An ornithological survey of Piñas Bay, a site on the Pacific coast of Darién Province, Panama

INVENTARIO ORNITOLÓGICO EN BAHÍA PIÑAS, UN SITIO EN LA COSTA PACÍFICA DE LA PROVINCIA DEL DARIÉN, PANAMÁ

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Abstract
We surveyed the avifauna of the lowland and foothill habitats surrounding Piñas Bay, located on the Pacific coast of Darién Province, Panama from 3 May-16 May, 2003 as part of a general biological inventory sponsored by the Smithsonian Tropical Research Institute and the Tropic Star Lodge. During the two weeks, we recorded 179 species, of which we collected 112 species. We recorded three restricted-range species, all near-threatened at the global level, and one globally-threatened species: Great Green Macaw. Furthermore, we collected two species at elevations substantially below previously published records for Panama, and we report the first instance of syntopic breeding condition Purple and Shining Honeycreepers (*Cyanerpes sp*.), as well as several first records of non-forest species for southwestern Darién Province.

***Keywords*:** bird checklist, isthmus of Panama, Mesoamerica, range expansion, Sambú.

Resumen
Del 3 al 16 de mayo del 2003, realizamos un inventario de la avifauna de las tierras bajas y piedemonte alrededor de la Bahía de Piñas, ubicada en la costa pacífica de la provincia de Darién, Panamá, como parte de un inventario general de biodiversidad patrocinado por el Instituto Smithsonian de Investigaciones Tropicales y el Tropic Star Lodge. En las dos semanas de muestreo observamos 179 especies de las cuales colectamos 112. Se confirmó la presencia de tres especies con rango restringido, todas al nivel casi amenazada globalmente, y una especie amenazada globalmente: *Ara ambiguus*. Además se colectaron dos especies de aves en elevaciones sustancialmente más bajas de lo que previamente se habría registrado en Panamá. También reportamos la primera evidencia de reproducción sintópica de *Cyanerpes caeruleus* y *C. cyaneus*. Finalmente se registraron por primera vez en el suroeste de la provincia del Darién varias especies de aves de habitats no boscosos.

Palabras clave: ampliación de rango, istmo de Panamá, lista de aves, Mesoamerica, Sambú.

Introduction

Darién Province of eastern Panama belongs to one of 25 global mega-diversity hotspots (the Darién-Chocó-Western Ecuador hotspot: Myers *et al.* 2000). It also includes portions of two Birdlife International Endemic Bird Areas (EBA): the Darién Highlands EBA, with 17 restricted-range species, all of which occur in Panama; and the Darién Lowlands EBA, also with 17 restricted-range species, 15 of which occur in Panama (Angehr 2003). The province also contains all or part of seven globally Important Bird Areas (Angehr & Miró 2009). Within the Darién, the Serrania de Darién, including Cerro Tacarcuna, along the Caribbean coast, the Serranía de Pirre in the central part of the isthmus, and the Chucunaque and Tuira River valleys between these ranges have been relatively well surveyed ornithologically (Wetmore 1965, 1968, 1972, Wetmore *et al.* 1984). In contrast, relatively little work has been done in the mountain ranges and river valleys closest to the Pacific coast, including the Serranía de Sapo, the Serraná de Jungurudó, and the Sambú and Jaqué River valleys (Siegel & Olson 2008, see Fig. 1 for map of these locations). In 1922, T. Barbour, W. S. Brooks and C. F. Underwood surveyed Cerro Sapo, at the northern end of the Serranía de Sapo and the lower Sambú River (Barbour & Brooks 1923), and D. Feathers collected on Cerro Sapo in 1941 (Bond & Meyer de Schauensee 1944). Alexander Wetmore collected for approximately two months in 1946 and 1947 near Jaqué and in the upper Jaqué Valley, taking 1100 specimens (Siegel & Olson, 2008). Angehr *et al.* (2004)

visited the Sambú Valley and surveyed the highlands of the Serranía de Jungurudó in 1997 and 1998. This paper complements these previous surveys, focusing on the lowlands and lower foothills of the nearby Río Piñas watershed and the lower slopes of Cerro Piñas, an area that has not previously been surveyed.

Study area and methods

The Río Piñas makes a natural corridor into the foothills of the Serranía de Sapo, with the highest point being Cerro Piña, estimated to be 1300 m above sea level (m.a.s.l). This coastal range is roughly 15-20 km northwest of the higher and wider Serranía de Jungurudó (Fig. 1). The mouth of the river is adjacent to the community of Puerto Piñas (07° 35.1' N, 78° 10.9' W). The Río Piñas flows through low elevations for a straight-line distance of about 10 km; upstream from the mouth, the floodplain consists of broken agricultural clearings for the first 6 km. Beyond 6 km secondary forest begins, and at about 8 km primary forest dominates the landscape; 2 km further and the ridges of the foothills commence climbing steeply. Our survey focused on the lowland evergreen forest (~ 80-200 m.a.s.l) between 6 and 12 km upstream from Puerto Piñas. However we also surveyed the riverine and agricultural habitats below our primary site, and also made observations on the grounds of Tropic Star Lodge, which is located in a cove adjacent to Puerto Piñas (Figure 1). Additionally, specimens from the foothills above the Río Piñas (which we accessed by a trail running between the Piñas and Sambú rivers) were collected on 13 May; because they represent infrequently recorded Panamanian species these findings are included in this paper.

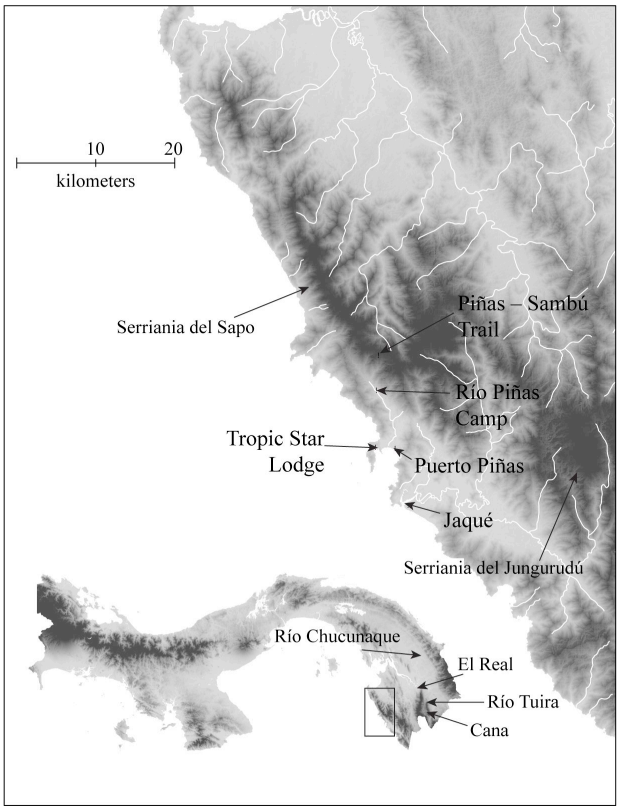

Figure 1. Map of the study site and other relevant locations in the Piñas-Jaqué region of southwestern Darién, Panama. Inset map show the location of the Piñas-Jaqué region as well as other areas of interest in Darién Province.

Between 3 and 16 May 2003, we placed fifteen 12 m mist-nets along a north-south transect which paralleled the Río Piñas between 7 km and 10 km upstream from the mouth (area surrounding Río Piñas Camp: 07º 39.0' N, 78º 12.0º W, 45 – 130 m.a.s.l). Mist-nets were opened each morning from 06:00 h until the afternoon, depending on weather and bird activity. Mist-nets were moved every two to three days. We also collected with shotguns in primary and secondary forest, as well as along the river's edge and in agricultural clearings. On 13 May, EB and Andrew Coates collected along a trail to the Río Sambú which climbed the ridge above our primary site (Piñas-Sambú Trail), reaching 1100 m.a.s.l (07° 41.5' N, 78°

11.9' W). Finally, we collected opportunistically in the agricultural habitats on the way in and out of the expedition camp. GRA recorded vocalizations with a Sony TCM-5000 tape-recorder and Sennheiser short shotgun microphone.

Below we provide species accounts for globally-threatened, near-threatened (IUCN 2010) and restricted range species, as well as specimen details for those species collected which have not previously been reported from the area or were collected at unusually low elevations We also include a review of species seen or heard that represent first records for the Jaqué area of Pacific Darién, or the Darién itself, as well as a list of the species that were encountered during the expedition, as well as the evidence used to determine their presence. Taxonomy follows the American Ornithologists' Union's Checklist of North American Birds (AOU 1998) and subsequent updates, and the classification of range-restricted taxa follows Angehr (2003). Collected specimens have been deposited at the following museums: University of Alaska Museum, Fairbanks, Alaska, USA (UAM), the Museo de Vertebrados of the Universidad de Panamá, Panama City, Panama (MVUP), and the Louisiana State University Museum of Vertebrate Zoology, Baton Rouge, Louisiana, USA (LSUMZ).

Species accounts

Gray Hawk - *Buteo nitidus*. One was seen by GRA at the edge of a clearing on the lower Río Piñas on 13 May. The species has not previously been reported from the Piñas-Jaqué area. Wetmore (1965) reported that there were no records from Darién, to which it seems to have spread only recently, being reported as being regular in small numbers in to the northeast of the Piñas – Jaque region in central Darien along the lower Tuira and Chucunaque rivers by Ridgely & Gwynne (1989). It is likely that this species is becoming more widespread due to deforestation.

Bicolored Hawk - *Accipiter bicolor*. We collected a single breeding condition adult male (UAM 22647) on 12 May inside primary forest. This species has not previously been reported from the Jaqué area, though it was to be expected, since it occurs at Cana in the Tuira valley in central Darién (Wetmore 1965, Robbins *et al.* 1985) and throughout forested areas in Panama.

Yellow-headed Caracara - *Milvago chimachima*. Field notes from MJM and JTW record at least one observation of this species on the lower Río Piñas between 3 and 6 May. Unfortunately, we recorded little detail, overlooking the apparent importance of this observation, evidently the first record for Darien province of this species. Reported to extend eastward only to the area of the lower Río Bayano in eastern Panamá province by Wetmore (1968) and Ridgely & Gwynne (1989), in recent decades, this species has become more widespread in Panama, probably due to increasing deforestation (GRA, unpublished data).

White-tipped Dove - *Leptotila verreauxi*. A breeding condition male (UAM 21888) was collected on 12 May in an agricultural field on the low Río Piñas. Individuals were also observed by GRA at Piñas Bay on 28 May 1995. These apparently represent the first records from the Jaqué area; in the Darién, the species has previously reported from El Real (Wetmore 1968) and Cana (Robbins *et al.* 1985) in the Tuira valley.

Plumbeous Pigeon - *Patagioenas plumbea*. An individual was heard calling in the distance by GRA and MJM on 14 May and tape-recorded by GRA. Previously only known in South America, the first specimens of this species in North America were collected in the Jungurudó highlands in 1997, where it was common (Angehr *et al.* 2004). This species has apparently been overlooked previously in the Darién, due to its visual and vocal similarity to the congeneric Short-billed Pigeon *P. nigrirostris* and Ruddy Pigeon *P. subvinacea,* which also occur in the region. Plumbeous Pigeon has been found to be common also on Cerro Pirre from at least 550-1300 m.a.s.l elevation (Angehr *et al.* 2008), and has been found in the lowlands in the upper Sambú and upper Jaqué Valley (Angehr *et al.* 2004).

Russet-crowned Quail-Dove - *Geotrygon goldmani*. A breeding condition male (UAM 21893) was collected on 13 May on the Piñas-Sambú Trail at c. 1100 m.a.s.l, near the top of Cerro Piña. This species is endemic to the foothills of eastern Panama and adjacent Colombia, being only regularly recorded from the Cerro Pirre region (Angehr *et al.* 2008). Russet-crowned Quail-Doves were common in the Serranía de Jungurudó (Angehr *et al.* 2004), and it has also been collected on Cerro Sapo (Wetmore 1968). This species is considered Near Threatened at the global level (IUCN 2010).

Great Green Macaw - *Ara ambiguus*. A group was seen by GRA and MJM at a distance on 14 May and the vocalizations were recorded by GRA. Macaws (species undetermined) were heard on 12 and 13 May as well. The last published record of this species from this area was by Wetmore (1968), who found them regularly in hill country on the upper Jaqué River in April 1947. Although this is the most widespread species of macaw in Panama, its range has become increasingly restricted due to deforestation, hunting, and capture for the pet trade (Ridgely & Gwynne 1989), so confirmation of its continued presence in the area is gratifying. This species is considered Endangered at the global level (IUCN 2010).

Groove-billed Ani - *Crotophaga sulcirostris*. One was seen at close range on the grounds of the Tropic Star Lodge on 14 May by GRA and MJM. Not found in extensively forested areas, this species is typically associated with agricultural clearings and represents the first record for the Jaqué region,

and second for Darién Province. Reported to extend eastward only to the area of the lower Río Bayano in eastern Panamá province by Wetmore (1968) and Ridgely & Gwynne (1989), the only previous record from Darién has been a pair seen and heard vocalizing at El Real in the Tuira valley on 28 March 1991 by D. Engleman *et al.* (pers. comm. to GRA). This species has probably been spreading eastward with increasing deforestation in the region.

Green Hermit - *Phaethornis guy*. We collected a single individual (UAM 24246), mistnetted at 120 m.a.s.l, on 7 May in the interior of lowland forest. Common in foothills and montane habitats throughout Panama, Green Hermits are typically encountered only above about 500 m.a.s.l (Ridgley & Gwynne 1989, (Schuchmann 1999), but occasionally has been recorded from lowlands on the Caribbean slope in Bocas del Toro and Colón Provinces (Ridgely & Gwynne 1989) and in northern Coclé (GRA, unpublished data). While known from higher elevations in southwestern Darien (e.g. Wetmore 1968), this is apparently the second record of the species from lowlands of the Pacific slope in Panama, the only other being one collected by Wetmore (1968) near Pacora in eastern Panamá province.

Rufous-cheeked Hummingbird - *Goethalsia bella*. We collected two individuals. The first, an adult male (UAM 23601) was collected at approximately 100 m.a.s.l on 7 May. This represents a significant lower altitudinal record for this species, previously recorded only above 600 m.a.s.l (Ridgely & Gwynne 1989, Schuchmann 1999). An adult female (UAM 23602) was collected at 1100 m.a.s.l on the Piñas-Sambú Trail on 13 May. This is a restricted-range species, endemic to the foothills and highlands of the Serranía de Pirre, the Serranía de Jungurudó, and Cerro Sapo (Angehr et al. 2004). This species is considered Near Threatened at the global level (IUCN 2010).

Rufous-tailed Hummingbird - *Amazilia tzacatl*. We collected two individuals (LSUMZ JTW610 and LSUMZ JTW721) from a clearing in the Rio Piñas valley. GRA observed several at flowering *Inga* trees at the Tropic Star Lodge on 26 and 28 May 1995. These represent the first records from the Jaqué-Piñas Bay region. Wetmore (1968) found no records east of the lower Río Bayano in eastern Panamá Province, and Ridgely & Gwynne (1989) reported that it had been "only recently found in Darién (mostly in lower and middle Tuira River valley; occasionally also seen at Cana," so that the species may be spreading with deforestation. In 2006 Rufous-tailed Hummingbird was also collected during a STRI/UAM expedition to Cana in the Tuira Valley (specimens deposited at UAM). We note that, both here and at Cana, Rufous-tailed Hummingbirds represent two distinct mitcochondrial DNA lineages (one likely South American in origin, the other North American; Miller et al 2011).

Crimson-bellied Woodpecker - *Campephilus haematogaster*. An adult male (UAM 21892) was collected on 9 May, in primary forest near the upper Río Piñas, and a second individual was seen by GRA on 12 May, which represent the only records for the Piñas-Jaqué Valley area, although it is known from the Tuira valley (Wetmore 1968). Found in humid forests in both Bocas del Toro and eastern Panama, Crimson-bellied Woodpeckers are rare throughout (Ridgely & Gwynne 1989).

Yellow-bellied Elaenia - *Elaenia flavogaster*. We collected a single individual (JTW 691) in open habitat near the upper Río Piñas. This represents the first specimen for eastern Darién. Previously, the easternmost record in Panama was a specimen collected in Punta Sabana in western Darién province in 1895 (Wetmore 1972). It is possible that this specimen refers to nominate *flavogaster* from adjacent South America rather than *pallididorsalis* of Pacific Panama. Initial mitochondrial DNA evidence is consistent with scenario, but not definitive. This species was also seen by GRA at the Tropic Star Lodge on 26 May 1995.

Olive-striped Flycatcher - *Mionectes olivaceus*. We collected six individuals from below 100 m.a.s.l in primary forest. This species is unusual in the lowlands of Panama, being typically encountered above 600 m.a.s.l, where it replaces the lowland congener, the Ochre-bellied Flycatcher (*Mionectes oleagineus*). However, as is the case with much of coastal Pacific Colombia **(**Hilty & Brown 1986**)**, the Ochre-bellied Flycatcher is apparently absent from the Jaqué region, and consequently the Olive-striped Flycatcher range extends into the lowlands.

Rufous-winged Tanager - *Tangara lavinia*. We collected one individual (sex unable to determine from specimen damaged by shot) in the highland regions of Piñas-Sambú trail (May 13: UAM MJM1017). This appears to be only the third report from Darién, and the second specimen record (and the first from a definite locality). There is a sight record by R. Ridgely from Cerro Quía in 1975 (Ridgely & Gwynne 1989). The type specimen of the nominate subspecies was evidently taken in Darién (though labeled only "Isthmus of Panama") but is now lost (Wetmore 1968), making this the only existing specimen from the type region.

Green-naped Tanager - *Tangara fucosa*. An adult female (UAM MJM1008) was collected at 1150 m.a.s.l on the Piñas-Sambú Trail on 13 May. The first specimen from the Pacific coastal ranges was collected on the Serrania de Jungurudó by Angehr *et al*. (2004), where it was uncommon. This species is restricted to higher elevations of eastern Darién, including Cerro Tacarcuna and Cerro Pirre (Wetmore *et al.* 1984).

Purple Honeycreeper - *Cyanerpes caeruleus* / Shining Honeycreeper - *Cyanerpes lucidus*. A breeding-condition

male Purple Honeycreeper (UAM 22635; left testis: 5mm x 5mm) was collected at 100 m.a.s.l on 14 May, and a pre-breeding condition female Shining Honeycreeper (UAM MJM1003, ovaries: 6 mm x 4.5 mm, largest ova: 2 mm x 2 mm) was collected in the foothills of the Piñas-Sambú Trail at 130 m.a.s.l on 13 May, about 1 km from the site where the Purple Honeycreeper was collected. Shining Honeycreeper is widespread in Panama, including records from Cana on Cerro Pirre, Cerro Tacarcuna, and Cerro Sapo in the Darién (Ridgely & Gwynne 1989), but has not previously been recorded from the Jaqué-Piñas Bay region. In Panama, the mainly South American Purple Honeycreeper is known from only a few locations in eastern Darién, where it has previously been collected in the Río Jaqué valley and on Cerro Quía (Wetmore *et al.* 1984). There are also sight records of Purple Honeycreeper from Cana, but breeding there has not been confirmed (Ridgely & Gwynne 1989). Our records are the first to confirm syntopic breeding by these two species within Panama. They are also known to be sympatric on the Río Juradó in extreme northwestern Colombia (Wetmore et al. 1984). Stomach contents of both individuals were a yellow seed surrounded by an orange flesh (MJM *pers. obs*). In general, Shining Honeycreeper is a foothills species (300-1200 m.a.s.l), while Purple Honeycreeper is a lowland species (0-600 m.a.s.l), however clearly some overlap at the base of the foothills occurs. The dynamics of this contact zone warrant further investigation.

Discussion

Preliminary results from our expedition to the Río Piñas demonstrate that the Pacific Darién lowlands have a mixture of the highland and lowland Darién avifaunas. Of particular note are several records of highland forms, both widespread Mesoamerican cloud forest birds, and Darién endemics, which were recorded at quite low elevations. The lowland forest around Río Piñas is relatively wet, and elevated precipitation, as well as coastal fog and other climatic influences may compress life zones to lower elevations as has been observed in very similar tropical wet forest in the coastal foothills of western Ecuador (Parker & Carr 1992). As a consequence, this area may be more important due to its contribution of "highland" habitat and the associated bird community.

We report several new species for the Jaqué-Río Piñas area that were not encountered during Wetmore's extensive fieldwork. A few of these new species likely represent relatively rare or easy to overlook taxa that most likely occurred, but were missed, during previous expeditions. These include: Ornate Hawk-Eagle (*Spizaetus ornatus*), Crested Owl (*Lophostrix cristata*), Mottled Owl (*Ciccaba virgata*), Lesser Swallow-tailed Swift (*Panyptila cayennensis*), Scaly-breasted Wren (*Microcerculus marginatus*), and Slate-colored Seedeater (*Sporophila schistacea*).

However, several other new records are most likely the result of recent range expansions into Pacific southwestern Darién as non-forested habitat increases in the region (see also Angehr *et al.* 2004). In addition to Yellow-headed Caracara, White-tipped Dove, Groove-billed Ani, and Rufous-tailed Hummingbird, other species that most likely represent deforestation-related range expansion include: Southern Lapwing (*Vanellus chilensis*), Cattle Egret (*Bubulcus ibis*) (also seen by GRA at Jaqué on 26 May 1995 and 9 January 1996), Striped Cuckoo (*Tapera naevia*) (also heard by GRA in the upper Río Jaqué valley on 10 January 1996), Snowy-bellied Hummingbird (*Amazilia edward*), Red-crowned Woodpecker (*Melanerpes rubricapillus*), Jet Antbird (*Cercomacra nigricans*), Yellow-bellied Elaenia (*Elaenia flavogaster*), Tropical Pewee (*Contopus cinereus*), Thick-billed Seed-Finch (*Oryzoborus funereus*) (also seen by GRA near Piñas Bay on 28 May 1995), and Shiny Cowbird (*Molothrus bonariensis*).

Finally, we did not encounter several lowland Darién endemics found in more interior locations in the region, and given our effort to locate these species, we suspect that exhaustive surveys of the area might not recover them. These include Dusky-backed Jacamar (*Brachygalba salmoni*), Yellow-green Tyrannulet (*Phylloscartes flavovirens*), Black-billed Flycatcher (*Aphanotriccus audax*), and Black Oropendola (*Psarocolius guatimozinus*). The apparent absence of these species may be due to the fact that the coastal lowlands in the Piñas-Jaqué area are separated from other lowland areas in the Darién-Chocó region by the Serrianias de Jungurudú and Sapo, or because of microhabitat differences, as the Piñas-Jaqué lowlands appeared wetter than other Darién lowland areas.

The other endemics we did not record are found mainly in foothills areas where we did not spend much time, including Purplish-backed Quail-Dove (*Geotrygon lawrencii*), Stripe-cheeked Woodpecker (*Piculus callopterus*), and Black-and-yellow Tanager (*Chrysothlypis chrysomelas*); or else are restricted to areas closer to the Caribbean coast, including Sulphur-rumped Tanager (*Heterospingus rubrifrons*), Sooty-faced Finch (*Lysurus crassirostris*), and Tawny-capped Euphonia (*Euphonia anneae*). Some endemics may not have been encountered because they are inconspicuous or rare in the region, including Choco Tinamou (*Crypturellus kerriae*), Dusky Pigeon (*Patagioenas goodsoni*), Choco Toucan (*Ramphastus brevis*), Black-crowned Antpitta (*Pittasoma michleri*), and Viridian Dacnis (*Dacnis vigueri*). Of these, Choco Tinamou (Angehr *et al.* 2004) and Black-crowned Antpitta (Wetmore 1972) have been recorded from the upper Río Jaqué, and Viridian Dacnis has been collected at Jaqué (Wetmore *et al.* 1984.)

Nonetheless, this region has significant eco-tourism potential and conservation value, both as a consequence of the substantial number of Darién endemics recorded here as well

as the presence of charismatic species such as macaws. In addition, access to several highland taxa was easier than at localities in the interior of Darién such as the Serranía de Pirre. The overall stability and accessibility of the Rio Piñas area may make also make it more appealing for tourism than other parts of Darién. The area borders Darién National Park, a World Heritage Site and Important Bird Area and can serve as a buffer zone to it if deforestation can be controlled.

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Appendix. Species recorded in Río Piñas Valley, Darién, Panama**.** Restricted range species (Stattersfield et al. 1998, Angehr 2003) are indicated by an "r" following the common name. Globally threatened and near-threatened are indicated by an "E" (Endangered) or "nt" (near-threatened) following the common name. Those marked with an asterisk (*) were only recorded above 150 m. Evidence: c=collected specimen, r=recorded, s=seen, h=heard.

English Name	***Scientific Name***	***Evidence***
Great Tinamou	*Tinamus major*	h
Little Tinamou	*Crypturellus soui*	h
Brown Pelican	*Pelecanus occidentalis*	s
Neotropic Cormorant	*Phalacrocorax brasilianus*	s
Magnificent Frigatebird	*Fregata magnificens*	s
Great Egret	*Ardea alba*	s
Snowy Egret	*Egretta thula*	s
Little Blue Heron	*Egretta caerulea*	s
Cattle Egret	*Bubulcus ibis*	s
White Ibis	*Eudocimus albus*	s
Black Vulture	*Coragyps atratus*	s
Turkey Vulture	*Cathartes aura*	s
Osprey	*Pandion haliaetus*	s
Gray-headed Kite	*Leptodon cayanensis*	s
Double-toothed Kite	*Harpagus bidentatus*	c
Bicolored Hawk	*Accipiter bicolor*	c
Semiplumbeous Hawk	*Leucopternis semiplumbea*	c
Gray Hawk	*Buteo nitidus*	h
Common Black-Hawk	*Buteogallus anthracinus*	s
Ornate Hawk-Eagle	*Spizaetus ornatus*	h
Yellow-headed Caracara	*Milvago chimachima*	s
Bat Falcon	*Falco rufigularis*	s
White-throated Crake	*Laterallus albigularis*	s
Southern Lapwing	*Vanellus chilensis*	s
Wattled Jacana	*Jacana jacana*	s
Spotted Sandpiper	*Actitis macularia*	s
Laughing Gull	*Leucophaeus atricilla*	s
Royal Tern	*Sterna maxima*	s
Pale-vented Pigeon	*Patagioenas cayennensis*	s, h
Plumbeous Pigeon	*Patagioenas plumbea*	r
Ruddy Ground-Dove	*Columbina talpacoti*	c
White-tipped Dove	*Leptotila verreauxi*	c
Olive-backed Quail-Dove	*Geotrygon veraguensis*	c
*Russet-crowned Quail-Dove (r, nt)	*Geotrygon goldmani*	c

Great Green Macaw (E)	*Ara ambiguus*	s
Orange-chinned Parakeet	*Brotogeris jugularis*	s,h
Blue-headed Parrot	*Pionus menstruus*	s,h
Squirrel Cuckoo	*Piaya cayana*	h
Striped Cuckoo	*Tapera naevia*	h
Groove-billed Ani	*Crotophaga sulcirostris*	s
Crested Owl	*Lophostrix cristata*	h
Mottled Owl	*Ciccaba virgata*	h
White-collared Swift	*Streptoprocne zonaris*	s
Lesser Swallow-tailed Swift	*Panyptila cayennensis*	s
Band-tailed Barbthroat	*Threnetes ruckeri*	c
Green Hermit	*Phaethornis guy*	c
Long-billed Hermit	*Phaethornis longirostris*	c
Stripe-throated Hermit	*Phaethornis striigularis*	s
White-necked Jacobin	*Florisuga mellivora*	c
Green-crowned Woodnymph	*Thalurania fannyi*	c
Blue-throated Goldentail	*Hylocharis eliciae*	c
Rufous-cheeked Hummingbird (r, nt)	*Goethalsia bella*	c
Blue-chested Hummingbird	*Amazilia amabilis*	c
Snowy-bellied Hummingbird	*Amazilia edward*	c
Rufous-tailed Hummingbird	*Amazilia tzacatl*	c
White-vented Plumeleteer	*Chalybura buffoni*	c
Green-crowned Brilliant	*Heliodoxa jacula*	c
Gartered Trogon	*Trogon caligatus*	c
*Tody Motmot	*Hylomanes momotula*	c
Rufous Motmot	*Baryphthengus martii*	c
Ringed Kingfisher	*Ceryle torquata*	s
Green Kingfisher	*Chloroceryle americana*	c
Amazon Kingfisher	*Chloroceryle amazona*	c
Barred Puffbird	*Nystalus radiatus*	s
White-whiskered Puffbird	*Malacoptila panamensis*	c
White-fronted Nunbird	*Monasa morphoeus*	c
Collared Aracari	*Pteroglossus torquatus*	s
Keel-billed Toucan	*Ramphastos sulfuratus*	s
Chestnut-mandibled Toucan	*Ramphastos swainsonii*	s
Black-cheeked Woodpecker	*Melanerpes pucherani*	c
Red-crowned Woodpecker	*Melanerpes rubricapillus*	s
Cinnamon Woodpecker	*Celeus loricatus*	c
Lineated Woodpecker	*Dryocopus lineatus*	c
Crimson-bellied Woodpecker	*Campephilus haematogaster*	c
Slaty Spinetail	*Synallaxis brachyura*	c
Buff-throated Foliage-gleaner	*Automolus ochrolaemus*	c
Scaly-throated Leaftosser	*Sclerurus guatemalensis*	c
Plain-brown Woodcreeper	*Dendrocincla fuliginosa*	c
Wedge-billed Woodcreeper	*Glyphorynchus spirurus*	c
Cocoa Woodcreeper	*Xiphorhynchus susurrans*	c
Black-striped Woodcreeper	*Xiphorhynchus lachrymosus*	c
Spotted Woodcreeper	*Xiphorhynchus erythropygius*	c
Streak-headed Woodcreeper	*Lepidocolaptes souleyetii*	s
Fasciated Antshrike	*Cymbilaimus lineatus*	s
Great Antshrike	*Taraba major*	s
Western Slaty-Antshrike	*Thamnophilus atrinucha*	s
Spot-crowned Antvireo	*Dysithamnus puncticeps*	c
Pacific Antwren	*Myrmotherula pacifica*	c
Checker-throated Antwren	*Myrmotherula fulviventris*	c
White-flanked Antwren	*Myrmotherula axillaris*	c

Dot-winged Antwren	*Microrhopias quixensis*	c
Dusky Antbird	*Cercomacra tyrannina*	c
Jet Antbird	*Cercomacra nigricans*	s
Chestnut-backed Antbird	*Myrmeciza exsul*	c
Dull-mantled Antbird	*Myrmeciza laemosticta*	c
Spotted Antbird	*Hylophylax naevioides*	c
Bicolored Antbird	*Gymnopithys leucaspis*	c
Ocellated Antbird	*Phaenostictus mcleannani*	c
Black-faced Antthrush	*Formicarius analis*	c
Streak-chested Antpitta	*Hylopezus perspicillatus*	c
Brown-capped Tyrannulet	*Ornithion brunneicapillum*	s
Yellow-bellied Elaenia	*Elaenia flavogaster*	c
Olive-striped Flycatcher	*Mionectes olivaceus*	c
Black-capped Pygmy-Tyrant	*Myiornis atricapillus*	s
Southern Bentbill	*Oncostoma olivaceum*	h
Olivaceous Flatbill	*Rhynchocyclus olivaceus*	c
Yellow-margined Flycatcher	*Tolmomyias assimilis*	c
Golden-crowned Spadebill	*Platyrinchus coronatus*	c
Royal Flycatcher	*Onychorhynchus coronatus*	c
Ruddy-tailed Flycatcher	*Terenotriccus erythrurus*	s
Black-tailed Flycatcher	*Myiobius atricaudus*	c
Tropical Pewee	*Contopus cinereus*	s
Long-tailed Tyrant	*Colonia colonus*	c
Bright-rumped Attila	*Attila spadiceus*	c
Boat-billed Flycatcher	*Megarynchus pitangua*	c
Rusty-margined Flycatcher	*Myiozetetes cayanensis*	c
Gray-capped Flycatcher	*Myiozetetes granadensis*	s
Streaked Flycatcher	*Myiodynastes maculates*	s
Tropical Kingbird	*Tyrannus melancholicus*	c
Sapayoa	*Sapayoa aenigma*	s
Cinnamon Becard	*Pachyramphus cinnamomeus*	c
White-winged Becard	*Pachyramphus polychopterus*	s
Masked Tityra	*Tityra semifasciata*	s
Black-crowned Tityra	*Tityra inquisitor*	c
Thrush-like Schiffornis	*Schiffornis turdinus*	c
Purple-throated Fruitcrow	*Querula purpurata*	h
Golden-collared Manakin	*Manacus vitellinus*	c
*White-ruffed Manakin	*Corapipo altera*	c
Blue-crowned Manakin	*Pipra coronata*	c
Golden-headed Manakin	*Pipra erythrocephala*	c
Southern Rough-winged Swallow	*Stelgidopteryx ruficollis*	s
Black-chested Jay	*Cyanocorax affinis*	c
Bay Wren	*Thryothorus nigricapillus*	c
Stripe-throated Wren	*Thryothorus leucopogon*	c
White-breasted Wood-Wren	*Henicorhina leucosticta*	c
Scaly-breasted Wren	*Microcerculus marginatus*	c
Tawny-faced Gnatwren	*Microbates cinereiventris*	c
Swainson's Thrush	*Catharus ustulatus*	h
White-throated Thrush	*Turdus assimilis*	c
*Red-eyed Vireo	*Vireo olivaceus*	c
Lesser Greenlet	*Hylophilus decurtatus*	h
Buff-rumped Warbler	*Phaeothlypis fulvicauda*	h
Plain-colored Tanager	*Tangara inornata*	c
*Emerald Tanager	*Tangara florida*	c
*Bay-headed Tanager	*Tangara gyrola*	c
*Rufous-winged Tanager	*Tangara lavinia*	c

*Golden-hooded Tanager	*Tangara larvata*	c
*Green-naped Tanager (r, nt)	*Tangara fucosa*	c
Shining Honeycreeper	*Cyanerpes lucidus*	c
Purple Honeycreeper	*Cyanerpes caeruleus*	c
Red-legged Honeycreeper	*Cyanerpes cyaneus*	s
Fulvous-vented Euphonia	*Euphonia fulvicrissa*	c
Blue-gray Tanager	*Thraupis episcopus*	c
Palm Tanager	*Thraupis palmarum*	c
Lemon-spectacled Tanager	*Chlorothraupis olivacea*	c
Scarlet-browed Tanager	*Heterospingus xanthopygius*	c
White-shouldered Tanager	*Tachyphonus luctuosus*	c
Tawny-crested Tanager	*Tachyphonus delatrii*	c
Flame-rumped Tanager	*Ramphocelus flammigerus*	c
Dusky-faced Tanager	*Mitrospingus cassinii*	s
Buff-throated Saltator	*Saltator maximus*	s
Blue-black Grosbeak	*Cyanocompsa cyanoides*	c
*Chestnut-capped Brush-Finch	*Buarremon brunneinucha*	c
Orange-billed Sparrow	*Arremon aurantiirostris*	c
Blue-black Grassquit	*Volatinia jacarina*	c
Slate-colored Seedeater	*Sporophila schistacea*	c
Variable Seedeater	*Sporophila americana*	c
Thick-billed Seed-Finch	*Oryzoborus funereus*	c
Great-tailed Grackle	*Quiscalus mexicanus*	s
Shiny Cowbird	*Molothrus bonariensis*	s
Yellow-backed Oriole	*Icterus chrysater*	c
Yellow-tailed Oriole	*Icterus mesomelas*	c
Yellow-billed Cacique	*Amblycercus holosericeus*	s
Scarlet-rumped Cacique	*Cacicus uropygialis*	c
Yellow-rumped Cacique	*Cacicus cela*	s
Chestnut-headed Oropendola	*Psarocolius wagleri*	c