

# Birds of the Serra dos Órgãos, State of Rio de Janeiro, Southeastern Brazil: a review

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**RESUMO. Aves da Serra dos Órgãos, Estado do Rio de Janeiro, sudeste do Brasil: uma revisão.** É feita uma revisão da avifauna da Serra dos Órgãos, baseada em pesquisa na literatura, espécimes em coleções ornitológicas e trabalhos de campo. Um total de 458 espécies foi registrado na região. Entre essas espécies, 340 (74%) tiveram espécimes coletados e depositados em coleções ornitológicas. Noventa e uma espécies (20%) não foram anteriormente citadas para a região pela literatura ornitológica. Embora várias destas espécies sejam predominantemente florestais (incluindo vários endemismos da Mata Atlântica), a maioria pode ser encontrada em ambientes secundários e borda de mata. Espécies encontradas tanto em baixas quanto em elevadas altitudes são mais comuns que as espécies restritas às altitudes mais baixas ou aquelas registradas somente acima de 800m. No presente estudo, 140 espécies (30%) foram consideradas raras na Serra dos Órgãos e 21 espécies não têm sido recentemente registradas na região, embora somente a jacutinga (*Aburria jacutinga*) pode ser considerada extinta na Serra dos Órgãos. Aparentemente algumas espécies foram erroneamente citadas para a região. Entre as ameaças às aves da região estão o intenso desmatamento na parte baixa da serra, a atividade de caçadores, a captura de pássaros para gaiolas e o crescimento da ocupação humana na região.

**PALAVRAS-CHAVE:** Aves, Avifauna, Mata Atlântica, Serra dos Órgãos, Sudeste do Brasil

**ABSTRACT.** A review of the birds of the Serra dos Órgãos is based on a survey of the literature, specimens in ornithological collections and field study. A total of 458 species was recorded in the region. Specimens of 340 species are housed in ornithological collections. Ninety one species (20%) were not previously reported for the region. Although several of these species are predominantly forest birds (including several endemic Atlantic Forest species), the majority is found in second growth and forest borders. Birds of both lower and higher altitudes are more common than species restricted to lower altitudes or only recorded above 800m. In this study, 140 species (30%) were considered rare in Serra dos Órgãos, and 21 species have not been recently found in the region although only the Black-fronted Piping-Guan *Aburria jacutinga* can be considered extinct in the Serra dos Órgãos. Some species were apparently erroneously reported in the region. Threats to the birds of the region are the intensive deforestation at lower altitudes, hunting activity, captures of birds for the pet trade and the growth of human populations in the region.

**KEY WORDS:** Atlantic Forest, Avifauna, birds, Organs Mountains, Southeastern Brazil.

The southeastern Brazil has one of the richest and best-known avifaunas in South America. The Serra dos Órgãos (Organs Mountains), located in the central region of the state of Rio de Janeiro, is perhaps the ornithologically best-known region of the Serra do Mar Atlantic coastal mountain range. The region includes two Important Bird Areas in the Atlantic Forest region of Brazil (Bencke *et al.* 2006). Since the early nineteenth century the Serra dos Órgãos has been frequently visited by naturalists. Initially only the lower slopes were visited in the areas along the colonial road from Minas Gerais, through Petrópolis, to the Bay of Guanabara. After the construction of the road from Rio de Janeiro to Teresópolis in 1959, ornithologists and tourists have visited greatly to the region. However, no general ornithological study dedicated to the Serra dos Órgãos has been published, although more than a hundred publications have made references to birds observed and collected in the region.

Here, we review the birds of the Serra dos Órgãos based on a survey of the literature, specimens in ornithological collections and field study in several locations within the region.

*Review of the zoological expeditions.* The birds of the Serra dos Órgãos first became known in the early 1800s through the collections and reports of several foreign scientists (Johann Natterer, Johann B. von Spix, Carl Friedrich P. von Martius, Auguste St. Hilaire, and William Swainson) who visited the Fazenda Mandioca, owned by the Russian Consul Georg H. von Langsdorff (Pinto 1979, Sick 1997). Jean-René Constant Quoy and Joseph Paul Gaimard also visited the Serra dos Órgãos in 1818 (Menegaux and Hellmayr 1906a). On the invitation of Langsdorff, the Frenchman Edouard Ménétriès collected birds in the Serra da Estrela (southern foot of Serra dos Órgãos) and Teresópolis during his trip to Brazil in the early 1820s (Ménétriès 1835, Chrostowski 1921). Some spe-

cies collected by Ménetriès, such as White-fringed Antwren *Formicivora grisea* (formerly *Formicivora deluzae*) have not been found again anywhere in the Serra dos Órgãos. Several of the locations in which he collected (including the Serra dos Órgãos for some species, such as the White-fringed Antwren) are possibly erroneous (Pacheco 2004).

Peter Wilhelm Lund collected birds from the Serra dos Órgãos during his first visit to Brazil (1826, before he settled in Lagoa Santa, Minas Gerais) (Pinto 1950, Paynter and Traylor 1991). These birds are only labelled “Rio de Janeiro”, and so the exact location is impossible to determine. However, Lund’s field notebook (housed in the Zoological Museum of the Copenhagen University), contains more precise information. In that notebook, his two Kinglet *Calyptura calyptura cristata* specimens were described as taken in the Serra dos Órgãos, including a brief description of their behaviour and stomach contents (J. Fjeldså, *in lit.* 2005).

During their voyage to South America (1843-1847) the Count Francis Castelnau and Emille Deville also visited the Serra da Estrela (Castelnau 1850-1859).

In 1865 the Thayer Expedition from the Museum of Comparative Zoology came to Brazil. Members of the expedition visited Petrópolis and Teresópolis, but no specimens of birds were collected there (Dick 1977).

Emil Goeldi studied birds mainly in Colônia Alpina (Teresópolis), between 1891 and 1894. Most of the bird records made by Goeldi were published in 1894 (volume 1) and 1900 (volume 2) in the classic *As aves do Brasil* (Goeldi 1894a-1900). Approximately 720 specimens collected by Goeldi in Teresópolis are housed in the Bern Museum (NMBE) (Güntert *et al.* 1993).

Other researchers visited the Serra dos Órgãos, including Bourgain (Petrópolis, 1891) (Schneider and Sick 1962), Paulo Miranda Ribeiro (Teresópolis, 1899 and 1929) (Miranda-Ribeiro 1929), Ernst Garbe (Petrópolis, 1901) (Pinto 1938, Paynter and Traylor 1991), Paulo Schirch (Teresópolis, 1914-1915) (Schirch 1928, 1931), Victor de Miranda Ribeiro and Paulino Rocha (Teresópolis, 1920 and 1926) (FMR unpublished data), Emilie Snethlage (Petrópolis, 1922-1923) (Snethlage 1936), Alípio de Miranda-Ribeiro (Teresópolis, between 1916 and 1929) (Miranda-Ribeiro 1929, Paynter and Traylor 1991), George K. Cherrie and Leo E. Miller, of the American Museum of Natural History (Teresópolis, 1926) (Hellmayr 1929a), and José Hidasi (Petrópolis, 1951-1953 and 1957-1958) (Paynter and Traylor 1991).

Some unexpected birds (Yellow-chevrons Parakeet *Brotogeris chiriri*, Narrow-billed Woodcreeper *Lepidocolaptes angustirostris* and Black-throated Saltator *Saltator atricollis*) were attributed to Teresópolis from material collected by Heinrich Reinisch in 1905, 1914, and 1916 (Schneider and Sick 1962). Nowadays we know that the locations on the labels of those specimens is incorrect (Pacheco 1992).

One of the most important collections from the region (from the Fazenda Boa Fé, on the road from Rio to Teresópolis) was collected by Pedro de M. Britto in 1942-1943. This

was during the study by the Rio de Janeiro laboratory of the Yellow Fever Research Service. Specimens from this collection are in the Museu Nacional do Rio de Janeiro (MNRJ) and in the Museu de Zoologia da Universidade de São Paulo (MZUSP) (FMR *pers. obs.*). Several notable items for the region are included, such as the type specimen of Grey-winged Cotinga *Tijuca condita* and the latest specimens of Cinnamon-vented Piha *Lipaugus lanioides* from the Serra dos Órgãos.

During this investigation, David E. Davis published on the annual cycle of plants, mosquitoes, birds, and mammals (Davis 1945) and mixed-species bird flocks (Davis 1946).

Helmut Sick visited Teresópolis several times since 1940 and Margaret H. Mitchell also visited Teresópolis and Petrópolis in the early 1950s (Mitchell 1957, Paynter and Traylor 1991).

Herbert F. Berla collected birds in Guapi (=Guapi-Açu), Cachoeiras de Macacu, in 1956 and 1962, and Fazenda Boa Fé, Teresópolis, between March 1941 and July 1968. These specimens are now in the Los Angeles Museum (LACMNH) collection (Christina Couroux *pers. com.* 2002).

Two trips to the Serra dos Órgãos National Park (in December 1980 and November-December 1981) were included in a series of surveys of endemic forest birds by the British Ornithologists’ Union / World Wildlife Fund Project in south-east Brazil (Scott and Brooke 1985). Forested slopes below the park were also visited. Some threatened species were observed during the survey, including Mantled Hawk *Leucopernis polionotus* and Purple-winged Ground-Dove *Claravis godefrida*. A total of 203 species was recorded, including several forest endemics. The surprising absence of several common species in the Serra dos Órgãos region was also noted.

The most important result of the BOU/WWF Project was the rediscovery in the Serra dos Órgãos National Park of a small population of the recently described *Tijuca condita*, found in elfin forest between 1,800 and 1,950m (Scott and Brooke 1993).

*The Serra dos Órgãos National Park and other conservation units in the region.* Situated 60 km northeast of the city of Rio de Janeiro, the Serra dos Órgãos National Park (created in 30 November 1939) includes more than 10,000 ha and some of the highest peaks of the Serra do Mar massif with altitudes varying from 145 to 2,263 m (Drummond 1997). Another large conservation unit in the region is the Environmental Protection Area (Área de Proteção Ambiental - APA) of Petrópolis, located in the municipalities of Petrópolis, Duque de Caxias, Magé and Guapimirim, which comprises approximately 59,000 ha. The Três Picos State Park, encompassing the municipalities of Teresópolis, Guapimirim, Cachoeiras de Macacu, Nova Friburgo and Silva Jardim, is the largest state park in the state of Rio de Janeiro, with 46,350 ha. The APA Bacia do Rio dos Frades, located at Teresópolis, is another important conservation unit in the region, with 7,500 ha, while the Paraíso Ecological Station (4,920 ha) and the APA Floresta do Jacarandá (2,700 ha), both in Teresópolis, are also other important conservation units in the region.

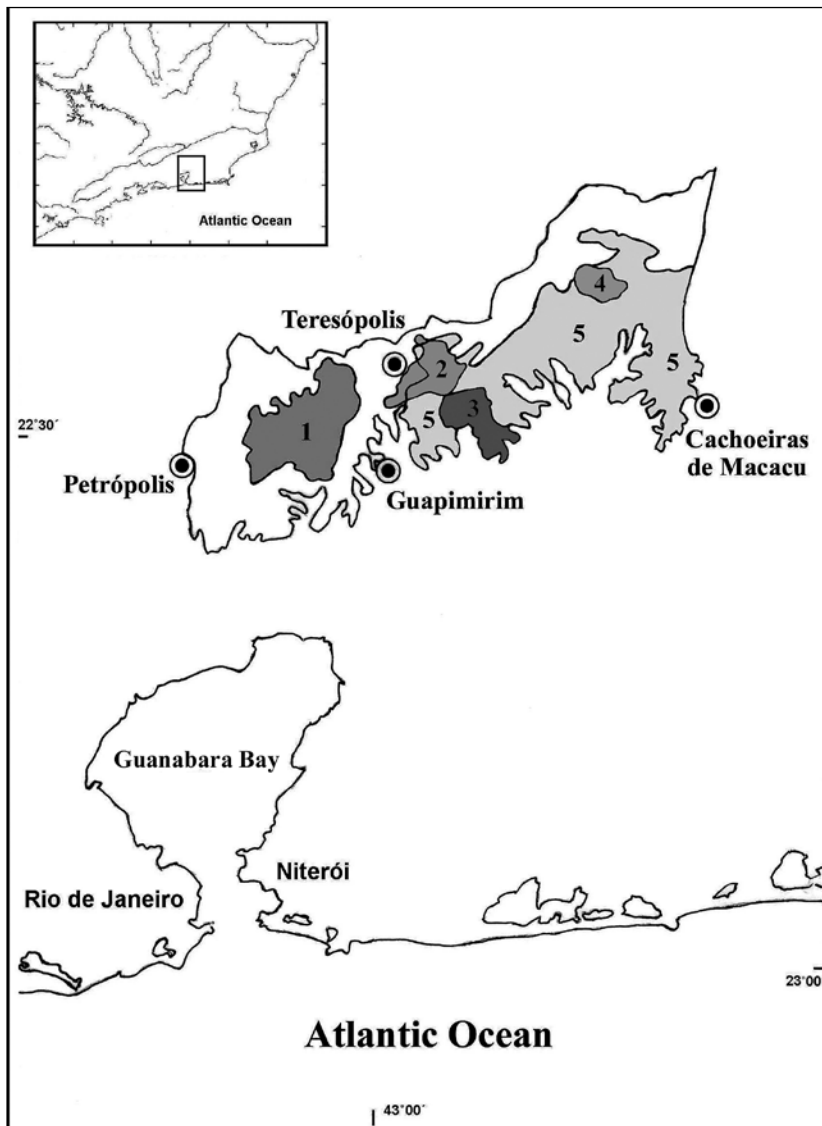


Figure 1. Map of the Serra dos Órgãos region (encircled area) in the State of Rio de Janeiro and local protected areas (1 - Serra dos Órgãos National Park, 2 - APA Floresta do Jacarandá, 3 - Paraíso Ecological Station, 4 - APA Bacia do Rio dos Frades, 5 - Três Picos State Park).

#### STUDY AREA AND METHODS

**Study Area.** The study area was defined as all regions above 100 m located between the BR-040 highway to the west, the Pico da Caledônia to the east and the BR-495 and RJ-130 highways to the north (Figure 1). This study includes fully the Important Bird Area (IBA) of the Serra dos Órgãos e partially the IBA Região Serrana do Rio de Janeiro (Bencke *et al.* 2006)

Average temperatures in the study area are slightly below the regional average annual temperature. At 1,000 m the average temperature is 18°C, and the annual average rainfall varies between 2,000 and 2,500 mm, gradually increasing with altitude to a maximum of 3,600 mm (Drummond 1997).

Four distinct types of vegetation exist in the region and vary with altitude. The dominant vegetation below 800 m is a slightly disturbed forest. On the lower slopes there are large areas of cleared land. Montane forests dominate from 800 to 1,800 m. Emergent trees >30 m are not uncommon and the understory is relatively dense. Elfin forest occurs between 1,800 and 2,000 m with a 5-10 m canopy, and is rich in epiphytic bromeliads. Highland grassy areas ('campos de altitude') occur above 2,000 m, where grasses, small trees and bushes predominate (Drummond 1997).

**Methods.** Records of birds were based on visual observations, captures in mist-nets, museum specimens and a survey of the ornithological literature.

Bird surveys were conducted since 1978 at several locations in the Serra dos Órgãos (Serra dos Órgãos National Park, APA Floresta do Jacarandá, Vale da Revolta, Paraíso, Frade, Bomsucesso, Garrafão, Subaio, Anil, Boca do Mato, Santo Aleixo, Corujas, Três Picos, APA of Petrópolis, Nhungaçu and Inhomirim). More than 100 visits to the region totaled more than 8,000 h of field work.

Data from 166 publications with records of birds from the Serra dos Órgãos region (as defined here) were studied. The status of each species (in its proper habitat) is defined in the terms Common, Fairly common, Uncommon and Rare (See Appendix). Museum specimens

from the study region are indicated by the abbreviations of the institutions where they are housed (See Appendix). Taxonomy and systematic sequence follow CBRO (2006).

#### RESULTS AND DISCUSSION

**The Birds of Serra dos Órgãos.** A total of 458 bird species, from 63 families, was recorded in the Serra dos Órgãos region (Appendix). This represents 70% of the 653 species with confirmed records for the state of Rio de Janeiro (Alves *et al.* 2000). Several species (36%) are predominantly forest birds, but the majority (64%) may be found in second growth and forest edge. Species occurring at lower and higher elevations are common or fairly common (59%), while most species (74%) recorded exclusively above or below 800 m are uncommon or rare. Ninety one species (20%) had not previously been cited for the region in the ornithological literature.

The Serra dos Órgãos region holds 45 of the 100 bird species considered to be threatened or probably threatened in the state of Rio de Janeiro, five (20%) of the 25 species of unknown status and two (10%) of the 20 species probably

Table 1. Bird species not recently recorded in the Serra dos Órgãos region.

| Species                         | Status   |
|---------------------------------|--|
| <i>Crypturellus variegatus</i>  | Single unconfirmed record (Sick 1997)                          |
| <i>Aburria jacutinga</i>        | No record for decades. Certainly extinct.                      |
| <i>Falco deiroleucus</i>        | Single old specimen in NMBE                                    |
| <i>Amazona rhodocorytha</i>     | Single record (Wied 1832)                                      |
| <i>Asio stygius</i>             | Single old specimen in NMBE                                    |
| <i>Nyctibius aethereus</i>      | Two old specimens in NMBE (Goeldi 1894a-1900)                  |
| <i>Chordeiles acutipennis</i>   | Old specimen in MNRJ   |
| <i>Caprimulgus rufus</i>        | Single old record (Goeldi 1894a-1900)                          |
| <i>Chrysolampis mosquitus</i>   | Single old record (Des Murs 1855)                              |
| <i>Chloroceryle aenea</i>       | Single unconfirmed record (Sick 1997)                          |
| <i>Campephilus robustus</i>     | Six old specimens in NMBE (Goeldi 1894a-1900)                  |
| <i>Formicivora grisea</i>       | Single old specimen in MACSP (Ménétrières 1835)                |
| <i>Cercomacra brasiliiana</i>   | Single old specimen in MACSP (Ménétrières 1835)                |
| <i>Hylopezus nattereri</i>      | Probably a mistaken citation in Krabbe and Schulenberg (2003a) |
| <i>Phylloscartes oustaleti</i>  | Old specimens in FMNH, MNRJ and MZUSP                          |
| <i>Onychorhynchus swainsoni</i> | Old specimens in MNRJ and MZUSP                                |
| <i>Lipaugus lanioides</i>       | Last records in 1942 (specimens in MNRJ and MZUSP)             |
| <i>Pyroderus scutatus</i>       | Old specimen in MNRJ and Goeldi's record (Goeldi 1894a-1900)   |
| <i>Anthus hellmayri</i>         | Single unconfirmed record (Sick 1997)                          |
| <i>Poospiza lateralis</i>       | Single unconfirmed record (Sick 1997)                          |
| <i>Sporophila angolensis</i>    | Old specimens in MNRJ, MPEG and NMBE                           |

extinct in the state of Rio de Janeiro (Alves *et al.* 2000). These constitute 11.5 % of all species recorded in the region. Some of these species have been frequently recorded from a number of localities, as Saw-billed Hermit *Ramphodon naevius* and Buff-throated Purpletuft *Iodopleura pipra*.

The Kinglet Calyptura *Calyptura cristata* and Grey-winged Cotinga *Tijuca condita* are two of the most poorly known birds of the region. While *C. cristata* is known from only three recent sightings (Sick 1997, Pacheco and Fonseca 2000, Pacheco and Fonseca 2001), *T. condita* has been seen regularly by ornithologists and birdwatchers in elfin cloud-forest above about 1,800 m.

Thirty percent of the species (140 species) are considered rare in this study. Although 21 species have not been recently recorded, only one species, the Black-fronted Piping-Guan (*Aburria jacutinga*), should be considered extinct in the region. Other species, were apparently in error when reported (Table 1).

Among the species recorded in the Serra dos Órgãos, 340 (74%) are found in the ornithological collections which have been surveyed by us. Approximately 2,535 specimens collected in the Serra dos Órgãos region were found and included in this study. From the 118 species not in collections, 40 (34%) were cited in only one publication, as the records of Osprey *Pandion haliaetus*, Lesser Swallow-tailed Swift *Panyptila cayennensis*, Blackpoll Warbler *Dendroica striata*, and Pileated Finch *Coryphospingus pileatus* made by Scott

and Brooke (1985) and that of Long-tailed Potoo *Nyctibius aethereus*, Ocellated Poorwill *Nyctiphrynus ocellatus*, Rufous Nightjar *Caprimulgus rufus* and Robust Woodpecker *Campephilus robustus* made by Goeldi (1894a-1900). *Panyptila cayennensis* and *Nyctiphrynus ocellatus* have been recently recorded in the region by RP, and *Coryphospingus pileatus* by JFP. Sick (1997) was the only author to mention the Little Tinamou *Crypturellus soui* (also recorded by RP), Variegated Tinamou *Crypturellus variegatus*, American Pygmy Kingfisher *Chloroceryle aenea*, Hellmayr's Pipit *Anthus hellmayri* and Red-rumped Warbling-Finch *Poospiza lateralis* for the Serra dos Órgãos region.

Some species reported in the Serra dos Órgãos in several publications, were not represented in collections. These included the rare White-necked Hawk *Leucopternis lacernulatus*, the uncommon Buff-throated Purpletuft *Iodopleura pipra* and the now probably extinct in the region Black-fronted Piping-Guan *Aburria jacutinga*.

Seven important collecting sites were identified in the region during the study (Table 2). Teresópolis was predominant as collecting locality (53.1%). Other significant localities were Colônia Alpina (Teresópolis), Petrópolis, Fazendas Boá Fé and C. Guinle (Teresópolis), Ingá (Teresópolis), Guapiaçu and Corujas.

#### Species accounts

Solitary Tinamou *Tinamus solitarius*. This endemic tinamou is

considered a threatened (Collar *et al.* 1992, Alves *et al.* 2000, Brasil 2003) or near-threatened species (BirdLife International 2000). The Solitary Tinamou is threatened by hunting pressure and by severe habitat destruction (Sick 1997). It is possibly still found in Paraíso, on the middle slopes at Guapimirim (Coimbra Filho *pers. comm.* to JFP). The species is still recorded, but very infrequently, in the Serra do Tinguá Biological Reserve and on the lower slopes in the Cachoeiras de Macacu region.

Black-fronted Piping-Guan *Aburria jacutinga*. Probably extinct in the Serra dos Órgãos, this endangered species (BirdLife International 2000) has disappeared from Bahia, Espírito Santo and Rio de Janeiro, and nearly so from Minas Gerais (Collar *et al.* 1992, Alves *et al.* 2000, Brasil 2003). A common species in Serra dos Órgãos in the early 20<sup>th</sup> century, *P. jacutinga* has not been recorded in the last decades (Scott and Brooke 1985, Mallet-Rodrigues and Noronha 2003a). The species is still sometimes listed for the Serra dos Órgãos (Wege and Long 1995), but the possibility of its survival, even in reduced numbers, seems remote.

White-necked Hawk *Leucopternis lacernulatus*. Like the Mantled Hawk, this raptor is rare and threatened (Collar *et al.* 1992, Alves *et al.* 2000, Brasil 2003) or vulnerable (BirdLife International 2000). Endemic to the Atlantic Forest it is found from Alagoas to Santa Catarina. In Serra dos Órgãos, records are principally from below 400 m, but it may be found at higher elevations, sympatrically to the Mantled Hawk. Severe habitat destruction in the lowlands and on the lower slopes is the principal threat to the species. It has been recorded sporadically on the southern slopes of the Serra dos Órgãos (Guapimirim).

Mantled Hawk *Leucopternis polionotus*. A rare and local endemic forest hawk, the Mantled Hawk is currently classified as probably threatened in the state of Rio de Janeiro (Alves *et al.* 2000) and globally near-threatened (BirdLife International 2000). It seems to occur at lower densities than *L. lacernulatus*, but it is less threatened by deforestation because of its more extensive range at higher altitudes (above 600 m) (Ferguson-Lees and Christie 2001). More data are required on occurrence and population size in the Serra dos Órgãos region.

Crowned Eagle *Harpyhaliaetus coronatus*. An endangered species according to BirdLife International (2000). One individual was seen flying by RP over an open area in Campanha (Teresópolis) on 10 October 1999. Another bird was recorded in the Serra dos Órgãos National Park (1,800 m) on 02 November 1999 (RP). One specimen is known from Nova Friburgo (MNRJ).

Harpy Eagle *Harpia harpyja*. A single sighting from 27 January 1980, on the middle slopes, is the only record of this large bird in the Serra dos Órgãos region (Raposo *et al.* 1994, Pacheco *et al.* 2003). Globally near-threatened (BirdLife International 2000).

Orange-breasted Falcon *Falco deiroleucus*. One Goeldi specimen (in NMBE) of this rare falcon is the unique evidence of occurrence of this species in the Serra dos Órgãos region. Although Orange-breasted Falcon has been considered a probably extinct species in the state of Rio de Janeiro (Alves *et al.* 2000), it may be an overlooked and very rare vagrant species.

Purple-winged Ground-Dove *Claravis godefrida*. Extremely rare in the forests of southeastern Brazil, this species is considered a threatened bird (Collar *et al.* 1992, Alves *et al.* 2000, Brasil 2003) or critically endangered (BirdLife International 2000). It is apparently associated with seeding bamboo (Sick 1997). The last published records (all near the Serra dos Órgãos National Park boundary) are from the 1980s (Collar *et al.* 1992, Scott and Brooke 1985). Forest fragmentation may have disturbed the bamboo seeding cycle, affecting this bamboo specialist, and others, such as Temminck's Seedeater (*Sporophila falcirostris*) and Blackish-blue Seedeater (*Amaurospiza moesta*).

Ruddy Quail-Dove *Geotrygon montana*. A fairly common species in the understory. It is apparently absent (or very scarce) on the lower slopes of the Serra dos Órgãos during the winter (FMR unpublished data).

Blue-throated Parakeet *Pyrrhura cruentata*. This threatened (Collar *et al.* 1992, Alves *et al.* 2000, Brasil 2003) or vul-

Table 2. Collecting localities in the Serra dos Órgãos region.

| Localities  | Specimens     |
|---|---------------|
| Teresópolis   | 1,347 (53.1%) |
| Colônia Alpina (Teresópolis)                            | 718 (28.3%)   |
| Petrópolis  | 167 (6.6%)    |
| Estrada Rio-Teresópolis (Fazendas Boa Fé and C. Guinle) | 121 (4.8%)    |
| Ingá (Teresópolis)                                      | 48 (1.9%)     |
| Guapiaçu (Cachoeiras de Macacu)                         | 41 (1.6%)     |
| Corujas (Guapimirim)                                    | 36 (1.4%)     |
| Mata do Quebra Frasco (Teresópolis)                     | 23 (0.9%)     |
| other localities  | 34 (1.3%)     |

nerable species (BirdLife International 2000) was only found in the Serra dos Órgãos (no specified locality) between May 1981 and August 1982 (Raposo *et al.* 1994).

Red-browed Amazon *Amazona rhodocorytha*. Globally endangered (BirdLife International 2000) and endemic to eastern Brazil, this rare and local parrot (Collar *et al.* 1992, Alves *et al.* 2000, Brasil 2003) was cited for the Serra dos Órgãos by Wied (1832). This record probably refers to “second-hand information or a misunderstanding of the name for a site” (Collar *et al.* 1992) because Wied seems to have not visited intensively the Serra dos Órgãos (Wied 1989).

Long-tailed Potoo *Nyctibius aethereus*. This rare potoo is known for the Serra dos Órgãos from two specimens (a pair) collected by E. Goeldi on December 1892 and October 1893 in Teresópolis. Both specimens are housed in NMBE. Long-tailed Potoo may be simply an overlooked species.

Stygian Owl *Asio stygius*. Poorly known, this owl has not been recorded in the Serra dos Órgãos since a male was collected in Teresópolis by E. Goeldi in 27 July 1893 (specimen in NMBE).

Robust Woodpecker *Campephilus robustus*. The largest Brazilian woodpecker is known for the Serra dos Órgãos from only six specimens (four males and two females in NMBE) taken in Teresópolis by E. Goeldi between June 1892 and January 1894 (Goeldi 1894a-1900). The species may now be extinct in the Serra dos Órgãos.

Cinereous Antshrike *Thamnomanes caesius*. Rare in the foothills and on the lower slopes of Serra dos Órgãos, this species is known from Guapi-Açu at Cachoeiras de Macacu (specimen in LACMNH) and Corujas, Guapimirim (Mallet-Rodrigues and Noronha 2003a). Previously considered a common species in the forested areas of the city of Rio de Janeiro (Sick and Pabst 1968), it is now probably extinct there and very scarce and locally distributed elsewhere in the state of Rio de Janeiro.

White-fringed Antwren *Formicivora grisea*. Like the Slaty Bristlefront, this species is known for the region on the basis of a single specimen (a female) collected by E. Ménétrières “not far from Serra dos Órgãos in the lands of Mr. Deluze”. Family Deluze was owner of the Fazenda Constância at Teresópolis in the early nineteenth century (Gonzaga and Pacheco 1990). Described as a new species, *Formicivora deluzae* (Ménétrières 1835), it was later considered to be indistinguishable from a typical female *Formicivora grisea* (Hellmayr 1929a), although Pinto (1978) cited *F. deluzae* as a subspecies of *F. grisea*.

This antwren has not been recorded again in Serra dos Órgãos except for a supposed voice record by Helmut Sick, in Teresópolis in 1949 (Gonzaga and Pacheco 1990). This is

probably another species erroneously ascribed to the Serra dos Órgãos region on the basis of a Ménétrières specimen. The type of *F. deluzae* could have been collected in north of Mato Grosso or southern Amazonia (Pacheco 2004). It seems unlikely that this antwren has become locally extinct as it is reasonably resistant to habitat disturbance.

Rio de Janeiro Antbird *Cercomacra brasiliana*. This near-threatened species (BirdLife International 2000) is known for the foothills of the Serra dos Órgãos region from a Ménétrières’ specimen (Ménétrières 1835) collected in the Serra da Estrela (vide Slaty Bristlefront), and a female collected by Herbert F. Berla in Guapi-Açu at Cachoeiras de Macacu in August 1956 (specimen in LACMNH). Although it has not been recently recorded in the region, it may still occur locally.

Speckle-breasted Antpitta *Hylopezus nattereri*. Although this species occurs from Misiones (northern Argentina) to state of Minas Gerais (southeastern Brazil), it is known for the state of Rio de Janeiro in the Serra da Mantiqueira region (Itatiaia National Park, Visconde de Mauá) and Serra da Bocaina. Citation for the Serra dos Órgãos National Park (Krabbe and Schulenberg 2003a) is probably erroneous.

Slaty Bristlefront *Merulaxis ater*. This near threatened species (BirdLife International 2000) is known for long time in the region only from one old specimen collected by Ménétrières at the Serra da Estrela, near the Fazenda Mandioca of the Russian Consul George H. von Langsdorff. This specimen was used by Ménétrières (1835) as the type of *Malacorhynchus cristatellus*, now a synonym of *Merulaxis ater*, and is housed in the ornithological collection of the Museum of the Academy of Science of St. Petersburg (Russia) together with the majority of the specimens of Brazilian birds collected by Ménétrières.

The species has been found again in the Serra dos Órgãos only in the region of Teodoro de Oliveira, northeast of the Três Picos State Park, in the boundary Cachoeiras de Macacu-Nova Friburgo and at the Guapi-Açu Ecological Reserve (REGUA) in the foothills of the Serra dos Órgãos.

Tawny-throated Leaf-tosser *Sclerurus mexicanus*. A song attributed to this species was heard by JFP (and Bret M. Whitney) from the understory of humid forest on 17 December 1994 in Anil, Cachoeiras de Macacu. This species is also known for the state of Rio de Janeiro in the Desengano State Park (Sick 1997).

Pale-breasted Spinetail *Synallaxis albescens*. This spinetail is uncommon in the area, the only records coming from open habitat near Frades (Teresópolis) on 25 October 1992 and 28 November 1992 (RP *pers. obs.*).

Gray-capped Tyrannulet *Phyllomyias griseocapilla*. This endemic and near threatened tyrannid (BirdLife International 2000) has been recorded by us between 200 and 1,900 m, al-

though more commonly above 800 m. The species has been recorded year round feeding on fruits of *Struthanthus* sp. (Loranthaceae). It was also seen feeding on *Alchornea triplinervia* (Euphorbiaceae) and *Schefflera* sp. (Araliaceae) (RP pers. obs.).

Grey Elaenia *Myiopagis caniceps*. The song of this species was heard in the Hotel Serra dos Tucanos, Boca do Mato (Cachoeiras de Macacu) on 30 November 2004 (RP pers. obs.).

Oustalet's Tyrannulet *Phylloscartes oustaleti*. The near threatened *P. oustaleti* (BirdLife International 2000) has not been recently recorded in the Serra dos Órgãos. This is another species that may now be extinct in the region, but its continued occurrence is not totally discarded. This tyrannulet can still be found in Tinguá and Macaé de Cima (west and east of the Serra dos Órgãos, respectively).

Russet-winged Spadebill *Platyrinchus leucoryphus*. This vulnerable species (BirdLife International 2000) was recorded by RP in the Sítio Rosemary in Anil (Cachoeiras de Macacu) on 09 November 1994, 10 December 1994, and 28 April 1995. Probably a very rare and local species in Serra dos Órgãos region.

Atlantic Royal Flycatcher *Onychorhynchus swainsoni*. Now an endangered bird (BirdLife International 2000), the apparently unique record of this rare tyrannid in the Serra dos Órgãos is from two specimens (MNRJ, MZUSP) collected in 1942 in Teresópolis. As this species still occurs up to 2000 m on the Serra do Itatiaia (FMR pers. obs.) is not improbable your occurrence in the Serra dos Órgãos nowadays.

Rufous-tailed Attila *Attila phoenicurus*. First recorded in Serra dos Órgãos by Pacheco and Parrini (1997) in February 1991 at the Fazenda Vale da Revolta (Teresópolis). Several singing birds were recorded simultaneously on 15 February 2001 by FMR at the Serra dos Órgãos National Park (at about 1,000 m). Other local records from the region are also from spring and summer (October to March) between 900 and 1,200 m (FMR pers. obs.). Probably a species expanding its geographical range from southern Brazil or a very local population overlooked in the past.

Black-headed Berryeater *Carpornis melanocephala*. This vulnerable cotinga (BirdLife International 2000) was recorded in locations in Cachoeiras de Macacu by RP. It was also recorded in the Sítio Rosemary, Anil (100 m) on 10, 17 and 31 December 1994 and 22 February 1995. Other record is from Fazenda Serra Queimada (100 m) on 25 March 1995.

Grey-winged Cotinga *Tijuca condita*. This uncommon inhabitant of elfin cloud forest is restricted to Serra dos Órgãos and the Serra do Tinguá (state of Rio de Janeiro), between 1,370 m and 2,040 m. Considered a vulnerable species due to its re-

stricted area (BirdLife International 2000), it was described in 1980 on the basis of a female collected in 1942 at the Fazenda Guinle (Teresópolis) (Snow 1980).

Grey-winged Cotinga has been recently recorded in areas of suitable habitat (J.M. Barnett *in litt.*, J. Minns *in litt.*), but it is an elusive bird, occurring at very low densities, and most records are by voice only, made by ornithologists and bird-watchers familiar with its vocalisation.

Kinglet Calyptura *Calyptura cristata*. This tiny, enigmatic and critically endangered bird (BirdLife International 2000) is known from 45 (or more) museum specimens collected in the 19<sup>th</sup> century in the state of Rio de Janeiro. Descourtiz (1854-1856) stated that Kinglet Calyptura inhabited secondary growth in abandoned clearings in mountainous regions, where it lived in pairs, climbing vines and exploring clumps of Tillandsia bromeliads in search of insects and small berries.

After more than a century with no records of the species, two birds were observed in forest border in 27, 29 and 30 October 1996 at Garrafão (Guapimirim), near the Rio de Janeiro-Teresópolis road (Sick 1997, Pacheco and Fonseca 2000, 2001). Further visits to the site have failed to locate Kinglet Calyptura again.

Cinnamon-vented Piha *Lipaugus lanioides*. This near threatened *L. lanioides* (BirdLife International 2000) has not been recorded in Serra dos Órgãos since the old record from Fazendas Boa Fé and Comari (Teresópolis) in 1942 (Davis 1945). This record was documented by several specimens now housed in the ornithological collections of the MNRJ and MZUSP. There are eight specimens collected in Teresópolis between August 1891 and May 1893 in the Goeldi's Collection in NMBE. Cinnamon-vented Piha may now be extinct in the Serra dos Órgãos region.

Red-ruffed Fruitcrow *Pyroderus scutatus*. This large cotinga was cited by Goeldi (1894a) as a rare bird in Serra dos Órgãos. He stated that recorded the species on only two occasions, but was unable to collect a specimen. We could find only an old Bourgain skin from Petrópolis (specimen in the MNRJ).

Red-ruffed Fruitcrow is now a rare and threatened species in the state of Rio de Janeiro (Alves et al. 2000). It has been recorded recently only in Itatiaia and on Ilha Grande. This is another species that may now be extinct in the Serra dos Órgãos.

Thrush-like Mourner *Schiffornis turdina*. This species has been uncommonly recorded by RP in the Sítio Rosemary in Anil (Cachoeiras de Macacu) and in the Centro de Primatologia do Rio de Janeiro (Guapimirim, 150 m).

Elegant Mourner *Laniisoma elegans*. This probably threatened (Collar et al. 1992, Alves et al. 2000) or near threatened cotinga (BirdLife International 2000) has been recorded on

the high slopes (above 800 m) of the Serra dos Órgãos, apparently only during the breeding season (Davis 1945, Collar *et al.* 1992). RP recorded the species on twelve occasions in the Fazenda Vale da Revolta and Vargem Grande (800 to 1,050 m) between October and December. Records from the lower slopes seem to be more common during autumn and winter (Collar *et al.* 1992, Mallet-Rodrigues and Noronha 2003a), but new data to confirm a possible altitudinal movement are desirable.

Yellow-legged Thrush *Platycichla flavipes*. A common thrush in Serra dos Órgãos, it has been recorded by FMR on the lower slopes (near 300 m) only from April to September (autumn/winter) (Mallet-Rodrigues and Noronha 2003a), while on the higher slopes (900-1100 m) it is found mainly from October to March (spring/summer). However, new data are desirable to confirm a possible altitudinal or latitudinal movement.

Black-goggled Tanager *Trichothraupis melanops*. Another common species which probably makes seasonal movements. Records on lower slopes (below 400 m) are from February to September, being a very common species during the winter (Mallet-Rodrigues and Noronha 2003a). However, it has apparently been recorded throughout the year at higher altitudes (RP pers. obs.). Studies of possible local movements of this species would be welcome.

Black-legged Dacnis *Dacnis nigripes*. This near threatened and endemic bird of the Atlantic Forest of coastal southeastern Brazil (BirdLife International 2000) has a restricted range in which records are local and sporadic. Its resemblance to the much commoner Blue Dacnis *Dacnis cayana* may be a source of confusion, although females differ greatly. Black-legged Dacnis is poorly represented in museum collections.

Known for the Serra dos Órgãos region from two specimens in American Museum (AMNH) and Museu Paraense Emílio Goeldi (MPEG). It has also been recorded at the Serra dos Órgãos National Park and in the adjacent lowlands (Collar *et al.* 1992, Wege and Long 1995). Two males and five females were seen in a mixed flock together to Blue Dacnis and Fawn-breasted Tanager *Pipraeidea melanonota* in August 1996 at Posse (1,200 m), Teresópolis (RP pers. obs.). Apparently makes altitudinal movements in at least part of its range, but these possible movements are still poorly known.

Buffy-fronted Seedeater *Sporophila frontalis*. Although a rare and threatened species (Collar *et al.* 1992, Alves *et al.* 2000, Brasil 2003), there are several records, including specimens in Field Museum (FMNH), LACMNH, MNRJ and MZUSP, from Serra dos Órgãos around Teresópolis (Collar *et al.* 1992). Often numerous when bamboo is seeding, when flocks of dozens of birds have been recorded, its population is now probably much reduced because of deforestation and the cagebird trade. It has been considered a globally vulnerable species (BirdLife International 2000).

Temminck's Seedeater *Sporophila falcirostris*. Another bamboo specialist with restricted range in southeastern Brazil, and adjacent Paraguay and Argentina, this rare seedeater (vulnerable species according BirdLife International 2000) is also a victim of habitat destruction and the cage bird trade.

We could not find any skin from Serra dos Órgãos region, but one individual was collected nearby in Tinguá in March 1955 (specimen in MNRJ) (Collar *et al.* 1992). We have never recorded Temminck's Seedeater in any locality in Serra dos Órgãos. As Buffy-fronted Seedeater, probably it is a sporadic visitor to the Serra dos Órgãos region, but further surveys are needed to clarify its status.

Lesser Seed-Finch *Sporophila angolensis*. Although not cited for Serra dos Órgãos by any author, there are four old skins of this species from the region in MNRJ (one specimen), MPEG (two specimens) and NMBE (one specimen).

Much valued as a cage bird, it has not recently been recorded (since 1950's) in the Serra dos Órgãos and may be extinct in the region. However, more information is required as it may possibly occur locally.

#### *Bird conservation in the Serra dos Órgãos*

The birds of Serra dos Órgãos are a rich sample of the Atlantic Forest avifauna in the state of Rio de Janeiro. From the 458 bird species recorded in the Serra dos Órgãos region at least 340 species are confirmed by museum specimens, 111 have been recently found (although not represented in collections) and only 21 species have not been recently recorded in the Serra dos Órgãos region.

The total number of species known to the Serra dos Órgãos region constitutes one of the largest local avifaunas for the state of Rio de Janeiro. Scott and Brooke (1985) cited 203 bird species for the Serra dos Órgãos National Park, 288 for the Serra do Tinguá Biological Reserve and 222 for the Poço das Antas Biological Reserve. Parker and Goerck (1997) reported 251 species for Itatiaia National Park and 127 species for Tijuca National Park, and Buzzetti (2000) recorded 333 species from 18 localities on the southern coast of the state of Rio de Janeiro. In an old article, Ihering (1900a) cited 368 species for Cantagalo and Nova Friburgo, while Pacheco *et al.* (1992) recorded 405 species in the Desengano State Park, north of the state of Rio de Janeiro. Only Pacheco (1988) has cited a larger number of bird species than the present study for a region in the state of Rio de Janeiro, reporting historical and contemporary records of 475 species in the municipality of Rio de Janeiro.

The difficulty of access to many areas has helped to conserve the magnificent forests of the Serra dos Órgãos, but essential for the preservation of the local wild life is the existence of several conservation units in the region.

The southern portion of the Serra dos Órgãos is now the critical area for the preservation of the highly diverse fauna of the region. To the north, the valley of the Rio Paraíba do Sul has been extensively deforested and lost part of its

original avifauna. Birds of open habitats and recent invaders have benefited from forest clearance and are now common in this region (Pacheco 1993). These include Laughing Falcon *Herpetotheres cachinnans*, White-eared Puffbird *Nystalus chacuru*, Tail-banded Hornero *Furnarius figulus*, Rufous Hornero *Furnarius rufus*, Rufous-fronted Thornbird *Phacelodopus rufifrons*, Masked Water-tyrant *Fluvicola nengeta*, Curl-crested Jay *Cyanocorax cristatellus*, Chalk-browed Mockingbird *Mimus saturninus*, Hooded Tanager *Nemosia pileata* and others.

At lower altitudes, intensive deforestation in the past has removed large tracts of lowland forest. The remaining forests are isolated fragments of distinct sizes and are unable to support the diversified original fauna. Large predators, like some birds of prey, are extremely rare in some regions. Cracids also have been intensively searched by hunters.

While the lowland forests are threatened, the montane forest has on the whole been well protected. Nevertheless, in several places there is a considerable hunting pressure from hunters that have used a wide variety of traps and also shotguns. Several animals like armadillos, rodents, lizards, tinamous and guans are widely hunted. Solitary Tinamou *Tinamus solitarius* is a good example of a bird species threatened by hunting and is now a rare bird in the region.

Another problem is the capture of seedeaters, saltators and saffron finches as cage-birds. The populations of these birds have shown a substantial decline in the lowlands, where human pressure is particularly intense. Many passerines are captured by boys and sold locally at derisory prices.

The growth of human occupation of the region is extremely worrying, especially the proliferation of slums and clandestine settlements throughout the region. Several areas along the road from Teresópolis to Nova Friburgo (RJ-130) have been degraded by irregular human habitations.

Grey-winged Cotinga *Tijuca condita* is indubitably one of the most remarkable bird species in Serra dos Órgãos. Described by David Snow in 1980, this local and rare cotinga is found at a very low density in elfin forest above 1,800 m in the Serra dos Órgãos National Park. It may be located by its call from a hidden perch within the dense canopy. The highly restricted and inaccessible habitat of this species is not threatened, but the small size of its population gives cause for concern.

Of the birds species that have not been found recently in the Serra dos Órgãos, Black-fronted Piping-guan *Aburria jacutinga* was a fairly common bird in the region until the early twentieth century (Collar *et al.* 1992, Sick 1997) but is now locally extinct. The existence of old records of species that have not been recently recorded in the Serra dos Órgãos may indicate that other extinctions may have occurred in the region (*Campephilus robustus*, *Lipaugus lanioides*, *Pyroderus scutatus*, *Sporophila angolensis*). However, other factors may play a part. The antbird *Formicivora (grisea) deluzae*, described from Serra dos Órgãos, was never found again but the type locality has been considered to be incorrect (Naumburg 1939,

Pacheco 2004). Nevertheless, the rediscovery of the mysterious Kinglet *Calyptura Calyptura cristata* in the region (Sick 1997, Pacheco and Fonseca 2000, 2001) made it clear that it is dangerous to make precipitated assumptions about the present status of the various bird species which have not recently been found in this spectacular massif in southeastern Brazil.

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Appendix. List of birds species recorded in the Serra dos Órgãos region. Taxonomy and systematic sequence follow CBRO (2006).

| Species                          | Status | Habitat | Altitudinal level | Source                          | Ornithological Collections |
|----------------------------------|--------|---------|-------------------|---------------------------------|----------------------------|
| <b>Tinamidae</b>                 |        |         |                   |                                 |                            |
| <i>Tinamus solitarius</i> T      | R      | F       | L                 | 4, 29, 58                       | AMNH, MNRJ                 |
| <i>Crypturellus soui</i>         | R      | S       | L                 | 121                             |                            |
| <i>Crypturellus obsoletus</i>    | C      | F       | LH                | 1, 18, 19, 25, 48, 58, 110, 121 | LACMNH, MNRJ, MZUSP, NMBE  |
| <i>Crypturellus variegatus</i> T | R      | S       | L                 | 121                             |                            |
| <i>Crypturellus tataupa</i>      | FC     | S       | LH                | 25, 48                          | LACMNH, MNRJ, NMBE         |
| <b>Anatidae</b>                  |        |         |                   |                                 |                            |
| <i>Dendrocygna viduata</i>       | R      | O       | L                 | JFP                             |                            |
| <i>Amazonetta brasiliensis</i>   | R      | O       | L                 | FMR, RP, JFP                    |                            |
| <b>Cracidae</b>                  |        |         |                   |                                 |                            |
| <i>Penelope superciliosus</i>    | U      | FS      | L                 | 25, 48, 110                     |                            |
| <i>Penelope obscura</i>          | U      | F       | H                 | 97, 110, 121                    | MZUSP, NMBE                |
| <i>Aburria jacutinga</i> E       | PE     | F       | ?                 | 16, 25, 120, 121, 141           |                            |
| <b>Odontophoridae</b>            |        |         |                   |                                 |                            |
| <i>Odontophorus capueira</i> PT  | U      | F       | LH                | 18, 25, 48, 110                 | NMBE                       |
| <b>Podicipedidae</b>             |        |         |                   |                                 |                            |
| <i>Tachybaptus dominicus</i>     | R      | O       | ?                 | RP, JFP                         | MZUSP                      |
| <b>Phalacrocoracidae</b>         |        |         |                   |                                 |                            |
| <i>Phalacrocorax brasilianus</i> | U      | O       | L                 | RP, JFP                         |                            |
| <b>Fregatidae</b>                |        |         |                   |                                 |                            |
| <i>Fregata magnificens</i>       | R      | O       | LH                | 124                             |                            |
| <b>Ardeidae</b>                  |        |         |                   |                                 |                            |
| <i>Tigrisoma lineatum</i>        | R      | O       | L                 | JFP                             | NMBE                       |
| <i>Nycticorax nycticorax</i>     | U      | O       | LH                | RP, JFP                         |                            |
| <i>Butorides striata</i>         | U      | O       | L                 | 25                              | MNRJ, NMBE                 |
| <i>Bubulcus ibis</i>             | U      | O       | L                 | FMR, RP, JFP                    |                            |
| <i>Ardea cocoi</i>               | R      | O       | L                 | JFP                             |                            |
| <i>Ardea alba</i>                | U      | O       | L                 | 18                              | NMBE                       |
| <i>Syrigma sibilatrix</i>        | R      | O       | L                 | RP, JFP                         |                            |
| <i>Ptilerodius pileatus</i> PT   | U      | O       | L                 | RP                              |                            |
| <i>Egretta thula</i>             | U      | O       | L                 | FMR, RP                         |                            |
| <b>Threskiornithidae</b>         |        |         |                   |                                 |                            |
| <i>Theristicus caudatus</i>      | R      | O       | H                 | FMR, RP                         |                            |
| <b>Cathartidae</b>               |        |         |                   |                                 |                            |
| <i>Cathartes aura</i>            | FC     | O       | L                 | 48                              |                            |
| <i>Cathartes burrovianus</i>     | U      | O       | L                 | RP, JFP                         |                            |

| Species                            | Status | Habitat | Altitudinal level | Source              | Ornithological Collections |
|------------------------------------|--------|---------|-------------------|---------------------|----------------------------|
| <i>Coragyps atratus</i>            | C      | OUr     | LH                | 25, 48, 110         | NMBE                       |
| <b>Pandionidae</b>                 |        |         |                   |                     |                            |
| <i>Pandion haliaetus</i>           | R      | O       | ?                 | 110                 |                            |
| <b>Accipitridae</b>                |        |         |                   |                     |                            |
| <i>Leptodon cayanensis</i>         | U      | F       | LH                | 18, 46, 86, 121     | MNRJ, MZUSP, NMBE          |
| <i>Chondrohierax uncinatus</i>     | R      | S       | L                 | 1                   | MNRJ, NMBE                 |
| <i>Elanoides forficatus</i>        | R      | O       | H                 | JFP                 |                            |
| <i>Elanus leucurus</i>             | R      | O       | H                 | RP, JFP             |                            |
| <i>Rostrhamus sociabilis</i>       | R      | O       | L                 | 25                  |                            |
| <i>Harpagus diodon</i>             | U      | FS      | LH                | 25                  | MNRJ, NMBE                 |
| <i>Ictinia plumbea</i>             | R      | O       | L                 | JFP                 | NMBE                       |
| <i>Accipiter superciliosus</i> PT  | R      | FS      | ?                 | JFP                 | MZUSP                      |
| <i>Accipiter striatus</i>          | R      | S       | H                 | FMR, RP, JFP        | NMBE                       |
| <i>Geranospiza caerulescens</i>    | R      | F       | H                 | RP, JFP             | MNRJ                       |
| <i>Leucopternis lacemulatus</i> T  | R      | F       | L                 | 16, 25, 48, 97, 141 |                            |
| <i>Leucopternis polionotus</i> PT  | R      | F       | LH                | 60, 97, 110, 121    | MNRJ, NMBE                 |
| <i>Heterospizias meridionalis</i>  | U      | O       | LH                | 60                  |                            |
| <i>Harpyhaliaetus coronatus</i> US | R      | O       | H                 | RP                  |                            |
| <i>Perenohierax leucorhous</i>     | R      | FS      | H                 | FMR, RP, JFP        | MNRJ, NMBE                 |
| <i>Rupornis magnirostris</i>       | C      | SOUr    | LH                | 18, 25, 48, 110     | MNRJ, MZUSP, NMBE          |
| <i>Buteo albicaudatus</i>          | U      | O       | H                 | 110                 | NMBE                       |
| <i>Buteo melanoleucus</i>          | R      | O       | H                 | 79, 136             |                            |
| <i>Buteo brachyurus</i>            | R      | SO      | H                 | RP                  |                            |
| <i>Buteo albonotatus</i>           | R      | SO      | ?                 | 42                  |                            |
| <i>Harpia harpyja</i> T            | R      | F       | (L?)              | 80, 97              |                            |
| <i>Spizaetus tyrannus</i> PT       | U      | F       | LH                | 1, 97               |                            |
| <i>Spizaetus melanoleucus</i> T    | R      | F       | L                 | RP                  | MNRJ, NMBE                 |
| <b>Falconidae</b>                  |        |         |                   |                     |                            |
| <i>Caracara plancus</i>            | U      | O       | L                 | 25, 110             | NMBE                       |
| <i>Milvago chimachima</i>          | C      | O       | LH                | 25, 48              | MNRJ, NMBE                 |
| <i>Herpetotheres cachimans</i>     | U      | O       | L                 | 48                  |                            |
| <i>Micrastur ruficollis</i>        | FC     | F       | LH                | 18, 25, 48, 110     | MZUSP, NMBE                |
| <i>Micrastur semitorquatus</i>     | R      | F       | L                 | 48                  |                            |
| <i>Falco sparverius</i>            | FC     | SO      | LH                | 25                  | FMNH, MNRJ, MZUSP, NMBE    |
| <i>Falco rufifigularis</i>         | U      | O       | H                 | RP, JFP             |                            |
| <i>Falco deiroleucus</i> E         | R      | O       | ?                 |                     | NMBE                       |
| <i>Falco femoralis</i>             | U      | SO      | LH                | FMR, RP, JFP        | MZUSP                      |

| Species                        | Status | Habitat | Altitudinal level | Source                                | Ornithological Collections |
|--------------------------------|--------|---------|-------------------|---------------------------------------|----------------------------|
| <b>Rallidae</b>                |        |         |                   |                                       |                            |
| <i>Aramides saracura</i>       | FC     | S       | LH                | 25, 48                                | NMBE                       |
| <i>Laterallus melanophaius</i> | R      | SO      | ?                 | JFP                                   | MNRJ                       |
| <i>Laterallus leucopyrrhus</i> | R      | SO      | ?                 | 37                                    | FMNH, MNRJ                 |
| <i>Porzana albicollis</i>      | U      | SO      | LH                | RP, JFP                               | MZUSP                      |
| <i>Pardirallus nigricans</i>   | U      | SO      | LH                | FMR, RP, JFP                          | FMNH, MNRJ, MZUSP, NMBE    |
| <i>Gallinula chloropus</i>     | R      | SO      | ?                 | RP, JFP                               | MZUSP                      |
| <i>Porphyrio martinica</i>     | R      | O       | L                 | JFP                                   | NMBE                       |
| <b>Cariamidae</b>              |        |         |                   |                                       |                            |
| <i>Cariama cristata</i>        | U      | O       | H                 | 42, 94                                |                            |
| <b>Charadriidae</b>            |        |         |                   |                                       |                            |
| <i>Vanellus chilensis</i>      | U      | O       | L                 | 48                                    |                            |
| <b>Scolopacidae</b>            |        |         |                   |                                       |                            |
| <i>Gallinago paraguaiiae</i>   | R      | O       | L(H?)             | 25, 105                               | MZUSP, NMBE                |
| <i>Gallinago undulata</i>      | R      | O       | ?                 | 135                                   | MNRJ, NMBE                 |
| <i>Tringa flavipes</i>         | R      | O       | H                 | RP                                    |                            |
| <i>Calidris fuscicollis</i>    | R      | O       | H                 | RP                                    |                            |
| <b>Jacaniidae</b>              |        |         |                   |                                       |                            |
| <i>Jacana jacana</i>           | R      | O       | L                 | FMR, RP, JFP                          |                            |
| <b>Columbidae</b>              |        |         |                   |                                       |                            |
| <i>Columbina talpacoti</i>     | C      | SOUr    | LH                | 18, 25, 48, 110                       | FMNH, NMBE                 |
| <i>Claravis pretiosa</i>       | R      | S       | L(H?)             | 25, 84                                | NMBE                       |
| <i>Claravis godefrida</i> T    | R      | F       | (L?)H             | 3, 16, 18, 84, 97, 110, 121, 123, 141 | MNRJ, MZUSP                |
| <i>Columba livia</i>           | C      | Ur      | LH                | FMR, RP, JFP                          |                            |
| <i>Patagioenas picazuro</i>    | R      | O       | L                 | FMR, RP, JFP                          | NMBE                       |
| <i>Patagioenas cayennensis</i> | R      | S       | L(H?)             | FMR, RP, JFP                          | MZUSP, NMBE                |
| <i>Patagioenas plumbea</i>     | C      | F       | LH                | 18, 25, 48, 84, 110                   | LACMNH, NMBE               |
| <i>Leptotila verreauxi</i>     | U      | S       | L                 | 48                                    |                            |
| <i>Leptotila rufaxilla</i>     | FC     | FS      | LH                | 18, 25, 48, 84, 110                   | MNRJ, MZUSP, NMBE, UFRJ    |
| <i>Geotrygon montana</i>       | FC     | FS      | LH                | 18, 25, 48, 110                       | LACMNH, MNRJ, NMBE         |
| <b>Psittacidae</b>             |        |         |                   |                                       |                            |
| <i>Primolius maracana</i>      | U      | FSO     | H                 | RP, JFP                               |                            |
| <i>Aratinga leucophthalma</i>  | FC     | SO      | H                 | FMR, RP, JFP                          |                            |
| <i>Pyrrhura cruentata</i>      | R      | FS      | L?                | 97                                    |                            |
| <i>Pyrrhura frontalis</i>      | C      | FSUr    | LH                | 18, 19, 25, 48, 57, 110               | MNRJ, MZUSP, NMBE          |
| <i>Forpus xanthopterygius</i>  | U      | S       | LH                | 18, 25, 48, 110                       | MNRJ, NMBE                 |
| <i>Brotogeris tirica</i>       | C      | FS      | LH                | 18, 48, 110                           | MNRJ, MZUSP                |
| <i>Touit melanonotus</i> T     | R      | F       | (L?)H             | 14, 16, 57, 97, 101, 141              | MNRJ                       |

| Species                         | Status | Habitat | Altitudinal level | Source                   | Ornithological Collections      |
|---------------------------------|--------|---------|-------------------|--------------------------|---------------------------------|
| <i>Touit surdus</i> T           | R      | FS      | L(H?)             | 5, 16, 57, 97, 141       | MNRJ                            |
| <i>Pionopsitta pileata</i> PT   | R      | FS      | H                 | 25, 97, 110, 121         | MZUSP, NMBE                     |
| <i>Pionus maximiliani</i>       | FC     | FS      | LH                | 25, 29, 48, 57, 110, 125 | MNRJ, MZUSP, NMBE               |
| <i>Amazona rhodocorytha</i>     | R      | FS      | ?                 | 147                      |                                 |
| <i>Triclaria malachitacea</i> T | R      | FS      | LH                | 73                       |                                 |
| <b>Cuculidae</b>                |        |         |                   |                          |                                 |
| <i>Coccyzus americanus</i>      | R      | S       | L                 | 110                      |                                 |
| <i>Coccyzus euleri</i>          | R      | S       | H                 | RP, JFP                  |                                 |
| <i>Coccyzus melacoryphus</i>    | R      | S       | L                 | JFP                      |                                 |
| <i>Piaya cayana</i>             | C      | FS      | LH                | 18, 19, 20, 25, 48, 110  | LACMNH, MNRJ, MZUSP, NMBE, UFRJ |
| <i>Crotophaga ani</i>           | C      | SOUr    | LH                | 1, 25, 48                | FMNH, MNRJ, NMBE                |
| <i>Gnira guira</i>              | C      | SOUr    | LH                | 19, 25                   | MNRJ, MZUSP                     |
| <i>Tapera naevia</i>            | U      | S       | LH                | 25                       | FMNH, MNRJ, NMBE                |
| <b>Tytonidae</b>                |        |         |                   |                          |                                 |
| <i>Tyto alba</i>                | R      | S       | ?                 | 25                       | MNRJ, NMBE                      |
| <b>Strigidae</b>                |        |         |                   |                          |                                 |
| <i>Megascops choliba</i>        | C      | SUR     | LH                | 1, 25, 48                | FMNH, MNRJ, NMBE                |
| <i>Megascops atricapilla</i>    | R      | F       | H                 | 110                      |                                 |
| <i>Pulsatrix koeniswaldiana</i> | U      | F       | LH                | 18                       | MNRJ, NMBE                      |
| <i>Strix virgata</i>            | U      | S       | L                 | FMR                      | MZUSP, NMBE                     |
| <i>Strix hylophila</i>          | R      | S       | H                 | 25                       | MNRJ, NMBE                      |
| <i>Glaucidium minutissimum</i>  | R      | FS      | L                 | RP                       | MNRJ                            |
| <i>Glaucidium brasilianum</i>   | FC     | S       | L                 | 48                       | MNRJ, NMBE                      |
| <i>Athene cucularia</i>         | U      | O       | L                 | FMR, RP, JFP             | MNRJ, NMBE                      |
| <i>Rhinopteryx clamator</i>     | R      | SO      | LH                | 1                        | MNRJ, NMBE                      |
| <i>Asio stygius</i> US          | R      | S       | ?                 |                          | NMBE                            |
| <b>Nyctibiidae</b>              |        |         |                   |                          |                                 |
| <i>Nyctibius aethereus</i> US   | R      | FS?     | ?                 | 25                       | NMBE                            |
| <i>Nyctibius griseus</i>        | U      | FS      | LH                | 27, 48                   | MNRJ, NMBE                      |
| <b>Caprimulgidae</b>            |        |         |                   |                          |                                 |
| <i>Lurocalis semitorquatus</i>  | FC     | FS      | LH                | 48, 110                  | MNRJ                            |
| <i>Chordeiles acutipennis</i>   | R      | ?       | ?                 |                          | MNRJ, MZUSP, NMBE               |
| <i>Nyctidromus albicollis</i>   | C      | SO      | LH                | 25, 48, 60, 105          | NMBE                            |
| <i>Nyctiphrynus ocellatus</i>   | R      | FS      | H                 | 25                       |                                 |
| <i>Caprimulgus rufus</i>        | R      | ?       | ?                 | 25                       |                                 |
| <i>Caprimulgus longirostris</i> | U      | SOUr    | LH                | 108, 110, 115, 121       | MNRJ, NMBE                      |
| <i>Hydropsalis torquata</i>     | R      | SO      | L                 | 25                       |                                 |
| <i>Macropsalis forcipata</i>    | R      | FS      | H                 | 1, 25, 97, 121           | MNRJ, NMBE                      |

| Species                           | Status | Habitat | Altitudinal level | Source                             | Ornithological Collections           |
|-----------------------------------|--------|---------|-------------------|------------------------------------|--------------------------------------|
| <b>Apodidae</b>                   |        |         |                   |                                    |                                      |
| <i>Cypseloides fumigatus</i>      | R      | ?       | ?                 | 12, 110                            |                                      |
| <i>Streptoprocne zonaris</i>      | FC     | FSOUr   | LH                | 12, 48, 62, 88, 110                | AMNH, LACMNH, MNRJ, MZUSP            |
| <i>Streptoprocne biscutata</i>    | U      | FSOUr   | LH                | 1, 25, 110, 121                    | MNRJ                                 |
| <i>Chaetura cinereiventris</i>    | FC     | FS      | LH                | 48, 59, 110                        | MNRJ                                 |
| <i>Chaetura meridionalis</i>      | C      | FSOUr   | LH                | 12, 48, 53, 60, 108, 110, 112, 121 | LSUMNS, MNRJ, MPEG, MZUSP            |
| <i>Panyptila cayennensis</i>      | R      | FSO     | L                 | 110                                |                                      |
| <b>Trochilidae</b>                |        |         |                   |                                    |                                      |
| <i>Ramphodon naevius</i> PT       | FC     | FS      | L                 | 48, 110                            | LACMNH, MPEG                         |
| <i>Glaucis hirsutus</i>           | U      | S       | L                 | 48                                 |                                      |
| <i>Phaethornis squavidus</i>      | FC     | FS      | L                 | 48, 110                            | MNRJ                                 |
| <i>Phaethornis ruber</i>          | U      | FS      | LH                | 48, 60, 109                        |                                      |
| <i>Phaethornis pretrei</i>        | U      | SO      | H                 | 8, 109                             | NMBE                                 |
| <i>Phaethornis eurynome</i>       | C      | FS      | H                 | 18, 20, 25, 82, 103, 109, 110, 132 | FMNH, MNRJ, MZUSP, NMBE              |
| <i>Eupetomena macroura</i>        | C      | SUR     | LH                | 8, 18, 19, 48, 103, 104            | MNRJ, UFRJ                           |
| <i>Aphantochroa cirrhochloris</i> | U      | SUR     | LH                | 109                                | NMBE                                 |
| <i>Florisuga fusca</i>            | FC     | SUR     | LH                | 18, 25, 48, 103, 110               | MNRJ, NMBE                           |
| <i>Colibri serrirostris</i>       | U      | SO      | H                 | 22, 103, 104, 110, 116, 121        | MNRJ, NMBE                           |
| <i>Anthracothorax nigricollis</i> | R      | S       | ?                 | JFP                                | MNRJ                                 |
| <i>Chrysolampis mosquitus</i> US  | R      | ?       | ?                 | 21                                 |                                      |
| <i>Stephanoxis lalandi</i>        | FC     | S       | H                 | 25, 104, 109, 110, 132, 140        | FMNH, MNRJ, MBML, NMBE               |
| <i>Lophornis magnificus</i>       | U      | S       | LH                | 25                                 | MNRJ, NMBE                           |
| <i>Chlorostilbon lucidus</i>      | FC     | SUR     | LH                | 8, 48, 60, 103, 110, 116           | CMNH, FMNH, MNRJ, NMBE, UFRJ         |
| <i>Thalurania glaucopsis</i>      | C      | SUR     | LH                | 18, 25, 48, 103, 109, 110          | FMNH, MNRJ, MPEG, MZUSP, NMBE        |
| <i>Hylocharis sapphirina</i>      | R      | ?       | ?                 | 25                                 |                                      |
| <i>Hylocharis cyanus</i>          | U      | S       | L                 | 48                                 | MNRJ, NMBE                           |
| <i>Leucochloris albicollis</i>    | C      | SUR     | H                 | 18, 25, 60, 103, 104, 110          | CMNH, FMNH, LSUMNS, MNRJ, NMBE, UMMZ |
| <i>Amazilia versicolor</i>        | U      | SUR     | LH                | 103                                | FMNH, MNRJ                           |
| <i>Amazilia fimbriata</i>         | U      | SUR     | L(H?)             | FMR                                | MNRJ                                 |
| <i>Amazilia lactea</i>            | U      | SUR     | H                 | 107                                |                                      |
| <i>Clytolaema rubricauda</i>      | C      | FS      | H                 | 18, 25, 82, 103, 109, 110          | CMNH, FMNH, MNRJ, MZUSP, NMBE        |
| <i>Heliothryx auritus</i> PT      | R      | F       | H                 | 25, 103                            | MNRJ                                 |
| <i>Calliphlox amethystina</i>     | R      | SUR     | LH                | 25, 82, 110                        | FMNH, MNRJ, MZUSP, NMBE              |
| <b>Trogonidae</b>                 |        |         |                   |                                    |                                      |
| <i>Trogon viridis</i>             | R      | FS      | L                 | 147                                | AMNH, MNRJ                           |
| <i>Trogon surrucura</i>           | U      | FS      | LH                | 15, 18, 25, 110                    | MNRJ, MZUSP, NMBE                    |
| <i>Trogon rufus</i>               | U      | FS      | LH                | 15, 18, 19, 20, 25, 48, 110        | MNRJ, MZUSP, NMBE                    |
| <b>Alcedinidae</b>                |        |         |                   |                                    |                                      |

| Species                           | Status | Habitat | Altitudinal level | Source                       | Ornithological Collections |
|-----------------------------------|--------|---------|-------------------|------------------------------|----------------------------|
| <i>Ceryle torquatus</i>           | U      | O       | L                 | 48                           |                            |
| <i>Chloroceryle amazona</i>       | U      | O       | LH                | 25                           | MNRJ, MZUSP, NMBE          |
| <i>Chloroceryle americana</i>     | U      | SO      | LH                | 18, 25                       | MNRJ, MZUSP, NMBE          |
| <i>Chloroceryle aenea</i> US      | R      | S       | LH                | 121                          |                            |
| <b>Momotidae</b>                  |        |         |                   |                              |                            |
| <i>Baryphthengus ruficapillus</i> | FC     | FS      | L                 | 48, 50, 110                  |                            |
| <b>Galbulidae</b>                 |        |         |                   |                              |                            |
| <i>Galbula ruficauda</i>          | U      | S       | L                 | 48                           | MNRJ                       |
| <b>Bucconidae</b>                 |        |         |                   |                              |                            |
| <i>Notharchus swainsoni</i> PT    | R      | F       | L                 | RP, JFP                      |                            |
| <i>Nystalus chacuru</i>           | U      | S       | H                 | FMR, RP, JFP                 |                            |
| <i>Malacoptila striata</i>        | FC     | FS      | LH                | 25, 48, 50, 110              | LACMNH, MNRJ, MZUSP, NMBE  |
| <b>Ramphastidae</b>               |        |         |                   |                              |                            |
| <i>Ramphastos vitellinus</i>      | U      | FS      | L                 | 48, 110, 121                 | UFRJ                       |
| <i>Ramphastos dicolorus</i>       | U      | FS      | H                 | 25, 66, 121                  | MNRJ, NMBE                 |
| <i>Selenidera maculirostris</i>   | U      | FS      | LH                | 1, 18, 25, 48, 50, 110       | MNRJ, MZUSP, NMBE          |
| <i>Pteroglossus bailloni</i>      | U      | FS      | H                 | 18, 25, 110, 121             | LACMNH, MNRJ, MZUSP, NMBE  |
| <b>Picidae</b>                    |        |         |                   |                              |                            |
| <i>Picumnus cirratus</i>          | C      | FSUr    | LH                | 18, 20, 48, 110, 126         | MNRJ, MZUSP, NMBE          |
| <i>Melanerpes candidus</i>        | R      | SO      | LH                | 25                           | NMBE                       |
| <i>Melanerpes flavifrons</i>      | FC     | FS      | LH                | 25, 48                       | MNRJ, NMBE                 |
| <i>Veniliornis maculifrons</i>    | FC     | FS      | LH                | 18, 20, 25, 48, 50, 110, 146 | MNRJ, MZUSP, NMBE, UFRJ    |
| <i>Piculus flavigula</i>          | FC     | FS      | L                 | 48, 110, 146                 |                            |
| <i>Piculus aurulentus</i>         | FC     | FS      | H                 | 18, 20, 25, 110, 146         | FMNH, MNRJ, MZUSP, NMBE    |
| <i>Colaptes melanochloros</i>     | U      | S       | LH                | 25, 110                      | MNRJ, NMBE                 |
| <i>Colaptes campestris</i>        | FC     | O       | LH                | 110                          | MNRJ, MZUSP, NMBE          |
| <i>Celeus flavescens</i>          | FC     | FS      | LH                | 48                           | MNRJ, NMBE                 |
| <i>Dryocopus lineatus</i>         | U      | S       | LH                | RP, JFP                      |                            |
| <i>Campephilus robustus</i> PT    | R      | ?       | ?                 | 25                           | NMBE                       |
| <b>Thamnophilidae</b>             |        |         |                   |                              |                            |
| <i>Hypodaedalus guttatus</i>      | U      | FS      | L                 | 18, 20, 48                   | MNRJ                       |
| <i>Batara cinerea</i>             | U      | F       | H                 | 2, 18, 19, 25, 110, 166      | MNRJ, NMBE                 |
| <i>Mackenziaena leachii</i>       | U      | FS      | H                 | 25, 110, 166                 | MNRJ, NMBE                 |
| <i>Mackenziaena severa</i>        | FC     | FS      | LH                | 18, 20, 25, 48, 110, 166     | LACMNH, MNRJ, NMBE         |
| <i>Biatus nigropectus</i> PT      | R      | F       | H                 | 16, 121, 123, 141, 166       | MNRJ                       |
| <i>Thamnophilus palliatus</i>     | FC     | S       | L                 | 48, 63, 150                  | AMNH, MNRJ                 |
| <i>Thamnophilus ambiguus</i>      | FC     | S       | L                 | 25, 48, 63, 151              | AMNH, LACMNH               |
| <i>Thamnophilus caerulescens</i>  | C      | S       | H                 | 18, 20, 33, 63, 110          | AMNH, FMNH, MNRJ, NMBE     |

| Species                                | Status | Habitat | Altitudinal level | Source  | Ornithological Collections           |
|--|--------|---------|-------------------|---|--------------------------------------|
| <i>Thamnophilus ruficapillus</i>       | FC     | SO      | H                 | 25, 63, 110, 121, 166                                 | AMNH, MNRJ, NMBE                     |
| <i>Dysithamnus stictothorax</i>        | C      | S       | LH                | 18, 46, 48, 49, 64, 110                               | AMNH, LACMNH, MNRJ                   |
| <i>Dysithamnus mentalis</i>            | C      | S       | LH                | 18, 20, 25, 46, 48, 49, 64, 110, 145                  | AMNH, LACMNH, MNRJ, NMBE             |
| <i>Dysithamnus xanthopterus</i>        | FC     | S       | H                 | 18, 43, 110, 166                                      | MNRJ                                 |
| <i>Thamnomanes caesiis</i>             | R      | FS      | L                 | 46, 48, 49  | LACMNH                               |
| <i>Myrmotherula gularis</i>            | C      | FS      | LH                | 18, 20, 46, 48, 49, 110, 166                          | LACMNH, MNRJ, UFRJ                   |
| <i>Myrmotherula axillaris</i>          | U      | S       | L                 | 46, 48, 49, 110                                       | MNRJ, UFRJ                           |
| <i>Myrmotherula unicolor</i>           | FC     | S       | LH                | 46, 48, 49, 110, 134, 143, 166                        | MNRJ                                 |
| <i>Herpsilochmus rufimarginatus</i>    | C      | S       | L                 | 48  | UFRJ                                 |
| <i>Formicivora grisea</i> <sup>a</sup> | R      | ?       | ?                 | 17, 30, 56, 72  | MACSP                                |
| <i>Drymophila ferruginea</i>           | FC     | FS      | LH                | 11, 18, 19, 20, 48, 56, 64, 72, 92, 110, 166          | AMNH, MACSP, MZUSP                   |
| <i>Drymophila rubricollis</i>          | U      | FS      | H                 | 76, 92, 166   |                                      |
| <i>Drymophila genei</i>                | U      | SO      | H                 | 92, 110, 166  |                                      |
| <i>Drymophila ochropyga</i>            | C      | S       | H                 | 18, 20, 64, 92, 102, 110, 166                         | AMNH, FMNH, LACMNH, MNRJ, NMBE       |
| <i>Drymophila maura</i>                | FC     | S       | H                 | 18, 19, 92  | LACMNH, MNRJ, NMBE                   |
| <i>Drymophila squamata</i>             | C      | FS      | L                 | 46, 48, 49, 92, 110                                   | MPEG, UFRJ                           |
| <i>Terenura maculata</i>               | FC     | FS      | L                 | 48, 166   | UFRJ                                 |
| <i>Cercomacra brasiliana</i> PT        | R      | S       | L                 | 56, 72  | LACMNH, MACSP                        |
| <i>Pyriglena leucoptera</i>            | C      | FS      | LH                | 18, 19, 20, 25, 46, 47, 48, 49, 50, 64, 110, 149, 166 | AMNH, FMNH, LACMNH, MNRJ, NMBE, UFRJ |
| <i>Myrmeciza loricata</i>              | C      | FS      | LH                | 18, 19, 20, 46, 48, 49, 50, 64, 110, 166              | AMNH, CMNH, LACMNH, MNRJ             |
| <b>Conopophagidae</b>                  |        |         |                   |   |                                      |
| <i>Conopophaga lineata</i>             | FC     | S       | LH                | 18, 20, 25, 48, 63, 65, 110, 141                      | LACMNH, MNRJ, MZUSP, NMBE            |
| <i>Conopophaga melanops</i>            | FC     | S       | L                 | 17, 46, 48, 49, 50, 63, 91, 110                       | AMNH, MNRJ, MZUSP                    |
| <b>Grallariidae</b>                    |        |         |                   |   |                                      |
| <i>Grallaria varia</i>                 | U      | FS      | LH                | 18, 25, 39, 48, 56, 72, 110                           | LACMNH, MNRJ, NMBE                   |
| <i>Hylopezus nattereri</i>             | R      | ?       | ?                 | 39  |                                      |
| <b>Rhinocryptidae</b>                  |        |         |                   |   |                                      |
| <i>Psilorhamphus guttatus</i>          | U      | FS      | H                 | 117   |                                      |
| <i>Merulaxis ater</i>                  | R      | F       | H                 | 13, 56, 72  | MACSP                                |
| <i>Scytalopus notorius</i>             | FC     | F       | H                 | 40, 99, 110, 113, 117, 121, 139                       | MNRJ                                 |
| <i>Scytalopus indigoticus</i>          | U      | F       | H                 | 13, 56, 72, 117, 121                                  | MACSP                                |
| <b>Formicariidae</b>                   |        |         |                   |   |                                      |
| <i>Formicarius colma</i>               | FC     | FS      | LH                | 46, 48, 49, 50, 110                                   | MNRJ, UFRJ                           |
| <i>Chamaeza campanisona</i>            | U      | F       | H                 | 25, 39, 55, 96, 110                                   | LACMNH, MNRJ                         |
| <i>Chamaeza meruloides</i>             | U      | F       | H                 | 39, 96, 148   | MNRJ                                 |
| <i>Chamaeza ruficauda</i>              | U      | F       | H                 | 17, 18, 39, 64, 82, 96, 110, 121                      | AMNH, LACMNH, MNRJ, MZUSP, NMBE      |

| Species                               | Status | Habitat | Altitudinal level | Source  | Ornithological Collections     |
|---------------------------------------|--------|---------|-------------------|---|--------------------------------|
| <b>Scleruridae</b>                    |        |         |                   |   |                                |
| <i>Sclarurus mexicanus</i>            | R      | F       | L                 | JFP   |                                |
| <i>Sclerurus scansor</i>              | FC     | FS      | LH                | 18, 19, 25, 27, 46, 48, 49, 50, 91, 100, 110        | MNRJ, MZUSP, NMBE              |
| <b>Dendrocolaptidae</b>               |        |         |                   |   |                                |
| <i>Dendrocincla turdina</i>           | C      | FS      | LH                | 9, 18, 20, 46, 48, 49, 50, 110                      | UFRJ                           |
| <i>Sittasomus griseicapillus</i>      | C      | FS      | LH                | 9, 18, 20, 34, 46, 48, 49, 50, 110, 145             | MNRJ                           |
| <i>Xiphocolaptes albicollis</i>       | U      | FS      | LH                | 9, 18, 19, 20, 25, 48, 82, 110, 121                 | MNRJ, MZUSP, NMBE              |
| <i>Dendrocolaptes platyrostris</i>    | U      | FS      | LH                | 9, 17, 18, 20, 25, 46, 48, 49, 52, 110              | NMBE                           |
| <i>Xiphorhynchus fuscus</i>           | C      | FS      | LH                | 9, 18, 19, 20, 46, 48, 49, 50, 81, 110, 121         | LACMNH, MNRJ                   |
| <i>Lepidocolaptes squamatus</i>       | U      | FS      | LH                | 9, 17, 18, 20, 25, 46, 48, 49, 82, 110, 121         | LACMNH, MNRJ, MZUSP, NMBE      |
| <i>Campylorhamphus falcularius</i>    | U      | FS      | LH                | 9, 18, 20, 25, 46, 48, 49, 52, 54, 85, 90, 110, 138 | LACMNH, MZUSP, NMBE            |
| <b>Furnariidae</b>                    |        |         |                   |   |                                |
| <i>Furnarius figulus</i>              | R      | SOUr    | LH                | FMR, RP, JFP  |                                |
| <i>Furnarius rufus</i>                | FC     | SOUr    | LH                | 25, 105   | FMNH, MNRJ                     |
| <i>Oreophylax moreirae</i>            | FC     | SO      | H                 | 60, 100, 107, 110, 119, 121                         |                                |
| <i>Synallaxis ruficapilla</i>         | C      | S       | LH                | 18, 20, 46, 48, 49, 77, 100, 110                    | MNRJ, MZUSP                    |
| <i>Synallaxis cinerascens</i>         | R      | F       | H                 | FMR, RP   | MNRJ, NMBE                     |
| <i>Synallaxis albescens</i>           | R      | S       | H                 | RP  |                                |
| <i>Synallaxis spixi</i>               | C      | SO      | LH                | 25, 48, 110, 153                                    | AMNH, FMNH, LACMNH, MNRJ, NMBE |
| <i>Cranioleuca pallida</i>            | FC     | S       | H                 | 18, 20, 60, 100, 110                                | MNRJ, NMBE                     |
| <i>Certhiaxis cinnamomeus</i>         | R      | O       | L                 | 19  | LACMNH                         |
| <i>Phacellodomus rufifrons</i>        | U      | O       | LH                | 94  | MNRJ                           |
| <i>Phacellodomus erythrophthalmus</i> | U      | S       | LH                | 18, 94, 100   | MNRJ                           |
| <i>Anabacerthia amaurotis</i>         | FC     | FS      | LH                | 18, 20, 46, 48, 49, 81, 100, 110                    | LACMNH, MNRJ                   |
| <i>Syndactyla rufosuperciliata</i>    | FC     | FS      | H                 | 17, 18, 19, 20, 25, 110, 152                        | AMNH, FMNH, LACMNH, MNRJ, NMBE |
| <i>Philydor lichtensteini</i>         | R      | FS      | L                 | 46, 48, 49  |                                |
| <i>Philydor atricapillus</i>          | FC     | FS      | LH                | 18, 44, 46, 48, 49, 50, 100, 110                    | LACMNH, MNRJ, UFRJ             |
| <i>Philydor rufum</i>                 | C      | FS      | LH                | 18, 20, 25, 48, 69, 110                             | LACMNH, MNRJ, MZUSP, NMBE      |
| <i>Anabazenops fuscus</i>             | FC     | FS      | LH                | 18, 20, 25, 46, 48, 49, 50, 100, 110                | LACMNH, MNRJ, NMBE             |
| <i>Cichlocolaptes leucophrus</i>      | FC     | FS      | LH                | 18, 19, 20, 46, 48, 49, 100, 110                    | LACMNH, MNRJ                   |
| <i>Automolus leucophthalmus</i>       | C      | FS      | LH                | 18, 19, 20, 46, 48, 49, 50, 70, 100, 110            | LACMNH, MNRJ, MZUSP            |
| <i>Lochmias nematura</i>              | FC     | FS      | LH                | 18, 25, 26, 48, 54, 110                             | FMNH, LACMNH, MNRJ, NMBE       |
| <i>Heliobletus contaminatus</i>       | FC     | FS      | H                 | 18, 19, 20, 25, 100, 110                            | FMNH, LACMNH, MNRJ             |
| <i>Xenops minutus</i>                 | FC     | FS      | LH                | 25, 46, 48, 49, 110                                 | MNRJ                           |
| <i>Xenops rutilans</i>                | FC     | FS      | LH                | 18, 25, 46, 48, 49, 110                             | MNRJ, NMBE                     |
| <b>Oxyruncidae</b>                    |        |         |                   |   |                                |
| <i>Oxyruncus cristatus</i>            | U      | F       | LH                | 18, 20, 110   | LACMNH, MNRJ                   |

| Species                             | Status | Habitat | Altitudinal level | Source                                   | Ornithological Collections            |
|-------------------------------------|--------|---------|-------------------|--|---------------------------------------|
| <b>Tyrannidae</b>                   |        |         |                   |  |                                       |
| <i>Mionectes oleagineus</i>         | U      | FS      | L                 | 46, 48, 49                               | UFRJ                                  |
| <i>Mionectes rufiventris</i>        | FC     | FS      | LH                | 18, 20, 25, 46, 48, 49, 110, 121         | LACMNH, MNRJ, NMBE                    |
| <i>Leptopogon amaurocephalus</i>    | C      | FS      | LH                | 18, 20, 46, 48, 49, 110, 121             | MNRJ, UFRJ                            |
| <i>Corythopsis delalandi</i>        | U      | S       | L                 | 46, 48, 49, 110                          | MNRJ                                  |
| <i>Hemitriccus diops</i>            | FC     | FS      | H                 | 17, 18, 19, 20, 23, 83, 102, 110, 121    | MNRJ, MZUSP, NMBE                     |
| <i>Hemitriccus orbitatus</i>        | C      | FS      | L                 | 23, 46, 48, 49, 110                      | MNRJ                                  |
| <i>Hemitriccus nidipendulus</i>     | R      | S       | LH                | RP, JFP                                  | MNRJ                                  |
| <i>Poecilatriccus plumbeiceps</i>   | U      | S       | H                 | 18, 20, 67, 83, 110, 159                 | AMNH, LACMNH, MNRJ, MZUSP             |
| <i>Todirostrum poliocephalum</i>    | FC     | S       | LH                | 17, 25, 48, 83, 110                      | MNRJ, MZUSP, NMBE                     |
| <i>Todirostrum cinereum</i>         | U      | O       | L                 | RP, JFP                                  |                                       |
| <i>Phyllomyias burmeisteri</i>      | U      | S       | LH                | 25, 110                                  |                                       |
| <i>Phyllomyias virescens</i>        | U      | S       | H                 | 17, 18, 83                               | FMNH, MNRJ, MZUSP                     |
| <i>Phyllomyias fasciatus</i>        | FC     | S       | LH                | 17, 48, 83, 110                          | FMNH, MNRJ, MZUSP, NMBE               |
| <i>Phyllomyias griseicapilla</i>    | FC     | S       | LH                | 17, 18, 19, 20, 25, 110                  | MNRJ, MZUSP, NMBE                     |
| <i>Myiopagis caniceps</i> cf.       | R      | S       | H                 | RP                                       |                                       |
| <i>Elaenia flavogaster</i>          | C      | SUr     | LH                | 25, 48, 160                              | AMNH, MNRJ, NMBE                      |
| <i>Elaenia albiceps</i>             | R      | FS      | H                 | RP, JFP                                  |                                       |
| <i>Elaenia cf. parvirostris</i>     | R      | ?       | ?                 |  | MNRJ                                  |
| <i>Elaenia mesoleuca</i>            | U      | S       | LH                | 19, 110                                  | MNRJ, MPEG                            |
| <i>Elaenia obscura</i>              | U      | S       | H                 | 17, 110                                  | FMNH, MNRJ, NMBE                      |
| <i>Camptostoma obsoletum</i>        | FC     | S       | LH                | 17, 25, 48, 83, 110                      | FMNH, MNRJ, MZUSP, NMBE               |
| <i>Serpophaga nigricans</i>         | U      | O       | H                 | RP, JFP                                  | MNRJ, NMBE                            |
| <i>Serpophaga subcristata</i>       | FC     | S       | LH                | 17, 83                                   | FMNH, NMBE                            |
| <i>Capstempis flaveola</i>          | U      | FS      | LH                | 48                                       | MNRJ                                  |
| <i>Phylloscartes ventralis</i>      | FC     | FS      | H                 | 17, 18, 20, 83, 110                      | FMNH, MNRJ, MZUSP                     |
| <i>Phylloscartes oustaleti</i> T    | R      | FS      | H                 | 18, 20, 31, 121                          | AMNH, MNRJ, MZUSP                     |
| <i>Phylloscartes difficilis</i>     | FC     | FS      | H                 | 110, 121                                 |                                       |
| <i>Myiornis auricularis</i>         | U      | FS      | LH                | 17, 48, 83, 110                          | FMNH, MNRJ, MZUSP, NMBE               |
| <i>Rhynchocyclus olivaceus</i> T    | U      | F       | L                 | RP                                       | LACMNH                                |
| <i>Tolmomyias sulphureus</i>        | C      | S       | LH                | 18, 20, 46, 48, 49, 62, 83, 110, 158     | AMNH, MNRJ, MZUSP, NMBE               |
| <i>Tolmomyias flaviventris</i>      | U      | S       | LH                | 83, 88                                   | MNRJ, MZUSP                           |
| <i>Platyrinchus mystaceus</i>       | C      | FS      | LH                | 18, 20, 25, 46, 48, 49, 83, 87, 110, 157 | AMNH, LACMNH, MNRJ, MZUSP, NMBE, UFRJ |
| <i>Platyrinchus leucorhynchus</i> T | R      | F       | L                 | RP                                       |                                       |
| <i>Onychorhynchus swainsoni</i> T   | R      | F       | H                 | 18, 19, 25, 83                           | MNRJ, MZUSP                           |
| <i>Myiophobus fasciatus</i>         | FC     | S       | LH                | 25, 48, 110, 157                         | AMNH, MNRJ, MPEG                      |
| <i>Myiobius barbatus</i>            | C      | FS      | LH                | 18, 25, 46, 48, 49, 110                  | MNRJ                                  |
| <i>Myiobius atricaudus</i>          | U      | FS      | H                 | 6, 17, 19, 83, 110, 156                  | AMNH, LACMNH, MNRJ, MZUSP, NMBE       |

| Species                           | Status | Habitat | Altitudinal level | Source                               | Ornithological Collections      |
|-----------------------------------|--------|---------|-------------------|--------------------------------------|---------------------------------|
| <i>Hirundinea ferruginea</i>      | U      | SOUr    | LH                | 17, 18, 25, 48, 83, 110              | FMNH, MNRJ, MZUSP, NMBE         |
| <i>Lathrotriccus euleri</i>       | C      | FS      | LH                | 18, 19, 46, 48, 49, 50, 83, 110, 156 | AMNH, LACMNH, MNRJ, MZUSP, NMBE |
| <i>Cnemotriccus fuscatus</i>      | R      | Ur      | L                 | 25                                   | MPEG                            |
| <i>Contopus cinereus</i>          | U      | S       | LH                | RP                                   | MNRJ                            |
| <i>Pyrocephalus rubinus</i>       | R      | O       | LH                | RP                                   |                                 |
| <i>Knipolegus cyanostris</i>      | U      | SO      | H                 | 17, 18, 20, 110                      | FMNH, MNRJ, NMBE                |
| <i>Knipolegus lophotes</i>        | R      | O       | H                 | 25, 60                               |                                 |
| <i>Knipolegus nigerrimus</i>      | U      | SO      | H                 | 17, 41, 83, 110                      | FMNH, MNRJ, MZUSP, NMBE         |
| <i>Satrapa icterophrys</i>        | R      | S       | LH                | 60                                   | MNRJ, NMBE                      |
| <i>Xolmis cinereus</i>            | R      | SO      | H                 | RP, JFP                              | MNRJ                            |
| <i>Xolmis velatus</i>             | R      | O       | H                 | FMR, RP, JFP                         | MNRJ                            |
| <i>Muscipipra vetula</i>          | U      | S       | H                 | 25, 83                               | CMNH, FMNH, MNRJ, MZUSP, NMBE   |
| <i>Fluvicola nengeta</i>          | U      | SOUr    | LH                | 48                                   |                                 |
| <i>Arundinicola leucocephala</i>  | R      | ?       | ?                 | 25                                   |                                 |
| <i>Colonia colonus</i>            | C      | S       | LH                | 17, 25, 48, 83, 110, 133, 155        | AMNH, FMNH, MNRJ, MZUSP, NMBE   |
| <i>Machaetormis rixosa</i>        | FC     | SOUr    | LH                | 48                                   |                                 |
| <i>Legatus leucophaeus</i>        | FC     | FS      | L                 | 48, 60, 110                          |                                 |
| <i>Myiozetetes cayanensis</i>     | U      | S       | LH                | RP, JFP                              | NMBE                            |
| <i>Myiozetetes similis</i>        | FC     | SUr     | LH                | 19, 25, 48, 110                      | MNRJ                            |
| <i>Pitangus sulphuratus</i>       | C      | SOUr    | LH                | 18, 25, 48, 62, 110, 116             | AMNH, LACMNH, MNRJ, NMBE        |
| <i>Myiodynastes maculatus</i>     | FC     | S       | LH                | 18, 19, 25, 48, 110                  | LACMNH, NMBE                    |
| <i>Megarynchus pitangua</i>       | FC     | FS      | LH                | 25, 48                               | LACMNH, NMBE                    |
| <i>Empidonomus varius</i>         | U      | S       | LH                | 18, 20, 25, 110                      | NMBE                            |
| <i>Tyrannus melancholicus</i>     | C      | SOUr    | LH                | 18, 20, 25, 48, 110                  | MNRJ, NMBE                      |
| <i>Tyrannus savana</i>            | R      | SO      | LH                | 18                                   | MNRJ, NMBE                      |
| <i>Rhytipterna simplex</i>        | U      | S       | L                 | 48                                   |                                 |
| <i>Sirystes sibilator</i>         | R      | S       | H                 | 18, 20                               | MNRJ                            |
| <i>Myiarchus tuberculifer</i>     | U      | S       | L                 | 48, 110                              |                                 |
| <i>Myiarchus swainsoni</i>        | U      | S       | LH                | FMR, RP, JFP                         | MNRJ, NMBE                      |
| <i>Myiarchus ferox</i>            | U      | S       | LH                | 18, 20, 25, 110                      | MNRJ, NMBE                      |
| <i>Ramphotrigon megalcephalum</i> | R      | S       | LH                | 107                                  | MNRJ                            |
| <i>Attila phoenicurus</i>         | U      | S       | H                 | 23, 78                               |                                 |
| <i>Attila rufus</i>               | C      | S       | LH                | 18, 19, 20, 25, 48, 110              | LACMNH, MNRJ, NMBE              |
| <b>Cotingidae</b>                 |        |         |                   |                                      |                                 |
| <i>Phibalura flavirostris</i> PT  | U      | S       | H                 | 18, 25, 26, 36, 38, 83, 110, 129     | FMNH, LACMNH, MNRJ, MZUSP, NMBE |
| <i>Carpornis cucullata</i>        | FC     | F       | H                 | 18, 20, 60, 110, 128, 129, 131, 137  | MNRJ, MZUSP                     |
| <i>Carpornis melanocephala</i> T  | U      | F       | L                 | RP, JFP                              |                                 |
| <i>Procnias nudicollis</i> PT     | U      | FS      | LH                | 18, 19, 25, 48                       | MNRJ, NMBE                      |

| Species                             | Status | Habitat | Altitudinal level | Source   | Ornithological Collections       |
|-------------------------------------|--------|---------|-------------------|--|----------------------------------|
| <i>Tijuca atra</i>                  | FC     | F       | H                 | 2, 25, 36, 60, 83, 110, 111, 121, 128, 129, 131, 137 | MNRJ, MZUSP, NMBE                |
| <i>Tijuca condita</i> PT            | U      | F       | H                 | 10, 16, 101, 110, 111, 121, 127, 128, 129, 141       | MZUSP                            |
| <i>Calyptura cristata</i> PT        | R      | S       | L                 | 74, 75, 102, 121, 129                                | Vide Collar <i>et al.</i> (1992) |
| <i>Lipaugus lanioides</i> T         | R      | F       | H                 | 16, 18, 25, 129, 141                                 | MNRJ, NMBE                       |
| <i>Pyroderus scutatus</i> T         | R      | FS      | ?                 | 25   | MNRJ                             |
| <b>Pipridae</b>                     |        |         |                   |  |                                  |
| <i>Neopelma aurifrons</i>           | R      | F       | L                 | 144  |                                  |
| <i>Neopelma chrysolophum</i>        | U      | S       | H                 | 18, 25, 121, 144                                     | AMNH, LACMNH, MNRJ, NMBE         |
| <i>Ilicura militaris</i>            | FC     | F       | LH                | 18, 20, 25, 36, 46, 48, 49, 83, 110, 130             | LACMNH, MNRJ, MZUSP, NMBE        |
| <i>Machaeropterus regulus</i>       | U      | F       | L                 | RP, JFP  |                                  |
| <i>Manacus manacus</i>              | C      | FS      | L                 | 25, 46, 48, 49, 110, 154                             | AMNH, LACMNH, MNRJ, NMBE, UFRJ   |
| <i>Chiroxiphia caudata</i>          | C      | F       | LH                | 18, 20, 25, 46, 48, 49, 102, 110, 130                | LACMNH, MNRJ, MPEG, NMBE, UFRJ   |
| <b>Tityridae</b>                    |        |         |                   |  |                                  |
| <i>Schiffornis turdina</i>          | U      | F       | L                 | RP   |                                  |
| <i>Schiffornis virescens</i>        | U      | S       | LH                | 18, 20, 110  | MNRJ, NMBE                       |
| <i>Laniisoma elegans</i> PT         | R      | F       | LH                | 16, 18, 46, 48, 49, 137                              | MNRJ, MZUSP                      |
| <i>Iodopleura pipra</i> PT          | U      | FS      | L                 | 16, 48, 129, 141                                     |                                  |
| <i>Tityra inquisitor</i>            | U      | FS      | L                 | RP   |                                  |
| <i>Tityra cayana</i>                | R      | S       | L(H?)             | 18, 19, 25, 110                                      | MNRJ, NMBE                       |
| <i>Pachyrhamphus viridis</i>        | U      | S       | LH                | FMR, RP, JFP   | MNRJ, NMBE                       |
| <i>Pachyrhamphus castaneus</i>      | FC     | S       | LH                | 18, 20, 25, 48, 110                                  | LACMNH, MNRJ, NMBE               |
| <i>Pachyrhamphus polychlopterus</i> | FC     | S       | LH                | 18, 19, 20, 25, 48, 110                              | LACMNH                           |
| <i>Pachyrhamphus marginatus</i>     | FC     | F       | L                 | 48, 110  | LACMNH                           |
| <i>Pachyrhamphus validus</i>        | FC     | S       | LH                | 18, 20, 110  | LACMNH                           |
| <b>Virionidae</b>                   |        |         |                   |  |                                  |
| <i>Cyclarhis gujanensis</i>         | C      | FS      | LH                | 18, 20, 25, 36, 46, 48, 49, 50, 83, 110, 162         | AMNH, FMNH, MNRJ, MZUSP, NMBE    |
| <i>Vireo olivaceus</i>              | C      | FS      | LH                | 46, 48, 49, 110, 161                                 | AMNH, MNRJ                       |
| <i>Hylophilus poicilotis</i>        | C      | F       | H                 | 18, 20, 25, 98, 110                                  | LACMNH, MNRJ, NMBE               |
| <i>Hylophilus amaurocephalus</i>    | U      | F       | H                 | 98   | MNRJ                             |
| <i>Hylophilus thoracicus</i>        | U      | S       | L(H?)             | 48, 162  | AMNH, MNRJ                       |
| <b>Corvidae</b>                     |        |         |                   |  |                                  |
| <i>Cyanocorax cristatellus</i>      | R      | O       | H                 | FMR, RP  |                                  |
| <b>Hirundinidae</b>                 |        |         |                   |  |                                  |
| <i>Tachycineta leucorrhoa</i>       | U      | O       | LH                | RP, JFP  |                                  |
| <i>Progne tapera</i>                | FC     | SO      | LH                | FMR, RP, JFP   | LACMNH, MNRJ                     |
| <i>Progne chalybea</i>              | U      | SOUr    | LH                | 25, 32   | NMBE                             |
| <i>Pygochelidon cyanoleuca</i>      | C      | SOUr    | LH                | 25, 36, 48, 83, 110, 116, 165                        | AMNH, FMNH, MNRJ, MZUSP, NMBE    |

| Species                            | Status | Habitat | Altitudinal level | Source  | Ornithological Collections                  |
|------------------------------------|--------|---------|-------------------|---|---|
| <i>Neohelidon tibialis</i>         | U      | S       | LH                | 110   |   |
| <i>Stelgidopteryx ruficollis</i>   | C      | SO      | LH                | 48, 110   | MNRJ, NMBE                                  |
| <i>Hirundo rustica</i>             | U      | O       | LH                | RP  |   |
| <b>Troglodytidae</b>               |        |         |                   |   |   |
| <i>Thryothorus genibarbis</i>      | U      | S       | L(H?)             | 48  | LACMNH, MNRJ                                |
| <i>Thryothorus longirostris</i>    | FC     | S       | L(H?)             | 48  | MNRJ  |
| <i>Troglodytes musculus</i>        | C      | SOUr    | LH                | 19, 25, 36, 48, 83, 105, 110, 116               | FMNH, MNRJ, MPEG, MZUSP, NMBE               |
| <b>Turdidae</b>                    |        |         |                   |   |   |
| <i>Platycichla flavipes</i>        | C      | F       | LH                | 18, 19, 20, 25, 46, 48, 49, 50, 110, 121, 131   | LACMNH, MNRJ, MPEG, NMBE, UFRJ              |
| <i>Turdus rufiventris</i>          | C      | SOUr    | LH                | 18, 20, 25, 46, 48, 49, 50, 83, 105, 110, 131   | FMNH, MNRJ, MPEG, MZUSP, NMBE               |
| <i>Turdus leucomelas</i>           | FC     | SUR     | LH                | 18, 48  | MNRJ  |
| <i>Turdus amaurochalinus</i>       | U      | SOUr    | LH                | 110   | MNRJ, NMBE                                  |
| <i>Turdus albicollis</i>           | C      | F       | LH                | 18, 20, 25, 46, 48, 49, 50, 110                 | MNRJ, NMBE, UFRJ                            |
| <b>Mimidae</b>                     |        |         |                   |   |   |
| <i>Mimus saturninus</i>            | U      | O       | LH                | 19, 48  | MNRJ  |
| <b>Motacillidae</b>                |        |         |                   |   |   |
| <i>Anthus hellmayri</i>            | R      | O       | ?                 | 121   |   |
| <b>Coerebidae</b>                  |        |         |                   |   |   |
| <i>Coereba flaveola</i>            | C      | SUR     | LH                | 46, 48, 49, 110                                 | LACMNH, MNRJ                                |
| <b>Thraupidae</b>                  |        |         |                   |   |   |
| <i>Orchesticus abeillei</i>        | U      | F       | H                 | 18, 20, 25, 83, 110                             | FMNH, MNRJ, MZUSP, NMBE                     |
| <i>Schistochlamys ruficapillus</i> | U      | SO      | H                 | 19, 25, 36, 83, 89                              | FMNH, LACMNH, MNRJ, MZUSP, NMBE             |
| <i>Cissopis leverianus</i>         | R      | S       | H                 | 25  | MNRJ, NMBE                                  |
| <i>Nemosia pileata</i>             | R      | S       | L                 | JFP   |   |
| <i>Orthogonys chloricterus</i>     | R      | F       | LH                | 18, 20, 25                                      | MNRJ, NMBE                                  |
| <i>Thyppopsis sordida</i>          | U      | SOUr    | LH                | 19, 48  | MNRJ  |
| <i>Pyrrhocoma ruficeps</i>         | FC     | FS      | H                 | 36, 83  | FMNH, MZUSP, NMBE                           |
| <i>Trichothraupis melanops</i>     | C      | FS      | LH                | 18, 19, 20, 25, 36, 46, 48, 49, 50, 51, 83, 110 | LACMNH, MNRJ, MZUSP, NMBE                   |
| <i>Piranga flava</i>               | U      | O       | H                 | RP, JFP   |   |
| <i>Habia rubica</i>                | C      | F       | LH                | 18, 19, 20, 46, 48, 49, 50, 81, 110             | LACMNH, MNRJ                                |
| <i>Tachyphonus cristatus</i>       | C      | F       | L(H?)             | 46, 48, 49, 83, 110                             | MNRJ, MZUSP                                 |
| <i>Tachyphonus coronatus</i>       | C      | SUR     | LH                | 18, 20, 25, 36, 46, 48, 49, 50, 83, 110, 116    | FMNH, LACMNH, MNRJ, MPEG, MZUSP, NMBE, UFRJ |
| <i>Ramphocelus bresilius</i>       | FC     | S       | L                 | 25, 36, 48, 68, 83                              | LACMNH, MNRJ, MZUSP                         |
| <i>Thraupis sayaca</i>             | C      | SUR     | LH                | 18, 20, 25, 35, 36, 48, 49, 83, 110, 116        | LACMNH, MNRJ, MZUSP, NMBE                   |
| <i>Thraupis cyanoptera</i>         | FC     | S       | LH                | 18, 36, 83, 110, 121                            | LACMNH, MNRJ, MPEG, MZUSP                   |
| <i>Thraupis ornata</i>             | C      | SUR     | LH                | 18, 19, 20, 25, 48, 110                         | LACMNH, MNRJ, NMBE                          |

| Species                          | Status | Habitat | Altitudinal level | Source                                     | Ornithological Collections                        |
|----------------------------------|--------|---------|-------------------|--|---|
| <i>Thraupis palmarum</i>         | C      | SUr     | LH                | 18, 25, 48, 83, 110                        | MNRJ, MZUSP                                       |
| <i>Stephanophorus diadematus</i> | C      | S       | H                 | 25, 36, 110                                | MZUSP, NMBE                                       |
| <i>Pipraeidea melanonota</i>     | FC     | S       | H                 | 25, 36, 83, 110                            | FMNH, LACMNH, MNRJ, MZUSP, NMBE                   |
| <i>Tangara brasiliensis</i> T    | R      | S       | L                 | 48   | AMNH, LACMNH                                      |
| <i>Tangara seledon</i>           | C      | SUr     | LH                | 7, 46, 48, 49, 110                         | MNRJ, UFRJ  |
| <i>Tangara cyanocephala</i>      | FC     | SUr     | L(H?)             | 7, 18, 20, 48, 110                         | LACMNH, MNRJ                                      |
| <i>Tangara desmaresti</i>        | C      | S       | H                 | 7, 18, 20, 25, 36, 83, 110                 | FMNH, LACMNH, MZUSP, NMBE                         |
| <i>Tangara cyanoventris</i>      | R      | S       | H                 | JFP  | MNRJ  |
| <i>Tangara cayana</i>            | U      | SUr     | H                 | 18, 60, 110                                | LACMNH, MNRJ                                      |
| <i>Tersina viridis</i>           | R      | SUr     | ?                 | 25, 28                                     | NMBE  |
| <i>Dacnis nigripes</i> PT        | R      | S       | LH                | 16, 121, 141                               | AMNH, MPEG  |
| <i>Dacnis cayana</i>             | C      | SUr     | LH                | 18, 20, 25, 48, 110                        | LACMNH, MNRJ, MPEG, NMBE                          |
| <i>Hemithraupis ruficapilla</i>  | FC     | FS      | LH                | 18, 20, 48, 110, 163                       | AMNH, LACMNH, MNRJ                                |
| <i>Hemithraupis flavicollis</i>  | FC     | FS      | L                 | 46, 48, 49, 110                            |   |
| <i>Conirostrum speciosum</i>     | FC     | SUr     | L                 | 48   |   |
| <b>Emberizidae</b>               |        |         |                   |  |   |
| <i>Zonotrichia capensis</i>      | C      | SOUr    | LH                | 25, 36, 48, 62, 71, 83, 105, 110, 114, 122 | AMNH, FMNH, LACMNH, MNRJ, MPEG, MZUSP, NMBE, UFRJ |
| <i>Ammodramus humeralis</i>      | R      | O       | L                 | RP, JFP                                    |   |
| <i>Haplospiza unicolor</i>       | U      | F       | LH                | 18, 19, 20, 36, 46, 48, 49, 83, 110        | LACMNH, MNRJ, MZUSP, NMBE                         |
| <i>Donacospiza albifrons</i>     | U      | O       | H                 | RP   |   |
| <i>Poospiza thoracica</i>        | FC     | S       | H                 | 36, 83, 110                                | MNRJ, MZUSP, NMBE                                 |
| <i>Poospiza lateralis</i>        | R      | S       | H?                | 121  |   |
| <i>Sicalis flaveola</i>          | U      | SOUr    | LH                | 25, 35, 36, 48, 83                         | FMNH, MNRJ, MPEG, MZUSP, NMBE                     |
| <i>Sicalis luteola</i>           | R      | O       | H                 | JFP  |   |
| <i>Emberizoides herbicola</i>    | U      | O       | LH                | FMR, JFP                                   |   |
| <i>Volatinia jacarina</i>        | FC     | SO      | LH                | 25, 110                                    | MNRJ, NMBE  |
| <i>Sporophila frontalis</i> T    | R      | FS      | LH                | 16, 18, 20, 141                            | FMNH, LACMNH, MNRJ, MZUSP                         |
| <i>Sporophila falcirostris</i> T | R      | S       | H                 | 16, 121                                    |   |
| <i>Sporophila nigricollis</i>    | R      | SO      | LH                | 25, 36, 83                                 | FMNH, MZUSP                                       |
| <i>Sporophila caerulescens</i>   | FC     | SO      | LH                | 25, 48, 105, 110, 116                      | MNRJ, NMBE  |
| <i>Sporophila leucoptera</i>     | R      | SO      | LH                |  | MNRJ  |
| <i>Sporophila angolensis</i> T   | R      | SO      | ?                 |  | MNRJ, MPEG, NMBE                                  |
| <i>Amaurospiza moesta</i> T      | R      | F       | H                 | 35, 36, 83, 121                            | FMNH, MNRJ  |
| <i>Tiaris fuliginosus</i>        | U      | S       | LH                | FMR, RP, JFP                               |   |
| <i>Arremon semitorquatus</i>     | FC     | S       | LH                | 18, 25, 36, 48, 60, 83, 93, 95             | LACMNH, MNRJ, MZUSP, NMBE                         |
| <i>Coryphospingus pileatus</i>   | R      | SO      | L                 | 110  |   |

| Species                            | Status | Habitat | Altitudinal level | Source  | Ornithological Collections    |
|------------------------------------|--------|---------|-------------------|---|-------------------------------|
| <b>Cardinalidae</b>                |        |         |                   |   |                               |
| <i>Caryothraustes canadensis</i>   | FC     | FS      | L                 | 48, 110                                       | MPEG                          |
| <i>Saltator fuliginosus</i>        | FC     | F       | LH                | 25, 48  | LACMNH, MNRJ                  |
| <i>Saltator maximus</i>            | C      | F       | L                 | 46, 48, 49, 50, 62                            | AMNH, MNRJ                    |
| <i>Saltator similis</i>            | FC     | F       | (L?)H             | 18, 20, 25, 36, 83, 110, 121                  | MNRJ, MZUSP, NMBE             |
| <i>Saltator maxillosus</i>         | FC     | F       | H                 | 36, 83, 110                                   | MNRJ, MZUSP, NMBE             |
| <i>Cyanoloxia glaucocaeerulea</i>  | R      | S       | H                 | 45  |                               |
| <i>Cyanocompsa brissoni</i> T      | R      | S       | LH                | 25, 35, 36, 83, 110                           | MNRJ, MZUSP, NMBE             |
| <b>Parulidae</b>                   |        |         |                   |   |                               |
| <i>Parula pitiicyumi</i>           | C      | SUr     | LH                | 36, 48, 83, 110                               | FMNH, LACMNH, MNRJ, MZUSP     |
| <i>Dendroica striata</i>           | R      | S       | L                 | 110   |                               |
| <i>Geothlypis aequinoctialis</i>   | FC     | SO      | LH                | 25, 36, 48                                    | FMNH, MNRJ, MZUSP, NMBE       |
| <i>Wilsonia canadensis</i>         | R      | S       | L                 | 24, 145                                       |                               |
| <i>Basileuterus culicivorus</i>    | C      | S       | LH                | 18, 20, 25, 36, 46, 48, 49, 83, 110, 145, 164 | AMNH, FMNH, MNRJ, MZUSP, NMBE |
| <i>Basileuterus leucoblepharus</i> | C      | F       | H                 | 25, 36, 83, 110                               | FMNH, MNRJ, MZUSP, NMBE       |
| <b>Icteridae</b>                   |        |         |                   |   |                               |
| <i>Psarocolius decumanus</i>       | U      | FS      | (L?)H             | 18, 19, 25, 83                                | MNRJ, MZUSP, NMBE             |
| <i>Cacicus haemorrhous</i>         | U      | FS      | LH                | 25, 48, 106, 110                              | NMBE                          |
| <i>Gnorimopsar chopi</i>           | U      | SO      | ?                 | 25  | MNRJ, NMBE                    |
| <i>Agelasticus cyanopus</i>        | R      | O       | ?                 | 107   | MNRJ                          |
| <i>Chrysomus ruficapillus</i>      | R      | O       | L                 | JFP   |                               |
| <i>Molothrus oryzivorus</i> PT     | R      | SO      | ?                 | 25  | NMBE                          |
| <i>Molothrus bonariensis</i>       | U      | SOUr    | LH                | 19, 25, 83, 105, 110, 114, 116, 122           | MNRJ, MZUSP, NMBE             |
| <i>Sturnella supercilialis</i>     | R      | O       | L                 | RP, JFP                                       |                               |
| <b>Fringillidae</b>                |        |         |                   |   |                               |
| <i>Carduelis magellanica</i>       | U      | SO      | H                 | 25, 48  | MNRJ, NMBE                    |
| <i>Euphonia chlorotica</i>         | FC     | SUr     | L                 | 48, 110                                       |                               |
| <i>Euphonia violacea</i>           | FC     | SUr     | LH                | 48, 110                                       |                               |
| <i>Euphonia chalybea</i> PT        | R      | FS      | H                 | 19, 36, 83, 121                               | LSUMNS, MNRJ, MZUSP           |
| <i>Euphonia cyanocephala</i> PT    | R      | FS      | H                 | RP, JFP                                       |                               |
| <i>Euphonia xanthogaster</i>       | FC     | FS      | L                 | 46, 48, 49, 110                               |                               |
| <i>Euphonia pectoralis</i>         | C      | FS      | LH                | 18, 20, 48, 110                               | LACMNH, MNRJ                  |
| <i>Chlorophonia cyanea</i>         | R      | S       | H                 | 25  | MNRJ                          |
| <b>Estrildidae</b>                 |        |         |                   |   |                               |
| <i>Estrilda astrild</i>            | C      | OUr     | L                 | 48, 110, 118, 121                             | MNRJ                          |
| <b>Passeridae</b>                  |        |         |                   |   |                               |
| <i>Passer domesticus</i>           | C      | U       | LH                | 48, 110, 116                                  | UFRJ                          |

**a** – Includes *Formicivora deluzae*, following Hellmayr (1929a).

**T** – Threatened species in the Rio de Janeiro State (Alves *et al.* 2000).

**E** – Probably extinct in the Rio de Janeiro State (Alves *et al.* 2000).

**PT** – Probably threatened in the Rio de Janeiro State (Alves *et al.* 2000).

**US** – Unknown status in the Rio de Janeiro State (Alves *et al.* 2000).

**Status:** C = Common (Recorded on more than 75% of visits); FC = Fairly common (Recorded on 50-75% of visits); U = Uncommon (Recorded on 25-50% of visits); R = Rare (Recorded on less than 25% of visits or not recorded); PE = Probably extinct in the Serra dos Órgãos region.

**Habitat:** F = forest; S = forest edge and secondary growth; O = open areas; Ur = urban areas.

**Altitudinal level:** L = Records from lower slopes and foothills below 800m; H = Records from above 800m.

**References:** 1 – Aguirre and Aldrichi (1983); 2 – Aguirre and Aldrichi (1987); 3 – Baptista *et al.* (1997); 4 – Berla (1946); 5 – Berla (1954); 6 – Berlepsch (1888); 7 – Berlioz (1934a); 8 – Berlioz (1934b); 9 – Brooke (1983a); 10 – Brooke (1983b); 11 – Burmeister (1856); 12 – Chantler (1999); 13 – Chrostowski (1921); 14 – Collar (1997); 15 – Collar (2001); 16 – Collar *et al.* (1992); 17 – Cory and Hellmayr (1924-1927); 18 – Davis (1945a); 19 – Davis (1945b); 20 – Davis (1946); 21 – Des Murs (1856); 22 – Descourtilz (1854-1856); 23 – Fitzpatrick (2004); 24 – Gagliardi (2006); 25 – Goeldi (1894a-1900); 26 – Goeldi (1894b); 27 – Goeldi (1896); 28 – Goeldi (1905); 29 – Gonzaga (1989); 30 – Gonzaga and Pacheco (1990); 31 – Gonzaga and Pacheco (1995); 32 – Harrison (1928); 33 – Hellmayr (1906); 34 – Hellmayr (1908); 35 – Hellmayr (1929a); 36 – Hellmayr (1929b-1938); 37 – Hellmayr and Conover (1942); 38 – Ihering (1900b); 39 – Krabbe and Schulenberg (2003a); 40 – Krabbe and Schulenberg (2003b); 41 – Lencioni-Neto (1996); 42 – Luigi and Nacinovic (1991); 43 – Luigi *et al.* (1996); 44 – Mallet-Rodrigues (2001); 45 – Mallet-Rodrigues (2003); 46 – Mallet-Rodrigues (2005); 47 – Mallet-Rodrigues and Noronha (2001); 48 – Mallet-Rodrigues and Noronha (2003a); 49 – Mallet-Rodrigues and Noronha (2003b); 50 – Mallet-Rodrigues *et al.* (1997); 51 – Mallet-Rodrigues *et al.* (2001); 52 – Marantz *et al.* (2003); 53 – Marín (1997); 54 – Menegaux and Hellmayr (1906a); 55 – Menegaux and Hellmayr (1906b); 56 – Ménériès (1835); 57 – A. de Miranda-Ribeiro (1920); 58 – A. de Miranda-Ribeiro (1938); 59 – P. de Miranda-Ribeiro (1929); 60 – Mitchell (1957); 61 – Nacinovic and Schloemp (1992); 62 – Naumburg (1930); 63 – Naumburg (1937); 64 – Naumburg (1939); 65 – Novaes (1947); 66 – Novaes (1949); 67 – Novaes (1953); 68 – Novaes (1959); 69 – Novaes (1961a); 70 – Novaes (1961b); 71 – Novaes (1965); 72 – Pacheco (2004); 73 – Pacheco and Bauer (1995); 74 – Pacheco and Fonseca (2000); 75 – Pacheco and Fonseca (2001); 76 – Pacheco and Fonseca (2002); 77 – Pacheco and Gonzaga (1995); 78 – Pacheco and Parrini (1997); 79 – Pacheco and Parrini (1998); 80 – Pacheco *et al.* (2003); 81 – Parrini and Pacheco (2006); 82 – Pinto (1938); 83 – Pinto (1944); 84 – Pinto (1949); 85 – Pinto (1952); 86 – Pinto (1953); 87 – Pinto (1954); 88 – Pinto (1966); 89 – Pinto and Camargo (1952); 90 – Pinto and Camargo (1955); 91 – Pinto and Camargo (1961); 92 – Rajão and Cerqueira (2006); 93 – Raposo (1997); 94 – Raposo and Nacinovic (1991); 95 – Raposo and Parrini (1998); 96 – Raposo and Teixeira (1992); 97 – Raposo *et al.* (1994); 98 – Raposo *et al.* (1998); 99 – Raposo *et al.* (2006); 100 – Remsen (2003); 101 – Ridgely (1981); 102 – Ridgely and Tudor (1994); 103 – Ruschi (1951); 104 – Ruschi (1961); 105 – Schirch (1928); 106 – Schirch (1931); 107 – Schneider and Sick (1962); 108 – Schubart *et al.* (1965); 109 – Schuchmann (1999); 110 – Scott and Brooke (1985); 111 – Scott and Brooke (1993); 112 – Sick (1950); 113 – Sick (1958a); 114 – Sick (1958b); 115 – Sick (1959a); 116 – Sick (1959b); 117 – Sick (1960); 118 – Sick (1966); 119 – Sick (1970); 120 – Sick (1972); 121 – Sick (1997); 122 – Sick and Ottow (1958); 123 – Sick and Teixeira (1979); 124 – Silveira (1991); 125 – Smith (1960); 126 – Snelhage (1936); 127 – Snow (1980); 128 – Snow (1982); 129 – Snow (2004a); 130 – Snow (2004b); 131 – Snow and Goodwin (1974); 132 – Snow and Teixeira (1982); 133 – Spix (1825); 134 – Teixeira and Gonzaga (1985); 135 – Teixeira *et al.* (1983); 136 – Teixeira *et al.* (1988); 137 – Vieira (1935); 138 – Vieillot and Oudart (1825); 139 – Vielliard (1990); 140 – Vielliard (1994); 141 – Wege and Long (1995); 142 – Whitney (2003); 143 – Whitney and Pacheco (1995); 144 – Whitney *et al.* (1995); 145 – Whittaker and Foster (2005); 146 – Winkler and Christie (2002); 147 – Wied-Neuwied (1832); 148 – Willis (1992); 149 – Zimmer (1931); 150 – Zimmer (1933a); 151 – Zimmer (1933b); 152 – Zimmer (1935); 153 – Zimmer (1936a); 154 – Zimmer (1936b); 155 – Zimmer (1937); 156 – Zimmer (1939a); 157 – Zimmer (1939b); 158 – Zimmer (1939c); 159 – Zimmer (1940); 160 – Zimmer (1941a); 161 – Zimmer (1941b); 162 – Zimmer (1942); 163 – Zimmer (1947); 164 – Zimmer (1949); 165 – Zimmer (1955); 166 – Zimmer and Isler (2003).

**Ornithological collections:** AMNH - American Museum of Natural History, New York; CMNH - Carnegie Museum of Natural History, Pittsburgh; FMNH - Field Museum of Natural History, Chicago; LACMNH - Los Angeles County Museum of Natural History, Los Angeles; LSUMZ - Museum of Natural Science, Louisiana State University; MACSP - Museum of the Academy of Science of St. Petersburg, St. Petersburg; MBML - Museu de Biologia Mello Leitão, Santa Teresa; MPEG - Museu Paraense Emílio Goeldi, Belém; MNRJ - Museu Nacional do Rio de Janeiro, Rio de Janeiro; MZUSP - Museu de Zoologia da Universidade de São Paulo, São Paulo; NMBE - Naturhistorisches Museum Bern, Bern; UFRJ - Instituto de Biologia, Universidade Federal do Rio de Janeiro, Rio de Janeiro; UMMZ - Museum of Zoology, University of Michigan, Ann Arbor.