O		
Hairy-crested Antbird	*Rhegmatorhina melanosticta*	S			
Black-spotted Bare-Eye	*Phlegopsis nigromaculata*	O, S	O	O	
GNATEATERS	CONOPOPHAGIDAE				
Ash-throated Gnateater	*Conopophaga peruviana*	O, S			
ANTPITTAS	GRALLARIIDAE				
Amazonian Antpitta	*Hylopezus berlepschi*	O, S	O	O	
Thrush-like Antpitta	*Myrmothera campanisona*	O			
TAPACULOS	RHINOCRYPTIDAE				
Rusty-belted Tapaculo	*Liosceles thoracicus*	O, A			
ANTTHRUSHES	FORMICARIIDAE				
Rufous-capped Antthrush	*Formicarius colma*	O, S			
Black-faced Antthrush	*F. analis*	O, S, A	O	O	
Rufous-fronted Antthrush	*F. rufifrons*	O, S, A	O, S		
OVENBIRDS	FURNARIIDAE				
Olivaceous Woodcreeper	*Sittasomus griseicapillus*	O		O	
Plain-brown Woodcreeper	*Dendrocincla fuliginosa*	O			
Wedge-billed Woodcreeper	*Glyphorynchus spirurus*	O, S			
Cinnamon-throated Woodcreeper	*Dendrexetastes rufigula*			O	O
Black-banded Woodcreeper	*Dendrocolaptes picumnus*	O, S			
Strong-billed Woodcreeper	*Xiphocolaptes promeropirhynchus*	O			
Elegant Woodcreeper	*Xiphorhynchus elegans*	O			
Buff-throated Woodcreeper	*X. guttatus*	O, S	O	O	
Straight-billed Woodcreeper	*Dendroplex picus*	O	O		
Red-billed Scythebill*	*Campylorhamphus trochilirostris*	O, S		O	

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Lineated Woodcreeper	*Lepidocolaptes albolineatus*	O, S		O	
Plain Xenops	*Xenops minutus*	O	O	O	
Slender-billed Xenops	*X. tenuirostris*	O			
Pale-legged Hornero	*Furnarius leucopus*	O	O	O	
Rufous-rumped Foliage-Gleaner	*Philydor erythrocercum*	O			
Chestnut-winged Foliage-Gleaner	*P. erythropterum*	O	O		
Cinnamon-rumped Foliage-Gleaner	*P. pyrrhodes*	O, S			
Rufous-tailed Foliage-Gleaner	*Anabacerthia ruficaudata*	O, S			
Peruvian Recurvebill**	*Syndactyla ucayalae*	O, S	O		
Chestnut-winged Hookbill	*Ancistrops strigilatus*	O			
Striped Woodhaunter	*Hyloctistes subulatus*			O	
Buff-throated Foliage-gleaner	*Automolus ochrolaemus*	O			
Olive-backed Foliage-gleaner	*A. infuscatus*	O	O		
Brown-rumped Foliage-gleaner**	*A. melanopezus*	O			
Chestnut-crowned Foliage-gleaner*	*A. rufipileatus*	O	O, S	O	
Orange-fronted Plushcrown	*Metopothrix aurantiaca*		O		
Speckled Spinetail	*Cranioleuca gutturata*		O		
Plain-crowned Spinetail	*Synallaxis gujanensis*	O	O		
Cabanis's Spinetail*	*S. cabanisi*	O, A			
Pale-breasted Spinetail	*S. albescens*	O			
Ruddy Spinetail*	*S. rutilans*	O			
Chestnut-throated Spinetail**	*S. cherriei*	O, S			
TYRANT FLYCATCHERS	TYRANNIDAE				
Yungas/Sooty-headed Tyrannulet	*Phyllomyias weedeni/griseiceps*	O, S, A	O, S, A		
Yellow-crowned Tyrannulet	*Tyrannulus elatus*	O	O	O	

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Forest Elaenia	*Myiopagis gaimardii*	O	O	O	
Gray Elaenia	*M. caniceps*			O	
White-lored Tyrannulet	*Ornithion inerme*	O	O		
Mouse-colored Tyrannulet	*Phaeomyias murina*		O, A		
Yellow Tyrannulet	*Capsiempis flaveola*	O, S, A			
Ringed Antpipit	*Corythopis torquatus*	O	O		
Slender-footed Tyrannulet	*Zimmerius gracilipes*	O			
Ochre-bellied Flycatcher	*Mionectes oleagineus*	O, S			
Sepia-capped Flycatcher*	*Leptopogon amaurocephalus*	O, S	O	O	O
Short-tailed Pygmy-Tyrant	*Myiornis ecaudatus*	O	O		
Acre Tody-Tyrant*	*Hemitriccus cohnhafti*	O, S, A			
Flammulated Pygmy-Tyrant**	*H. flammulatus*	O, S, A	O	O	
Johannes's Tody-Tyrant	*H. iohannis*	O, A	O	O	
White-cheeked Tody-Flycatcher**	*Poecilotriccus albifacies*		O	O	
Rusty-fronted Tody-Flycatcher	*P. latirostris*	O, A	O, A	O	
Yellow-browed Tody-Flycatcher	*Todirostrum chrysocrotaphum*	O	O	O	
Rufous Twistwing**	*Cnipodectes superrufus*	O	O, S, A		
Olivaceous Flatbill	*Rhynchocyclus olivaceus*	O, S, A	O		
Yellow-olive Flycatcher	*Tolmomyias sulphurescens*		O		
Gray-crowned Flycatcher	*T. poliocephalus*	O, A	O	O	
Yellow-breasted Flycatcher	*T. flaviventris*	O, A	O	O	
Royal Flycatcher	*Onychorhynchus coronatus*	O, S			
Ruddy-tailed Flycatcher	*Terenotriccus erythrurus*	O, S	O		
Euler's Flycatcher*	*Lathrotriccus euleri*	O			
Alder Flycatcher	*Empidonax alnorum*	O	O		

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Olive-sided Flycatcher	*Contopus cooperi*	O, S, A	O		
Eastern Wood-Pewee	*C. virens*	O, S, A	O	O	
Little Ground-Tyrant	*Muscisaxicola fluviatilis*	O	O		
Long-tailed Tyrant	*Colonia colonus*	O		O	
Piratic Flycatcher	*Legatus leucophaius*	O	O	O	
Rusty-margined Flycatcher	*Myiozetetes cayanensis*	O, S	O, A	O	O
Social Flycatcher	*M. similis*	O, S	O	O	O
Gray-capped Flycatcher	*M. granadensis*	O	O	O	
Dusky-chested Flycatcher	*M. luteiventris*	O			
Great Kiskadee	*Pitangus sulphuratus*	O	O	O	O
Lesser Kiskadee	*P. lictor*	O	O		
Three-striped Flycatcher	*Conopias trivirgatus*	O, S, A		O	
Sulphur-bellied Flycatcher	*Myiodynastes luteiventris*	O, S, A			
Streaked Flycatcher	*M. maculatus*	O, S, A	O	O	
Boat-billed Flycatcher	*Megarynchus pitangua*	O, A	O	O	
Sulphury Flycatcher	*Tyrannopsis sulphurea*	O, A			
Variegated Flycatcher	*Empidonomus varius*	O			
Crowned Slaty Flycatcher	*E. aurantioatrocristatus*	O, S	O		
Tropical Kingbird	*Tyrannus melancholicus*	O	O, A	O	O
Eastern Kingbird	*T. tyrannus*	O	O		
Grayish Mourner	*Rhytipterna simplex*	O, S			
Sirystes	*Sirystes sibilator*	O			
Dusky-capped Flycatcher	*Myiarchus tuberculifer*	O	O		
Short-crested Flycatcher	*M. ferox*	O	O	O	O
Large-headed Flatbill**	*Ramphotrigon megacephalum*	O, S, A	O	O	

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Dusky-tailed Flatbill**	*R. fuscicauda*	O	O	O	
Dull-capped Attila	*Attila bolivianus*	O, S	O	O	
Bright-rumped Attila	*A. spadiceus*	O			
COTINGAS	COTINGIDAE				
Purple-throated Fruitcrow	*Querula purpurata*	O	O		
Amazonian Umbrellabird	*Cephalopterus ornatus*		O		
Plum-throated Cotinga	*Cotinga maynana*	O, A			
Screaming Piha	*Lipaugus vociferans*	O	O		
Bare-necked Fruitcrow	*Gymnoderus foetidus*	O	O	O	
Black-faced Cotinga	*Conioptilon mcilhennyi*	O, S, A	O	O	
MANAKINS	PIPRIDAE				
Sulphur-bellied Tyrant-Manakin**	*Neopelma sulphureiventer*	O, S, A	O		
Fiery-capped Manakin*	*Machaeropterus pyrocephalus*	O, S	O		
Band-tailed Manakin	*Pipra fasciicauda*	O			
Blue-crowned Manakin	*Lepidothrix coronata*	O			
TITYRAS	TITYRIDAE				
Black-crowned Tityra	*Tityra inquisitor*	O	O		
Black-tailed Tityra	*T. cayana*	O, A	O		
Masked Tityra	*T. semifasciata*	O	O	O	
Varzea Schiffornis	*Schiffornis major*	O			
White-browed Purpletuft	*Iodopleura isabellae*	O			
Green-backed Becard	*Pachyramphus viridis*	O, S	O, A		
Chestnut-crowned Becard	*P. castaneus*			O	
White-winged Becard	*P. polychopterus*	O, S	O	O	
Black-capped Becard	*P. marginatus*	O			

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Pink-throated Becard	*P. minor*	O			
UNCERTAIN PLACEMENT 1	INCERTAE SEDIS 1				
Wing-barred Piprites	*Piprites chloris*	O, S			
VIREOS	VIREONIDAE				
Rufous-browed Peppershrike	*Cyclarhis gujanensis*	O	O	O	
Slaty-capped Shrike-Vireo	*Vireolanius leucotis*	O, S			
Red-eyed Vireo	*Vireo olivaceus*	O, A	O		
Yellow-green Vireo	*V. flavoviridis*	O, S			
Lemon-chested Greenlet	*Hylophilus thoracicus*	O		O	
Dusky-capped Greenlet	*H. hypoxanthus*	O		O	
Tawny-crowned Greenlet	*H. ochraceiceps*	O, S			
JAYS	CORVIDAE				
Violaceous Jay	*Cyanocorax violaceus*	O, S, A	O	O	O
SWALLOWS	HIRUNDINIDAE				
White-banded Swallow	*Atticora fasciata*	O	O		
Southern Rough-winged Swallow	*Stelgidopteryx ruficollis*	O	O	O	O
Brown-chested Martin	*Progne tapera*	O	O		O
Gray-breasted Martin	*P. chalybea*	O	O		O
White-winged Swallow	*Tachycineta albiventer*		O	O	
WRENS	TROGLODYTIDAE				
Scaly-breasted Wren	*Microcerculus marginatus*	O			
House Wren	*Troglodytes aedon*	O	O		O
Thrush-like Wren	*Campylorhynchus turdinus*	O			
Moustached Wren*	*Pheugopedius genibarbis*	O, S	O	O	O
Buff-breasted Wren	*Cantorchilus leucotis*		O		

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Musician Wren	*Cyphorhinus arada*	O, S			
GNATCATCHERS	POLIOPTILIDAE				
Long-billed Gnatwren*	*Ramphocaenus melanurus*	O, S, A	O	O	
Tropical Gnatcatcher	*Polioptila plumbea*	O, A		O	
DONACOBIUS	DONACOBIIDAE				
Black-capped Donacobius	*Donacobius atricapilla*	O			O
THRUSHES	TURDIDAE				
Swainson's Thrush	*Catharus ustulatus*			O	
Hauxwell's Thrush	*Turdus hauxwelli*	O	O	O	
Black-billed Thrush	*T. ignobilis*	O	O	O	O
TANAGERS	THRAUPIDAE				
Red-capped Cardinal	*Paroaria gularis*	O			
Magpie Tanager	*Cissopis leverianus*	O	O	O	O
Black-and-white Tanager	*Conothraupis speculigera*	O, A	O		
White-shouldered Tanager	*Tachyphonus luctuosus*	O	O	O	
White-lined Tanager	*T. rufus*	O, A			
White-winged Shrike-Tanager	*Lanio versicolor*	O	O		
Masked Crimson Tanager	*Ramphocelus nigrogularis*	O			
Silver-beaked Tanager	*R. carbo*	O	O	O	O
Blue-gray Tanager	*Thraupis episcopus*	O	O	O	O
Palm Tanager	*T. palmarum*	O	O	O	O
Masked Tanager	*Tangara nigrocincta*	O, S		O	
Yellow-bellied Tanager	*T. xanthogastra*	O			
Turquoise Tanager	*T. mexicana*	O	O		
Paradise Tanager	*T. chilensis*	O	O	O	O

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Opal-crowned Tanager	*T. callophrys*	O			
Green-and-gold Tanager	*T. schrankii*	O			
Swallow Tanager	*Tersina viridis*	O	O	O	O
Black-faced Dacnis	*Dacnis lineata*	O	O	O	
Yellow-bellied Dacnis	*D. flaviventer*	O		O	
Blue Dacnis	*D. cayana*	O	O	O	
Purple Honeycreeper	*C. caeruleus*	O			
Green Honeycreeper	*Chlorophanes spiza*	O			
Guira Tanager	*Hemithraupis guira*	O, S	O		
Chestnut-vented Conebill	*Conirostrum speciosum*			O	
Blue-black Grassquit	*Volatinia jacarina*	O	O	O	O
Slate-colored Seedeater*	*Sporophila schistacea*	O, A	O, S		
Lesson's Seedeater	*S. bouvronides*			O	
Lined Seedeater	*S. lineola*	O, A	O		
Black-and-white Seedeater	*S. luctuosa*	O	O		
Double-collared Seedeater	*S. caerulescens*	O, A	O, A		
Chestnut-bellied Seedeater	*S. castaneiventris*	O	O	O	O
Chestnut-bellied Seed-Finch	*Oryzoborus angolensis*	O, S	O, A	O	O
Bananaquit	*Coereba flaveola*	O, A			
Yellow-shouldered Grosbeak	*Parkerthraustes humeralis*			O	
UNCERTAIN PLACEMENT 2	INCERTAE SEDIS 2				
Slate-colored Grosbeak	*Saltator grossus*	O			
Buff-throated Saltator	*S. maximus*	O, S	O	O	O
Grayish Saltator	*S. coerulescens*	O, A	O, A	O	O
SPARROWS	EMBERIZIDAE				

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Grassland Sparrow	*Ammodramus humeralis*				O
Yellow-browed Sparrow	*A. aurifrons*	O, A	O, A	O	O
Pectoral Sparrow	*Arremon taciturnus*	O, S	O	O	
CARDINAL GROSBEAKS	CARDINALIDAE				
Scarlet Tanager	*Piranga olivacea*	O, A	O		
Red-crowned Ant-Tanager	*Habia rubica*	O, S			
Blue-black Grosbeak	*Cyanocompsa cyanoides*	O, S	O	O	
WOOD-WARBLERS	PARULIDAE				
Buff-rumped Warbler	*Myiothlypis fulvicauda*	O, A	O	O	
BLACKBIRDS	ICTERIDAE				
Russet-backed Oropendola	*Psarocolius angustifrons*	O	O	O	O
Crested Oropendola	*P. decumanus*	O, A	O	O	
Olive Oropendola	*P. bifasciatus*	O, A		O	
Solitary Black Cacique	*Cacicus solitarius*	O		O	
Yellow-rumped Cacique	*C. cela*	O, A	O	O	O
Orange-backed Troupials	*Icterus croconotus*	O	O	O	
Epaulet Oriole	*I. cayanensis*	O, S			
Giant Cowbird	*Molothrus oryzivorus*	O	O	O	O
Shiny Cowbird	*M. bonariensis*	O			
Red-breasted Blackbird	*Sturnella militaris*				O
Bobolink	*Dolichonyx oryzivorus*	O			
FINCHES	FRINGILLIDAE				
Purple-throated Euphonia	*Euphonia chlorotica*	O	O		
Thick-billed Euphonia	*E. laniirostris*	O			
Golden-bellied Euphonia	*E. chrysopasta*	O	O	O	

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Orange-bellied Euphonia	*E. xanthogaster*	O			
Rufous-bellied Euphonia	*E. rufiventris*	O			
OLD WORLD SPARROWS	PASSERIDAE				
House Sparrow	*Passer domesticus*		O		O

O = observation, S = specimen, A = audio recording, P = photograph
* = facultative *Guadua* specialist (Kratter 1997, Lebbin 2007, pers. obs.)
** = obligate *Guadua* specialist (Kratter 1997, Lebbin 2007)
*/** = disagreement about degree of specialization (Kratter 1997, Lebbin 2007)

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