

Birds of the Brazilian state of Acre: diversity, zoogeography, and conservation

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ABSTRACT: The Brazilian state of Acre borders Peru and Bolivia to the west and south, and the Brazilian states of Amazonas and Rondônia to the north and east, respectively. The state is located within the lowlands of the western Amazon basin, adjacent to the foothills of the Andes, within a “megadiverse” region of the Brazilian Amazon basin. Despite its diversity, the region is still only poorly known in scientific terms, and is considered to be a priority for future biological surveys. Given this situation, the present study aims to contribute to the scientific knowledge of the avian fauna of southwestern Amazonia, by evaluating the following questions – (a) how many and which bird species occur in the state of Acre?; (b) how are these species distributed within the state?; and (c) what are the priority areas for new ornithological surveys within the state of Acre? My methodological procedures included (a) a wide literature search; (b) two years of field surveys, including observation records and the collection of voucher specimens; (c) map the distribution of avian taxa within the two main interfluvial regions (east and west of the Purus River) of the state; and (d) the identification of contact and possible hybridization zones, based on the distribution of parapatric sister taxa. The literature search and fieldwork resulted in the compilation of 9550 avian records, encompassing 4763 specimens, of which 2457 (51.5%) were collected during the past five years. A total of 667 species were confirmed for the state of Acre, representing 75 families and 23 orders. A total of 64 migratory species were also recorded, of which 46.8% (n=30) are Nearctic migrants, 15 (23.4%) were considered to be intratropical migrants, and 19 (29.6%) were classified as austral migrants. Overall, 41 of the recorded species and subspecies were endemic to the Inambari center of endemism. Of all forest avian taxa present year round in the state, 79% are distributed in both main interfluvial regions, 16% were recorded only in the central-western sub-region (west of the Purus), and 5% only in the eastern sub-region (east of the Purus). At least five pairs of purported sister taxa presented allopatric distributions, whereas 15 had parapatric distribution within the state. Two zones of secondary contact (east and west) were identified, which coincided with two possible hybridization zones. The main conclusions of this study are: (a) the total number of species recorded in the state is high but will probably increase as new surveys are conducted; (b) neither of the state’s major rivers – the Purus and the Juruá – act as physical barriers to the dispersal of most of the resident species found in the state; (c) the zones of secondary contact found do not coincide with the basins of these two major rivers, which supports the idea that factors other than physical barriers to dispersal determine the present distribution of some of the resident bird taxa of Acre; and (d) birds restricted to the white-sand forests (campinas and campinaranas) found only in the western portion of the state, as well as those found only in the dense forests of eastern Acre, constitute together the most threatened elements of the state’s avifauna since no conservation units protect these specific habitats.

KEY-WORDS: Amazonia; areas of endemism; contact zones; hybridization; Purus; white sand forests.

INTRODUCTION

The Amazon basin encompasses the largest and most diverse tract of continuous tropical rainforest found anywhere in the World. Covering more than six million square kilometers in nine countries of northern South America, the region is home to more than 40,000 plant species, 427 mammals, 1294 birds, 378 reptiles, 427 amphibians, and more than 3,000 species of fish, representing around 10% of the planet’s biodiversity (Mittermeier *et al.* 2003). Despite this biological richness, few of the plans proposed for the development of the region have contemplated the effective protection of these natural resources. In most cases, this is justified

by the lack of adequate information on this diversity, which might enable its inclusion in the decision-making processes underpinning strategic planning. However, relatively little has been done to compile the existing data and catalog the species that occur in the region, or their geographic ranges.

Brazil has one of the richest avian faunas in South America, with a current total of 1832 species (CBRO 2011). Despite this diversity and the fact that ornithological research began in Brazil in the 16th century, the first systematic catalog of Brazilian birds was only produced in the mid-20th century (Pinto, 1938; 1944; 1978). The seminal work on the country’s birds is that of Sick (1985; 1997), which provides detailed

historical, ecological, behavioral, and zoogeographic data on most of the species known to occur in Brazil at the time it was published.

Regional (state) avifaunal lists are also important tools for comparative studies of species richness, distribution, and conservation status within different parts of the country. These inventories and their products may be essential to the definition of effective public policies for the protection of natural resources on a local scale, that is: within minor political divisions. In Brazil, systematic inventories of regional avifaunas have now been conducted for 18 states (Carlos *et al.* 2010). Whereas this represents two-thirds of Brazil's 26 states, there was no standardization of approaches or methods, which has hampered comparative studies considerably (Carlos *et al.* 2010).

Bird diversity in Brazilian Amazonia

The diversity of birds in lowland Amazonia varies considerably among its different regions. In a review of the available data, Haffer (1987; 1990) demonstrated that local species richness tends to increase from east to west, following the same tendency recorded for other organisms, such as primates (Voss and Emmons 1996; Silva *et al.* 2005a) and plants (Gentry 1988). Some sites in western Amazonia, near the foothills of the Andes, may contain more than 500 species. Terborgh *et al.* (1984) recorded 526 species at Cocha Cashu in southeastern Peru, for example, whereas Parker *et al.* (1994) observed 575 species at Tambopata, also in southeastern Peru. In Brazil, Whittaker *et al.* (2002) recorded 548 species in the Alto Juruá Extractivist Reserve in Acre.

In central and eastern Amazonia, by contrast, the number of species does not exceed 450, even at the best-documented sites. Borges *et al.* (2001) recorded 445 species in the Jaú National Park in central Amazonia (in the Brazilian state of Amazonas), for example, whereas Valente (2006) registered only 367 species in the Ferreira Pena Scientific Station in Pará, eastern Amazonia. These differences appear to be determined mainly by variation in precipitation, topography, and environmental heterogeneity (Cohn-Haft *et al.* 1997; Rahbeck & Graves 2001).

Zoogeography of Amazonian birds

The distribution pattern of animals within a given region is related to local biotic and abiotic factors. This implies that the occurrence of a species within a given area is related to its capacity to adapt to the local climatic (e.g., temperature and humidity) and ecological conditions, such as the availability of habitats and feeding resources (Krebs 2001). Given their capacity to disperse and adapt, some species become widely distributed, whereas others,

less adaptable, are restricted to much more limited geographic ranges (Stattersfield *et al.* 1998).

The principal factors that determine species distributions and the diversity of species within a given terrestrial environment, at different scales of analysis, include latitude, seasonality, temperature, precipitation, topography, the size and productivity of the area, geologic history, and the heterogeneity of habitats (Field *et al.* 2009; Hillebrand 2004; Rahbeck 2005; Hawkins *et al.* 2003; Rahbeck & Graves 2001). In general, the colonization of a given region by a species depends on the availability of ecological space and the lack of geographic barriers to dispersal. However, successful colonization by a species depends on its dispersal capacity, and its ability to compete for the resources available within the target area (Krebs, 2001).

In the Amazon basin, the hydrographic network appears to play an important role in the distribution patterns of many bird species (Sick 1967; Haffer 1992b). Most areas of endemism are delimited by the courses of major rivers, such as the Madeira, Tapajós, and Xingu (Cracraft 1985; Silva *et al.* 2005b). The allopatric distribution of sister taxa along opposite banks of the Amazon and other major rivers was first reported by the early explorers, such as Wallace (1852). Other authors, such as Sneath (1910) concluded that, in addition to functioning as barriers to dispersion for some forest-dwelling birds, rivers also serve as corridors for the species that inhabit open savanna enclaves, using the riverbank vegetation to migrate. Based on results of a collecting trip conducted along the banks of the Madeira River, Hellmayr (1910) observed that some species only occurred on one side of the river, while in other cases, closely related taxa were found on opposite banks.

Despite the effectiveness of Amazonian rivers as zoogeographic barriers, it appears that the color of their water—which is related to their sediment loads—plays an important role in their biogeographic importance (Ayres & Clutton-Brock, 1992; Aleixo 2004). The rivers of the Amazon basin are classified according to their origin and the color of their water: rivers that originate in the Andes region carry large quantities of sediments, and are known locally as “whitewater” rivers, due to their light beige coloration; rivers that originate in the Guianan or Brazilian shields are classified as “blackwater” or “clear water” rivers, respectively, due the relative lack of sediments in the water (Junk 1983).

A number of studies have shown that some whitewater rivers are less effective barriers to gene flow between populations of vertebrates such as amphibians (Gascon *et al.* 2000) birds (Aleixo 2004, Fernandes *et al.* 2012), and mammals (Ayres & Clutton-Brock 1992; Patton *et al.* 1994; Silva *et al.* 2005a; Peres *et al.* 1996; Patton & Silva 1998) than are blackwater rivers. One explanation for this is that whitewater rivers are highly

meandering—their courses change constantly, resulting in a mosaic of oxbow lakes and islands throughout the basin (Toivonem *et al.* 2007). This process favors the migration or passive dispersal of animals between margins (Ayres & Clutton-Brock 1992; Silva *et al.* 2005a; Haffer 2001). These whitewater rivers include the Purus and Juruá in the southwestern Amazon basin, which are two of the major right-bank tributaries of the Solimões (Amazon River). Whatever the color of their water, however, all the major rivers, such as the Amazon, Tapajós and Negro, tend to be less effective as barriers in their headwater reaches, where their margins are much closer together (Haffer 1992b; 2001; Hayes & Sewlal 2004).

A common distribution pattern in the Amazon basin is the occurrence of two or more closely related taxa within contact zones. These contact zones are often characterized by the parapatric distribution of sister taxa within a relatively narrow and well-defined area (Haffer 1987). Parapatric taxa occur in adjacent areas (Haffer 1992a), which are often delimited by physical or ecological barriers, although in some cases, there is contact, and even overlap between their geographic ranges (Haffer 1992a; 1997; Aleixo 2007). In some cases, these contact zones are characterized by intense interspecific competition (Haffer 1986; 1987; 1992a; Price, 2008). One of the direct consequences of this contact is the possibility of gene flow between neighboring populations, depending on the genetic similarity of the taxa involved, which may lead to hybridization (Haffer 1986; 1997; Price, 2008) and the formation of distinct hybrid zones (Haffer 1987). These zones are usually characterized by the coexistence of pure and hybrid individuals within the same areas (Aleixo 2007).

Contact zones may be either primary or secondary. Primary contact zones arise as a consequence of the differentiation of local populations in response to selection pressures associated with environmental gradients (Endler 1982), whereas secondary zones are the result of the re-encounter of previously isolated populations, which have differentiated under distinct ecological conditions (Haffer 1997). Haffer (1987, 1997) believed that all contact zones between Amazonian birds are secondary, resulting from the geographic expansion of sister taxa, which were previously isolated in forest refuges, as a consequence of global climate changes. In this case, the presence of contact zones may indicate the location of ancient ecological barriers, which have disappeared over time (Haffer 1987).

Ornithological research in the Brazilian state of Acre

Ornithological research in Acre only began in the 1950s, when two pioneering expeditions were undertaken in what was, at the time, still only a Brazilian territory rather than a state. The first of these took place

in the eastern portion of the territory (Vanzolini, 1952; Pinto & Camargo, 1954), with the subsequent excursion exploring the western portion (Novaes, 1957; 1958).

Eastern Acre was visited firstly by the private collector José Hidasi, in 1968, and then in 1976 by Geraldo Pereira da Silva, an employee of the Evandro Chagas Institute in Belém. Records of some of the specimens collected during these expeditions can be found in the ornithological literature (Novaes 1978; Pierpont & Fitzpatrick 1983; Teixeira *et al.* 1994; Hidasi & Bankovics 1997; Sick 1997).

During the 1990s, a number of professional ornithologists visited western Acre, in particular the Serra do Divisor National Park and the Alto Juruá Extractivist Reserve. The occurrence of more than 500 local species of birds was recorded during these expeditions (Whittaker & Oren 1999; Whittaker *et al.* 2002).

In 2005, I began the research for my doctoral dissertation, which was entitled “Bird fauna of the Brazilian state of Acre: diversity, zoogeography, and conservation”. This project included more than 20 expeditions to poorly-known or unexplored areas within the state. The results of this research were presented in my dissertation (Guilherme 2009) and have been published in a number of papers (Guilherme 2007; Guilherme & Santos 2009; Aleixo & Guilherme 2010; Guilherme & Borges 2011; Guilherme & Dantas 2011a).

During this same period, Dante Buzzetti carried out a detailed ornithological survey of the Chandless State Park (Buzzetti 2008), while Luiz Mestre and Gregory Thom studied the bird communities in areas affected by fire within the Chico Mendes Extractivist Reserve (Mestre *et al.* 2010a). The compilation of the data from all these studies and the description of the distribution patterns of the bird species in the Brazilian state of Acre constitute the principal theme of this paper.

MATERIAL AND METHODS

Study Area

The Brazilian state of Acre is located in the southwestern Amazon basin, bordering Bolivia and Peru to the south and west, and the Brazilian states of Amazonas and Rondônia to the north and east, respectively (Figure 1). The state covers a total area of 164,221.36 km², which corresponds to 4.26% of the area of Brazil's northern region, and 1.92% of the country as a whole (Governado do Acre 2012).

Most of the state is located within two adjacent hydrographic basins, that of the Purus River, in the eastern and central portions of the state, and the Juruá, in the west (Figure 2). All the watercourses of these two basins belong to the hydrographic basin of the Amazon



FIGURE 1. Location of the Brazilian state of Acre with respect to other neighboring national states and countries.

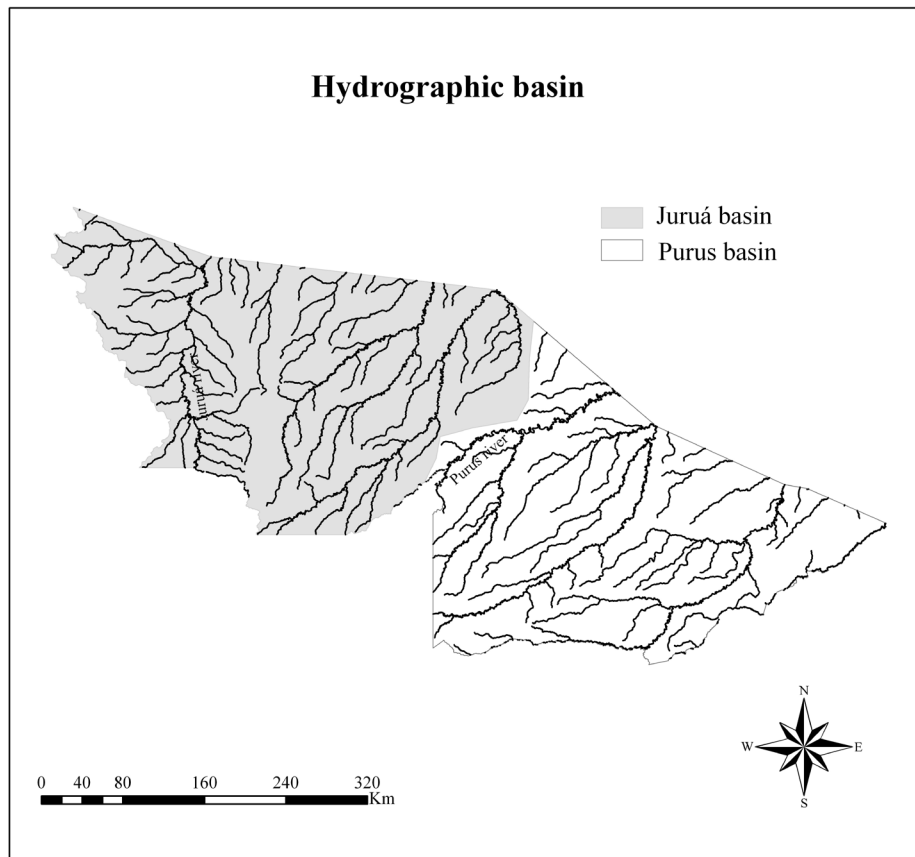


FIGURE 2. Location of the two main hydrographic basins within the Brazilian state of Acre, roughly corresponding to the western and eastern sub-regions of the state as adopted here.

River. The state's drainage system is well distributed, and is composed of meandering rivers with short straight channels that flow over sedimentary rocks mainly in a southwest to northeast direction.

The climate of Acre is hot and humid, with the relative humidity of the air ranging from 80% to 90%. As in other parts of the Amazon basin, there are two main climatic seasons – a dry season, from May to October, when precipitation decreases substantially, and a rainy season, from November to April, when rainfall is almost constant (Duarte & Marcarenhas 2007). Abrupt cold snaps are common during the dry season. This phenomenon is known locally as “friagem”, and is the result of the movement of polar fronts, which are forced northwards by the Atlantic Polar Air Mass, which advances over the Chaco plain to western Amazonia (Acre 2000). Annual precipitation ranges from 1600 mm to 2750 mm, with the highest values being recorded in the west of the state, which is closer to the equator, and has suffered less habitat destruction, while the lowest rainfall levels occur in the eastern portion of the state, which is less preserved (Cunha & Duarte, 2005).

Three subtypes of climate can be found in the state, following Köppen's classification (Duarte 2007). In this scheme, the climate of the Juruá basin can be assigned to subtype *Af3*, in which the precipitation in the driest month is above 60 mm, and the annual total is between 2000 and 2500 mm (Cunha & Duarte, 2005; Duarte, 2007, 2008). The Purus basin climate is classified as *Am3*, in which annual precipitation is the same as *Af3*, but that of the driest month is lower, between 30 mm and 60 mm. The Acre River basin climate (subtype *Am4*) is even drier, with annual precipitation of 1500-2000 mm and mean rainfall in the driest month (June) of around 30 mm. The mean annual temperature of the state as a whole is approximately 24.5°C, with a maximum of around 32°C (Acre 2000).

The Ecological-Economic Zoning (EEZ) of the state of Acre (Acre 2000) defined three phyto-ecological regions – the dense rainforest, open rainforest, and the campinas-campinaranas (white-sand forest) domains. I have adopted this classification to identify the principal habitats occupied by the different bird species in the state (Appendix 1). The principal characteristics of these domains are as follows:

Dense Rainforest (hereafter DRF): This domain is characterized by large trees (20-50 m in height), lianas, and epiphytes. The distribution of this habitat within the state of Acre is related to that of tertiary and quaternary sediments in areas with annual precipitation above 2300 mm, and average temperatures of 22° to 23°C (IBGE 2005). These geomorphological and climatic conditions prevail primarily in the west of the state, where the climate is more humid (dry seasons are shorter) than the east. The diagnostic feature of this type of forest is a

uniform canopy with emergent trees and sparse or absent undergrowth (Acre 2000). Depending on the edaphic conditions and topography, the region's DRFs can be subdivided into three distinct formations – alluvial, lowland, and submontane forests (IBGE, 2005).

Open Rainforest (hereafter ORF): Like the dense rainforest, this type of forest is composed of medium to large trees, but with a predominance of shrubby trees and woody lianas (IBGE, 2005). This type of habitat is associated with areas of sedimentary rocks of Plio-Pleistocene origin in lowland Amazonia, which are characterized by undulating hills – the Solimões Formation – or hilly interfluvia (Acre 2000). The ORF habitats are found throughout most of Acre, on a variety of geomorphological units, but can be subdivided into two formations – lowland and alluvial – based on edaphic and topographic criteria (IBGE, 2005). These habitats can also be differentiated into a number of different forest types, based on the relative dominance of palms, bamboos and/or lianas (IBGE 2005; Acre 2000).

Campinas and Campinaranas: These habitats are found throughout the Amazon basin, where they grow on white sandy soils (Anderson 1981; IBGE 2005; Silveira 2003), which are extremely nutrient-poor and have a highly permeable subsoil (Jirka *et al.* 2007). Given these soil characteristics, campinaranas have a relatively thick layer of superficial roots when compared with other types of Amazonian vegetation (Jirka *et al.* 2007; Silveira 2003). The campinas are characterized by irregular, open vegetation, with undergrowth of reduced stature. These habitats are made up of relatively dense stands of small, thin trees, with few emergent trees (Silveira, 2003). In Acre, campinaranas are only found in the Juruá basin, mainly in the municipalities of Cruzeiro do Sul and Mâncio Lima. The habitats are normally found in areas drained by blackwater rivers, such as the Bagé and the Machadinho (Acre 2000). Silveira (2003) described four distinct types of white-sand vegetation in southwestern Amazonia – open shrubby campina, campina dominated by buriti (*Mauritia flexuosa*) palms, campina grasslands, and campinarana *sensu lato*. In addition to the campinaranas located along the border with the Brazilian state of Amazonas, a small area of this vegetation was sampled on the left bank of the Cruzeiro do Vale stream in the municipality of Porto Walter (Guilherme & Borges 2011).

Literature search

I derived a preliminary list of birds that occur in Acre from a systematic review of the available literature. The first step was to identify and compile all the available references to construct a database containing all the records of birds available for the state. For each record, I searched for the following information: 1) the precise location of the observation and/or specimen collection;

2) species and, when available, subspecies identification; 3) the observer(s) and/or collector(s) associated with the record; 4) the date of the record; and 5) when applicable, the institution in which the specimen(s) were deposited. I used these data to establish a spreadsheet in Microsoft Excel® in which each line represented a record and each column contained the different types of information listed above. The next step was to update the scientific nomenclature of many records, given that the names of some general, species and the status of some subspecies have changed during recent taxonomic reviews.

The references I used to compile the preliminary species list for the period between 1950 and 2005 were Pinto & Camargo (1954), Novaes (1957; 1958), Whittaker & Oren (1999), Guilherme (2001), Whittaker *et al.* (2002), and Rasmussen *et al.* (2005). The subsequent period (since 2005) is covered by my doctoral thesis (Guilherme 2009) and all subsequent publications (Guilherme & Santos 2009; Aleixo & Guilherme 2010; Guilherme & Dantas 2011a, Guilherme & Borges 2011, Mestre *et al.* 2010a).

Specimens deposited in natural history museums

Based on the references reporting on the ornithological expeditions conducted in Acre, I could trace the whereabouts of practically all bird specimens collected in the state. Collections holding bird specimens collected in Acre are the Museu Paraense Emílio Goeldi (MPEG), Museu de Zoologia da Universidade de São Paulo (MZUSP), Museu Nacional do Rio de Janeiro (MNRJ), Museu de Zoologia da Universidade Estadual de Campinas (ZUEC/UNICAMP), Louisiana State University Museum of Natural Sciences (LSUMZ), *Florida Museum of Natural History* (FMNH), and the *American Museum of Natural History* (AMNH). An additional 34 specimens are deposited in the private collection of Prof. José Hidasí (CPJH), in Goiânia, Goiás (Brazil).

The vast majority (ca. 85%) of the bird specimens collected in Acre have been deposited in the Dr. Fernando C. Novaes Collection of the Goeldi Museum in Belém, Brazil, and all of these specimens were examined during the present study. I obtained information on the specimens from all other museums directly from the curators responsible for each collection via electronic mail. Whenever a doubt arose with regard to the identification or locality of a specimen, I contacted the curator once again. In these cases, the queries were resolved either textually or by photographs.

Localities

I established a database for the cataloguing of all the localities in Acre for which at least one avian record is available, that is, at least one record in the literature

or a specimen deposited in a museum. For records obtained prior to 1990, I traced localities and their respective coordinates in the *Ornithological Gazetteer of Brazil* (Paynter & Taylor 1991). For records obtained after 1991, locality information and coordinates were retrieved from the technical reports, scientific papers, and specimen labels. For the expeditions conducted by myself between 2005 and 2009 (Guilherme 2009), geographic coordinates were obtained directly in the field with a Garmin 72° GPS receiver.

Taxonomy and nomenclature

Here, I adopt the taxonomy and nomenclature of the Brazilian Checklist Committee (CBRO 2011). At the present time, this Committee recognizes a total of 1832 bird species in Brazil, representing 95 families distributed in 26 orders. The presence of a number of polytypic species represented by distinct, parapatrically-distributed subspecies was recorded in Acre. For the zoogeographic analyses, I treated all subspecies that could be diagnosed and were considered to be allopatric / parapatric as distinct taxa, following the recommendation of Aleixo (2007). Subspecific identification of species represented by more than one visibly diagnosable taxon in Acre was initially based on analyses of series of specimens deposited at MPEG. Confirmation of descriptions of these subspecies and their geographic distributions were obtained in Pinto (1978), Isler & Isler (1999), Restall *et al.* (2006), and del Hoyo *et al.* (1992, 1994, 1996, 1997, 1999, 2001, 2002, 2003, 2004, 2005, 2006).

Species status

I classified the bird species recorded during the present study as resident or migrant. I considered species to be resident if they breed within the limits of the state of Acre. I identified three groups of residents: native species (native to the Amazon basin), invaders (native to other South American biomes, and which only entered Acre following anthropogenic modifications of the environment), and introduced species (native to other continents).

I inferred a resident status based on gonad size of species represented by museum specimens as well data available in the literature. Some sources, such as Hilty & Brown (1986), Ridgely & Tudor (1994; 2009), Stotz *et al.* (1996), Sick (1997), Schulenberg *et al.* (2007), and the *Handbook of the Birds of the World* collection provide important information on the reproductive behavior of Amazonian species. Birds classified as migratory are those known to breed outside the Amazon basin. Based on the definition of Hayes (1995), three groups of migratory birds are found in Acre – Nearctic, intratropical, and austral migrants. The Nearctic migrants breed in North

America and migrate to South America during the boreal winter. Intra-tropical migrants breed in the tropics, in the present case, South America, but migrate regularly to other areas within the same continent (Jahn *et al.*, 2006; Hayes, 1995). This category includes only species that breed in other biomes – e.g., Cerrado, Pantanal, Chaco – and then migrate to the Amazon basin. The austral migrants are the species that breed in southern South America and then migrate northwards during the winter.

Zoogeography and identification of contact/ hybridization zones

I tested whether the Purus River represents an important barrier and is associated with a major biogeographic break in the distribution of resident forest birds in Acre by arbitrarily dividing the state into two portions (west and east of this river), and calculating the similarity in species composition between these areas. Because of their overall high dispersal capabilities, neither migratory species, nor those associated with aquatic habitats (Anatidae, Podicipedidae, Phalacrocoracidae, Anhingidae, Ardeidae, Ciconiidae, Aramidae, Heliornithidae, Jacanidae, Sternidae, Rynchopidae, and Alcedinidae), were included in this analysis. I used Microsoft Excel® for the production and analysis of the matrix.

I based the identification of possible contact zones on the selection of all taxa assumed to 1) be sister or closely related species within a genus; or 2) represent subspecies grouped under the same polytypic species, that are parapatrically distributed within the state of Acre, i.e., represented by adjacent populations within a specific area (Haffer 1997; Aleixo 2007). I identified the contact zones using the approach of Haffer (1987, 1997), which first establishes a “core” region of the distribution of each taxon, and then the overall limits of its range. The horizontal or vertical position of the contact zone was defined according to the expansion of the distribution of each taxon, that is, with a north/south or east/west expansion of the geographic range (and vice versa). The general distribution of each taxon estimated based on Pinto (1978), Ridgely & Tudor (1994, 2009), InfoNatura (2007), Schulenberg *et al.* (2007), and the Handbook of the Birds of the World series.

If specimens were available from a purported contact zone, they were analyzed to determine whether or not hybrids could be found within the zone. A hybridization zone can be detected through the presence of hybrid specimens in close proximity to a contact zone. The identification of potential hybrid specimens was based on the visual inspection of plumage characteristics and other external morphological characters. However, it is important to note that any inferred hybrid status is tentative and can only be confirmed through complementary genetic studies.

Checklist compilation

The inventory of the bird species that occur in the Brazilian state of Acre was compiled based on the criteria proposed by Carlos *et al.* (2010), with the records being grouped in two distinct lists:

- a) *The primary list*: all the species with confirmed occurrence via vouchered documentation (specimens, photos or audio recording) in the state of Acre;
- b) *The secondary list*: species that are reported to occur in the state, but have not been confirmed through observations or specimens, as well as species known to occur in neighboring areas, which are assumed to occur (“probable occurrence”) in Acre, based on their distribution pattern and ecological characteristics.

RESULTS

Species richness and composition

A total of 9550 bird records were compiled for the state of Acre. Of these, 4763 are specimens deposited in museums, more than half of which (51.5%, $n = 2457$) were collected during the past five years (Guilherme 2009). Overall, it was possible to confirm the occurrence of 667 species in the state (Appendix 1), of which 17 have two well-differentiated subspecies with an allopatric or parapatric local distribution (Tables 3 and 4). The five families with the highest number of species are the Thamnophilidae (61 species), Tyrannidae (61), Thraupidae (41), Accipitridae (29), and Furnariidae (26) which together account for 32.6% of the total number of species recorded in the state (Appendix 1). The non-passerines are represented by 300 species, and the passerines, by 367 species. In the case of the passerines, 247 species are sub-oscines (Tyranni), while the other 120 species are oscines (Passeri).

The occurrence of most (79.3%, $n = 529$) of the species recorded for Acre has been confirmed by the collection of voucher specimens (Appendix 1). The majority of these specimens (84.9%, $n = 4045$) are deposited at MPEG, and most of the others (11.7%, $n = 558$) at the MZUSP. The remaining specimens – approximately 3.5% – are found in other museums in Brazil and abroad (Appendix 1).

A total of 113 localities were compiled for the avian taxa of Acre (Guilherme 2009, Figure 3). At six of these sites, more than 300 species have been recorded (Figure 3).

In the case of 22 species, the data from Acre represent the only records for Brazil (Appendix 1). The secondary list (Appendix 2) was prepared based on the

unconfirmed records of occurrence (41 species) and the identification of the species of probable occurrence (n = 49) in the state. As *Hylophilus pectoralis* (Guilherme & Dantas 2011) and *Turdus nudigenis* (Aleixo & Guilherme 2010) were, respectively, misidentified and

mistyped, they have been excluded from the list of birds of Acre presented here (Appendix 2). The cumulative number of species recorded in the state since the first publication in the 1950s until the end of this study is shown in Figure 4.

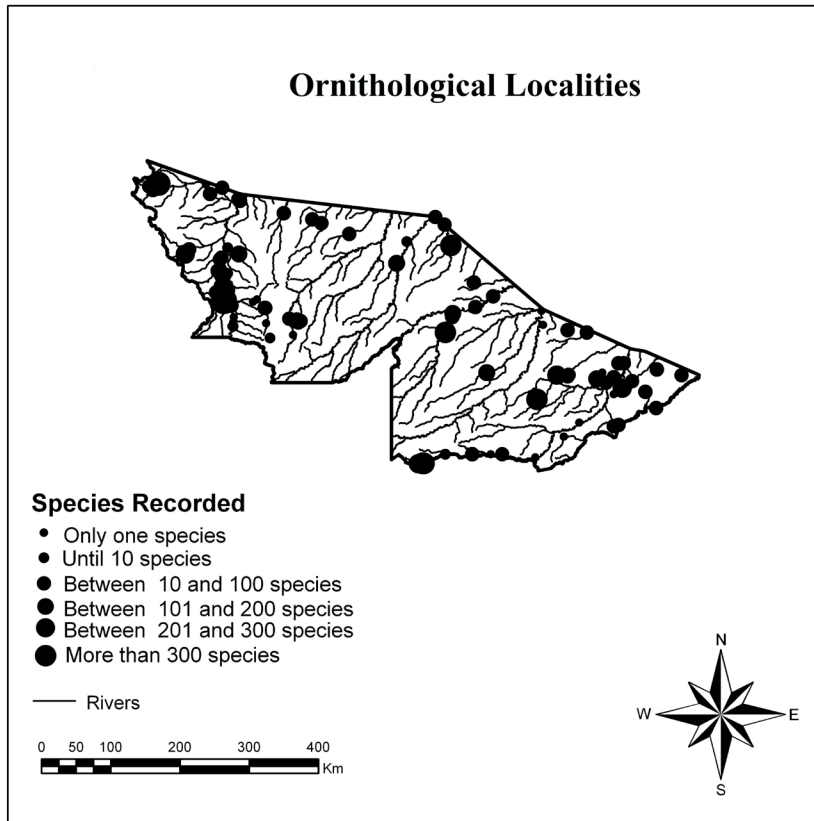


FIGURE 3. Localities where birds were collected and surveyed in the state of Acre between 1951 and 2011. Dot size corresponds to the number of species recorded at each locality as shown in the legend.

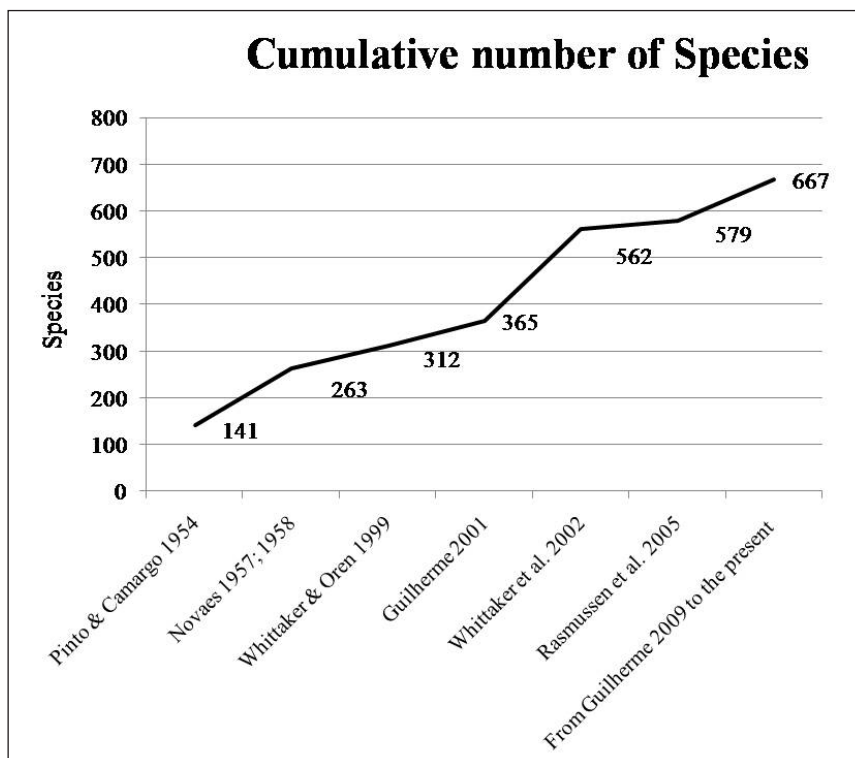


FIGURE 4. Cumulative number of bird species recorded in Acre between 1951 and 2011.

The vast majority of the 667 species recorded for the state – 602 (90,2%) – were classified as residents, whereas five (*Bubulcus ibis*, *Geranoaetus albicaudatus*, *Caracara plancus*, *Vanellus chilensis*, and *Athene cunicularia*) were considered to be invaders, and another five as introduced species (*Columba livia*, *Passer domesticus*, *Sicalis flaveola*, *Sporophila maximiliani*, and *Estrilda astrild*; Guilherme 2000, 2011). The last species has adapted well to the region (Silva 2004), and all introduced species now reproduce in the wild independently.

A total of 64 migratory species were identified, of which almost half 46.8% (n = 30) are Nearctic migrants, whereas 23.4% (n = 15) are considered to be intratropical migrants, and 29.6% (n = 19) austral migrants. Two species – *Phoenicoparrus jamesi* (Guilherme *et al.* 2005) and *Heliomaster furcifer* – were considered to be vagrants (Appendix 1).

Endemic species

Acre is located within the Inambari center of endemism (Haffer 1978; Cracraft 1985; Silva *et al.* 2005b). Of the 57 taxa listed as endemic to this center by Cracraft (1985) and the 45 listed by Haffer (1978), 41 were recorded in Acre (Appendix 1). The species *Odontophorus stellatus*, *Phaethornis phillipii*, *Pteroglossus beauharnaesii*, *Simoxenops ucayalae*, *Hemitriccus flammulatus*, and *Ramphotricon fuscicauda* are not listed as endemic in Appendix 1 because subsequent studies (see del Hoyo 1994, 1999, 2002, 2003, 2004; Perlo 2009) have extended their known ranges beyond the limits of the Inambari center. However, four species were added to this list, including three more recently described taxa (*Nannopsittaca dachilleae*, *Thamnophilus divisorius* and *Cnipodectes superrufus*) and one (*Hypocnemis subflava*) that has been raised to full species status. Therefore, currently 41 Inambari endemic species are known to occur in Acre (Appendix 1).

Endangered species

None of the native species recorded in the present study is included in the Brazilian list of bird species threatened with extinction (Machado *et al.* 2008). On the other hand, *Sporophila maximiliani*, which was introduced into the state by bird fanciers, and is now found naturally in the wild, is the only species listed as endangered by Machado *et al.* (2008). However, the IUCN (*International Union for Conservation of Nature*) red list includes 10 species resident in Acre in the near threatened (NT) category – *Harpia harpyja*, *Morphnus guianensis*, *Primolius couloni*, *Nannopsittaca dachilleae*, *Formicarius rufifrons*, *Grallaria eludens*, *Synallaxis cherriei*, *Simoxenops ucayalae*, *Conothraupis speculigera*, and *Cacicus koepckeae*.

Habitats

Most (77.8%) of the bird species recorded in Acre are found in the dense or open *terra firme* rainforest, with palms and/or bamboo (Appendix 1). With the exception of a small proportion of species that are restricted to bamboo forest (Appendix 1), all other forest species recorded in Acre are associated with forests where palms are present. Approximately 12.9% of the recorded species are associated with aquatic environments, such as *várzea* swamp forest, riverbank habitats, creeks, reservoirs, lakes, and the sandy beaches formed by meandering rivers during the dry season (Appendix 1).

A small, but nevertheless important, proportion of the species (2.1%) is strictly associated with the vegetation that grows on sandy soils, that is, the campinas and campinaranas (Appendix 1). These habitats are located only in the extreme west of the state. Of all bird species associated with this type of habitat in Acre, at least nine (*Patagioenas speciosa*, *Polytmus theresiae*, *Dendrocolaptes certhia polyzonus*, *Formicivora grisea*, *Schiffornis amazona*, *Neopipo cinamomea*, *Xenopipo atronitens*, *Cnemotriccus fuscatus duidae*, and *Tachyphonus phoenicius*) can be considered to be restricted to these habitats, and at least a further twelve (*Crypturellus strigulosus*, *Topaza pyra*, *Frederickena unduligera*, *Heterocercus linteatus*, *Machaeropterus striolatus*, *Manacus manacus*, *Hemitriccus minimus*, *Hemitriccus griseipectus*, *Lophotriccus vitiosus*, *Poecilatriccus latirostris*, *Ramphotricon ruficauda*, and *Attila citriniventris*) are partially restricted to them (Guilherme 2009, Guilherme & Borges, 2011, Guilherme & Aleixo, unpubl. data).

Distribution patterns

The majority (79%) of the 667 species of birds found in Acre occur in both of its sub-regions (separated by the Purus River), and hence throughout the state (Appendix 1). A further 16% were recorded only in the central-western sub-region of the state (west of the Purus), and 5% only in its eastern portion (east of the Purus). None of the species are restricted to the central portion of the state - the intermediate region between the Juruá and Purus rivers.

At least five pairs of purported sister taxa were identified with a distribution pattern consistent with classic allopatry (Table 1). In all these cases, one or other of each pair of taxa was found in different areas of the state, e.g., *Crypturellus undulatus undulatus/yapura* and *Lepidothrix coronata coronata/exquisita*.

A total of 15 sets of parapatric purported sister taxa were identified during this study, encompassing 30 taxa, 26 of which are currently treated as subspecies (Table 2). In most cases, one of the parapatric taxa is widely distributed in Acre, whereas the other has a more restricted range (Table 2, Figure 5).

TABLE 1. Sub-areas in the Brazilian state of Acre inhabited by allopatric pairs of diagnosable purported sister / closely related avian taxa. The Central-Eastern and Central-Western areas roughly correspond to the main river basins in the state and are separated by the Purus River.

Taxon	Central-Eastern	Central-Western
<i>Crypturellus undulatus undulatus</i>	X	
<i>C. u. yapura</i>		X
<i>Threnetes leucurus cervinicauda</i>		X
<i>T. l. rufigastra</i>	X	
<i>Myrmothera campanisona minor</i>		X
<i>M. c. cf. modesta</i>	X	
<i>Cnemotriccus fuscatus duidae</i>		X
<i>C. f. cf. beniensis</i>	X	
<i>Lepidothrix coronata coronata</i>		X
<i>L. c. exquisita</i>	X	

TABLE 2. Sub-areas in the Brazilian state of Acre inhabited by parapatric pairs of diagnosable purported sister / closely related avian taxa. The Central-Eastern and Central-Western areas roughly correspond to the main river basins in the state and are separated by the Purus River.

Taxon	Central-Eastern	Central-Western
<i>Rupornis magnirostris cf. magnirostris*</i>	X	X
<i>R. m. occiduus</i>	X	
<i>Brotogeris cyanoptera cyanoptera*</i>	X	X
<i>B. c. beniensis</i>	X	
<i>Thalurania furcata boliviana*</i>	X	X
<i>T. f. cf. jelskii</i>		X
<i>Momotus momota simplex</i>	X	
<i>M. m. cf. nattereri*</i>	X	X
<i>Galbula dea amazonum</i>	X	
<i>G. d. phainopepla</i>	X	
<i>Capito auratus orosae</i>		X
<i>C. a. insperatus</i>	X	X
<i>Pteroglossus castanotis australis</i>		X
<i>P. c. castanotis*</i>	X	X
<i>Thamnophilus aethiops juruanus*</i>	X	X
<i>T. a. kapouni*</i>	X	X

Taxon	Central-Eastern	Central-Western
<i>Hypocnemis peruviana</i> *	X	X
<i>Hypocnemis subflava</i>	X	
<i>Glyphorhynchus spirurus castelnaudii</i> *	X	X
<i>G. s. albigularis</i>	X	
<i>Dendrocincla fuliginosa neglecta</i>		X
<i>D. f. atrirostris</i> *	X	X
<i>Dendrocolaptes certhia juruanus</i> *	X	X
<i>D. c. polyzonus</i>		X
<i>Xiphorhynchus ocellatus</i> *	X	X
<i>Xiphorhynchus chunchotambo</i>	X	
<i>Pipra filicauda</i>		X
<i>Pipra fasciicauda</i> *	X	X
<i>Arremon taciturnus taciturnus</i> *	X	X
<i>Arremon t. cf. nigrirostris</i>	X	

* Taxon with a wide distribution within the state

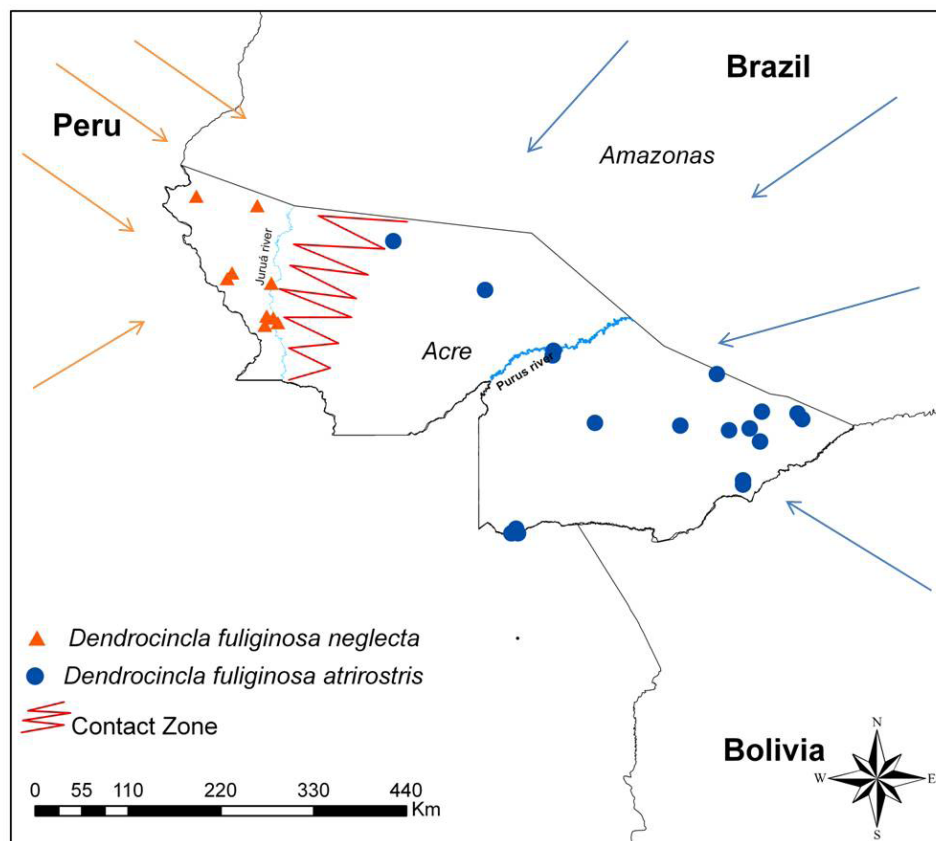


FIGURE 5. Geographic distribution of the parapatric taxa *Dendrocincla fuliginosa neglecta* and *D. f. atrirostris* in western Acre and the proposed zone of secondary contact (see text). The arrows point from the core to the periphery of the ranges of the respective taxa.

Contact and hybridization zones

Two contact zones were identified within the study area (Acre) based on the distribution of parapatric taxa (Table 2). I have denoted these zones as the (a) western contact zone and (b) eastern contact zone (Figures 5, 6, and 7). The western contact zone is based on the presence of the following sister taxa – *Pipra filicauda*/*P. fasciicauda* (Figure 6), *Dendrocincla fuliginosa neglecta*/*D. f. atrirostris* (Figure 5), and *Pteroglossus castanotis castanotis*/*P. c. australis* (Guilherme 2009). The eastern zone is defined by the occurrence of *Xiphorhynchus chunchotambol ocellatus*, *Hypocnemis subflava/peruviana* (Figure 7), and *Glyphorhynchus spirurus castelnaudi*/*G. s. albigularis* (Guilherme 2009).

Two possible hybridization zones were identified within the study area, coinciding with the contact zones. The western hybridization zone is defined on the basis of the presence of specimens with intermediate characteristics between *Pteroglossus castanotis castanotis*/*P. c. australis* and *Dendrocolaptes certhia juruanus*/*D. c. polyzonus*, whereas the eastern zone is characterized by the presence of morphologically intermediate specimens between *Brotogeris cyanoptera cyanoptera*/*B. c. beniensis* and *Momotus momota* cf. *nattereri*/*M. m. simplex* (Guilherme 2009).

DISCUSSION

Bird diversity in Acre

The large number of bird species recorded in the Brazilian state of Acre further emphasizes the biological diversity of southwestern Amazonia (Haffer 1990). In fact, the number of species recorded for Acre – 667 – represents more than half of the total recorded for the whole of the Amazon basin (Marini & Garcia, 2005; Mittermeier *et al.* 2003), and if only the fauna of the southern basin (south of the Solimões/Amazon channel) is considered (Stotz *et al.* 1996), 74.4% of the species were recorded in Acre.

The avifauna of Acre is composed primarily of resident species, but also includes migrants and invaders. Five of the nine new species added to the list of Brazilian birds since 2005 were recorded in Acre (Guilherme *et al.* 2005, Guilherme & Aleixo 2008, Aleixo *et al.* 2008, Rego *et al.* 2009, Zimmer *et al.* 2010, CBRO 2011). Another species – *Cacicus koepckeae* – should also be added to this list, based on the recent record from the Chandless River (Buzetti 2008). Of the 1832 bird species known to occur in Brazil (CBRO, 2011), 22 have been recorded only in Acre (Appendix 1), which testifies to the singularity of this state. Acre is located entirely within the Inambari center of endemism, the largest such area in the lowlands of the southern Amazon basin (Silva *et al.* 2005b).

According to Cracraft (1985), the geographic ranges of the 57 bird taxa endemic to the southwestern Amazon basin define the limits of the Inambari center. Almost three quarters (73.6%) of these endemic taxa have been recorded in Acre, with four new species (all described since 1985) being added to the list subsequently (Appendix 1). Acre can be considered to be an excellent sample of the Inambari center, given that it covers only 12% of its area, but contains more than 70% of its endemic species. Given this, Acre is an excellent natural laboratory for the study of historic biogeography.

The migratory species were recorded in both of the geographic sub-regions (Appendix 1). However, some of the species arriving from south-central South America were only observed in eastern Acre (Appendix 1). Austral and intratropical migrants such as *Myiopagis viridicata*, *Tyrannus albogularis*, *Casiornis rufus*, and *Turdus amaurochalinus*, arrived in the state from the southeast (e.g., Bolivian Chaco), where they breed (Davis 1993; Jahn *et al.* 2002, Appendix 1). Some migratory species, in particular tyrannids, tend to occupy the forest edges, secondary vegetation, and open areas (Chesser 1997). As the forest cover of easternmost Acre has been extensively disturbed, the resulting open and regenerating habitats contribute to an increase in the probability of recording other forest edge species such as *Micrococcyx cinereus*, *Contopus cinereus*, and *Elaenia flavogaster* (Appendix 1). It seems likely that the occurrence of these species will also be confirmed for the central-western sub-region of the state as new surveys are carried out in these areas during the migration season.

A group of species, previously known only from the foothills of the Andes and lowlands in Peru and Bolivia, was recorded in the central eastern sub-region of Acre. For some species, such as *Picumnus subtilis*, *Xiphorhynchus chunchotambo*, and *Cacicus koepckeae*, these records do not represent either migrations or recent shifts in distribution, but rather, these species are residents that had simply not been recorded previously, due to the lack of surveys in the area adjacent to the borders with Peru and Bolivia. Other species, such as *Conothraupis speculigera* and *Pseudocolopteryx acutipennis* nevertheless appear to migrate from the Pacific slope and Andes to the lowlands of Amazonia.

Vagrancy also plays a role in the Acre avifauna. *Phoenicoparrus jamesi*, which is typical of the salt lakes of the Andean altiplano, was observed in Acre on a single occasion, and was considered to be an accidental visitor by Guilherme *et al.* (2005). The nearest record of this species is from the Manu National Park in southwestern Peru, at an altitude of 350 m asl, where it was also considered to be a vagrant (Walker *et al.* 2006), given that this lowland area is equally distant from the natural distribution of the species (del Hoyo *et al.* 1992). Another species considered to be a vagrant here is *Heliomaster*

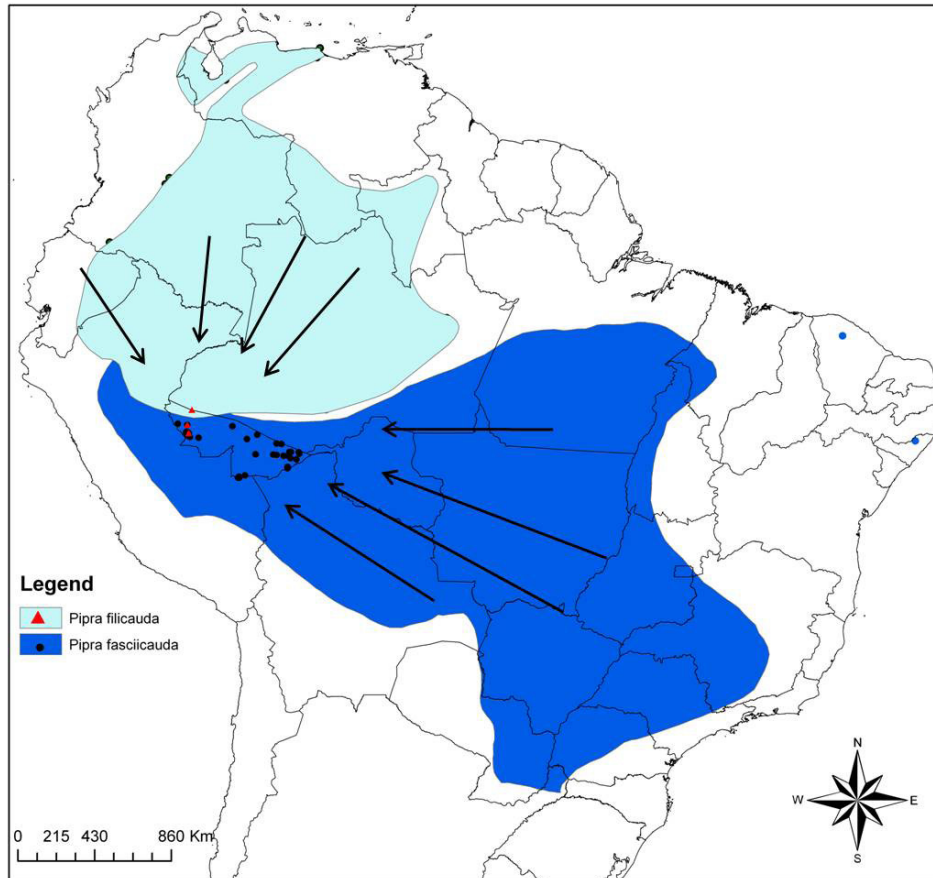


FIGURE 6. Geographic distributions of *Pipra filicauda* and *P. fasciicauda* according to Natureserve (2007). The arrows point from the core to the periphery of the ranges of the respective species. The red triangles and black dots indicate the parapatric occurrence, respectively, of *Pipra filicauda* and *P. fasciicauda* in western Acre.

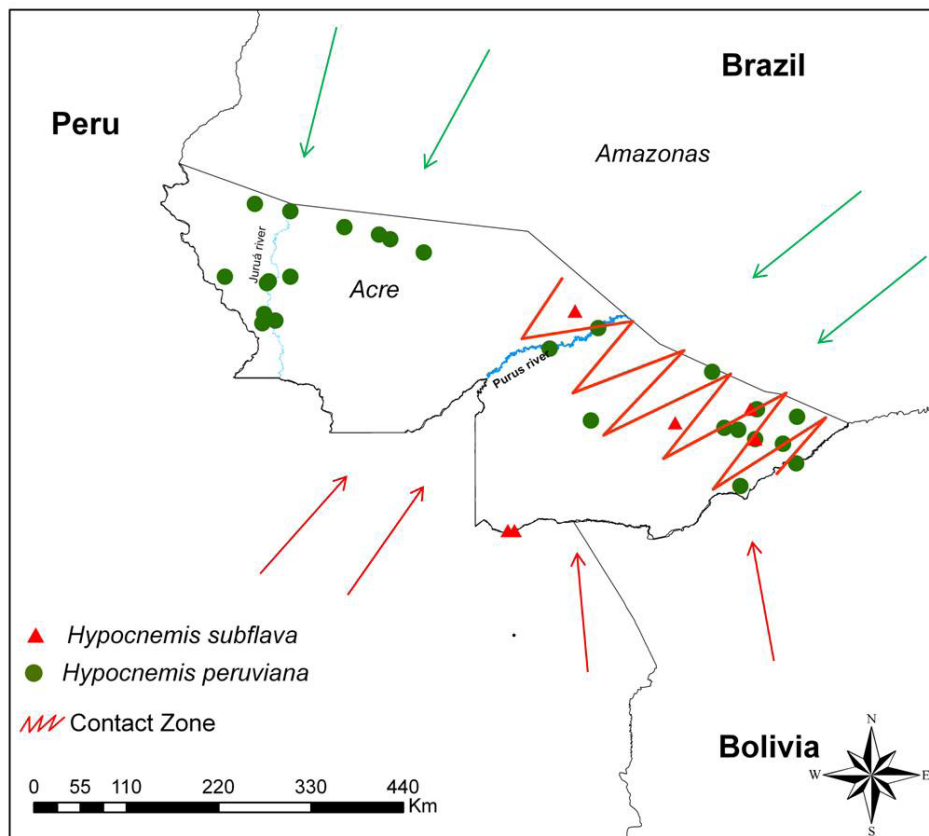


FIGURE 7. Geographic distribution of the parapatric species *Hypocnemis peruviana* and *H. subflava* in eastern Acre showing the estimated "secondary contact zone". The arrows point from the core to the periphery of the ranges of the respective species

furcifer. The only record of this species for Acre is a single specimen (ZUEC – 1565) deposited in the ornithological collection of zoology museum at UNICAMP (Appendix 1). This specimen was found dead on the *Campus* of the Federal University of Acre by herpetologist Adão José Cardoso, in February 1988. The species is considered to be a vagrant because its known range is restricted to southern central South America (del Hoyo *et al.* 1999). Whereas this species might be considered an austral or intratropical migrant, the date on which the specimen was found (during the austral summer) is inconsistent with this classification. Another possibility is that the species is resident in Acre, but is rare and occurs at a low density in the region. However, the lack of records from northern Bolivia, eastern Peru, and other parts of Acre, together with the single records available from Leticia (southeast Colombia) and Napo, in northeastern Ecuador (del Hoyo *et al.*, 1999) reinforce the conclusion that the species is a sporadic vagrant in the Amazon basin.

Invasive species were concentrated primarily in the eastern extreme of the state, presumably due to its relatively high human population density and greater area of altered habitats. This part of Acre is connected to the neighboring state of Rondônia by a major highway along which many large cattle ranches occur, which explains why some species, such as *Geranoaetus albicaudatus*, *Caracara plancus*, *Vanellus chilensis*, and *Athene cunicularia*, began to colonize the state from the east, even though they have now reached its western portion, towards Cruzeiro do Sul, as well as areas in the southeast, in the direction of the towns of Brasília and Assis Brasil, on the border with Bolivia and Peru. A similar situation has arisen in the case of species that have escaped from captivity, such as *Estrilda astrild* (see Silva 2004), or that have been released into urban environments on purpose, such as *Sicalis flaveola* and *Passer domesticus* (Guilherme 2000, 2011). These species were first recorded in the state capital (Rio Branco), but have since colonized practically all the urban centers located along the main highways that cross the state.

Few regional ornithological studies are available that can be used for systematic comparisons with the inventory presented here, although similar studies have been conducted in the Brazilian state of Roraima and the Bolivian department of Pando. Roraima is the only Brazilian state localized within the Amazon basin which has had its avifauna surveyed systematically – including historical records – in recent years (Santos 2005; Naka *et al.* 2006). Santos (2005) and Naka *et al.* (2006) recorded 741 bird species in Roraima, a total 10.3% higher than what I am reporting here for Acre. There are two main factors that may account for this difference. One is the fact that Roraima's area is almost a third (32%) larger than that of Acre, and the other is the fact that Roraima is a more heterogeneous region, with a number of types of habitat not found in Acre, such as dry and montane

forests, tepuis, and savannas (Santos 2005; Naka *et al.* 2006).

By contrast, the species richness recorded here for Acre was 25.5% higher than that reported by Remsen and Traylor (1989) for Pando, in Bolivia, although there was a similarity of 91.6% between the species lists of the two territories, which is a result of their geographic and ecological similarities, including the same habitats and similar altitudes (Parker & Remsen 1997; Tobias & Seddon 2007). The larger number of species recorded for Acre may be related to sampling effort, but also the fact that this state is more than twice the size of its Bolivian counterpart (164,221 km² vs 61,331 km²).

The number of bird species known to occur in Acre more than doubled over the past two decades, which reflects the increase in sampling effort during this period (Figure 4). However, whereas the number of species already recorded for the state is substantial, it seems likely that the species list will still grow over the next few years. This conclusion is partly supported by some of the species that have been recorded in neighboring areas, such as southwestern Amazonas and the lowlands of Peru and Bolivia, but have yet to be confirmed for Acre (Appendix 2).

Recent surveys in Acre have recorded a number of species that were previously known only for the Peruvian and Bolivian Amazon basin. The records of *Xiphorhynchus chunchotambo*, *Pachyrhamphus xanthogenys*, *Picumnus subtilis*, *Glyphorhynchus spirurus albigularis*, and *Poecilotriccus albifacies* presented here were the first for Brazil (Guilherme & Aleixo, 2008, Aleixo *et al.* 2008, Rego *et al.* 2009, Guilherme 2009, Zimmer *et al.* 2010). Some of these species were previously known only from the Peruvian and Bolivian Andean region at low to moderate elevations and have only recently been recorded in the adjacent lowlands of the Brazilian Amazon basin (Guilherme & Aleixo 2008, Aleixo *et al.* 2008, Rego *et al.* 2009, Aleixo & Guilherme 2010, Zimmer *et al.* 2010). One other example is *Chrysolampis mosquitus*, which was recorded from the upper Purus in 2007 (Guilherme & Dantas 2008, Guilherme & Dantas 2011a); previously, this species had been recorded two years earlier in Bolivia (Tobias & Seddon 2007).

Overall, the sum of the confirmed species (Appendix 1) with those of likely occurrence (Appendix 2) indicates a potential count of 757 bird species for the Brazilian state of Acre. If this prediction is confirmed even partially, Acre would have one of the richest avifaunas of any Brazilian state, despite its relative reduced area.

Zoogeography of birds in Acre

Acre resembles a butterfly wing in shape, with a constriction in the center of two rounded lobes (Figure 2), with its primary axis in an east-west orientation, rather than north-south. This means that the distribution

of local species is best understood in an east-west, rather than a north-south dimension, with the Purus River forming the principal division within the state. The Purus divides Acre into two main portions, an eastern portion on its right margin, and western portion to its left margin (Figure 2).

Of the resident forest taxa in Acre, almost 80% are widely distributed within the state, being found in both its eastern and western portions. Among other things, this reflects the mostly low-lying terrain (except in the western extreme) and relatively homogeneous habitats found throughout most of the state. This low species turnover would be expected in the absence of major physical barriers, such as rivers or mountains, capable of limiting the dispersal of most taxa. However, some taxa only occur in one of the state's two sub-regions, although this distribution pattern appears not related to the presence of the two main rivers that cross the state, the Purus and the Juruá. This may be primarily due to the fact that these highly meandering rivers arise in lowland Amazonia, and so, taxa can cross them often more easily than they would rivers whose headwaters are in unsuitable habitat (such as dry country or mountains). Genetic studies of primates (Peres *et al.* 1996), rodents (Patton *et al.* 1994; Patton and Silva 1998), birds (Aleixo 2004, Fernandes *et al.* 2012), and amphibians (Gascon *et al.* 1998) have all confirmed that the Juruá is an ineffective zoogeographic barrier for these groups.

Other factors may nevertheless influence the distribution of different taxa in southwestern Amazonia, including interspecific competition, edaphic conditions and habitat characteristics (Tuomisto *et al.* 1995, 2003; Daly & Silveira, 2002; Roig & Martini, 2002; Silveira *et al.* 2002). A closer examination of the geographic distribution of birds within one of the sub-regions (Appendix 1) reveals that the pattern observed in Acre is repeated on the Peruvian side of the border. Species such as *Phlegopsis erythroptera*, *Thamnomanes saturninus*, *Attila citriniventris*, *Pipra filicauda*, and *Dixiphia pipra* have also been recorded only in northeast Peru (Schulenberg *et al.* 2007). Similarly, *Poecilatriccus albifacies*, *Cnipodectes superrufus*, and *Micrococcyx cinereus*, which were only found in eastern Acre (Appendix 1), were also found only in adjacent southeastern Peru (Schulenberg *et al.* 2007).

A similar pattern has also been recorded for palms (Arecaceae) in Acre. Some species, such as *Wettinia augusta*, *Syagrus smithii*, *Socratea salazarii*, *Iriartella stenocarpa*, *Hyospathe elegans*, *Dyctyocaryum ptarianum*, *Bactris riparia*, and *Astrocaryum faranae*, are found only in the western sub-region of Acre (Lorenzi *et al.* 2004). Other species, such as *Astrocaryum aculeatum*, *Astrocaryum murumuru*, and *Bactris elegans* are restricted to the eastern part of the state (Lorenzi *et al.* 2004). Even though practically all these species of palm also occur in areas adjacent to Acre, their east-west distribution

within the state is similar to that observed in some bird species (Appendix 1). Some of these palm species are also restricted to specific environments, such as plateaus, swamps, campinas, and campinaranas. This distribution pattern in Acre may be a reflection of the sedimentary history of the Marañón–Ucayali–Acre basin, to the west, and the Madre de Dios basin, to the east. In the western part of the state, relatively ancient formations (e.g., *Fm* Moa, Rio Azul, Divisor and Cruzeiro do Sul) were exposed by the uplift of the Andes, and contrast with the more recent Cenozoic formations in the east parts of the state, e.g., *Fm* Solimões and *Fm* Madre de Dios (Milani & Thomaz Filho, 2000, Campbell *et al.*, 2006). In western Acre, the topography and variations in the composition of the soil have played an important role in the formation of distinct ecosystems, which may certainly help to explain the higher number of species of palms and birds (and probably others groups of organisms) restricted to western Acre (Lorenzi *et al.* 2004, Guilherme, 2009).

For most of the species restricted to one of the sub-regions, Acre and the adjacent lowlands of Peru represent the southwestern extreme of their distribution in the Amazon basin. Species such as *Thamnomanes saturninus*, *Pipra filicauda* (Figure 6), and *Dixiphia pipra* are widely distributed in northern Amazonia, ranging south as far as the southwestern extreme of the Amazon lowlands (Ridgely & Tudor, 2009). There are exceptions, however, such as *Thamnophilus divisorius*, which is endemic to western Acre and northeastern Peru. The distribution of this species is associated with an area of moderate altitude, the submontane forests of the Serra do Divisor range. Many of the taxa restricted to the eastern sub-region of Acre are associated with bamboo forests (e.g., *Picumnus subtilis*, *Cnipodectes superrufus*, and *Poecilatriccus albifacies*) or dense rainforest (e.g., *Lepidothrix coronata exquisita*). Eastern Acre encompasses the greatest concentration of these habitats than the western portion of the state. This suggests that habitat-related environmental gradients may play a more important role in the distribution of the species in eastern Acre than the mere presence of a physical barrier such as the Purus River. Other taxa restricted to eastern Acre, such as *Crypturellus undulatus*, *Antrostomus sericocaudatus*, and *Herpsilochmus rufimarginatus*, are more widely distributed in the Amazon basin, although this may represent the southwestern extreme of their distribution.

Allopatric/parapatric ranges

Whereas five pairs of purported sister taxa appear to have an allopatric distribution in Acre (Table 1), it seems likely that further ornithological surveys may confirm that these taxa are actually parapatric in the state, and that their apparent allopatric distribution is merely a sampling artifact. A common feature of the taxa considered to be

allopatric in this study is the presence of one of the two forms in each of the two sub-regions of the state (Table 1), which suggests that they are separated by the Purus, which may act as a physical barrier to dispersal. However, a closer examination of the taxa listed in Table 1 indicates that it is more likely that pairs such as *Crypturellus undulatus undulatus/yapura* may in fact be limited by competition. This conclusion is supported by the fact that these medium-sized birds are capable of flying across even the largest of Amazonian rivers (Remsen & Parker 1983; Ayres & Marigo 1995) and that they attract their mates primarily through their vocalizations (Sick, 1997).

However, *Lepidothrix coronata coronata* and *L. c. exquisita* are weak fliers, which tend to be restricted to the interior of the forest. In this specific case, the Purus and the floodplain (várzea forest) associated with it, which the species tends to avoid, may in fact function as a physical barrier to dispersal between the two populations. At the present time, *Lepidothrix c. coronata* is known only from the western sub-region (left margin of the Purus), whereas *L. c. exquisita* is thought to be restricted to the eastern sub-region (right margin).

Most of the species with two or more purported sister or closely related taxa in Acre have a parapatric distribution (Table 2), following a general distribution pattern within the state. This pattern is characterized by the wide distribution of one taxon (marked with an asterisk in Table 2) and a more restricted range for the other. There were two exceptions to this general pattern, however. In the case of *Thamnophilus aethiops juruanus* and *T.a. kapouni*, both subspecies were recorded in both the east and the west of the state, whereas both *Galbula dea amazonum* and *G. d. phainopepla* were only found in eastern Acre. This configuration may reflect the competition between these pairs of taxa within secondary contact zones (Haffer 1997; Price 2008).

It seems possible that the parapatric taxa with a restricted distribution within the state represent forms that have arrived recently from other regions within the Amazon basin (Haffer 1987; 1997). On arriving in a region, competition with the sister / closely related taxon likely restricts the distribution of the new arrival to a peripheral area of the range of its congener / conspecific taxon.

Contact zones

Two principal zones of “secondary contact” were identified on the basis of the distribution of the parapatric taxa within the state of Acre. One is a north-south contact zone (i.e., “vertical contact zone”) located in the western part of the state (Figures 5 and 6) whereas the second was a east-west contact zone (i.e., “horizontal contact zone”) in eastern Acre (Figure 7). The western contact zone is characterized by the meeting of replacement taxa, one of which is distributed northwards to the northern

Solimões (Amazon) basin, whereas the other is distributed eastwards into the southern Amazon basin, as in the case of *Pipra filicaudal/fasciicauda* (Haffer 1997, Figure 6), or even beyond the southern boundaries of Amazonia, such as with *Pteroglossus castanotis castanotis/australis* (Pinto 1978), and *Crypturellus undulatus undulatus/yapura* (del Hoyo *et al.* 1992; Pinto 1978). A similar situation is observed in the case of *Dendrocincla fuliginosa neglectal atrirostris*, in which both forms are found only in the Amazon basin (del Hoyo *et al.* 2003).

A different pattern can be observed in the eastern contact zone, where one of the replacement taxa is widely distributed within the Amazon basin, whereas the other is restricted to the foothills of the Andes and neighboring lowland areas. Examples of this pattern include *Xiphorhynchus ocellatus/X. chunchotambo* (Guilherme & Aleixo 2008), *Hypocnemis peruviana/H. subflava* (Isler *et al.* 2007, Figure 7), and *Glyphorhynchus s. castelnaudii/G. s. albigularis*.

Haffer (1997) identified two elongated zones of secondary contact in the southwestern Amazon basin, one adjacent to the right bank of the Solimões River and the other parallel to the first, but farther south, crossing the upper Juruá and middle Purus towards the eastern Amazon basin. The contact zone identified here in eastern Acre (Figure 7) is equivalent to the latter of these zones in Haffer’s scheme. Whereas at least one of these contact zones was known to exist in Acre, it was necessary to identify which of the local taxa corroborated its occurrence, given that Haffer, in contrast with other regions of the Amazon basin, did not identify the taxa that supported the proposed contact zone in southwestern Amazonia. Whereas Haffer identified the taxa that configure the contact zones in the regions referred to as the Madeira/Tapajós interfluvium and the Teles Pires River on the upper Tapajós, the present study focused on the region of Brazilian Amazonia for which there were practically no recent ornithological data. Given this scenario, it was possible not only to confirm the existence of one of the contact zones in southwestern Amazonia, but also to provide support for the conclusion that these zones are not related functionally to the configuration of the principal rivers that drain the region, i.e., the Purus and Juruá (Haffer 1997).

Hybridization zones

The hybridization zones identified in the present study were characterized by the presence of inferred hybrid specimens, which supposedly resulted from gene flow between parapatric purported sister / closely related taxa (Haffer 1986, 1992a; Aleixo 2007; Price 2008). Two hybridization zones, corresponding to the contact zones, were identified in the two extremes (eastern and western) of the state.

The hybridization zone of eastern Acre is supported by the observation of transitional forms of the taxa *Brotogeris cyanoptera cyanopteralbeniensis* and *Momotus momota simplex*/cf. *nattereri*. The existence of the western zone was supported only by the taxa *Pteroglossus castanotis castanotis/australis*. In this case, the specimen MPEG 26747 from the upper Juruá, which was originally classified as *P. c. australis* by Novaes (1957), presents plumage traits and external morphology, such as the bill color and shape, that appear to be intermediate between *P. c. castanotis* and *P. c. australis*. In addition to these two taxa, it seems likely that other transitional forms may exist between *Dendrocolaptes certhia juruanus* and *polyzonus*, given that they both occur within the same region. As the present study did not include the most modern analytical techniques available (e.g., molecular genetics and vocalization analyses), the two principal hybridization zones identified here were considered to be “probable” rather than definitive. Obviously, the confirmation of the status of these zones will depend on the collection of more detailed data, derived from more extensive surveys using alternative scientific approaches.

Haffer (1987, p. 140) presented a map showing a wide hybridization zone that begins in the foothills of the Andes, in northeastern Peru, and extends as far as the Amazonian lowlands, crossing the upper Juruá in Acre, which corresponds exactly to the western hybridization zone identified in the present study. Even though Haffer (1987) did not provide information on the taxa supporting his southwestern Amazonian hybridization zone, the parapatric distribution of taxa such as *P. c. castanotis* and *P. c. australis*, and *Dendrocolaptes certhia juruanus* and *polyzonus* in western Acre provide some additional evidence for the existence of this hybridization zone.

Conservation

Acre is covered almost entirely by Amazonian rainforest (Acre 2000), although 11% of its original forest cover has been lost as a consequence of recent human activities in the region (Souza *et al.* 2006). Even so, Acre is still one of the least deforested of Brazilian Amazonian states (Fearnside 1993). One of the principal reasons for this has almost certainly been the creation and consolidation of a wide network of protected areas, which now covers almost half of the state's territory (Acre 2000).

The identification of taxa that only occur in habitats that are either under-represented or non-existent in the state's protected areas pointed clearly to two main gaps in its conservation coverage: the campinas and campinaranas of westernmost Acre and the dense lowland rainforests of the extreme eastern portion of the state.

The campinas and campinaranas of western Acre must be protected not only because these habitats are

not represented adequately in any of the state's protected areas, but primarily because some bird species are only found in these habitats (see Guilherme & Borges 2011). The creation of protected areas within the dense rainforest of easternmost Acre is strongly encouraged due to the presence of taxa associated specifically with this type of habitat, such as *Lepidothrix coronata exquisita*. Other taxa with similar distributions include *Brotogeris cyanoptera beniensis*, *Momotus momota simplex*, and *Hemitriccus minor*. These zoogeographic considerations are further emphasized by the fact that eastern Acre dense lowland rainforests are within the most densely-populated part of the state, which has suffered high deforestation rates (Acre 2000).

Priority areas for new ornithological surveys

Birds are considered to be the best known and most adequately sampled vertebrate group in the Amazon basin. Even so, many areas have yet to be explored by ornithologists, and represent gaps in our knowledge on the region's avifauna (Oren & Albuquerque 1991). In Acre, the areas with the best ornithological sampling to date are the Alto Juruá Extractivist Reserve and the Serra do Divisor National Park, located in the western part of the state, and the Rio Acre Ecological Station and Chandless National Park in the eastern sub-region. All other areas are either under-sampled, or have never been visited by ornithologists (Figure 3). The primary factor limiting the number of surveys is the logistical difficulties of visiting these remote areas, which can only be reached only by river or, in some cases, only by plane. The human population density of these areas is extremely low, and there is very little infrastructure.

Given the current situation, the following areas can be considered to be of the highest priority for future ornithological surveys in the Brazilian state of Acre:

Western sub-region

- a) Enclaves of campina and campinarana in the municipalities of Cruzeiro do Sul, Mâncio Lima, Porto Walter, and Marechal Taumaturgo;
- b) Interfluvium of the Liberdade-Gregório rivers;
- c) Interfluvium of the Muru-Tarauacá rivers;
- d) Interfluvium of the Envira-Purus rivers;

Eastern sub-region

- a) Areas surrounding the town of Santa Rosa do Purus, on the Brazil-Peru border;
- b) Interfluvium of the Caeté-Iaco rivers;
- c) Dense rainforests of the municipalities of Senador Guiomard, Plácido de Castro, and Acrelândia.

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APPENDIX 1

List of the bird species confirmed for the Brazilian state of Acre based on vouchered material (specimens, recordings, and pictures).

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
Tinamidae (12)						
<i>Tinamus tao</i>	AF, BE, PE, SF	A	R	V, O	2, 5, 11, 13, 17, 20, 25, 48	
<i>Tinamus major</i>	AF, BE, PE, DF	A	R	V, O, S	2, 5, 20, 27, 28, 36, 48	MPEG
<i>Tinamus guttatus</i>	AF, BE, PE, SF	A	R	V, O, S	8, 13, 20, 25, 27, 28, 36	MPEG
<i>Crypturellus cinereus</i>	AF, BE, PE, SF	A	R	V, O, S	2, 5, 11, 13, 17, 20, 25, 27, 28	MPEG, MZUSP
<i>Crypturellus soui</i>	AF, BE, PE, SF	A	R	V, O, S	2, 5, 11, 17, 19, 20, 25, 27, 36, 48	MPEG, MZUSP
<i>Crypturellus obsoletus</i>	AF, PE	A	R	V	2, 5, 20, 25, 48	
<i>Crypturellus undulatus</i>	AF, BE, PE, SF, CAM	A*	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Crypturellus strigulosus</i>	BE, PE, SF, CAM	A	R	V	8, 20, 25	
<i>Crypturellus atrocapillus</i> (a)	AF, BE, PE, SF	A	R	V	2, 5, 11, 20, 25, 47, 48	
<i>Crypturellus variegatus</i>	BE, PE, CAM	A	R	V, O, S	2, 20, 25, 27, 48	MPEG
<i>Crypturellus cf. brevirostris</i>	BE, PE	A	R	V, S	5, 20	MPEG
<i>Crypturellus bartletti</i>	AF, BE, PE	A; Inamb.	R	V, O, S	2, 5, 11, 20, 27, 28, 48	MPEG, MZUSP
Anhimidae (1)						
<i>Anhima cornuta</i>	BE, AF	W	R	O, P	5, 11, 20, 48	
Anatidae (6)						
<i>Dendrocygna viduata</i>	AR, L, R	A	R	V, O, S, P	20, 48	MPEG, UFAC
<i>Dendrocygna autumnalis</i>	AR, L, R	A	R	O	5, 20, 48	
<i>Cairina moschata</i>	AR, L, R	A	R	O	2, 5, 19, 20, 48	
<i>Nomonyx dominica</i>	L, R	W	R	O	20, 48	
<i>Amazonetta brasiliensis</i>	L, R	A	R	O, P	20, 25, 48	
<i>Anas discors</i>	AR, L, R	W	N	O	20, 26, 48	
Cracidae (4)						
<i>Ortalis guttata</i>	AF, BE, PE, DF, SF	A	R	V, O, S, P	2, 5, 11, 13, 17, 18, 19, 20, 25, 27, 36, 48	MPEG, MZUSP
<i>Penelope jacquacu</i>	AF, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 27, 36, 48	MPEG
<i>Aburria cumananis</i>	AF	A	R	V, O, S	2, 5, 11, 20, 25, 48	UFAC, MZUSP
<i>Pauxi tuberosa</i>	AF, BE, PE, DF, SF	A	R	V, O, S, P	2, 5, 20, 25, 48	MPEG, MZUSP

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
Odontophoridae (2)						
<i>Odontophorus stellatus</i>	AF, BE, PE, DF	A	R	V, O, S	2, 5, 11, 19, 20, 25, 27, 28	MPEG
<i>Odontophorus gujanensis</i>	AF, BE, PE, DF, SF	A	R	V	13, 20, 48	
Podicipedidae (1)						
<i>Tachybaptus dominicus</i>	L, R	A	R	O, S, P	13, 20, 48	MPEG
Phalacrocoracidae (1)						
<i>Phalacrocorax brasilianus</i>	AR, L, R	A	R	O, P	2, 11, 20, 36, 48	
Anhingidae (1)						
<i>Anhinga anhinga</i>	AR, L, R	A	R	S, P	20, 36, 48	UFAC, MZUSP
Ardeidae (11)						
<i>Trigrisoma lineatum</i>	AR, L, R, AF	A	R	O, S, P	5, 13, 11, 20, 25, 48	MPEG, MZUSP
<i>Agamia agami</i>	AR, L, R	A	R	O	20, 48	
<i>Cochlearius cochlearius</i>	AR, L, R, AF	A	R	O, S	20, 48	MPEG
<i>Nycticorax nycticorax</i>	AR, L, R	A	R	O, S	5, 20, 48	MPEG
<i>Butorides striata</i>	AR, L, R, AF	A	R	O, S	2, 5, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Bubulcus ibis</i>	P, AR, L	A	R, In	O, P	5, 11, 13, 20, 36, 48	
<i>Ardea cocoi</i>	AR, L, R, AF	A	R	O, S, P	2, 5, 11, 13, 17, 19, 20, 48	MPEG
<i>Ardea alba</i>	AR, L, R	A	R	O, S, P	5, 11, 13, 17, 20, 36, 48	MPEG
<i>Ptilherodius pileatus</i>	AR, L, R, AF	A	R	O, P	2, 5, 11, 20, 25, 27, 36, 48	
<i>Egretta thula</i>	AR, L, R	A	R	O, P	2, 11, 13, 19, 20, 36, 48	
<i>Egretta caerulea</i>	AR, L, R	A	R	O, S, P	20, 48	MPEG
Threskiornithidae (1)						
<i>Mesembrinihis cayennensis</i>	AR, L, R, AF	A	R	O, S, P	2, 5, 13, 20, 48	MPEG
Ciconiidae (3)						
<i>Ciconia maguari</i>	AR, L, R	A	R	O	5, 20, 36, 48	
<i>Jabiru mycteria</i>	AR, L, R	A	I	O	5, 20, 25, 48	
<i>Mycteria americana</i>	AR, L, R	A	I	O, S	5, 11, 20, 48	UFAC
Phoenicopteridae (1)						
<i>Phoenicoparrus jamesi</i> (a)	OA	E	Va	S	15, 20	MPEG
Cathartidae (4)						
<i>Cathartes aura</i>	FE, P, OA, AA	A	R	O, P	5, 13, 17, 19, 20, 25, 36, 48	
<i>Cathartes melambrotus</i>	FE, P, OA, AA	A	R	O, S, P	2, 5, 13, 17, 19, 20, 25, 36, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Coragyps atratus</i>	FE, P, OA, AA	A	R	O, S, P	2, 5, 13, 17, 19, 20, 25, 36, 48	MPEG
<i>Sarcoramphus papa</i>	FE, OA	A	R	O, P	2, 5, 18, 19, 20, 25, 27, 36, 48, 18, 36	
Pandionidae (1)						
<i>Pandion haliaetus</i>	AR, L, R, AF	A	N	O, S, P	5, 20, 24, 25, 48	MPEG
Accipitridae (29)						
<i>Leptodon cayanensis</i>	FE	W	R	O, P	5, 20, 48	
<i>Chondrohierax uncinatus</i>	BE, PF	W	R	O	20, 48	
<i>Elanoides forficatus</i>	AF, BE, PE, P, OA	A	R, I	O, P	5, 11, 13, 17, 20, 25, 36, 48	MPEG, UFAC
<i>Gampsonyx swainsonii</i>	FE, P	A	R	O, S, P	8, 13, 20, 36, 48	UFAC
<i>Rostrhamus sociabilis</i>	L, R	E	R	O, S, P	17, 20	MPEG, UFAC
<i>Helicolestes hamatus</i>	FE, P, OA, AA	W	R	O, S, P	5, 20, 48	MPEG
<i>Harpagus bidentatus</i>	AF, BE, PE, SF	A	R	O, S, P	5, 2, 8, 20, 25, 27, 28, 36, 48	MPEG
<i>Ictinia plumbea</i>	FE, SE, P, AO, AA	A	R	O, S, P	5, 11, 13, 17, 20, 25, 36, 48	MPEG
<i>Accipiter superciliosus</i>	AE, PF	W	R	O, S	5, 19, 20, 48	MPEG
<i>Accipiter bicolor</i>	BE, DE, SF	A	R	O, P	20, 36, 48	
<i>Geranoospiza caerulescens</i>	PE, DE, P	A	R	O, S	20, 25, 36, 48	MPEG
<i>Buteogallus schistaceus</i>	AF, BE, PE, SF, P, OA	A	R	O, S, P	2, 5, 11, 13, 20, 36, 48	MPEG, MZUSP
<i>Leucopternis kuhlii</i>	PF, DE, SF	A	R	O, S	20, 27, 48	MPEG
<i>Pseudastur albicollis</i>	AE, PF	A	R	O	2, 20, 25, 48	
<i>Urubitinga urubitinga</i>	FE	A	R	V, O, S, P	2, 5, 11, 13, 20, 25, 48	MPEG
<i>Heterospizias meridionalis</i>	PF	W	R	O	20, 48	
<i>Busarellus nigricollis</i>	AF, PF, P	A	R	O, S	5, 13, 20, 48	MPEG
<i>Percnobiterax leucorhous</i>	AF	E	R	O	2, 20	
<i>Rupornis magnirostris</i>	FE, P, AO, AA	A*	R	V, O, S, P	2, 5, 11, 13, 17, 20, 25, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Geranoaetus albicaudatus</i>	BE, PF, P	A	R, In	V, O, S, P	5, 13, 20, 36, 48	MPEG
<i>Buteo nitidus</i>	FE, P, OA, AA	A	R	V, O, S, P	11, 13, 17, 19, 20, 25, 36, 48	MPEG
<i>Buteo swainsoni</i>	PF	W	N	O	20, 26	
<i>Buteo brachyurus</i>	BE, PF, SE, P	A	R	V, O, P	20, 36, 48	
<i>Buteo albonotatus</i>	AF, BE, PE, SE, P	A	R	V, O, S	20, 36, 47	MPEG
<i>Morphnus guianensis</i>	BE, PF	A	R	V, O	20, 36, 48	
<i>Harpia harpyja</i>	AF, PE, DE, SF	A	R	V, O	5, 20, 32, 48	
<i>Spizaetus tyrannus</i>	AF, BE, PE, SF	A	R	V, O, S	5, 11, 20, 25, 48	MZUSP

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Spizaetus melanoleucus</i>	AF, PE, DE, SE, P	A	R	O, S	11, 20, 48	UFAC
<i>Spizaetus ornatus</i>	AF, BE, PE, SF, CAM	A	R	V, O	2, 5, 11, 20, 25, 48	
Falconidae (11)						
<i>Daptrius ater</i>	FE, AF, P	A	R	V, O, P	2, 5, 11, 13, 20, 25, 33, 48	
<i>Ibycter americanus</i>	AF, BE, PE, DE, SF	A	R	V, O, S, P	2, 5, 11, 13, 20, 25, 35, 36, 48	MZUSP
<i>Canacara plancus</i>	P	A	R, In	V, O, S, P	20, 25, 48	MPEG
<i>Milvago chimachima</i>	FE, P	A	R	O, V	13, 20, 25, 48	
<i>Herpetotheres cachinnans</i>	FE, P	A	R	O, V	5, 11, 13, 17, 19, 20, 25, 48	
<i>Micrastur ruficollis</i>	AF, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 36, 48	MPEG; MZUSP; UFAC
<i>Micrastur gilibicollis</i>	AF, BE, PE, DE, SF	A	R	V, O, S	5, 11, 13, 17, 20, 25, 48	MPEG; MZUSP
<i>Micrastur mirandollei</i>	BE, PE, SF	A	R	V, O, S	2, 5, 20, 48	MPEG
<i>Micrastur semitorquatus</i>	AF, BE, PE, SF	A	R	V, O	2, 5, 11, 20, 25, 48	
<i>Micrastur buckleyi</i>	AF, BE, PF	A	R	O, V	11, 20, 48	
<i>Falco ruficularis</i>	FE, P, CAM	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 48	MPEG
Aramidae (1)						
<i>Aramanus guaranauna</i>	AR, L, R, W	A	R	O, S	20, 48	UFAC
Psophiidae (1)						
<i>Psophia leucoptera</i>	AF, BE, PE, DE, SF	A; Inamb.	R	V, O, S	2, 5, 8, 11, 13, 20, 25, 36, 48	MPEG; MZUSP
Rallidae (9)						
<i>Aramides cajanea</i>	AE, W	A	R	V, O, S, P	2, 5, 8, 11, 17, 19, 20, 25, 27, 36, 48	MPEG
<i>Anurolimnas castaneiceps</i>	AE, W	A	R	V, O, S	5, 20, 25, 48	MPEG
<i>Laterallus viridis</i>	AE, W	A	R	O, S	20, 27, 48	MPEG
<i>Laterallus fasciatus</i>	AE, W	A	R	O, S	5, 20, 27, 48	MPEG; MZUSP
<i>Laterallus melanophaius</i>	AE, W	A	R	V, O, S	19, 20, 48	MPEG
<i>Laterallus exilis</i>	AE, W	A	R	V, O, S	5, 19, 20, 48	MPEG, UFAC
<i>Neocrex erythrops</i>	AE, W	A	R	O	17, 20, 48	
<i>Gallinula galeata</i>	AE, W	A	R	O, P	20, 48	
<i>Porphyrio martinica</i>	AE, W	A	R	V, O, S, P	11, 13, 17, 20, 36, 48	MPEG, UFAC
Helionithidae (1)						
<i>Helionis fulica</i>	AE, AR, L, R	A	R	O	2, 11, 20, 25, 48	
Eurypygidae (1)						
<i>Eurypyga helias</i>	AE, AR, L, R	A	R	O, S, P	2, 5, 8, 11, 20, 25, 27, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
Charadriidae (4)						
<i>Vanellus cayanus</i>	AR, L, R	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 27, 48	MPEG
<i>Vanellus chilensis</i>	OA, P, AR, L, A	E	R, In	V, O, S, P	5, 11, 20, 25	MPEG
<i>Pluvialis dominica</i>	BF	A	N	O, S, P	20, 35, 48	MZUSP
<i>Chamadrus collaris</i>	BE, W	A	R	O, S, P	5, 11, 17, 19, 20, 27, 48	MPEG
Scolopacidae (11)						
<i>Gallinago paraguaiiae</i>	BE, W, R	A	A	O	17, 20, 48	
<i>Tringa melanoleuca</i>	BF	W	N	O	20, 48	
<i>Tringa flavipes</i>	BE, W, R	A	N	O, S, P	5, 11, 13, 20, 35, 48	MPEG, MZUSP
<i>Tringa solitaria</i>	BE, W, R	A	N	O, S, P	2, 11, 17, 20, 25, 27, 35, 48	MPEG, MZUSP
<i>Actitis macularius</i>	BE, W, R	A	N	O, S, P	2, 5, 11, 20, 27, 48	MPEG
<i>Calidris minutilla</i>	BE, W, R	W	N	O	20, 48	
<i>Calidris bairdii</i>	BE, W	W	N	O	20, 48	
<i>Calidris melanotos</i>	BE, W	A	N	O, S, P	11, 20, 27, 35, 48	MPEG, MZUSP
<i>Calidris himantopus</i>	BE, W	W	N	O	20, 48	
<i>Fryngites subruficollis</i>	BE, W	W	N	O, S	20, 35, 48	MPEG, MZUSP
<i>Phalaropus tricolor</i>	BE, W	W	N	O	20, 48	
Jacaniidae (1)						
<i>Jacana jacana</i>	W, R	A	R	V, O, S, P	5, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
Laridae (1)						
<i>Leucophaeus atricilla</i>	BF	W	N	O	20, 48	
Sternidae (2)						
<i>Sternula superciliaris</i>	BE, AR	A	R	O, S	5, 11, 20, 27, 48	MPEG
<i>Phaetusa simplex</i>	BE, AR	A	R	O, P	5, 11, 20, 48	
Rynchopidae (1)						
<i>Rynchops niger</i>	BE, AR	A	R	O, S, P	5, 11, 20, 48	MPEG
Columbidae (11)						
<i>Columbina talpacoti</i>	FE, OA, AA	A	R	V, O, S, P	5, 8, 11, 13, 17, 20, 25, 35, 36, 48	MPEG
<i>Columbina picui</i>	FE, OA	A	R	O	20, 48	
<i>Claravis pretiosa</i>	PE, DF	A	R	V, O	20, 25, 35, 48	
<i>Columbia livia</i>	AA	A	R	O, V	20	
<i>Patagioenas speciosa</i>	CAM	W	R	O	20	

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Patagioenas cayennensis</i>	AF, BE, PF	A	R	V, O	13, 20, 48	
<i>Patagioenas plumbea</i>	AF, BE, PE, DE, SF	A	R	V, O, S	2, 5, 8, 11, 13, 18, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Patagioenas subvinacea</i>	AF, BE, PE, DE, SE, CAM	A	R	V, O	2, 5, 11, 13, 19, 20, 25, 48	MPEG, MZUSP
<i>Leptotila verreauxi</i>	AF, BE, PE, DE, CAM	A	R	V, O, S, P	5, 8, 11, 20, 36, 48	MPEG, UFAC
<i>Leptotila rufaxilla</i>	AF, BE, PE, DE, CAM, AO	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 48	MPEG, UFAC
<i>Geotrygon montana</i>	AF, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 28, 35, 36, 48	MPEG, UFAC
Psittacidae (23)						
<i>Ara ararauna</i>	AF, PE, SF	A	R	V, O	2, 11, 19, 20, 48	
<i>Ara macao</i>	AF, PE, DE, SF	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 48	MPEG
<i>Ara chloropterus</i>	AF, PE, SF	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 27, 28, 48	MPEG
<i>Ara severus</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 48	MPEG
<i>Orthopsittaca manilata</i>	AF, PE, DF	A	R	V, O, S, P	2, 11, 13, 20, 48	MPEG
<i>Primolius couloni</i>	FE, BF, PE, OA, CAM	A; Inamb.	R	V, O, S, P	2, 5, 6, 13, 20, 25, 30, 41, 47, 48	MPEG; UFAC
<i>Anatinga leucophthalma</i>	FE, OA, P, CAM, AA	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 48	MPEG, UFAC
<i>Anatinga weddellii</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	2, 5, 8, 11, 17, 18, 19, 20, 25, 36, 48	MPEG, MZUSP; UFAC
<i>Pyrhura roseifrons</i>	AF, PE, SE, OA, CAM	A	R	V, O, S	2, 20, 25, 27, 28, 48	MPEG
<i>Pyrhura rupicola</i> (a)	AF, PE, DE, SE, OA, CAM	A; Inamb.	R	V, O, S, P	2, 6, 11, 20, 25, 47, 48	MPEG
<i>Forpus modestus</i>	FE, OA, CAM	A	R	V, O, S, P	5, 17, 20, 35, 36, 48	MPEG, MZUSP
<i>Brotogeris cyanoptera</i>	FE, CAM, OA, AA	A*	R	V, O, S, P	2, 5, 11, 13, 18, 19, 20, 25, 35, 36, 48	MPEG, MZUSP; UFAC
<i>Brotogeris sanctithomae</i>	FE, AA, OA	A	R	V, O, S, P	5, 17, 18, 19, 20, 27, 36, 48	MPEG; UFAC, MZUSP
<i>Nannopsittaca dachilleae</i> (a)	AE, SF	A; Inamb.	R	V, O, S	2, 20, 43	MPEG
<i>Touit huetii</i>	AE, PF	W	R	V, O, S	5, 20, 47, 48	MPEG
<i>Touit purpuratus</i>	DF, CAM	W	R	O, V	Guilherme and Aleixo, unpub. data	
<i>Pionites leucogaster</i>	AE, PE, OA, CAM	A	R	V, O, S, P	2, 5, 11, 13, 20, 25, 27, 35, 48	MPEG, MZUSP
<i>Pyrilia barrabandi</i>	AF, BE, PE, CAM	A	R	O, S, P	2, 5, 11, 20, 48	MZUSP
<i>Pionus menstruus</i>	AF, PE, DE, SE, CAM, OA	A	R	V, O, S, P	2, 5, 11, 13, 17, 20, 25, 36, 48	MPEG, UFAC
<i>Amazona festiva</i>	AF	A	R	O	20, 48	
<i>Amazona ochrocephala</i>	FE, AF, PE, DE, SE, AA	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 27, 36, 48	MPEG; UFAC, MZUSP
<i>Amazona amazonica</i>	PF	A	R	O	20, 36, 48	
<i>Amazona farinosa</i>	FE, BE, PE, DE, SE, CAM, OA	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 35, 48	MPEG, MZUSP; UFAC

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
Opisthocomidae (1)						
<i>Opisthocomus hoazin</i>	AF, W, AR	A	R	V, O, S, P	2, 5, 11, 18, 19, 20, 48	MPEG, UFAC
Cuculidae (12)						
<i>Micrococcyx cinereus</i>	AF, BE, PF	E	A	O, S	20, 36	MPEG
<i>Coccyzus erythrophthalmus</i>	BE, PF	W	N	O, S	20, 47	MPEG
<i>Coccyzus melacoryphus</i>	BE, PE, SF	A	R	V, O, S	5, 2027, 36, 48	MPEG
<i>Piaya cayana</i>	BE, PE, SF	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 27, 35, 48	MPEG, MZUSP, UFAC
<i>Piaya melanogaster</i>	BE, PE, DE, SF	A	R	V, O, S	5, 11, 13, 20, 25, 27, 48	MPEG
<i>Coccyzua minuta</i>	FE, AF, BE, PE, DE, SF	A	R	V, O, S	5, 11, 13, 17, 20, 36, 48	MPEG
<i>Crotophaga major</i>	FE, AF, W, AR	A	R	V, O, S	5, 8, 11, 13, 17, 19, 20, 25, 27, 28, 36, 48	MPEG, UFAC
<i>Crotophaga ani</i>	FE, P, AA, OA	A	R	V, O, S, P	5, 8, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Tapera naevia</i>	PE, SF	A	R	O	25, 20, 48	
<i>Dromococcyx phasianellus</i>	AF, BF	A	R	V, O, S	2, 6, 13, 20, 48	MPEG
<i>Dromococcyx pavoninus</i> (b)	BF	A	R	V, O, S	2, 5, 13, 20, 48	MPEG
<i>Neomorphus geoffroyi</i>	PF	W	R	O	20, 48	
Tytonidae (1)						
<i>Tyto alba</i>	PE, SE, P, AA	A	R	V, O, S	5, 20, 25, 36, 48	MPEG
Strigidae (11)						
<i>Megascops choliba</i>	FE, AF, BE, PE, DE, SE, AA	A	R	V, O, S	2, 5, 11, 13, 17, 19, 20, 25, 36, 48	MPEG, UFAC
<i>Megascops usta</i>	AF, BE, PE, DE, SF, CAM, AA	A	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 48	MPEG
<i>Lophotrix cristata</i>	AF, PE, SF	A	R	V, O, S	2, 5, 11, 13, 20, 27, 36, 48	MPEG
<i>Pulsatrix perspicillata</i>	AF, BE, PE, SF	A	R	V, O, S	5, 13, 20, 25, 35, 48	MZUSP
<i>Strix virgata</i>	AF, PE, SF	A	R	V, O, S	2, 5, 20, 48	MPEG
<i>Strix hubbula</i>	AF, PF	A	R	V, O, S	20, 48	MPEG
<i>Glaucidium hardyi</i>	AF, BE, PE, SF	A	R	V, O	2, 5, 11, 20, 25, 48	
<i>Glaucidium brasilianum</i>	AF, BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Athene cunicularia</i>	P, AA	A	R, In	V, O, S, P	5, 13, 20, 25	MPEG, UFAC
<i>Asio clamator</i>	AF, BE, PE, P	A	R	V, O, S	5, 11, 13, 20, 36	UFAC
<i>Asio stygius</i>	PF	W	R	V	20, 48	
Nyctibidae (4)						
<i>Nyctibius grandis</i>	AF, BE, PE, SF	A	R	V	2, 5, 11, 13, 20, 25, 48	
<i>Nyctibius aethereus</i>	PE, CAM	W	R	V	20, 47, 48	

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Nyctibius griseus</i>	AE, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 20, 25, 36, 48	MPEG
<i>Nyctibius leucopterus</i>	AE, SF	W	R	O, V	3, 20, 48	
Caprimulgidae (12)						
<i>Lurocalis semitorquatus</i>	AE, PE, CAM	A	R	O, V	2, 5, 20, 36, 48	
<i>Chordeiles rupestris</i>	AE, AR	W	R	V, O, S, P	27, 20, 48	MPEG
<i>Chordeiles nacunda</i>	P, AO, R	A	I	O, S	17, 20	MPEG
<i>Nyctiphrynus ocellatus</i>	AE, BE, PE, SF	A	R	V, O, S, P	2, 5, 11, 20, 35, 36, 48	MZUSP
<i>Anrostomus rufus</i>	SF	W	R	V, S	20	MPEG
<i>Anrostomus serripicaudatus</i>	AF	E	R	V	2, 5, 20	
<i>Hydropsalis maculicauda</i>	AE, FE	A	R	S	17, 19, 20	MPEG
<i>Hydropsalis nigrescens</i>	PE, SE, CAM	W	R	V, O	20, 48	
<i>Hydropsalis parvula</i>	AE, BE, PE, P, AA	A	R	S	5, 11, 20	MPEG
<i>Hydropsalis albicollis</i>	FE, OA, P, CAM, BF	A	R	V, O, S, P	5, 2, 11, 20, 25, 36, 48	MPEG, MZUSP, UFAC
<i>Hydropsalis climacocera</i>	FE, BF	A	R	V, O, S	2, 5, 11, 19, 20, 27, 48	MPEG, MZUSP
<i>Hydropsalis torquata</i>	BF	E	R	S	20, 35	MZUSP
Apodidae (10)						
<i>Streptoprocne zonaris</i>	AE, PF	W	R	O	20, 48	
<i>Chaetura spinicauda</i>	AE, BE, PF	E	R	O	2, 20, 36	
<i>Chaetura cinereiventris</i>	AE, PE, P	A	R	O, S	2, 5, 20, 35, 48	MPEG, MZUSP
<i>Chaetura egregia</i>	AE, PF	A	R	O, S	5, 20, 25, 35, 47, 48	MZUSP
<i>Chaetura pelagica</i>	AE, PE, DE, SF	A	R	O, P	20, 47, 48	
<i>Chaetura viridipennis</i>	AE, PE, DE, SE, P	A	R	O, S	5, 20, 35, 36, 47, 48	AMNH, MPEG, MZUSP
<i>Chaetura meridionalis</i>	AF	E	A	O	2, 20	
<i>Chaetura brachyura</i>	AE, BE, PE, DE, SE, OA	A	R	O, S, P	2, 5, 11, 13, 20, 25, 36, 47, 48	LSUMZ
<i>Thaethornis squamata</i>	AE, BE, PE, CAM, OA	A	R	O, P	8, 13, 17, 20, 36, 47, 48	
<i>Panyptila cayennensis</i>	AF	A	R	V, O	2, 20, 11, 20, 48	
Trochilidae (25)						
<i>Glaucois hirsutus</i>	AE, BE, PE, DE, OA, CAM, AA	A	R	V, O, S	2, 5, 9, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Threnetes leucurus</i>	AE, BE, PF	A*	R	V, O, S	5, 8, 11, 19, 20, 25, 48	MPEG, MZUSP
<i>Phaethornis ruber</i>	AE, BE, PE, DE, CAM	A	R	V, O, S, P	2, 5, 11, 13, 17, 18, 19, 20, 25, 36, 48	MPEG, MZUSP
<i>Phaethornis hispidus</i>	AE, BE, PE, DE, SF	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 48	MPEG, MZUSP, UFAC

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Phaethornis philippii</i>	BF, PE, DF, SE, CAM	A	R	V, O, S	8, 20, 25, 27, 36, 48	MPEG
<i>Phaethornis bourcierii</i>	AE, BE, PE, DE, SF	A	R	V, O, S	11, 13, 19, 20, 48	MPEG
<i>Phaethornis malaris</i>	AF, BE, PE, SF	A	R	V, O, S	11, 19, 20, 25, 48	MPEG
<i>Campylopterus larginipennis</i>	AE, BE, PE, DF	A	R	V, O, S	2, 5, 18, 20, 48	MPEG
<i>Florisuga melivora</i>	AF, PE, SF	A	R	V, O, S, P	2, 20, 48	MPEG
<i>Anthracoceros nigricollis</i>	AE, BE, PE, AA, OA, CAM	A	R	V, O, S	17, 20, 25, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Topaza pyna</i>	AF, SE, CAM	W	R	O, S	8, 20	MPEG
<i>Chrysolampis mosquitus</i>	FE	E	I	O	9, 11, 20	MPEG
<i>Chlorostilbon notatus</i>	AF	W	R	O, S	20, 27, 48	MPEG
<i>Chlorostilbon mellisugus</i>	AE, PF	W	R	O, S	5911, 13, 20, 48	MPEG
<i>Thalurania furcata</i>	FE, SE, BE, PE, AA	A*	R	O, S	2, 5, 9, 11, 13, 17, 19, 20, 25, 27, 28, 48	MPEG, UFAC
<i>Hylocharis sapphirina</i>	AF	W	R	O	20, 48	
<i>Hylocharis cyanus(b)</i>	BE, PE, DE, SE, CAM	A; Inamb.	R	O, S	11, 20, 25, 35, 48	MPEG, MZUSP
<i>Polytmus theresiae</i>	CAM	W	R	O	Guilherme and Aleixo, unpub. data.	
<i>Chrysuronina oenone</i>	AF, SE, CAM	W	R	O, S	8, 20, 48	MPEG
<i>Amazilia fimbriata</i>	PF	W	R	O	20, 48	
<i>Amazilia lactea</i>	FE, AF, DE, AA, OA, CAM	A; Inamb. (a)	R	V, O, S, P	2, 9, 11, 13, 17, 18, 20, 25, 35, 36	MPEG, UFAC
<i>Heliothryx auritus</i>	AF, PE, SF	A	R	O	2, 20, 25, 48	
<i>Heliodoxa aurescens</i>	AE, SF	A	R	O	2, 20	
<i>Helimaster longirostris</i>	AF, PE, DE, SE, CAM	A	R	O, S	8, 20, 35, 48	MPEG
<i>Helimaster furcifer</i>	AA	E	Va	S		ZUEC
<i>Calliphlox amethystina</i>	AF	W	R	O	20, 48	
Trogonidae (7)						
<i>Trogon viridis</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 8, 13, 19, 20, 25, 36, 48	MPEG
<i>Trogon curucui</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 17, 18, 19, 20, 36, 48	MPEG
<i>Trogon violaceus</i>	AE, BE, PE, DE, CAM	A	R	V, O, S	2, 5, 13, 20, 27, 48	MPEG
<i>Trogon collaris</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 13, 18, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Trogon rufus</i>	AE, PE, SE, CAM	A	R	V, O, S	2, 8, 11, 13, 20, 27, 48	MPEG
<i>Trogon melanurus</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S, P	2, 5, 8, 13, 17, 19, 20, 25, 27, 36, 48	MPEG, MZUSP, UFAC
<i>Pharomacrus pavoninus</i>	BE, PE, DE, SE, CAM	W	R	S	20	MPEG
Alcedinidae (5)						
<i>Megascyle torquata</i>	AE, AR, L, A, W	A	R	V, O, S, P	2, 5, 13, 17, 19, 20, 35, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Chloroceryle amazona</i>	AF, AR, L, A, W	A	R	V, O, S, P	2, 5, 13, 19, 20, 25, 35, 36, 48	MPEG
<i>Chloroceryle americana</i>	AF, AR, L, A, W	A	R	V, O, S	2, 13, 17, 19, 20, 36, 48	MPEG
<i>Chloroceryle inda</i>	AF, BE, PE, SF	A	R	O, S	5, 13, 20, 25, 48	MPEG
<i>Chloroceryle aenea</i>	AF, BE, PE, DE, SF	A	R	O, S	2, 13, 17, 19, 20, 25, 36, 48	MPEG, MZUSP
Momotidae (3)						
<i>Electron platyrhynchos</i>	AF, BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Baryphthengus martii</i>	AF, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 18, 20, 25, 27, 36, 48	MPEG
<i>Momotus momota</i>	AF, BE, PE, DE, SE, CAM	A*	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 28, 36, 48	MPEG, UFAC
Galbulidae (8)						
<i>Galbularyynchus purusianus</i>	AF	A; Inamb.	R	V, O, S, P	2, 5, 11, 20, 48	MPEG, MZUSP
<i>Brachygalba albogularis</i>	AF, BE, PE, DE, SF	A; Inamb.	R	V, O, S, P	2, 11, 17, 20, 47, 48	MPEG, MZUSP
<i>Galbula albirostris</i>	PE, SF	W	R	O	20, 48	
<i>Galbula cyanicollis</i>	AF, CAM	W	R	O, S	5, 8, 20, 27	MPEG
<i>Galbula cyanescens</i>	AE, BE, PE, DE, SF	A; Inamb.	R	V, O, S, P	2, 5, 6, 11, 13, 17, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Galbula leucogastra</i>	PF	W	R	O	5, 20, 48	
<i>Galbula dea</i>	FE, CAM	A	R	V, O, S, P	2, 5, 11, 13, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Jacamerops aureus</i>	AE, PE, SF	W	R	V, O, S	2, 11, 20, 25, 27, 48	MPEG
Bucconidae (15)						
<i>Notharchus hyperrhynchus</i>	AE, PE, SF	A	R	V, O	2, 5, 11, 13, 20, 25, 48	
<i>Notharacus ordii</i>	AF, PE, SE, CAM	W	R	V, O, S	38, 20	MPEG
<i>Notharchus tectus</i>	AF, SF	W	R	O	5, 20	
<i>Bucco macrodactylus</i>	AE, BE, PE, DE, SF	A	R	V, O, S, P	2, 8, 11, 13, 17, 18, 20, 35, 48	MPEG, MZUSP, UFAC
<i>Bucco tamatia</i>	AF, PE, SF	A	R	V, O, S	11, 13, 20, 48	MPEG
<i>Bucco capensis</i>	AF, BE, PE, DF	A	R	V, O, S	2, 13, 20	MPEG, UFAC, MZUSP
<i>Nystalus striolatus</i>	AF, BE, PE, DE, SF	A	R	O, S	2, 5, 8, 11, 20, 25, 35, 48	MPEG, MZUSP
<i>Malacoptila semicincta</i>	AE, BE, PE, DE, SF	A; Inamb.	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 48	MPEG
<i>Nonnula rubecula</i>	AE, PE, SF	W	R	O, S	20	MPEG
<i>Nonnula sclateri</i> (b)	BE, DF	A; Inamb.	R	V, O, S	2, 11, 20, 27, 28, 47, 48	MPEG
<i>Nonnula ruficapilla</i> (b)	AF, BE, PE, SF	A; Inamb. (b)	R	V, O, S	2, 5, 11, 13, 20, 25, 48,	MPEG, MZUSP
<i>Monasa nigrifrons</i>	FE, AF, BE, PE, DE, CAM	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Monasa morphoeus</i>	AF, BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 27, 35, 36, 48	MPEG, MZUSP

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Monasa flavirostris</i> (b)	FE, BF	A	R	O, S, P	2, 13, 20, 25, 36, 48	MPEG
<i>Chelidoptera tenebrosa</i>	FE	A	R	O, S, P	2, 5, 11, 13, 17, 19, 20, 27, 35, 36, 48	MPEG, MZUSP
Capitonidae (3)						
<i>Capito auratus</i>	FE, AF, BE, PE, DE, SE, CAM	A*	R	O, S, P	2, 5, 11, 17, 20, 25, 27, 35, 48	MPEG, MZUSP, UFAC
<i>Eubucco richardsoni</i>	AF, PE, DF	A	R	V, O, S	2, 5, 6, 11, 20, 25, 48	MPEG
<i>Eubucco tucinkae</i> (a)	AF, BE, PE, DE, SF	A; Inamb.	R	O, S	2, 19, 20, 44, 48	MPEG
Ramphastidae (8)						
<i>Ramphastos tucanus</i>	AF, BE, PE, DE, SE, CAM	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 27, 28, 36, 48	MPEG, UFAC
<i>Ramphastos vitellinus</i>	AE, PF	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 48	MPEG, UFAC
<i>Aulacorhynchus atrogularis</i> (a)	AF, BE, PE, SF	A	R	V, O, S, P	2, 56, 8, 11, 20, 25, 47, 48	MPEG
<i>Selenidera reinwardtii</i>	AF, BE, PE, DF	A; Inamb. (c)	R	V, O, S	5, 11, 20, 25, 27, 48	MPEG
<i>Pteroglossus inscriptus</i>	BE, PE, DE, SF	A	R	V, O, S	2, 5, 13, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Pteroglossus mariae</i>	AF, BE, PE, DE, SF	A; Inamb.	R	V, O, S	2, 8, 11, 13, 19, 20, 25, 27, 36, 48	MPEG
<i>Pteroglossus castanotis</i>	AF, BE, PE, DE, SE, OA, CAM, AA	A*	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 27, 35, 36, 48	MPEG, MZUSP, CPJH
<i>Pteroglossus beauharnaesii</i>	AF, BE, PE, DE, SF	A	R	V, O, S, P	2, 5, 11, 18, 20, 25, 36, 48	MPEG, UFAC
Picidae (18)						
<i>Picumnus aurifrons</i>	PF, SF	W; Inamb. (d)	R	O	5, 20, 48	
<i>Picumnus rufigiventris</i> (b)	BE, DF	A	R	O, S	2, 11, 17, 20, 35, 48	MPEG, MZUSP, UFAC
<i>Picumnus subtilis</i> (a)	BF	E	R	O, S, P	11, 20, 37	MZUSP, UFAC
<i>Melanerpes cruentatus</i>	FE, CAM, OA, P, AA	A	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Veniliornis passerinus</i>	AF, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 13, 17, 20, 25, 48	MPEG, MZUSP
<i>Veniliornis affinis</i>	AF, BE, DF	A	R	V, O, S, P	2, 5, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Piculus leucolaemus</i>	AF, BE, PF	A	R	V, O, S	2, 20, 25, 36, 48	MPEG
<i>Piculus flavigula</i>	AF, PE, SF, CAM	A	R	V, O, S	2, 20, 25, 48	MPEG
<i>Piculus chrysocoloros</i>	AF, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 8, 20, 35, 48	MPEG
<i>Colaptes punctigula</i>	FE, AF, BE, PE, DE, SF	A	R	V, O, S	5, 8, 11, 13, 17, 20, 36, 48	MPEG, MZUSP
<i>Celeus grammicus</i>	AF, BE, PE, SF, CAM	A	R	V, O, S	2, 8, 11, 20, 25, 27, 48	MPEG
<i>Celeus elegans</i>	AF, BE, PF	A	R	V, O, S	5, 8, 13, 20, 27, 48	MPEG
<i>Celeus flavus</i>	AF, BE, PE, DE, SF	A	R	V, O, S, P	2, 11, 17, 19, 20, 25, 27, 48	MPEG
<i>Celeus spectabilis</i> (a), (b)	BF	A	R	V, O, S, P	2, 11, 13, 20, 25, 47	MPEG, MZUSP
<i>Celeus torquatus</i>	BE, PE, SF	A	R	V, O, S, P	2, 5, 11, 13, 20, 25, 36, 48	MPEG
<i>Dryocopus lineatus</i>	AF, BE, PE, DE, SF	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 36, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Campephilus rubricollis</i>	FE, OA, CAM, P, AA	A	R	V, O, S	2, 5, 11, 13, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Campephilus melanoleucos</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
Thamnophilidae (61)						
<i>Terenura humeralis</i>	PE, SF	W	R	V, O, S	5, 20, 48	MPEG
<i>Pygiptila stellaris</i>	AF, BE, PE, SF	A	R	V, O, S	5, 11, 20, 27, 48	MPEG
<i>Microrhopias quixensis</i> (b)	AF, BE, PE, DF	A	R	V, O, S	2, 5, 20, 25, 36, 48	MPEG, MZUSP
<i>Myrmeciza bemimelaena</i>	AF, BE, PE, DE, SE, CAM	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Myrmeciza atrothorax</i>	AF, PE, SF	A	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 40, 48	MNRJ, MPEG, MZUSP
<i>Myrmeciza melanoceps</i>	AF	W	R	S	20, 27	MPEG
<i>Myrmeciza goeldii</i> (b)	AF, BE, SF	A; Inamb.	R	V, O, S	2, 5, 11, 13, 17, 20, 25, 47, 48	MPEG, MZUSP
<i>Myrmeciza hyperythra</i>	BE, PE, SF	A	R	V, O, S	2, 5, 13, 17, 20, 25, 27, 35, 48	MPEG
<i>Myrmeciza fortis</i>	AF, BE, DF	A	R	V, O, S	2, 5, 11, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Neotantes niger</i>	AF, BE, PE, CAM	A	R	V, O, S	20, 25, 47, 48	MPEG, MZUSP
<i>Epinecrophylia leucophthalma</i>	AF, BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 27, 25	MPEG
<i>Epinecrophylia haematonota</i>	BE, PE, DE, SE, CAM	A	R	V, O, S	2, 13, 19, 20, 27, 36, 48	MPEG
<i>Epinecrophylia ornata</i> (b)	AF, BE, PE, SF	A	R	V, O, S	2, 511, 13, 19, 20, 25, 36	MPEG, MZUSP
<i>Myrmotherula brachyura</i>	AF, PE, SE, CAM	A	R	V, O, S	2, 5, 20, 25, 27, 48	MPEG
<i>Myrmotherula ignota</i>	AF, BE, PE, SF	W	R	V, O	20, 48	
<i>Myrmotherula sclateri</i>	AF, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 56, 20, 25, 48	MPEG
<i>Myrmotherula multistriata</i>	AF, PE, SF	W	R	V, O, S	20, 48	MPEG
<i>Myrmotherula bauxwelli</i>	AF, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 18, 19, 20, 25, 27, 36, 48	MPEG, UFAC
<i>Myrmotherula axillaris</i>	AE, BE, PE, DE, SF	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 36, 48	MPEG
<i>Myrmotherula longipennis</i>	AF, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 18, 19, 20, 25, 27, 28, 36, 48	MPEG, MZUSP
<i>Myrmotherula iberingi</i> (b)	AF, BE, PE, SF	A; Inamb. (c)	R	V, O, S	2, 5, 8, 13, 20, 27, 36, 48	MPEG, MZUSP
<i>Myrmotherula menetriesii</i>	AF, BE, PE, DE, SF	A	R	V, O, S	2, 13, 20, 25, 36, 48	MPEG, UFAC
<i>Formicivora grisea</i>	CAM	W	R	O, S	20, Guilherme & Aleixo unpubl. data	MPEG
<i>Thamnomanes ardesiacus</i>	AF, BE, PE, DF	A	R	V, O, S	5, 8, 11, 18, 19, 20, 25, 48	MPEG
<i>Thamnomanes saturninus</i>	AF, PE, SE, CAM	W	R	V, O, S	19, 20, 27, 28, 48	MPEG
<i>Thamnomanes schistogynus</i>	AF, BE, PE, DE, SF	A; Inamb.	R	V, O, S, P	2, 5, 6, 11, 13, 17, 18, 19, 20, 25, 27, 28, 36, 48	MPEG, MZUSP, UFAC
<i>Dichrozona cincta</i>	AF, PE, SF	A	R	V, O, S, P	2, 5, 20, 48	MPEG
<i>Herpsilochmus rufimarginatus</i>	PF	E	R	V, O, S	2, 5, 20	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Thamnophilus dobiatus</i>	FE, OA, CAM, AA	A	R	V, O, S, P	5, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Thamnophilus schistaceus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 17, 18, 20, 25, 27, 28, 35, 36, 48	MPEG, MZUSP
<i>Thamnophilus murinus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 8, 13, 17, 20, 48	MPEG
<i>Thamnophilus aethiops</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 8, 11, 13, 19, 20, 25, 27, 28, 48	MPEG, MZUSP, UFAC
<i>Thamnophilus amazonicus</i>	AE, SF	W	R	V, P	20, 48	
<i>Thamnophilus divisorius</i> (a)	SF	W; Inamb.	R	V, O, S	20, 46	MPEG
<i>Cymbilaimus lineatus</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 36, 48	MPEG
<i>Cymbilaimus sanctaemariae</i> (b)	AE, BF	A	R	V, O, S, P	2, 5, 11, 13, 20, 34, 47, 48, 49	LSUMZ, MPEG
<i>Taraba major</i>	FE, BE, PE, DE, SE, W	A	R	V, O, S	2, 5, 11, 13, 18, 20, 27, 28, 35, 48	MPEG, MZUSP
<i>Fredrickena unduligera</i>	AE, BE, PE, SE, CAM	A	R	V, O, S	20, 27, 36, 48	MPEG
<i>Sclateria naevia</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 20, 27, 35, 48	MPEG, MZUSP, UFAC
<i>Schistocichla schistacea</i>	BE, PE, SF	W	R	V, O, S	19, 20, 27, 48	MPEG
<i>Schistocichla humaythae</i>	BE, PE, SF	A	R	V, O, S	20, 25, 36, 48	MPEG
<i>Hypocnemoides maculicauda</i>	AE, BE, PE, SF	A	R	V, O, S	5, 20, 27, 28, 48	MPEG
<i>Hypophylax naevius</i>	AE, BE, PE, SF	A	R	V, O, S	2, 5, 11, 13, 18, 19, 20, 25, 48	MPEG, UFAC
<i>Hypophylax punctulatus</i>	AF	W	R	V, S	5, 20	MPEG
<i>Percnostola lophotes</i> (a), (b)	BF	A; Inamb.	R	V, O, S, P	2, 5, 13, 20, 25, 47, 48	MPEG, MZUSP
<i>Myrmoborus leucophrys</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 17, 20, 25, 27, 48	MPEG, MZUSP, UFAC
<i>Myrmoborus myotherinus</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S, P	2, 5, 8, 11, 13, 19, 20, 25, 27, 36, 48	MPEG, MZUSP
<i>Cercomacra cinerascens</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 11, 13, 20, 25, 35, 48	MPEG, MZUSP
<i>Cercomacra nigrescens</i>	AE, BE, PE, SF	A	R	V, O, S	2, 5, 8, 11, 20, 35, 48	MPEG, MZUSP
<i>Cercomacra serva</i>	BE, PE, SE, CAM	A	R	V, O, S	2, 5, 20, 25, 48	MPEG
<i>Cercomacra manu</i> (b)	BF	A	R	V, O, S	2, 5, 11, 13, 20, 47, 48	MPEG
<i>Drymophila devillei</i> (b)	BF	A	R	V, O, S	2, 4, 5, 13, 20, 25, 36, 47, 48	MPEG, MZUSP
<i>Hypocnemis peruviana</i>	AE, BE, PE, DE, SF	A	R	V, O, S, P	8, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Hypocnemis subflava</i> (a), (b)	BF	E; Inamb.	R	V, O, S	2, 13, 20, 23, 25	MPEG
<i>Hypocnemis hypoxantha</i>	AE, BE, PE, SE, CAM	A	R	V, O, S	4, 19, 20, 48	MPEG
<i>Willisornis poecilimotus</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 8, 11, 13, 19, 20, 25, 27, 48	MPEG
<i>Phlegopsis nigromaculata</i>	AE, BE, DF	A	R	V, O, S	2, 5, 11, 13, 17, 19, 20, 25, 27, 28, 36, 48	MPEG, MZUSP, UFAC
<i>Phlegopsis erythroptera</i>	PF	W	R	V, O, S	19, 20, 48	MPEG
<i>Gymnophithys salvini</i>	AE, BE, PE, DE, SE, CAM	A; Inamb.	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 28, 36, 48	MPEG, UFAC
<i>Rhegmatorhina melanosticta</i>	BE, PE, SF	A; Inamb. (f)	R	V, O, S	2, 5, 13, 19, 20, 25, 27, 36, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
Conopophagidae (2)						
<i>Conopophaga aurita</i>	AF, PE, SE, CAM	W	R	V, O, S	8, 20	MPEG
<i>Conopophaga peruviana</i>	BE, PE, DE, SF	A	R	V, O, S	20, 25, 27, 47, 48	MPEG
Grallariidae (3)						
<i>Grallaria eludens</i> (a)	BE, PE, SF	W; Inamb.	R	V, O	20, 47, 48	
<i>Hypopezus berlepschi</i>	AE, BE, PE, DF	A	R	V, O, S	2, 5, 11, 20, 47	MPEG, UFAC
<i>Myrmothera campanisona</i>	AE, BE, PF	A*	R	V, O, S	2, 5, 13, 20, 25, 27, 48	MPEG
Rhinocryptidae (1)						
<i>Liosceles thoracicus</i>	BE, PF	A	R	V, O, S	2, 5, 19, 20, 25, 48	MPEG
Formicariidae (4)						
<i>Formicarius colina</i>	AF, BE, PE, DE, CAM	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 35, 36, 48	MPEG
<i>Formicarius analis</i>	AF, BE, PF	A	R	V, O, S	2, 5, 11, 13, 17, 19, 20, 25, 27, 36, 48	MPEG, MZUSP
<i>Formicarius rufifrons</i> (a)	AF, BE, PF	A; Inamb.	R	V	2, 20, 47, 48	
<i>Chamaeza nobilis</i>	PF	W	R	V	Aleixo & Guilherme unpubl. data.	
Scleruridae (4)						
<i>Sclerurus mexicanus</i>	BE, PF	A	R	V, O, S	2, 5, 20, 25, 48	MPEG
<i>Sclerurus rufigularis</i>	PE, SF	W	R	V, O, S	20, 48	MPEG
<i>Sclerurus caudacutus</i>	BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 19, 20, 27, 48	MPEG
<i>Sclerurus albigularis</i>	BE, PF	A	R	V, O, S	2, 13, 20, 47, 48	MPEG
Dendrocolaptidae (20)						
<i>Dendrocincla fuliginosa</i>	AE, BE, PE, DE, SE, CAM	A*	R	V, O, S	2, 5, 11, 13, 20, 2527, 36, 48	MPEG, MZUSP
<i>Dendrocincla merula</i>	AE, BE, PE, DF	A	R	V, O, S	5, 8, 11, 13, 17, 20, 25, 36, 48	MPEG, MZUSP, UFAC
<i>Decorychura longicauda</i>	BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 35, 36, 48	MPEG
<i>Sittasomus griseicapillus</i>	AE, BE, PE, DE, CAM	A	R	V, O, S	2, 5, 11, 13, 17, 19, 20, 25, 36, 48	MPEG, MZUSP, UFAC
<i>Certhiasomus stictolaemus</i>	BE, PE, CAM	A	R	V, O, S	2, 5, 17, 20, 48	MPEG
<i>Glyphorhynchus spirurus</i>	AE, BE, PE, DE, SE, CAM	A*	R	V, O, S	2, 8, 11, 13, 19, 20, 25, 36, 48	MPEG
<i>Xiphorhynchus chunchoatambo</i> (a)	AE, BE, PF	E	R	V, O, S	5, 7, 11, 13, 20, 25	MPEG, UFAC
<i>Xiphorhynchus ocellatus</i>	BE, PF	A	R	V, O, S	7, 20, 27, 28, 35, 36	MPEG
<i>Xiphorhynchus elegans</i>	AE, BE, PE, DE, CAM	A	R	V, O, S, P	2, 5, 8, 11, 19, 20, 25, 27, 35, 36, 48	MPEG
<i>Xiphorhynchus obsoletus</i>	AE, SF	A	R	V, O, S	5, 20	MPEG
<i>Xiphorhynchus guttatus</i>	AE, BE, PE, DF	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Campylorhynchus trochilirostris</i> (b)	AE, BE, PE, SF	A	R	V, O, S	2, 5, 13, 20, 25, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Dendroplex picus</i>	AE, BE, PE, SE, OA, P, CAM, AA	A	R	V, O, S, P	5, 11, 13, 17, 20, 35, 36, 48	MPEG, UFAC
<i>Lepidocolaptes albolineatus</i>	BE, PE, SF	A	R	V, O, S	2, 5, 11, 13, 20, 27, 48	MPEG
<i>Nasica longirostris</i>	AE, PF	A	R	V, O	2, 5, 27, 28, 48	
<i>Dendrexetastes rufifigula</i>	AE, BE, PE, SE, CAM	A	R	V, O, S	2, 5, 8, 11, 20, 25, 48	MPEG
<i>Dendrocolaptes certhia</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 8, 20, 25, 27, 35, 48	MPEG, MZUSP
<i>Dendrocolaptes picumnus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 20, 25, 27, 28, 36, 48	MPEG, MZUSP
<i>Xiphocolaptes promeropirhynchus</i>	BE, PE, SF	A	R	V, O	2, 5, 20, 25, 36, 48	MPEG
<i>Hylexetastes stresemanni</i>	BE, PE, DE, CAM	A; Inamb.	R	V, O, S	2, 5, 20, 25, 35, 48	MPEG
Furnariidae (26)						
<i>Xenops tenuirostris</i>	BE, PF	A	R	V, O	2, 20, 25, 36, 48	
<i>Xenops minutus</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 25, 36, 48	MPEG, UFAC
<i>Xenops rutilans</i>	BE, PE, SF	A	R	V, O	20, 48	
<i>Berlepschia rikeri</i>	AF, SE, CAM	W	R	O	8, 20	
<i>Microxenops milleri</i>	BE, PE, SF	W	R	O	20, 48	MPEG
<i>Furnarius leucopus</i>	AF, DE, AR, L, R	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 18, 19, 20, 25, 35, 36, 48	MPEG
<i>Ancistrops strigilatus</i>	AE, BE, PF	A	R	V, O, S	2, 20, 36	MPEG
<i>Hylcististes subulatus</i>	AF, BE, PF	A	R	V, O, S	2, 20, 48	MPEG, UFAC
<i>Automolus ochrolaemus</i>	AE, BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 36, 48	MPEG, UFAC
<i>Automolus infuscatus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 36, 48	MPEG
<i>Automolus melanopezus</i> (b)	AE, BF	A	R	V, O, S, P	2, 5, 13, 20, 25, 36, 48	MPEG, MZUSP, UFAC
<i>Automolus rubiginosus</i>	BE, PE, SF	A	R	V, O, S	2, 13, 20, 25, 29, 36, 48	MPEG
<i>Automolus rufipileatus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 20, 27, 28, 48	MPEG, MZUSP
<i>Anabazenops dorsalis</i> (b)	BF	A	R	O, V	2, 5, 20, 48	
<i>Philydor ruficaudatus</i>	BE, PE, SF	A	R	V, O, S, P	11, 20, 25, 27, 36, 48	MPEG
<i>Philydor erythrocerum</i>	BE, PE, DE, CAM	A	R	V, O, S	5, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Philydor erythropteron</i>	AE, BE, PE, DF	A	R	V, O, S	2, 8, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Philydor rufum</i>	AF	A	R	V, O, S	2, 20, 48	MPEG
<i>Philydor pyrrhodes</i>	BE, PE, DE, SF	A	R	V, O, S	5, 11, 20, 25, 48	MPEG, MZUSP
<i>Simoxenops ucayalae</i> (b)	BE, SF	A	R	V, O, S	2, 5, 6, 13, 20, 25, 47, 48	MPEG, MZUSP
<i>Synallaxis albigularis</i>	AF	W	R	O, V	20, 48	
<i>Synallaxis rutilans</i>	BE, PE, DE, CAM	A	R	V, O, S	2, 13, 20, 25	MPEG, UFAC
<i>Synallaxis cherriei</i> (b)	BF	A	R	V, O, S	2, 13, 20, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Synallaxis guianensis</i>	AF, SF	W	R	V, O, S	5, 20, 25, 48	MZUSP
<i>Metopothrix aurantiacus</i>	AF	A	R	V, O, S	2, 20, 48	MPEG
<i>Cranioleuca gutturata</i>	BE, PE, SF	A	R	V, O, S	5, 20, 35, 48	MPEG, MZUSP
Pipridae (14)						
<i>Neopelma sulphureiventer</i>	AF, BE, PE, SF	A; Inamb.	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 47, 48	MPEG, MZUSP
<i>Tyrannetes stolzmanni</i>	AF, BE, PE, SF, CAM	W	R	V, O, S	11, 20, 25, 48	MPEG
<i>Pipra flicauda</i>	AF, DF	W	R	O, S	20, 27, 28, 48	MPEG
<i>Pipra fasciicauda</i>	AF, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 27, 36, 48	MPEG, MZUSP, UFAC
<i>Pipra rubrocapilla</i>	BE, PE, DF, CAM	A	R	V, O, S	8, 11, 13, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Pipra chloromeros</i> (a)	AF, BE, PF	A; Inamb.	R	V, O, S	2, 20, 47, 48	MPEG
<i>Lepidothrix coronata</i>	AF, BE, PE, DF, SE, CAM	A; Inamb. (h)	R	V, O, S	2, 5, 17, 19, 20, 22, 25, 27, 35, 36, 48	CPJH, MPEG, MZUSP, UFAC
<i>Manacus manacus</i>	AF, BE, PE, SF, CAM	W	R	V, O, S	8, 19, 20, 48	MPEG, UFAC
<i>Heterocercus lineatus</i>	CAM	W	R	O	20	
<i>Machaeropterus striolatus</i>	AF, BE, PE, SF, CAM	A	R	V, O, S	8, 20, 47, 48	MPEG
<i>Machaeropterus pyrocephalus</i>	AF, BE, PE, DF, SE, CAM	A	R	V, O, S	17, 20, 25, 36, 47, 48	MPEG, MZUSP, UFAC
<i>Dixiphia pipra</i>	AF, BE, PE, CAM	W	R	V, O, S	8, 19, 20, 27, 48	MPEG
<i>Xenopipo atronitens</i>	CAM	W	R	O, S	8, 20	MPEG
<i>Chiroxiphia pareola</i>	PF, SE, CAM	A	R	O, V	5, 20, 25, 48	
Tityridae (17)						
<i>Onychorhynchus coronatus</i>	BE, PE, DF, SE, CAM	A	R	V, O, S	2, 5, 11, 13, 17, 20, 25, 36, 48	MPEG, UFAC
<i>Terenotriccus erythrurus</i>	AF, BE, PE, DF, SF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 27, 36, 48	MPEG, MZUSP
<i>Myiobius barbatus</i>	AF, PE, SF, CAM	W; Inamb. (g)	R	V, O, S	20, 27, 48	MPEG
<i>Myiobius atricaudus</i>	AF, SF	W	R	V, O, S	20, 48	MPEG
<i>Schiffornis major</i>	AF, BE, PF	A	R	V, O, S	13, 17, 20, 27, 48	MPEG
<i>Schiffornis amazona</i>	PE, CAM	W	R	V, O, S	8, 20, 48	MPEG, UFAC
<i>Laniocera hypopyrrha</i>	AE, BE, PE, DF, CAM	A	R	V, O, S	8, 11, 13, 20, 36, 48	MPEG
<i>Iodopleura isabellae</i>	PF, DF, SE, CAM	A	R	V, O, S, P	5, 8, 20, 25, 47, 48	MPEG
<i>Tityra inquisitor</i>	AF, BE, PF	A	R	V, O, S	2, 5, 19, 20, 25, 48	MPEG
<i>Tityra cayana</i>	AF, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 48	FU
<i>Tityra semifasciata</i>	AF, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Pachynambus xanthogenys</i> (a)	BE, PF	E	R	V, O, S	1, 2, 20	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Pachyrhamphus rufus</i>	BE, PF	E	R	O	20, 36	
<i>Pachyrhamphus castaneus</i>	BE, PF	W	R	O, V	5, 2048	
<i>Pachyrhamphus polychopterus</i>	BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Pachyrhamphus marginatus</i>	AE, BE, PF	A	R	V, O, S	2, 5, 11, 20, 25, 35	MPEG, MZUSP
<i>Pachyrhamphus minor</i>	BE, PE, DF, CAM	A	R	V, O, S	2, 11, 20, 27, 28, 35, 36, 48	MPEG, MZUSP
Cotingidae (8)						
<i>Lipaugus vociferans</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Porphyrolaema porphyrolaema</i>	BE, PF	W	R	V, O	20, 48	
<i>Gymnoderus foetidus</i>	AE, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 20, 25, 48	MPEG
<i>Conioptilon milbennyi</i> (a)	AE, BE, PE, DF	A; Inamb.	R	V, O, S, P	2, 5, 11, 20, 25, 31, 47, 48	MPEG
<i>Cotinga maymana</i>	BE, PE, SF	W	R	V, O	20, 48	
<i>Cotinga cayana</i>	AE, BE, PF	W	R	V, O, S	5, 20, 25, 48	MPEG
<i>Querula purpurata</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 11, 13, 20, 36, 47, 48	MPEG
<i>Cephalopterus ornatus</i>	AE, SF	W	R	O, S	20, 48	MPEG
Incertae sedis (4)						
<i>Platyrrhinus coronatus</i>	AE, PE, SF	W	R	V, O, S	5, 11, 20, 25, 48	MPEG
<i>Platyrrhinus platyrrhynchus</i>	PE, CAM	A	R	V, O, S	2, 20, 25, 48	MPEG
<i>Piprites chloris</i>	AE, BE, PE, SF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 36, 48	MPEG, MZUSP
<i>Neopipo cinamomea</i>	SE, CAM	W	R	O, S	6, 20, Guilherme & Aleixo unpubl. data	MPEG
Rhynchocyclidae (23)						
<i>Cnipodectes subbrunneus</i>	AE, BE, PE, SF, CAM	W	R	V, O, S, P	8, 11, 20, 27, 48	MPEG
<i>Cnipodectes superrufus</i> (a), (b)	BF	E; Inamb.	R	V, O, S, P	2, 13, 20, 42	MPEG
<i>Mionectes oleagineus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 8, 13, 18, 20, 25, 48	MPEG, UFAC
<i>Mionectes amazonus</i>	PF	W; Inamb.	R	S	20	MPEG
<i>Leptopogon amaurocephalus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 5, 8, 11, 17, 18, 19, 20, 25, 36, 48	MPEG, MZUSP, UFAC
<i>Corythopsis torquatus</i>	AE, BE, PE, DE, SF	A	R	V, O, S	2, 11, 13, 17, 19, 20, 25, 48	MPEG
<i>Rhynchocyclus olivaceus</i>	AE, BE, PE, DE, SF	A	R	S, O, V, P	2, 11, 13, 17, 20, 48	MPEG
<i>Tolmomyias sulphureus</i>	BE, PF	W	R	O, V	11, 20, 48	
<i>Tolmomyias assimilis</i>	FE, CAM	A	R	V, O, S	2, 5, 13, 20, 48	MPEG
<i>Tolmomyias poliocephalus</i>	FE, BE, PF	A	R	V, O, S	2, 5, 11, 20, 25, 48	MPEG
<i>Tolmomyias flaviventris</i>	FE, OA, P, CAM	A	R	V, O, S	2, 20, 25, 48	MPEG, MZUSP
<i>Todirostrum maculatum</i>	AE, BE, PE, SE, OA, P, CAM	A	R	V, O, S	2, 5, 11, 17, 19, 20, 25, 27, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Todirostrum chrysocrotaphum</i>	AF, BE, PF	A	R	V, O, S, P	2, 5, 20, 25, 36, 48	CPJH, MPEG, UFAC
<i>Poecilorrhynchus albifacies</i> (a), (b)	BF	E; Inamb.	R	V, O, S, P	20, 49	MZUSP
<i>Myiornis ecaudatus</i>	BE, PE, DE, CAM	A	R	V, O, S	5, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Hemitriccus minor</i>	BE, PF	E	R	V, O, S	17, 20, 25	MPEG
<i>Hemitriccus flammulatus</i> (b)	AE, BF	A	R	V, O, S	2, 5, 11, 13, 14, 17, 19, 20, 25, 36, 48	MPEG, MZUSP, UFAC
<i>Hemitriccus griseipectus</i>	PE, BE, DE, SE, CAM	A	R	V, O, S	8, 20, 25, 27, 35, 48	MPEG, UFAC
<i>Hemitriccus iohannis</i>	BE, PF	A	R	V, O, S	6, 20, 48	CPJH
<i>Hemitriccus minimus</i>	BE, PE, SE, CAM	W	R	V, O, S	3, 8, 13, 20, 25	MPEG
<i>Poecilorrhynchus latirostris</i>	BE, PE, SF	W	R	V, O	20, 48	
<i>Lophorrhynchus vitiosus</i>	PE, CAM	W	R	V, O, S	20, 27, 48	MPEG
<i>Lophorrhynchus eulophotes</i> (b)	BE, PF	A; Inamb.	R	V, O, S, P	2, 5, 11, 13, 20, 36, 47, 48	MPEG, UFAC
Tyrannidae (61)						
<i>Zimmerius gracilipes</i>	FE, SE, P, CAM	A	R	V, O, S	2, 5, 11, 20, 25, 48	MPEG
<i>Inezia inornata</i>	AF, BE, PF	A	I	V, O, S	6, 20, 48	CPJH, UFAC
<i>Ornithion inerme</i>	AF, BE, PE, SF, CAM	A	R	V, O	2, 5, 11, 13, 20, 25, 48	
<i>Camptostoma obsoletum</i>	FE, SE, OA, P, CAM	A	R	V, O	5, 13, 17, 20, 25, 48	
<i>Elaenia flavogaster</i>	BE, PF	E	A	O, S	20, 25, 35	MZUSP
<i>Elaenia spectabilis</i>	AE, BE, PE, SE, OA, P, CAM	A	A	V, O, S	11, 19, 20, 27, 48	MPEG, UFAC
<i>Elaenia albiceps</i>	FE, PE, OA, P, CAM	A	A	V, O	20, 36, 48	
<i>Elaenia parvirostris</i>	FE, OA, P, CAM	A	A	V, O, S	20, 25, 48	MPEG, UFAC
<i>Myiopagis gaimardii</i>	AE, BE, PE, SE, OA, P, CAM, AA	A	R	V, O, S	2, 5, 8, 11, 13, 20, 25, 36, 48	MPEG
<i>Myiopagis caniceps</i>	AF, BE, PE, SF	A	R	V, O	2, 5, 20, 25, 36, 48	
<i>Myiopagis flavivertex</i>	AE, SF	A	R	V, O	20, 27, 28	MPEG
<i>Myiopagis viridicata</i>	BE, PF	E	A	S	17, 20	MPEG
<i>Tyrannulus elatus</i>	AE, BE, PE, DE, SE, CAM	A	R	V, O, S	2, 5, 8, 11, 17, 20, 25, 27, 48	MPEG, UFAC
<i>Phaeomyias murina</i>	AE, PE, OA, P, CAM, AA	A	R	V, O, S, P	20, 48	MPEG, UFAC
<i>Pseudocolaptes acutipennis</i>	PF	E	I	O	5, 20	
<i>Attila cinnamomeus</i>	AF, DF	W	R	V, O, S	11, 20, 27, 48	MPEG
<i>Attila citriniventris</i>	BE, PE, CAM	W	R	V, O, S	8, 20, 48	MPEG
<i>Attila bolivianus</i>	AF, BE, PF	A	R	V, O, S	2, 5, 11, 20, 27, 48	MPEG
<i>Attila spadiceus</i>	AF, BE, PF	A	R	V, O, S	2, 5, 11, 19, 20, 25, 48	MPEG, UFAC
<i>Legatus leucophaius</i>	FE, AO, P, CAM	A	R	V, O, S	2, 5, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Ramphotrigon megacephalum</i> (b)	AF, BE, PE, SF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 48	MPEG, MZUSP
<i>Ramphotrigon ruficauda</i>	BE, PE, DF, SF	A	R	V, O, S	5, 8, 11, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Ramphotrigon fuscicauda</i> (b)	BE, PE, DF, SF	A	R	V, O, S, P	2, 5, 11, 13, 14, 20, 25, 36, 47, 48	MPEG, MZUSP
<i>Myiarchus tuberculifer</i>	FE, OA, P, CAM	A	R	V, O, S	2, 5, 11, 20, 25, 36, 48	MPEG
<i>Myiarchus swainsoni</i>	FE	A	A	O	13, 17, 20, 25, 35, 36, 48	MZUSP
<i>Myiarchus ferox</i>	FE, OA, P, CAM, AA	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Myiarchus tyrannulus</i>	AF, BE, PE, DF	A	R	V, O, S	5, 27, 20, 35	MPEG, MZUSP
<i>Syrstes sibilator</i>	AF, BE, PE, DF, SF	A	R	V, O, S	2, 5, 11, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Rhytipterna simplex</i>	BE, PE, CAM	A	R	V, O, S	2, 5, 11, 20, 25, 35, 48	MPEG, MZUSP
<i>Casiornis rufus</i>	FE	E	I	S	20	MPEG
<i>Pitangus sulphuratus</i>	FE, AO, P, CAM, AA	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Philohydor lictor</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	5, 20, 25, 35, 36, 48	MZUSP
<i>Myiodynastes luteiventris</i>	FE	W	N	V, O	20, 47, 48	
<i>Myiodynastes maculatus</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	2, 5, 13, 17, 18, 19, 20, 25, 36, 48	MPEG
<i>Tyrannopsis sulphurea</i>	FE, PE, SE, OA, P, CAM	A	R	V, O, S, P	20, 36, 48	MPEG, UFAC
<i>Megarhynchus pitangua</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	2, 5, 11, 13, 17, 18, 19, 20, 25, 27, 36, 48	MPEG, UFAC
<i>Myiozetetes cayanensis</i>	FE, AO, P, CAM, AA, AR, R	A	R	V, O, S, P	5, 11, 13, 17, 19, 20, 25, 36, 48	MPEG, UFAC
<i>Myiozetetes similis</i>	FE, AO, P, CAM, AA, AR, R	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 27, 36, 48	MPEG, UFAC
<i>Myiozetetes granadensis</i>	AF, FE, CAM	A	R	V, O, S, P	2, 5, 8, 20, 48	MPEG
<i>Myiozetetes luteiventris</i> (a)	FE, AO, P, CAM, AA	A	R	V, O, S	2, 5, 20, 25, 35, 48	MPEG, MZUSP
<i>Tyrannus albogularis</i>	FE, OA, P, CAM, AA	E	I	O, S	11, 20	MPEG, UFAC
<i>Tyrannus melancholicus</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, UFAC
<i>Tyrannus savana</i>	FE, OA, P, CAM, AA	A	A	O, S, P	2, 5, 11, 17, 20, 25, 35, 48	MZUSP
<i>Tyrannus tyrannus</i>	FE	A	N	O, S	2, 5, 10, 18, 20, 25, 47, 48	MPEG
<i>Griseopygus aurantioatrocristatus</i>	FE, OA, P, CAM, AA	A	R	V, O, S	2, 5, 20, 36, 48	MPEG, MZUSP
<i>Empidonomus varius</i>	FE, OA	W	R	O, V, S	5, 13, 20, 25, 48	UFAC
<i>Conopias trivirgatus</i>	AF, PE, SF	A	R	O, V	2, 5, 20, 47, 48	
<i>Conopias parvus</i>	AF, PE, SE, CAM	A	R	O, V, P	3, 20, 47, 48	
<i>Colonia colonus</i>	FE, AR	A	R	O	2, 25, 11, 20, 48	
<i>Myiophobus fasciatus</i>	PE, SE, OA, P, CAM	A	A	V, O, S	2, 5, 11, 19, 20, 35, 48	MPEG, MZUSP
<i>Sublegatus modestus</i>	AF, PE, SE, OA, P, CAM	A	A	O, S	13, 17, 20, 35, 48	MZUSP
<i>Pyrocephalus rubinus</i>	FE, AO, P, CAM	A	A	O, S, P	2, 5, 11, 17, 20, 25, 27, 35, 36, 48	MPEG, MZUSP, UFAC

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Fluvicola albiventer</i>	FE, AR	A	A	O, S	20, 35, 48	MZUSP
<i>Ochthornis littoralis</i>	FE, AR	A	R	O, S, P	2, 5, 11, 17, 18, 19, 20, 27, 35, 48	MPEG, MZUSP, UFAC
<i>Cnemotriccus fuscatus</i>	AF, BE, PE, SF, CAM	A	R, A	V, O, S, P	20, 36	MPEG
<i>Lathrotriccus eulerei</i>	AF, BE, PF	A	A	O, S	2, 5, 13, 20, 25, 27, 48	MPEG
<i>Empidonax albonotum</i>	FE	A	N	V, O, S	25, 20, 47, 48	MPEG, UFAC
<i>Contopus cooperi</i>	FE	A	N	V, O	20, 25, 48	
<i>Contopus virens</i>	FE	A	N	V, O, S	2, 5, 8, 20, 25, 48	MPEG
<i>Contopus cinereus</i>	FE	A	N	V, O, S	20	MPEG
<i>Muscivora fluvialis</i>	FE, AR	W; Inamb.	R	O	5, 20, 48	
Vireonidae (7)						
<i>Cyclarhis gujanensis</i>	AF, BE, PE, DF, SE, AA	A	R	V, O, S	2, 5, 11, 13, 17, 19, 20, 25, 35, 48	MZUSP
<i>Vireolanus leucotis</i>	BE, PE, SF	A	R	V, O, S	2, 5, 11, 20, 25, 48	MPEG
<i>Vireo olivaceus</i>	AF, BE, PE, DF, SF	A	R, A	V, O, S, P	2, 11, 13, 17, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Vireo flavoviridis</i>	AF, BE, PF	A	N	V, O, S	2, 8, 20, 45, 47, 48	MPEG
<i>Hypophylus thoracicus</i>	BE, PE, DF	A	R	V, O, S	2, 5, 20, 25, 35, 36, 48	MZUSP
<i>Hypophylus hypoxanthus</i>	AF, BE, P, F, SE, CAM	A	R	O	2, 5, 11, 20, 25, 48	
<i>Hypophylus ochraceiceps</i>	AF, BE, PF, SF	A	R	V, O, S	2, 20, 25, 27, 48	MPEG
Corvidae (1)						
<i>Cyanocorax violaceus</i>	AF, BE, PF, SF	A	R	V, O, S, P	2, 5, 8, 11, 19, 20, 27, 28, 36, 48	MPEG
Hirundinidae (10)						
<i>Pygochelidon cyanoleuca</i>	FE, AR, L	W	R	V, O	25, 20, 47, 48	
<i>Atticora fasciata</i>	FE, AR, L, A	A	R	V, O, S, P	2, 5, 11, 17, 19, 20, 27, 35, 48	MPEG, MZUSP, UFAC
<i>Atticora tibialis</i>	FE, AR	A	R	V, O, S	20, 35, 48	MZUSP
<i>Stelgidopteryx ruficollis</i>	FE, AR, L, A, OA, AA	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 27, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Progne tapera</i>	AA, FE, AR, L, A, OA	A	R	V, O, S, P	2, 5, 11, 17, 19, 20, 25, 27, 48	MPEG
<i>Progne subis</i>	FE, OA, AA	A	N	O	20, 25, 48	
<i>Progne chalybea</i>	AA, AR, L, OA	A	R	V, O, S, P	2, 5, 11, 17, 19, 20, 27, 35, 36, 48	MPEG
<i>Tachycineta albiventer</i>	AR, L, A	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 27, 35, 48	MPEG
<i>Riparia riparia</i>	FE, AR, L	W	R	V, O	20, 47, 48	
<i>Hirundo rustica</i>	FE, AR, L, OA	A	N	V, O, S	20, 35, 47	MZUSP
Troglodytidae (6)						
<i>Microcerculus marginatus</i>	AF, BE, PE, DF, SE, CAM	A	R	V, O, S	2, 5, 11, 13, 20, 25, 27, 48	MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Troglodytes musculus</i>	FE, OA, CAM, AA	A	R	V, O, S	5, 11, 13, 17, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Campylorhynchus turdinus</i>	FE, AF, BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 19, 20, 25, 35, 48	MPEG, MZUSP
<i>Pheugopedius genibarbis</i>	FE, AF, BE, PE, DF	A	R	V, O, S	2, 5, 8, 11, 13, 17, 19, 20, 25, 36, 48	MPEG, MZUSP, UFAC
<i>Cantorchilus leucotis</i>	FE, AE, BE, PE, SF	A	R	V, O, S, P	5, 20, 27, 36, 48	MPEG, MZUSP, UFAC
<i>Cyphorhinus anada</i>	AF, BE, PE, DE, SF	A; Inamb. (i)	R	V, O, S	13, 20, 27, 28, 35, 48	MPEG
Donacobiidae (1)						
<i>Donacobius atricapilla</i>	AF, W	A	R	V, O, S	5, 11, 17, 20, 35, 36, 48	MZUSP
Poliopitilidae (2)						
<i>Ramphocaelus melanurus</i>	AF, BE, PF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 48	MPEG, MZUSP
<i>Poliopitila plumbea</i>	BE, PE, DE, SF, CAM	A	R	V, O	2, 5, 11, 20, 48	
Turdidae (8)						
<i>Catharus minimus</i>	PF	E	N	S	20, 29	MPEG
<i>Catharus swainsoni</i>	BE, PE, DE, CAM	A	N	O, S	8, 17, 18, 20, 25, 48	MPEG, MZUSP
<i>Turdus amaurochalinus</i>	FE, AA, OA	E	A	O, S	17, 18, 20, 35, 36	MPEG, MZUSP
<i>Turdus ignobilis</i>	FE, OA, CAM, AA	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 20, 25, 35, 48	MPEG, MZUSP, UFAC
<i>Turdus lawrencii</i>	AF, PE, SF	A	R	V, O, S	2, 8, 20, 48	MPEG
<i>Turdus hauxwelli</i>	AF, BE, PE, DF	A	R	V, O, S, P	2, 58, 11, 13, 17, 19, 20, 25, 27, 48	MPEG, UFAC
<i>Turdus albicollis</i>	BE, PE, DE, SF, CAM	A	R	V, O, S	5, 19, 20, 25, 36, 48	MPEG
<i>Turdus sanchezororum</i>	AF, PE	E	R	S, O	20	MPEG
Coerebidae (1)						
<i>Coereba flaveola</i>	FE, AE, PE, CAM	A	R	O, V	2, 20, 13, 48	
Thraupidae (41)						
<i>Salpator grossus</i>	BE, PE, DE, SF	A	R	V, O, S	2, 5, 11, 13, 17, 20, 25, 36, 48	MPEG
<i>Salpator maximus</i>	FE, CAM, OA, CAM, AA	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Salpator coerulescens</i>	FE, OA, CAM, AA	A	R	V, O, S, P	2, 11, 17, 20, 27, 28, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Pakethraustes humeralis</i>	BE, PE	W	R	V, O	5, 20, 48	
<i>Conothraupis speculigera</i> (a)	FE	W	I	O, S	19, 20, 39, 47	MPEG, MZUSP
<i>Lamprospiza melanoleuca</i>	FE, AE, PE, DE, CAM	A	R	V, O, S	2, 5, 13, 20, 25, 47, 48	MPEG
<i>Nemosia pileata</i>	AF, BE, PE	W	R	V, O	5, 20, 48	
<i>Thytopsis sordida</i>	PF	W	R	O	20, 48	
<i>Tachyphonus phoenicius</i>	CAM	W	R	O	Guilherme & Aleixo unpubl. data	UFAC
<i>Ramphocelus nigrogularis</i>	AF, FE	A	R	V, O, S, P	2, 5, 8, 11, 18, 19, 20, 27, 30, 48	LSUMZ, MPEG

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Ramphocelus carbo</i>	FE, CAM, OA, AA	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 28, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Lanio luctuosus</i>	AF, BE, PE, DF	A	R	V, O, S, P	2, 5, 11, 13, 17, 20, 25, 27, 28, 35, 36, 48	MPEG, MZUSP
<i>Lanio cristatus</i>	BE, PE, DF	A	R	V, O, S	20, 25, 35, 36, 48	MZUSP
<i>Lanio rufiventer</i>	AF, BE, PE, SF	W, Inamb.	R	V, O, S	5, 20, 48	MPEG
<i>Lanio versicolor</i>	AF, BE, PE, SF	A	R	V, O, S	2, 11, 18, 19, 20, 25, 36, 48	MPEG
<i>Lanio surinamus</i>	AF, BE, PE, DF, CAM	W	R	V, O, S	11, 20, 27, 48	MPEG
<i>Lanio penicillatus</i>	AF	A	R	V, O, S	20, 25, 27, 28, 36, 48	MPEG
<i>Tangara gyrola</i>	AF, BE, PE, SF	A	R	V, O	2, 11, 20, 48	
<i>Tangara schrankii</i>	AF, BE, PE, DF, SF	A	R	V, O, S, P	2, 5, 11, 13, 20, 25, 27, 28, 35, 36, 48	MPEG, MZUSP
<i>Tangara mexicana</i>	AF, BE, PE, DF, SF	A	R	V, O, S, P	5, 11, 13, 17, 20, 27, 28, 36, 48	MPEG, UFAC
<i>Tangara chilensis</i>	AF, BE, PE, DF, SF	A	R	V, O, S, P	2, 5, 8, 11, 13, 19, 20, 27, 28, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Tangara velia</i>	AF, BE, PE, SF	A	R	V, O, S	5, 8, 13, 20, 25, 36, 48	MPEG
<i>Tangara callophrys</i>	AF, BE, PE, DF, SF	A	R	V, O, S	11, 20, 25, 48	MPEG
<i>Tangara xanthogastra</i>	AF, BE, PE, SF	A	R	V, O, S	20, 36, 48	MZUSP
<i>Tangara episcopus</i>	FE, CAM, OA, AA	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Tangara palmarum</i>	AF, FE, CAM, OA, AA	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Tangara nigrocincta</i>	AF, PE, DF, SF	A	R	V, O, S	2, 5, 8, 13, 19, 20, 25, 35, 48	MPEG, MZUSP
<i>Cissopis leverianus</i>	FE	A	R	V, O, S, P	2, 11, 19, 20, 27, 35, 36, 48	MPEG, MZUSP
<i>Schistocephalus melanopsis</i>	P, OA	E	R	O, S, P	20, 36	UFAC
<i>Paroaria gularis</i>	AF, FE, AR	A	R	V, O, S, P	2, 5, 11, 19, 20, 27, 35, 36, 48	MPEG, MZUSP
<i>Tersina viridis</i>	FE, AF, PF, SF	A	R	V, O, S	2, 5, 11, 19, 20, 48	MPEG
<i>Dacnis lineata</i>	AF, PE, DF	A	R	V, O, S	2, 5, 19, 20, 25, 36, 48	MPEG
<i>Dacnis flaviventer</i>	AF, PE, SF	A	R	V, O, S	11, 20, 27, 28, 48	MPEG
<i>Dacnis cayana</i>	AF, BE, PE, DF	A	R	V, O, S	2, 5, 13, 17, 19, 20, 25, 36, 48	MPEG
<i>Cyanerpes nitidus</i>	AF, BE, PE, SF	W	R	V, O, S	8, 20, 48	MPEG
<i>Cyanerpes caeruleus</i>	AF, BE, PE, SF, CAM	W	R	V, O, S	8, 20, 48	MPEG
<i>Cyanerpes cyaneus</i>	AF, BE, PE, SF	A	R	V, O	13, 19, 20, 48	
<i>Chlorophanes spiza</i>	AF, BE, PF	A	R	V, O, S	5, 11, 20, 25, 27, 48	MPEG
<i>Hemithraupis guina</i>	BE, PE, DF, SF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 35, 48	MPEG, MZUSP
<i>Hemithraupis flavicollis</i>	AF, BE, PE, SF	A	R	V, O	5, 20, 25, 36, 48	
<i>Conirostrum speciosum</i>	AF	E	R	V, O	11, 20	

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
Emberizidae (13)						
<i>Anmodramus aurifrons</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	2, 5, 11, 13, 17, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Sicalis flaveola</i>	OA, AA	A	R	V, O, P	16, 20, 21, 48	
<i>Volatinia jacarina</i>	FE, OA, P, CAM, AA	A	R	V, O, S	5, 11, 13, 17, 20, 25, 36, 48	MPEG, UFAC
<i>Sporophila schistacea</i>	FE	A	R	O, S	20, 47	MZUSP
<i>Sporophila bouvronides</i>	FE, OA, P, CAM, AA	A	I	V, O, S, P	18, 20, 47, 48	MPEG, UFAC
<i>Sporophila lineola</i>	FE, OA, P, CAM	A	I	V, O, S	17, 20, 25	UFAC
<i>Sporophila luctuosa</i> (a)	FE, OA, P, CAM	W	I	V, O, S	20, 47, 48	MPEG
<i>Sporophila caeruleescens</i>	FE, OA, P, CAM	A	I	V, O, S, P	2, 5, 11, 17, 20, 35, 48	MZUSP
<i>Sporophila castaneiventris</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	5, 11, 17, 18, 19, 20, 27, 35, 36, 48	MPEG, MZUSP, UFAC
<i>Sporophila angolensis</i>	FE, OA, P, CAM, AA	A	R	V, O, S, P	5, 11, 13, 17, 19, 20, 25, 36, 48	MPEG, UFAC
<i>Sporophila maximiliani</i>	OA	W	R	O	20	
<i>Tiaris</i> sp.	FE	E	I	V	2, 20	
<i>Arremon taciturnus</i>	BE, PE, DF	A	R	V, O, S	2, 5, 18, 19, 20, 25, 36, 48	MPEG, UFAC
Cardinalidae (3)						
<i>Habia rubica</i>	AF, BE, PE, DF, SF	A	R	V, O, S	2, 5, 13, 20, 25, 36, 48	MPEG
<i>Piranga rubra</i>	PF	W	N	O	20, 48	
<i>Piranga olivacea</i>	AF, BE, PF	A	N	V, O, S	20, 47, 48	MPEG
<i>Cyanoloxia cyanooides</i>	BE, PE, DF	A	R	V, O, S	2, 5, 11, 13, 20, 25, 36, 48	MPEG, MZUSP, UFAC
Parulidae (2)						
<i>Wilsonia canadensis</i>	AF	W	N	O	20	
<i>Phaeothlypis fulvicauda</i>	AF, BE, PE, DF, SF	A	R	V, O, S, P	2, 5, 11, 13, 20, 25, 48	MPEG
Icteridae (16)						
<i>Psarocolius angustifrons</i>	AE, BE, PE, OA, CAM	A	R	V, O, S, P	2, 5, 11, 18, 20, 48	MPEG
<i>Psarocolius viridis</i>	BE, PE, SE, OA, CAM	W	R	V, O, S	8, 2027, 48	MPEG
<i>Psarocolius decumanus</i>	AF, BE, PE, DF, SE, OA, CAM	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Psarocolius bifasciatus</i>	AF, BE, PE, DE, SE, OA, CAM	A	R	V, O, S, P	2, 5, 8, 11, 13, 19, 20, 25, 35, 36, 48	MPEG, MZUSP
<i>Procatacus solitarius</i>	AF, BE, PE, OA, CAM	A	R	V, O, S	2, 5, 8, 19, 20, 48	MPEG, MZUSP
<i>Cacicus haemorrhous</i>	BE, PF	A	R	O	20, 36, 48	
<i>Cacicus oseryi</i>	AF, BE, PE, SF	A	R	V, O, S	2, 5, 8, 20, 47, 48	MPEG
<i>Cacicus latirostris</i>	AF, BE, PE, SF	W	R	V, O, S	11, 20, 47, 48	MPEG
<i>Cacicus cela</i>	FE, OA, CAM, AA	A	R	V, O, S, P	2, 5, 8, 11, 13, 17, 19, 20, 25, 27, 28, 35, 36, 48	MPEG, MZUSP, UFAC

Families and species ¹	Habitat ²	Distribution/ Endemism ³	Status ⁴	Type of record ⁵	References ⁶	Institution ⁷
<i>Cacicus koepckeae</i> (a)	AF	E; Inamb.	R	O	5, 20	
<i>Icterus cayanensis</i>	AF, PE, SE, CAM	A	R	V, O, S	2, 8, 5, 20, 48	MPEG
<i>Icterus croconotus</i>	AF, PE, SE, OA, CAM	A	R	V, O, S, P	2, 5, 20, 36, 48	MPEG
<i>Lamprosars tanagrinus</i>	AF, PF	A	R	V, O, S	20, 25, 27, 48	MPEG
<i>Molothrus oryzivora</i>	FE, AR, L, OA, CAM	A	R	V, O, S, P	2, 5, 11, 13, 19, 20, 25, 27, 35, 36, 48	MPEG, MZUSP
<i>Molothrus bonariensis</i>	FE, OA, AA, CAM	A	R	V, O, S	2, 5, 17, 20, 48	MPEG
<i>Sturnella militaris</i>	AA, CAM, AA, OA, P	A	R	V, O, S, P	5, 11, 13, 17, 18, 19, 20, 25, 30, 35, 36	MPEG, MZUSP, UFAC
Fringillidae (6)						
<i>Euphonia chlorotica</i>	FE, CAM, AA	A	R	O, V	2, 19, 20	
<i>Euphonia lanirostris</i>	AF, BE, PF	A	R	V, O, S	2, 11, 20, 25, 27, 48	MPEG
<i>Euphonia chrysopasta</i>	AF, BE, PE, DE, SE, CAM	A	R	V, O, S, P	5, 11, 13, 20, 35, 48	MPEG, MZUSP
<i>Euphonia minuta</i>	AF, PF	A	R	V, O, S	2, 20, 25, 48	MPEG
<i>Euphonia xanthogaster</i>	AF, BE, PF	A	R	V, O, S	2, 5, 17, 20, 27, 48	MPEG
<i>Euphonia rufiventris</i>	AF, PE, CAM	A	R	V, O, S	2, 5, 11, 20, 25, 48	MPEG
Estrildidae (1)						
<i>Estrilda astrild</i>	AA	E	R, In	V, O, S	20, 38	UFAC
Passeridae (1)						
<i>Passer domesticus</i>	AA	A	R, In	V, O	16, 20	

¹Families and species - Nomenclature and taxonomy follow CBRO (2011)

- (a) – Species known to occur in Brazil based solely on records from the state of Acre;
 (b) – Species associated with the bamboo forests of the state of Acre.

²Habitat

AF – Alluvial open rainforest; BF – Bamboo forest (*terra firme* rainforest); PF – Open rainforest with palms; SF – Dense submontane rainforest; DF – Dense rainforest; FE – Forest edge; CAM – Campinas and campinaranas (white sand forest); R – Reservoirs; L – Lakes; AR – Associated with rivers; OA – Open area; AA – Anthropogenic area; W – Wetlands; FB – Fluvial beach; P – Pasture.

³Distribution/ Endemism

A – Occurs throughout the state of Acre; E – Recorded only in the eastern sub-region (right margin of the Purus River); W – Recorded only in the western sub-region (left margin of the Purus River); Inamb – Species restricted to the Inambari area of endemism.

* Species represented by more than one subspecies in Acre. In this case, at least one of the subspecies occurs only in one of the sub-regions of the state (see Tables 1 and 2).

- (a) Only the subspecies *Amazilia lactea bartlettii* is endemic to the Inambari center;
 (b) Only the subspecies *Nonnula r. ruficapilla* is endemic to the Inambari center;

- (c) Only the subspecies *Selenidera reinwardtii langsdorffii* is endemic to the Inambari center;
- (d) Only the subspecies *Picumnus aurifrons juruanus* is endemic to the Inambari center;
- (e) Only the subspecies *Myrmotherula iberingi heteroptera* is endemic to the Inambari center;
- (f) Only the subspecies *Rhegmatorhina melanosticta purusiana* is endemic to the Inambari center;
- (g) Only the subspecies *Myiobius barbatus amazonicus* is endemic to the Inambari center;
- (h) Only the subspecies *Lepidothrix coronata exquisita* is endemic to the Inambari center;
- (i) Only the subspecies *Cyphorhinus arada modulator* is endemic to the Inambari center.

⁴Status

R – Resident, N – Nearctic migrant; In – Invader; Va – Vagrant; I – Intra-tropical migrant; A – Austral migrant.

⁵Type of record

V – Vocalization (from the MPEG collection or the personal archives of the person responsible for the record – see references); O – Observation, S – Museum specimen; P – Photograph available on the wikiaves site (www.wikiaves.com.br).

⁶References:

1: Aleixo *et al.* (2008); 2: Aleixo and Guilherme (2010); 3: Alvarez-Alonso and Whitney (2003); 4: Bates *et al.* (1999); 5: Buzzetti (2008); 6: Forrester (1993); 7: Guilherme and Aleixo (2008); 8: Guilherme and Borges (2011); 9: Guilherme and Dantas (2008); 10: Guilherme and Aleixo (2011); 11: Guilherme and Dantas (2011a); 12: Guilherme and Dantas (2011b); 13: Guilherme and Santos, 2009; 14: Guilherme *et al.* (2003); 15: Guilherme *et al.* (2005); 16: Guilherme (2000); 17: Guilherme (2004); 18: Guilherme (2007); 19: Guilherme (2010b); 20: Guilherme (2009); 21: Guilherme (2011); 22: Hidas and Bankovics (1997); 23: Isler *et al.* (2007); 24: Mestre and Bierregaard (2009); 25: Mestre *et al.* (2010a); 26: Mestre *et al.* (2010b); 27: Novaes (1957); 28: Novaes (1958); 29: Novaes (1978); 30: Parker and Rensen (1987); 31: Mestre *et al.* (2009); 32: Peres (1990); 33: Peres (1996); 34: Pierpont and Fitzpatrick (1983); 35: Pinto and Camargo (1954); 36: Rasmussen *et al.* (2005); 37: Rego *et al.* (2009); 38: Silva (2004); 39: Storz (1990); 40: Teixeira *et al.* (1994); 41: Tobias and Brightsmith (2007); 42: Tobias *et al.* (2008); 43: Whitney and Oren (2001a); 44: Whitney and Oren (2001b); 45: Whitney and Pacheco (2001); 46: Whitney *et al.* (2004); 47: Whittaker and Oren (1999); 48: Whittaker *et al.* (2002); 49: Zimmer *et al.* (2010).

⁷Institution housing Acre specimen(s) of the respective species:

AMNH - American Museum of Natural History; CPJH – Private collection of Prof. José Hidas (Goiania); FU - Florida Museum of Natural History; LSUMZ - Louisiana State University Museum of Natural Sciences; MNRJ – Museu Nacional do Rio de Janeiro; MPEG – Coleção Ornitológica Dr. Fernando C. Novaes - Museu Paraense Emílio Goeldi; MZUSP – Museu de Zoologia da Universidade de São Paulo; UFAC – Laboratório de Ornitologia da Universidade Federal do Acre, ZUEC – Coleção Ornitológica do Museu de Zoologia da Universidade Estadual de Campinas, São Paulo.

APPENDIX 2

Secondary (hypothetical) list of birds for the Brazilian state of Acre. Includes species for which vouchered records for the state are lacking as well as those recorded from nearby localities in neighboring Brazilian states and countries. Taxonomy and nomenclature follow CBRO (2011).

Family/Species	Locality	Source	Comments
Tinamidae			
<i>Crypturellus tataupa</i>	Acre	Aleixo & Whittaker (in litt.)	Requires confirmation
Anatidae			
<i>Dendrocygna bicolor</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Neochen jubata</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
Cracidae			
<i>Nothocrax urumutum</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Crax globulosa</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Podicipedidae			
<i>Podilymbus podiceps</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Ardeidae			
<i>Zebriulus undulatus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Ixobrychus exilis</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
Threskiornithidae			
<i>Cercibis oxycerca</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Phimosus infuscatus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Platalea ajaja</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Cathartidae			
<i>Cathartes burrovianus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Vultur gryphus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Accipitridae			
<i>Circus buffoni</i>	Peru, Bolivia	Walker <i>et al.</i> 2006; Tobias & Seddon 2007	Probable occurrence
<i>Accipiter poliogaster</i>	Acre	Whittaker & Oren 1999	Requires confirmation
<i>Accipiter striatus</i>	Acre	Guilherme 2001	Requires confirmation
Falconidae			
<i>Falco sparverius</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Falco femoralis</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Falco deiroleucus</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Falco peregrinus</i>	Peru, Amazonas	Walker <i>et al.</i> 2006; Aleixo & Poletto 2006	Probable occurrence
Rallidae			
<i>Aramides calopterus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Amaurolimnas concolor</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Pardirallus nigricans</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Porphyrio flavirostris</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Recurvirostridae			
<i>Himantopus mexicanus</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
Scolopacidae			
<i>Bartramia longicauda</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Calidris fuscicollis</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Columbidae			
<i>Geotrygon saphirina</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence

Family/Species	Locality	Source	Comments
Psittacidae			
<i>Derophtus accipitrinus</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Cuculidae			
<i>Neomorphus pucheranii</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Nyctibidae			
<i>Nyctibius bracteatus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Caprimulgidae			
<i>Hydropsalis leucopyga</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
<i>Chordeiles minor</i>	Peru, Bolívia	Walker <i>et al.</i> 2006; Tobias & Seddon 2007	Probable occurrence
Trochilidae			
<i>Phaethornis stuarti</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Lophornis chalybeus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Discosura langsdorffi</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Amazilia versicolor</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Bucconidae			
<i>Micromonacha lanceolata</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Capitonidae			
<i>Capito aurovirens</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Thamnophilidae			
<i>Myrmeciza castanea</i>	Peru	Alvarez-Alonso & Whitney 2003	Probable occurrence
<i>Epinecrophylla erythrura</i>	Acre	Whitney <i>et al.</i> 1998 (in litt.)	Requires confirmation
<i>Myrmotherula sunensis</i>	Acre	Forrester 1993	Requires confirmation
<i>Megascictus margaritatus</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
<i>Herpsilochmus sp.</i>	Amazonas	Aleixo 2003 (in litt.)	Probable occurrence
<i>Sakesphorus sp.</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
<i>Hypocnemoides melanopogon</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Dendrocolaptidae			
<i>Campylorhamphus procurvovoides</i>	Acre	Rasmussen <i>et al.</i> 2005; Whittaker <i>et al.</i> 2002	Requires confirmation
<i>Dendroplex kienerii</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Furnariidae			
<i>Synallaxis cabanisi</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Cranioleuca vulpecula</i>	Bolivia	Tobias & Seddon 2007	Probable occurrence
<i>Cranioleuca vulpina</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
<i>Thripophaga fusciceps</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
Cotingidae			
<i>Xipholena punicea</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Rhynchocyclidae			
<i>Hemitriccus striaticollis</i>	Amazonas	Poletto & Aleixo 2005	Probable occurrence
<i>Poecilotriccus capitalis</i>	Acre	Rasmussen <i>et al.</i> 2005	Requires confirmation
Tyrannidae			
<i>Elaenia pelzelni</i>	Bolívia	Tobias & Seddon 2007	Probable occurrence
<i>Elaenia strepera</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Elaenia gigas</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Capsiempis flaveola</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Machetormis rixosa</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
<i>Rhytipterna immunda</i>	Bolivia	Tobias & Seddon 2007	Probable occurrence

Family/Species	Locality	Source	Comments
<i>Sublegatus obscurior</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Aurundinicola leucocephala</i>	Acre	Ridgely & Tudor, 1994	Requires confirmation
<i>Knipolegus hudsoni</i>	Bolivia	Tobias & Seddon 2007	Probable occurrence
<i>Satrapa icterophrys</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
Vireonidae			
<i>Hylophilus pectoralis</i> ¹	Acre	Guilherme & Dantas 2011	Excluded
<i>Hylophilus semicinereus</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Hirundinidae			
<i>Tachycineta leucorrhoa</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Progne elegans</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Petrochelidon pyrrhonota</i>	Peru, Bolivia	Walker <i>et al.</i> 2006; Tobias & Seddon 2007	Probable occurrence
Troglodytidae			
<i>Microcerculus bambla</i>	Acre	Ridgely & Tudor, 1994	Requires confirmation
<i>Odontorchilus sp.</i>	Acre	Whitney <i>et al.</i> 1998 (in litt.)	Requires confirmation
<i>Pheugopedius coraya</i>	Acre	Ridgely & Tudor, 1994	Requires confirmation
<i>Cantorchilus griseus</i>	Acre	Ridgely & Tudor, 1994	Requires confirmation
<i>Henicorbina leucosticta</i>	Acre	Rasmussen <i>et al.</i> 2005	Requires confirmation
Poliophtidae			
<i>Poliophtila sp.</i>	Amazonas	Aleixo & Poletto (in litt.)	Probable occurrence
Turdidae			
<i>Catharus fuscescens</i>	Acre	Ridgely & Tudor 1994	Probable occurrence
<i>Turdus nudigenis</i> ²	Acre	Aleixo & Guilherme 2010	Excluded
Thraupidae			
<i>Tangara cyanicollis</i>	Acre	Whitney <i>et al.</i> 1998 (in litt.)	Requires confirmation
<i>Pipraeidea melanonota</i>	Acre	Ridgely & Tudor 1994	Requires confirmation
<i>Dacnis albiventris</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
<i>Conirostrum margaritae</i>	Bolivia	Tobias & Seddon 2007	Probable occurrence
Emberizidae			
<i>Sporophila hypoxantha</i>	Bolivia	Tobias & Seddon 2007	Probable occurrence
<i>Sporophila ruficollis</i>	Bolivia	Tobias & Seddon 2007	Probable occurrence
<i>Sporophila americana</i>	Acre	Ridgely & Tudor 1994	Probable occurrence
<i>Sporophila nigricollis</i> *	Acre	Ridgely & Tudor 1994	Probable occurrence
Parulidae			
<i>Dendroica striata</i>	Acre	Ridgely & Tudor 1994	Requires confirmation
<i>Oporornis agilis</i>	Acre	Ridgely & Tudor 1994	Requires confirmation
<i>Geothlypis aequinoctialis</i>	Acre	Forrester, 1993	Requires confirmation
<i>Basileuterus culicivorus</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation
Icteridae			
<i>Agelasticus xanthophthalmus</i>	Peru	Walker <i>et al.</i> 2006	Probable occurrence
Fringillidae			
<i>Chlorophonia cyanea</i>	Acre	Whittaker <i>et al.</i> 2002, Supplement	Requires confirmation

^{1,2} - The species *Turdus nudigenis* and *Hylophilus pectoralis* were, respectively, mistyped (Aleixo and Guilherme 2010) and misidentified (Guilherme and Dantas 2011), and are thus excluded from the checklist of Acre birds.

* Two photographs taken in Tarauacá (in December, 2010) were attributed to *Sporophila nigricollis* on the Wikiaves site. As I was not sure to determine whether this specimen represents *S. nigricollis* or *Sporophila luctuosa*, *S. nigricollis* was maintained in the secondary list until further documentary evidence is collected.