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## BIRDS OF THE IWOKRAMA FOREST

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### METHODS

We used auditory and visual encounter surveys (Bibby, Burgess et al. 1993; Heyer, Donnelly et al. 1994), understorey mist netting (Bibby, Burgess et al. 1993), and opportunistic observations to inventory and collect birds in the Iwokrama Forest. We used call recognition during auditory surveys (Terborgh et al. 1990) that permitted rapid surveys of up to 85 % of the species we expected to find in the Iwokrama Forest (Parker 1991). It has been estimated that in the Peruvian Amazon most birdcalls can be heard from a distance of 100 m. An auditory transect of 4 km. is therefore equivalent to surveying an 80 ha plot for most calling bird species (Terborgh et al. 1990). High levels of vocal activity in tropical lowland forests tend to begin 15 minutes before first light and continue for 2 to 3 hours. Forest falcons and some wood creepers call a few minutes before dawn while owls, potoos and caprimulgids may begin calling up to 15-30 minutes before dawn (Terborgh et al. 1990; M. Robbins, pers. comm.). There are also a number of species that call at dusk (tinamous, wood-quail, owls, potoos, nightjars, wood creepers; Terborgh et al. 1990). Surveys and collections covered between 4 and 10 km in the early morning and late afternoon. In addition we carried out nocturnal searches using auditory techniques to record the calls of birds and attract individuals for collection.

Mist netting of birds allowed the quantitative and repeatable sampling of the understorey avifauna and complemented the visual and auditory searches by capturing birds that tended to be non-vocal members of mixed flocks. Up to twenty, quarter-inch mesh, understorey mist nets (total length - 250 metres) were used to sample the forest understorey. For each individual captured, the following data were collected: mass, wing length, plumage condition, species, and sex where possible by plumage. Clipping wing or tail feathers marked any released birds and so ensured that individuals were not counted more than once.

### COLLECTION METHODS

We collected specimens with the objective of building representative collections at the ANSP, the UKMNH and the University of Guyana. Specimens were collected to validate species and subspecies-level identifications. In addition, natural history data was collected on moult, breeding condition, and diet of each of the specimens. For each specimen collected the following data were therefore recorded: soft part colours, mass, degree of ossification of the skull (an estimate of age in passerine birds), condition of the plumage, breeding condition (size of testes or ovaries, and presence or absence of brood patches), presence or absence of bursa as an estimate of age, and stomach contents. Specimens were generally prepared as scientific study skins, however some skeletons were also prepared. Tissue samples were taken from all of the specimens and preserved in liquid nitrogen and then stored in ultra-cold freezers at the ANSP and UKMNH where they are available to the scientific community for further study.

### THE IWOKRAMA FOREST BIRD FAUNA

Avian species richness in the Iwokrama Forest is similar to other tropical forest localities that have been studied with similar intensity (Table 1). The Iwokrama Forest's "bird list" at present constitutes 476 species. However, the Iwokrama Forest extends south into the fringes of the Rupununi Savannas, the bird list therefore includes several species that are not typical of forest, but rather are either classic savanna species or inhabit lighter, more deciduous woodland. In addition, distinctive habitats such as Muri scrub and pre-montane (foothill) forests are also found within the Iwokrama Forest and both of these habitats contribute significantly to total "diversity" of the

Iwokrama Forest. In addition, the Iwokrama Forest has been studied with less intensity than all of the sites listed in table 1 with the exception of the Kanuku Mountains.

Table 1: Comparison of avian species richness of the Iwokrama Forest with other Neotropical sites

Site	Total Species	Forest Species	Thamnophilidae	Tyrannidae	Cotingidae
Iwokrama Forest	476	318	35	66	13
Kanuku Mountains	349	247	30	49	11
Manaus, Brazil	351	300	34	48	6
Tapajos National Park, Brazil	448	320	44	63	10
Cocha Cashu, Manu, Peru	554	320	56	83	9
Barro Colorado Island/Pipeline Road, Panama	443	251	23	60	5
La Selva, Costa Rica	410	244	20	51	7

The number of forest-restricted birds (318) found in the Iwokrama Forest is comparable to the number of forest-restricted birds found in the Manaus area. The Manaus area is the only other eastern South American Amazonian area to have been studied with similar intensity. While several areas in western Amazonia have longer bird lists than the Iwokrama Forest, we feel that these differences are due to the presence of more microhabitats in the sites surveyed in western Amazonia than in the Iwokrama Forest.

The Iwokrama Forest has relatively high densities of larger frugivorous birds such as cracids, cotingas, and parrots, as compared to other forested areas in Amazonia. Abundances of these birds are difficult to estimate with accuracy because the terrestrial frugivores tend to be secretive and the canopy frugivores highly nomadic following ephemeral food resources. However, we suspect that the high abundance of canopy frugivores (in particular toucans and cotingas) in the Iwokrama Forest may be a function of greater food availability within the Forest. We also suspect that the high abundance of ground frugivores (e.g., tinamous and cracids) is primarily a function of the presently very light hunting pressure within the Iwokrama Forest. Similar densities are likely to be found at sites in the Amazon that are lightly hunted.

#### IWOKRAMA FOREST BIRD SPECIES OF INTEREST

Two species of upland forest-inhabiting tinamous, *Tinamus major* (Great Tinamou) and *Crypturellus variegatus* (Variegated Tinamou), are unusually numerous in the Iwokrama Forest. Their abundance – based on the relative frequencies that they were heard (both are difficult actually to see) – is higher than other Amazonian forest sites.

Though neither species was encountered regularly, two reclusive and generally scarce herons that inhabit forest-bordered streams and pools, *Agamia agami* (Agami Heron) and *Zebrielus undulatus* (Zigzag Heron), were relatively common in the Iwokrama Forest. Of the other heron species encountered in the Forest, the presence of *Egretta tricolor* (Tricolored Heron) and *E. caerulea* (Little Blue Heron) was notable. Both species are most frequently encountered along the coasts of South America (and are normally scarce inland). Their status in the Iwokrama Forest, whether a resident, occasional wanderer, or boreal migrant, remains uncertain because small numbers of *E. caerulea* were noted

throughout the year, but *E. tricolor* was observed only in March 1998, when conditions in central Guyana were unusually dry.

Two individuals of *Rostrhamus hamatus* (Slender-billed Kite)<sup>1</sup> were tape-recorded and observed in March 1998, one near Kurupukari on 5 March 1998 and another along the upper Burro-Burro River on 20 March 1998. The status of this species, which has apparently not been previously recorded from Guyana, remains uncertain. It seems surprising that it had not been recorded during earlier surveys, and we suspect that these records refer to individuals that were wandering in response to the drought conditions in Guyana at the time.

The Iwokrama Forest contains populations of hawks and eagles that appear to be little disturbed. During the survey period, we observed *Spizaetus* hawk-eagles (*S. ornatus* and *S. tyrannus*, Ornate and Black Hawk-Eagles) on 13 occasions and *Leucopternis melanops* (Black-faced Hawk) on five occasions. However, somewhat surprisingly the two largest Neotropical eagles (*Harpia harpyja*, Harpy Eagle, and *Morphnus guianensis*, Crested Eagle) were seen on only five occasions; though during the period of the survey two Harpy Eagles were killed in the area.

The presence of *Micrastur ruficollis* (Barred Forest-Falcon) in Guyana has only recently been firmly established, though this may have been due to earlier confusion with the similar *Micrastur gilvicollis* (Lined Forest-Falcon). The first specimen (ANSP) for Guyana of *M. ruficollis* was obtained in 1994, and examples of both species were collected in the Reserve during 1996-1997. Though secretive (and mainly recorded from their far-carrying vocalizations), the two species are now known to occur in sympatry inside upland forest through much of the Iwokrama Forest.

A pair of the rare and very local *Falco deiroleucus* (Orange-breasted Falcon) was present, at least at certain times of the year, near the summit of Turtle Mountain. These birds presumably breed at this site.

Several members of the family Cracidae are abundant within the Iwokrama Forest: elsewhere populations of these birds have generally been decimated by unrestricted hunting. The two largest species (*Penelope jacquacu*, Spix's Guan; and *Crax alector*, Black Curassow) were observed on 34 and 40 occasions during the survey period suggesting relatively high densities of these species. The smaller guan (*Penelope marail*, Marail Guan) was also observed 44 times, while a third guan species, *Pipile pipile* (Common Piping-Guan) was seen only once and appeared very locally distributed in the Iwokrama Forest. A second curassow species (*Mitu tomentosa*, Crestless Curassow) was observed twice and was apparently restricted to seasonally flooded low-stature woodlands along the Essequibo River upstream from Kabocalli Landing near the mouth of Ladysmith Creek. The highest priority should be placed on limiting or entirely eliminating hunting pressure on these vulnerable birds; no other group is as susceptible to over-hunting, and their continued presence in the Iwokrama Forest in substantial numbers is a potential major draw for ecotourists.

*Psophia crepitans* (Gray-winged Trumpeter) was observed 38 times during the survey period and appears widely distributed throughout the Iwokrama Forest. As with the cracids, this is a strong indication of the essentially undisturbed nature of the Iwokrama Forest. Except in very remote regions populations of this species have generally been reduced through hunting. The Gray-winged Trumpeter is an easy species to detect because it in non-hunted areas the bird tends to be tame and conspicuous (more so than the guans and curassows). The trumpeter could therefore be especially suitable for monitoring overall hunting pressure in the future.

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<sup>1</sup> Species newly recorded from Guyana, or for which we obtained the first specimen material for the country.

Two species of *Columba* pigeons, *C. subvinacea* (Ruddy Pigeon) and *C. plumbea* (Plumbeous Pigeon), were both fairly common in the sub-canopy throughout the Iwokrama Forest. Despite paying careful attention to their distribution patterns within the Iwokrama Forest, no ecological differences between them were apparent, though in theory such a separation seems likely to exist. A series of each species was obtained, some of them having been tape-recorded prior to their collection. This is important because these two taxa, *C. subvinacea purpureotincta* and *C. plumbea wallacei*, are virtually identical in plumage. However, they differ markedly in their primary vocalizations, which provide the only practical means of separating the two species in the field. There may also be a consistent difference in the coloration of certain soft-parts, but additional study of the collected specimens is needed.

*Geotrygon violacea* (Violaceous Quail-Dove)<sup>14</sup> was rare in the Iwokrama Forest. One individual was mist-netted on 13 Aug. 1997 at Mile 3 along the main road. In addition, a pair was seen on the lower slopes of Turtle Mountain on 28 Sept. 1997. These records represent the first records for this species from Guyana. Among adjacent countries, *G. violacea* is known from but a single sighting in Suriname, and a few old specimen records from eastern Venezuela. A congener, the similar *G. montana* (Ruddy Quail-Dove), was numerous.

Of the three large *Ara* macaws present in the Iwokrama Forest (*A. ararauna*, Blue-and-yellow Macaw; *A. macao*, Scarlet Macaw; and *A. chloroptera*, Red-and-green Macaw), *A. chloroptera* was by far the most numerous. All three species, however, seem to have healthy populations in the Iwokrama Forest and are of interest to ecotourists.

A few sightings of small flocks of *Nannopsittaca panychlora* (Tepui Parrotlet), mainly of birds in flight, were slightly to the east of the species' known range. Likewise the presence of *Touit batavica* (Lilac-tailed Parrotlet) in the Iwokrama Forest represented a small southward extension of the species' range. The diversity of *Touit* parrotlets in the Iwokrama Forest was notable: in addition to *T. batavica*, *T. purpurata* (Sapphire-rumped Parrotlet) and *T. huetii* (Scarlet-shouldered Parrotlet) were recorded. As far as we know, the Iwokrama Forest is the only site in the neotropics that supports three species of this generally rare and still poorly known genus of small, forest-canopy parrots that are again of interest to ecotourists.

Three species of *Amazona* parrots occur in the Iwokrama Forest, of which the rare *A. dufresniana* (Blue-cheeked Amazon) was the least numerous and most local. The status of this species over much of its range remains poorly understood, but separated pairs were noted repeatedly in the Iwokrama Forest, suggesting that it is a breeding resident in the Iwokrama Forest and not merely a post-breeding wanderer from forests at higher elevations.

The status of the rare cuckoo *Coccyzus euleri* (Pearly-breasted Cuckoo) in the Iwokrama Forest remains uncertain; it is possibly an austral migrant. This species was recorded only once in woodlands north of Surama.

The status of the rare and reclusive Cuculiform *Dromococcyx pavoninus* (Pavonine Cuckoo) in the Iwokrama Forest is also uncertain. It was recorded only once, a mist-netted female obtained in July 1997, in upland forest at Kabocalli Landing. The distinctive vocalizations of this species were not however heard anywhere else in the Iwokrama Forest.

The large and spectacular terrestrial cuckoo *Neomorphus rufipennis* (Rufous-winged Ground-Cuckoo) was uncommon in the Iwokrama Forest. The species was found primarily in undisturbed areas but also was recorded at least once in disturbed forest near the Kurupukari base camp. It ranged the forest floor in pairs, less often in small family groups, sometimes in attendance at swarms of army ants or following herds of peccaries but at least as often seen foraging away from either.

This bird, which here is perhaps more numerous than anywhere else in its range, is potentially one of the greatest "draws" of the Reserve from an avian ecotourism perspective.

We remain puzzled as to the identity of the screech-owls that were tape-recorded and collected near the base of Turtle Mountain in Sept. 1997. Provisionally identified as *Otus guatemalae* (Sharpe's, or Middle American Screech-Owl)<sup>14</sup> in appearance they differ from other examples of this species (notably in their brown irides), and they show some characters of *Otus watsonii* (Tawny-bellied Screech-Owl). M. B. Robbins, N. Rice et al. (pers. comm.) collected comparable screech-owls in southern Guyana in Sept. 1998; vocally similar, their two examples will be compared directly with the Iwokrama Forest individuals. Neither species is well known in Guyana, where there are only a very few prior records of both.

The only records of the distinctive *Steatornis caripensis* (Oilbird) came from the recovery of a few distinctive moulted feathers in the Central Gorge of the Iwokrama Mountains in Nov. 1996. The unmistakable loud clicking sound given by flying birds was also heard in this area, but no roost was located. The nocturnal Oilbird typically congregates, sometimes in vast numbers, within caves or fissures by day. The Iwokrama Forest is at the extreme eastern range limit of this famous bird, which is not recorded at all from Surinam. Finding an active roosting and/or nesting site in the Iwokrama Forest - where one likely exists - would be a notable discovery, and would represent a major attraction to avian ecotourists.

A single example of *Nyctibius aethereus* (Long-tailed Potoo) was obtained in upland forest near the base of the Turtle Mountains on 29 Sept. 1997. To our surprise, the species was not otherwise recorded in the Iwokrama Forest, this despite a substantial effort being made to hear its distinctive and far-carrying primary vocalization and despite an abundance of what appeared to be ideal habitat.

A small series of the poorly known *Nyctibius leucopterus* (White-winged Potoo) was obtained at various sites within the Iwokrama Forest where, despite its apparent rarity elsewhere, it may be the most numerous member of its family. For the most part, the birds were spot-lighted at night as they fed in the sub-canopy of forest trees along larger rivers, and also along the road through the Reserve, but this may simply be a reflection of the fact that such situations were the only places where spotlighting was practical. Unlike *N. griseus* (Common Potoo), *N. leucopterus* appeared not to be present in disturbed situations. These specimens are the first to have been collected in Guyana, where the species was first reported (in the Kanuku Mountains; cf. T. A. Parker et al. 1993); they are among the very few specimens that exist for this rare and range-restricted species which is still not known from Surinam or Venezuela.

A single specimen of *Nyctibius bracteatus* (Rufous Potoo) was obtained, after having been heard vocalizing, in somewhat disturbed and seasonally flooded forest along the "corduroy road" near Kurupukari on 26 Oct. 1996. Our other records involved birds that were only heard, including one at Kabocalli Landing on 16-17 Mar. 1997 and another on 5 Mar. 1998 at Kurupukari. The species must be genuinely rare here, and present evidence would appear to indicate that it may range only in areas close to the Essequibo River. This represents only the second Guyana record, and is the first in over a century.

A single *Caprimulgus rufus* (Rufous Nightjar) was tape-recorded near Surama village, just to the south of the Iwokrama Forest, on 18 Mar. 1998. This represents the second Guyana record of the species that was collected at Dubulay ranch in 1996 (M. Robbins, pers. comm.). It remains quite possible that the species also occurs in white sand scrub habitat north of the southern border of the Iwokrama Forest.

As in many Neotropical areas, the swifts proved to be difficult to identify. Numerous species resemble each other closely, and it is possible that species beyond the six that were confirmed for the Iwokrama Forest also occur here. As examples, we suspect that a *Cypseloides* swift (likely *C. cryptus*, White-chinned Swift) ranges over the Iwokrama Forest at least occasionally - some *Cypseloides* species was seen on infrequent occasions - as perhaps does *Chaetura cinereiventris* (Gray-rumped Swift). We were able to confirm that one rather scarce swift species, *Chaetura chapmani* (Chapman's Swift), is resident and not uncommon in the Iwokrama Forest.

A single example of *Phaethornis augusti* (Sooty-capped Hermit) was observed at Mile 3 along the main road on 16 Oct. 1996.

A single individual of *Avocettula recurvirostris* (Firey-tailed Awlbill) was seen in a small forest opening at "Blackwater Camp" along the Siparuni River on 24 Sept. 1997.

A single *Lophornis ornatus* (Tufted Coquette) was observed at a forest opening near the crest of the Iwokrama Mountains in late Oct. 1996, and this remained our only record in the Iwokrama Forest. *Discosura longicauda* (Racket-tailed Coquette) was observed periodically in the Iwokrama Forest.

The hummingbird *Topaza pella* (Crimson Topaz) was locally common throughout the Iwokrama Forest in the preferred habitat of this species along the fringes of black-water streams and smaller rivers in sandy and rocky areas.

Notable for its apparent absence from the Iwokrama Forest was the forest undergrowth-inhabiting *Malacoptila fusca* (White-chested Puffbird). It is known from various sites in Guyana; its absence - or at any rate, its rarity - from the Iwokrama Forest remains inexplicable.

Behavioral and vocal data obtained during our work at the Iwokrama Forest led us to suspect that *Capito niger* (Black-spotted Barbet) was actually better regarded as a separate species from *C. auratus* (Gilded Barbet), a poly-typic species found further west and south in Amazonia; this finding was recently supported by Haffer (1997).

The presence of small numbers of *Aulacorhynchus derbianus* (Chestnut-tipped Toucanet) at higher elevations in the Iwokrama Mountains was a slight eastward range extension for the species, which since has been recorded also in the Acari Mountains (fide M. B. Robbins) and at one site in Surinam.

*Deconychura longicauda* (Long-tailed Woodcreeper)<sup>14</sup> proved to be a rare resident inside upland forest, perhaps primarily on islands in the Essequibo River near Kabocali Landing (at least several records, including two specimens, were obtained in such situations). This obscure, inconspicuous species is generally rare and occurs at very low densities throughout its rather wide range.

*Sittasomus griseicapillus* (Olivaceous Woodcreeper) also appears to be mainly or entirely restricted to mature forests on islands in the Essequibo River. The species is here at or near its eastern distributional limit, and it appears to be decidedly rare in the Reserve. It was previously known in Guyana only in the northwest; more recently it was also located at the Acari Mountains in the extreme south of the country (fide M. B. Robbins).

*Dendrexetastes rufigula* (Cinnamon-throated Woodcreeper) is decidedly rare in the Iwokrama Forest Reserve, where it appears to be restricted to forest edge habitats along the Essequibo River. The single specimen obtained (on 4 Nov. 1996 at Kurupukari) represents the first for Guyana. The species itself was only recently first recorded from Guyana, at the Kanuku Mountains (cf. Parker et al. 1993).

*Xiphocolaptes promeropirhynchus* (Strong-billed Woodcreeper) is also decidedly rare in the Iwokrama Forest Reserve, where only a few individuals were ever located, those mostly only heard - its voice is highly distinctive - at several points along the Essequibo River. This represents one of its few known localities in Guyana, and is the northernmost known.

A single individual of *Cranioleuca vulpina* (Rusty-backed Spinetail)<sup>14</sup> was recorded at the Rupununi River near Annai on 2 Mar. 1998. This represents the first Guyana record, and is mentioned here because of the possibility that the species may be found in the extreme southern part of Iwokrama Forest.

A pair of *Xenops tenuirostris* (Slender-billed Xenops) was recorded along the upper Burro-Burro River on 20 Mar. 1998. This represents only the second record of the species from Guyana; it was previously recorded only from the lower slopes of the Kanuku Mountains (cf. Parker et al. 1993).

*Herpsilochmus roraimae* (Roraiman Antwren), previously known only from slopes of the tepuis and in Guyana thus far recorded only from the far northwest, was found to be fairly common in the forest canopy near the crest of the Iwokrama Mountains.

The absence of *Hylophylax naevia* (Spot-backed Antbird) from the forests of Iwokrama Forest is inexplicable. The species occurs widely in Amazonia, and is usually numerous; it is known from most surrounding areas.

The apparent absence of *Percnostola rufifrons* (Black-headed Antbird) from the forests and woodlands of the Iwokrama Forest is significant, as the species occurs widely in northern and central Guyana to the east of the Essequibo River. The species was present, for example, near the west bank of the Essequibo near Kurupukari. As far as we are aware this is the only instance of a bird species' distribution being restricted by the Essequibo.

*Chamaeza campanisona* (Short-tailed Antthrush), previously known in Guyana only from tepui slopes in the far northwest, occurred in small numbers near the crest of the Iwokrama Mountains. This population may belong to an undescribed subspecies.

Small numbers of *Elaenia ruficeps* (Rufous-crowned Elaenia) were present, and presumably resident, in the Muri scrub found along the main road at Mile 38. This represents the first Guyanese site for this distinctive *Elaenia* - away from the mountains of the northwest, and is the first from the lowlands of Guyana (though it is found in coastal savannas of Surinam). The species has also been recorded in the Acary Mountains of Southern Guyana (N. Rice and M. Robbins pers. comm.).

Two obscure species of *Myiopagis* elaenias, *M. caniceps* (Gray Elaenia) and *M. flavivertex* (Yellow-crowned Elaenia) were recorded in small numbers in the Iwokrama Forest, both species for only the second time in Guyana. The former was recorded locally in the forest canopy on the lower slopes of the Iwokrama Mountains and near the southern border of the Forest; the latter in forest lower growth near the upper Burro Burro River and at the base of Turtle Mountain. A male of *M. caniceps* was collected on 24 June 1997, and a male of *M. flavivertex* was obtained on 27 June 1997. For both species these represent the first specimen material taken in Guyana, and both species were only recently first recorded (from sight reports) in the country.

A single individual of *Phyllomyias griseiceps* (Sooty-headed Tyrannulet) was recorded on the slopes of the Iwokrama Mountains on 6 Nov. 1996. This species has previously been recorded in Guyana only from old specimens taken near Annai; the supposed specimens from Bartica housed in the AMNH are misidentified *Zimmerius gracilipes* (Slender-footed Tyrannulet).

The poorly known *Phylloscartes virescens* (Olive-green Tyrannulet) proved to be an uncommon inhabitant of the forest canopy in many upland areas; it had not previously been recorded in Guyana south of several sites in the north, but has doubtless been overlooked and has since been recorded in the far south at the Acari Mountains (M. B. Robbins, pers. comm.). Because of the species' habit of remaining well above the ground while accompanying mixed canopy flocks, it always was difficult to observe and recognize, though in fact its long-tailed silhouette - typical of the genus - as well as its vocalizations are distinctive.

Paralleling the distribution pattern found in *Percnostola rufifrons* (Black-headed Antbird), *Lophotriccus vitiensis* (Double-banded Pygmy-Tyrant) was not found within the Iwokrama Forest, though it does occur widely in the eastern part of Guyana, and has also recently been recorded in the far south at the Acari Mountains (M. B. Robbins, pers. comm.). Its similar congener *L. galeatus* (Helmeted Pygmy-Tyrant) was, however, common and widespread in viny tangles and forest openings throughout the Forest.

A few *Contopus cinereus* (Tropical Pewee) were found at forest borders and in lighter woodland in the Surama area, with a single specimen having been obtained on 27 June 1997. This apparently represents the first record of this species - which elsewhere is of widespread occurrence - away from coastal areas in Guyana.

*Knipolegus poecilocercus* (Amazonian Black-Tyrant) was found at only a single site in the Iwokrama Forest, in Sept. 1997 in seasonally flooded forest along the Essequibo River near the base of Turtle Mountain, where a small series of specimens was obtained. This inconspicuous tyrannid had previously been recorded in Guyana only from the far northwest, in the Merume Mountains (Snyder 1966).

*Myiozetetes luteiventris* (Dusky-chested Flycatcher)<sup>14</sup> was recorded only once in the Iwokrama Forest, on the lower slopes of the Iwokrama Mountains on 18 June 1997. This represents the first Guyana record of this species, which has a relatively wide range in Amazonia though it everywhere at low densities. It ranges in the subcanopy and borders of upland and terra firme forests, and is known from several records from Surinam.

Finding *Xenopsaris albinucha* (*Xenopsaris*)<sup>14</sup> in the Reserve, and indeed anywhere in Guyana, came as a distinct surprise as the species has not previously been recorded from any of the Guianas. The *Xenopsaris* was first noted in seasonally flooded savanna near Annai in July 1997, with one specimen being taken at that time. A single individual of the species was subsequently observed just inside the Reserve in savannas north of Surama on 2 Mar. 1998.

The Iwokrama Forest supports an extraordinary array of spectacular cotingas that cannot be matched elsewhere in the neotropics. Many of these cotingas are more numerous and more easily seen here than elsewhere in their ranges, as such they represent the crown jewel of bird families in the Iwokrama Forest. No species is of particular distributional interest, but the majority of the species are remarkable in appearance and behavior. Perhaps most notable is the huge *Haematoderus militaris* (Crimson Fruitcrow), while also of great interest to birders will be the tiny *Iodopleura fusca* (Dusky Purpletuft), both birds being difficult to see anywhere else. But it is hard to beat seeing a fruiting tree with no less than 3 species of unbelievably colorful *Cotinga* and *Xipholena* cotingas - as can regularly be done in the Iwokrama Forest. And the leks of contorted and displaying *Perissocephalus tricolor* (Capuchinbird), surely one of the strangest-looking of all Neotropical birds, is likely to be extremely important to ecotourism.

The rare and inconspicuous *Cichlopsis leucogenys* (Rufous-brown Solitaire) was sighted once in the Iwokrama mountains on 10 Nov. 1996. This represents the first locality in Guyana away from the



tepuis of the northwest; there is, however, also a recent record from a comparable mountain ranges in southern Surinam (Haverschmidt and Mees 1994).

*Hylophilus sclateri* (Tepui Greenlet), previously known only from slopes of the tepuis and in Guyana recorded previously only from the far northwest, was found to be uncommon in the sub-canopy of forest near the crest of the Iwokrama Mountains. More recently, the species has also been found on the Acari Mountains of Guyana's far south (M. B. Robbins, pers. comm.).

Apparently *Cyanerpes nitidus* (Short-billed Honeycreeper)<sup>14</sup> is a rare and perhaps local resident of the canopy and borders of humid forests in the Iwokrama Forest. Two specimens were obtained, one near the main road at the southern edge of the Iwokrama Forest on 26 June 1997, the other at Pakatau Falls on 28 July 1997. These represent the first records of this species from Guyana.

The small tanager *Tangara varia* (Dotted Tanager)<sup>14</sup> was seen with certainty only once, that on 15 June 1997 at Turtle Mountain, but there were also several other sightings from elsewhere in the Iwokrama Forest that likely pertained to this species but which could not be confirmed. This sighting represents the first report of this generally rare - but probably much overlooked - species from Guyana. It was recently also recorded, and collected, in Sept. 1998 in the far south at the Acari Mountains (M. B. Robbins, pers. comm.).

Another *Tangara* tanager was also first recorded from Guyana during our survey work, *T. xanthogastra* (Yellow-bellied Tanager)<sup>14</sup>. A single bird was collected, of a pair seen, near the crest of the Iwokrama Mountains on 10 Nov. 1996. No other individuals were ever seen; the species is likely to be very rare on these mountains.

#### SPATIAL VARIATION

The mixed forests that are found extensively within the Iwokrama Forest provide excellent bird habitats. The distinctive patchy *Humiria* dominated low woodland and scrub with little or no grass cover that grows on areas with nutrient-poor sandy surface soil (often apparently with a clay substrate that causes frequent shallow flooding) and locally known as "Muri scrub" supports a surprisingly distinctive bird fauna (see Table 2). The bird fauna of Muri scrub is distinct from superficially similar savanna areas found mainly in the south of the Iwokrama Forest. The largest areas of Muri scrub on the Reserve proved to be of difficult access, and only one (a relatively small area at Mile 38 along the main road) could ever be investigated in any depth. However, we suggest that thorough exploration of similar areas within the Iwokrama Forest will reveal the presence of bird species not currently recorded, and probably species not previously known from anywhere in central Guyana.

Table 2: Species of birds found mainly, or exclusively, in patches of Muri scrub

Scientific Name	Common Name
<i>Crypturellus erythropus</i>	Red-legged Tinamou
<i>Laterallus castanciceps</i>	Russet-crowned Crake
<i>Chlorestes notatus</i>	Blue-chinned Sapphire
<i>Amazilia chionopectus</i>	White-chested Amazilia
<i>Formicivora grisea</i>	White-fringed Antwren
<i>Elaenia ruficeps</i>	Rufous-crowned Elaenia
<i>Sublegatus obscurior</i>	Amazonian Scrub-Flycatcher
<i>Xenopipo atronitens</i>	Black Manakin
<i>Tachyphonus phoeniceus</i>	Red-shouldered Tanager

High elevation forests (which we investigated only on the Iwokrama Mountains themselves) are, from an avian perspective, also of high conservation significance. At least 12 species (see Table 3) occur there that probably do not occur elsewhere in the Iwokrama Forest. It is also likely that some of the species residing in areas over 500 m may represent undescribed subspecies. Apart from the Iwokrama Mountains, Turtle and Pakatau mountains are also likely to be important for tourism development and conservation. Turtle Mountain is accessible and has high habitat and avian species diversity.

Table 3: Species likely to be found mainly, or exclusively, at elevations above 500 m in the Iwokrama Forest

Scientific Name	Common Name
<i>Colibri delphinae</i>	Brown Violetear
<i>Lophornis ornatus</i>	Tufted Coquette
<i>Trogon collaris</i>	Collared Trogon
<i>Aulacorhynchus derbianus</i>	Chestnut-tipped Toucanet
<i>Piculus rubiginosus</i>	Golden-olive Woodpecker
<i>Herpsilochmus roraimae</i>	Roraiman Antwren
<i>Chamaeza campanisoma</i>	Short-tailed Antthrush
<i>Elaenia chiriquensis</i>	Lesser Elaenia
<i>Phyllomyias griseiceps</i>	Sooty-headed Tyrannulet
<i>Oxyruncus cristatus</i>	Sharpbill
<i>Lepidothrix suavisissima</i>	Orange-bellied Manakin
<i>Cichlopsis leucogenys</i>	Rufous-brown Solitaire
<i>Hylophilus sclateri</i>	Tepui Greenlet
<i>Parula pitiayumi</i>	Tropical Parula
<i>Tangara xanthogastra</i>	Yellow-bellied Tanager
<i>Chlorophonia cyanea</i>	Blue-naped Chlorophonia
<i>Piranga flava</i>	Hepatic Tanager

Apart from the highland areas and Muri scrub, several other habitats are worthy of discussion in terms of their conservation significance. In particular, there are few open woodland or savanna areas in the Iwokrama Forest and most are restricted to the southern part of the reserve. These areas while extensive in the Rupununi savannas are also savanna-forest ecotones and contain many species not found otherwise in the Iwokrama Forest (Table 4).

Table 4: Species found primarily in savanna and low woodland areas at the southern edges of the Iwokrama Forest, north of Surama

Scientific Name	Common Name
<i>Cathartes burrovianus</i>	Lesser Yellow-headed Vulture
<i>Gampsonyx swainsonii</i>	Pearl Kite
<i>Buteo albicaudatus</i>	White-tailed Hawk
<i>Buteogallus meridionalis</i>	Savanna Hawk
<i>Caracara plancus</i>	Crested Caracara
<i>Milvago chimachima</i>	Yellow-headed Caracara
<i>Aramus guaranauna</i>	Limpkin
<i>Gallinago paraguaiiae</i>	South American Snipe
<i>Vanellus chilensis</i>	Southern Lapwing
<i>Aratinga pertinax</i>	Brown-throated Parakeet
<i>Coccyzux euleri</i>	Pearly-breasted Cuckoo
<i>Pseudoscops clamator</i>	Striped Owl
<i>Chordeiles pusillus</i>	Least Nighthawk

Scientific Name	Common Name
<i>Chordeiles acutipennis</i>	Lesser Nighthawk
<i>Caprimulgus cayennensis</i>	White-tailed Nightjar
<i>Tachornis squamata</i>	Neotropical Palm-Swift
<i>Xenops tenuirostris</i>	Slender-billed Xenops
<i>Taraba major</i>	Great Antshrike
<i>Sakesphorus canadensis</i>	Black-crested Antshrike
<i>Myrmoborus leucophrys</i>	White-browed Antbird
<i>Myrmeciza longipes</i>	White-bellied Antbird
<i>Elaenia flavogaster</i>	Yellow-bellied Elaenia
<i>Elaenia cristata</i>	Plain-crested Elaenia
<i>Poecilatriccus sylvia</i>	Slate-headed Tody-Flycatcher
<i>Contopus cinereus</i>	Tropical Pewee
<i>Fluvicola pica</i>	Pied Water-Tyrant
<i>Xenopsaris albinucha</i>	Xenopsaris
<i>Turdus leucomelas</i>	Pale-breasted Thrush
<i>Cyclarhis gujanensis</i>	Rufous-browed Peppershrike
<i>Saltator coerulescens</i>	Grayish Saltator
<i>Ammodramus humeralis</i>	Grassland Sparrow
<i>Emberizoides herbicola</i>	Wedge-tailed Grass-Finch
<i>Sporophila intermedia</i>	Gray Seedeater
<i>Sporophila plumbea</i>	Plumbeous Seedeater

## TEMPORAL VARIATION

### Migrations

Migratory birds are not particularly conspicuous in the Iwokrama Forest. However, both "boreal migrants" (those occurring in Guyana during the boreal, or northern, winter) and "austral migrants" (those occurring in Guyana during the austral, or southern, winter) are found in the Iwokrama Forest. Fourteen species of boreal migrants (plus one possible additional species; see Table 5) and seven species of austral migrants (plus four possible additional species; see Table 6) were recorded in the Iwokrama Forest.

No migratory bird species occurs in the Iwokrama Forest in large numbers. Among the boreal migrants, the wide-ranging *Hirundo rustica* (Barn Swallow) is perhaps the most numerous, while among the austral migrants, *Tyrannus savana* (Fork-tailed Flycatcher) may be the most common. There certainly are no globally significant concentrations of any migratory species.

The relative lack of migrants is due to two factors:

1) The Iwokrama Forest is situated inland. Migratory bird species, even land-birds, tend to concentrate in coastal areas (this is apparent even in coastal Guyana, where migrants are a much more conspicuous element of the local avifauna around, for instance, Georgetown).

2) The Iwokrama Forest is situated in eastern South America. Boreal migrants in particular are much more numerous in western South America that lies closer to migrant breeding areas. Austral migrants are rarely very numerous or conspicuous in northern South America, mainly because their breeding area is so much smaller than their wintering area. In general the opposite is true for boreal migrants (ie., breeding areas are large, wintering areas small).

Table 5: Boreal migrants to the Iwokrama Forest

Scientific Name	Common Name and Description of Migration Patterns
<i>Anas discors</i>	Blue-winged Teal. Scarce (the habitats in the Iwokrama Forest are not really suitable for it); recently arrived transients were recorded on two occasions along rivers in late Sept. and Oct.
<i>Pandion haliaetus</i>	Osprey. Fairly common along rivers with numbers greatest during the northern winter months (Oct. - Mar.) but a few pre-breeders - this species does not breed until it is 2-3 years old - did remain through the northern summer months.
<i>Buteo platypterus</i>	Broad-winged Hawk. An immature was seen along the main road through the Iwokrama Forest on 4 Mar. 1998. This represents only the second report of this highly migratory raptor from Guyana; otherwise we are aware only of a single unpublished sighting in the early 1990s (D. Finch pers. comm.). The Broad-winged Hawk normally winters in Middle America and northwestern South America; stragglers occur in the eastern South America.
<i>Tringa solitaria</i>	Solitary Sandpiper. A fairly common boreal winter resident on sandbars along rivers along the edge of river backwaters and in ponds such as borrow pits along the road. Recorded from Sept. to Mar. (but a few may linger later).
<i>Actitis macularia</i>	Spotted Sandpiper. A fairly common boreal winter resident on sandbars along rivers (where most numerous) along the edge of river backwaters and in ponds such as borrow pits along the road. Recorded from Sept. to Apr. with one bird in basic plumage seen on 24 July (the latter an unusual mid-boreal summer record).
<i>Calidris fuscicollis</i>	White-rumped Sandpiper. One record of a solitary southward-bound transient (an adult in basic plumage) that was seen and collected on a Essequibo River sandbar in Oct.
<i>Contopus cooperi</i>	Olive-sided Flycatcher. One record of a presumed vagrant seen and collected at Mile 3 along the main road on 13 Nov. 1996. There is only one previous sight report of this species from Guyana, which is situated well to the east of its usual wintering range.
<i>Riparia riparia</i>	Bank Swallow. One record of a single individual seen flying with <i>Hirundo rustica</i> over the Essequibo River on 25 Oct. 1996. The species probably occurs more regularly than this would appear to indicate though Guyana is somewhat to the east of the species' usual migration route.
<i>Hirundo rustica</i>	Barn Swallow. A fairly common transient (especially on southward passage) and boreal winter resident over open areas in the Iwokrama Forest. Largest numbers occur over larger rivers (where they often fly with resident swallows) but Barn Swallows also often over fly forest and even occasionally are found along smaller watercourses. Recorded from Sept. to Apr.
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow. Only one record that a single individual seen flying with <i>Hirundo rustica</i> over the Essequibo River on 17 Sept. 1997. The species probably occurs more regularly than this would appear to indicate though Guyana is east of the species' usual migration route.
<i>Catharus minimus</i>	Gray-cheeked Thrush. Only one record of a single mist-netted bird obtained in the undergrowth of upland forest at Kabocalli Landing on 29 Mar. 1997. The species is an inconspicuous boreal winter resident in lowland forests of northern South America but it seems always to occur at low densities.
<i>Vireo olivaceus</i>	Red-eyed Vireo. The race of this species breeding in North America nominate <i>olivaceus</i> likely occurs in the Iwokrama Forest but its presence here is masked by the existence of <i>vividior</i> , a race of the species that breeds locally in small numbers.
<i>Vireo altiloquus</i>	Black-whiskered Vireo. Only one definite record of a male collected on 29 Sept. 1997 in the sub-canopy of seasonally flooded forest at the base of Turtle Mountain. Other individuals were also believed seen in Nov. 1996 especially along the "corduroy road" at Kurupukari but could not be confirmed.

<i>Scientific Name</i>	Common Name and Description of Migration Patterns
<i>Dendroica aestiva</i>	Yellow Warbler. Status uncertain; several of this species were seen in woodland around and north of Surama Lake near the southern border of the Iwokrama Forest on 2 Mar. 1998. The species probably occurs regularly here at or near the southern limit of its regular wintering range.
<i>Dendroica striata</i>	Blackpoll Warbler. A rare boreal winter resident in the sub-canopy and borders of forest and woodland mainly seen singly as it accompanied mixed flocks of tanagers and other primarily insectivorous birds. Recorded at least Nov. to Mar.

Table 6: Austral migrants to the Iwokrama Forest

<i>Scientific Name</i>	Common Name and Description of Migration Pattern
<i>Rostrhamus sociabilis</i>	Snail Kite. Groups of up to about 10 individuals (mainly juveniles though a few individuals in adult plumage were also noted) were seen on several occasions in late Oct. and on a few other dates as well (then usually as single individuals). These birds were seen to circle over forest often at considerable heights and then would usually drift northward; at no time were they observed to feed or indeed even to perch in the Forest. The status of this species in the Iwokrama Forest remains to be determined but we suspect that long-distance migration (likely from breeding grounds in the south) is involved; elsewhere Snail Kites are known to wander in response to fluctuating water levels. The species is regularly present in the Georgetown area.
<i>Coccyzus melacoryphus</i>	Dark-billed Cuckoo. Evidently a rare austral migrant perhaps occurring only in limited numbers within the Iwokrama Forest because the secondary habitats it favors on its wintering grounds are relatively limited in extent. One silent individual was seen in shrubbery along the Essequibo River in July 1996. The species appears to be more numerous slightly further south e.g., in Roraima.
<i>Elaenia parvirostris</i>	Small-billed Elaenia. An uncommon austral migrant to forest borders and in lighter woodland of the southern part of the Iwokrama Forest. This difficult-to-recognize species was recorded from June to Aug. but likely is present in the Iwokrama Forest for a longer period.
<i>Myiodynastes maculatus</i>	Streaked Flycatcher. Evidently a rare austral migrant perhaps especially to the southern edge of the Iwokrama Forest. A few silent non-territorial birds believed to be of the austral migrant race <i>solitarius</i> were seen in June and July but none could be collected to confirm this. The species also occurs locally in Guyana as a breeding resident (the race <i>tobagensis</i> ) but it was not otherwise recorded from the Reserve itself.
<i>Legatus leucophaeus</i>	Piratic Flycatcher. This species probably occurs as an austral migrant to the Iwokrama Forest but individuals from the austral migrant population cannot be distinguished from resident birds as they represent the same (nominate) subspecies. The species also breeds in the Iwokrama Forest.
<i>Empidonomus varius</i>	Variegated Flycatcher. An uncommon austral migrant to forest borders and clearings and Muri scrub; generally occurs solitarily. Recorded at least from Apr. to July but likely occurs later as well. The two specimens collected are both clearly referable to the nominate race well known as an austral migrant into much of northern South America. Also of possible occurrence in the Iwokrama Forest is the race <i>rufina</i> , which is resident locally in northeastern South America. However we observed no Variegated Flycatchers outside the range of occurrence listed above for the migratory nominate race and we also never heard any vocalizing or saw any evident territorial behavior.

Scientific Name	Common Name and Description of Migration Pattern
<i>Tyrannus melancholicus</i>	Tropical Kingbird. This common and conspicuous kingbird probably occurs also as an austral migrant to the Iwokrama Forest. Small silent non-territorial groups were noted on a number of occasions in the June to Sept. period at various semi-open and edge sites. However as with <i>Legatus leucophaeus</i> individuals from the austral migrant population cannot be distinguished from resident birds representing as they do the same (nominate) subspecies. <i>T. melancholicus</i> also occurs widely as a breeding resident in semi-open parts (such as along rivers and roads) of the Iwokrama Forest.
<i>Tyrannus savana</i>	Fork-tailed Flycatcher. Small flocks of the austral migrant nominate race of the Fork-tailed Flycatcher were observed in various semi-open parts of the Iwokrama Forest (especially along larger rivers) between about Apr. and Sept.; even larger numbers can be observed in open areas near the Guyana coast. In addition the resident race <i>monachus</i> was found to be breeding in the savannas around Surama and Annai; however none of this taxon - which is recognizable in the field by its much paler not as gray back - were ever definitely observed in the Iwokrama Forest itself though they could occur near its southern border.
<i>Progne tapera</i>	(Brown-chested Martin) of the race <i>fusca</i> and <i>P. chalybea</i> (Gray-breasted Martin) of the race <i>domestica</i> . These two martin species probably occur as austral migrants in the Iwokrama Forest but the likely presence of both is masked by the local occurrence of resident forms of both species. No absolutely certain records of migrants were recorded.
<i>Vireo olivaceus</i>	Red-eyed Vireo. The race of this species breeding in southern South America <i>chivi</i> almost certainly occurs as an austral migrant at forest borders and in clearings in the Iwokrama Forest but its presence here is masked by the existence of <i>vividior</i> a race of the species that breeds locally in small numbers. A few apparent migrants thought to be <i>chivi</i> were noted in July and perhaps other months.

### SUGGESTIONS FOR MONITORING THE AVIFAUNA

The greatest difficulty in the development of a monitoring program in the Iwokrama Forest will be to ensure that the individuals performing this work are adequately trained to be able to accurately identify the birds. Of most interest will be any effort to monitor the changes (or lack of changes) in under-story flock numbers and composition in areas that are being or have been impacted by logging, with the same effort being directed toward comparable but pristine areas, as a control. A list of species of birds that could be monitored is included in Table 7 (from M. Robbins, pers. comm.).

Table 7: List of bird species that could be monitored in the Iwokrama Forest (M. Robbins, pers. comm..)

Scientific Name	Common Name
<i>Tinamus major</i>	Great Tinamou
<i>Crypturellus variegates</i>	Variiegated Tinamou
<i>Micrastur ruficollis</i>	Barred Forest Falcon
<i>Micrastur gilvicollis</i>	Lined Forest-Falcon
<i>Daptrius americanus</i>	Red-throated Caracara
<i>Penelope jacquacu</i>	Spix's Guan
<i>Penelope marail</i>	Marail Guan
<i>Crax alector</i>	Black Currassow
<i>Psophia crepitans</i>	Gray-winged Trumpeter
<i>Columba subvinacea</i>	Ruddy Pigeon
<i>Columba plumbea</i>	Plumbeous Pigeons
<i>Trogon viridis</i>	White-tailed Trogon
<i>Trogon melanurus</i>	Black-tailed Trogon



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<i>Ramphastos vitellinus</i>	Channel-billed Toucan
<i>Ramphastos tucanus</i>	Red-billed Toucan
<i>Dendrocolaptes certhia</i>	Barred Woodcreeper
<i>Thamnophilus murinus</i>	Mouse-coloured Antshrike
<i>Herpsilochmus stictocephalus</i>	Todd's Antwren
<i>Myrmeciza ferruginea</i>	Ferruginous-backed Antbird
<i>Gymnopithys rufigula</i>	Rufous-throated Antbird
<i>Myrmothera campanisona</i>	Thrush-like Antpitta
<i>Lipaugus vociferans</i>	Screaming Piha
<i>Procnias alba</i>	White Bellbird
<i>Perissocephalus tricolor</i>	Capuchin Bird
<i>Hylophilus muscicapinus</i>	Buff-cheeked Greenlet
<i>Psarocolius viridis</i>	Green Oropendola
<i>Ara ararauna</i>	Blue-and-yellow Macaw
<i>Ara macao</i>	Scarlet Macaw
<i>Ara chloroptera</i>	Red-and-green Macaw
<i>Orthopsittaca manilata</i>	Red-bellied Macaw
<i>Diopsittaca nobilis</i>	Red-shouldered Macaw
<i>Pyrhura picta</i>	Painted Parakeet
<i>Brotogeris chrysopterus</i>	Golden-winged Parakeet
<i>Nannopsittaca panychlora</i>	Tepui Parrotlet
<i>Touit batavica</i>	Lilac-tailed Parrotlet
<i>Touit purpurata</i>	Sapphire-rumped Parrotlet
<i>Pionites melanocephala</i>	Black-headed Parrot
<i>Pionopsitta caica</i>	Caica Parrot
<i>Pionus menstruus</i>	Blue-headed Parrot
<i>Pionus fuscus</i>	Dusky Parrot
<i>Amazona dufresniana</i>	Blue-cheeked Amazon
<i>Amazona amazonica</i>	Orange-winged Amazon
<i>Amazona farinosa</i>	Mealy Amazon
<i>Deropterus accipitrinus</i>	Red-fan Parrot

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### RECOMMENDATIONS FOR ECOTOURISM

The following comments and recommendations are intended to promote the development of an ecotourism program in the Iwokrama Forest. At the outset it must be recognized that ecotourists have a choice of destinations: there are dozens, even hundreds, of sites vying for attention and, of course, money. Guyana is but one of many potential locations. Selling Guyana and the Iwokrama Forest as an ecotourism destination will perhaps be difficult given Guyana's relative lack of tourism infrastructure, and a general lack of information about the country outside of Guyana. However, Belize provides a good example of how things can be rapidly changed - two decades ago Belize was an unknown destination as Guyana presently is, but Belize now figures as one of the primary ecotourism destinations for North Americans, with dozens of sites having been developed for their ecotourism activities.

Guyana has several advantages that could help in the development of ecotourism directed specifically towards the avifauna. The general advantages of Guyana include:

- 1) English is its first language, and this is the language spoken by the vast majority of prospective ecotourists to Guyana. In most other comparable countries a different language is spoken.
- 2) There is an abundance of relatively unaltered land, of which some can be reached with reasonable ease.

3) Biodiversity levels are high, much more so than is the case in Belize.

The more particular advantages of Guyana are:

- 1) Guyana has extensive, biologically intact, near pristine forests that can be accessed with relative ease. Most other such comparably wild tropical forest sites (for example, Peru's Manu Nat. Park) can be reached only with greater difficulty, or cannot be accessed at all.
- 2) It contains an exceptionally scenic, large river, the Essequibo. No other Neotropical river matches it for beauty.
- 3) The presence of a small but vigorous Amerindian community in nearby areas, especially Surama, is a potential major magnet. Not only is local Amerindian culture of interest, but community members stand to benefit through employment as local guides who can, with training, interpret the natural world for visitors.

To realize the full potential for ecotourism, we feel that:

- 1) The facilities available for ecotourists need to be substantially upgraded. The facilities at Kurupukari are adequate for scientists and workers, but they are less suitable for the upper range of ecotourists. We suggest the construction of a commodious - it doesn't need to be luxurious - new facility along the Essequibo River. The site should preferably be somewhere close to the main road so as to permit continued easy access, both to the road and the river. While such a construction will require major capital investment, we suggest that failure to build such a facility will be essential to ecotourism development in the Iwokrama Forest. A few intrepid individuals and groups will come to Iwokrama under the present circumstances, but not enough to justify the development of an ecotourism programme. The Danum Valley Conservation Centre in Borneo might serve as a suitable model for the Iwokrama Centre to follow. Here sustainable forest management is being successfully integrated with ecotourism.
- 2) Rustic satellite camps should be established at sites convenient from a transportation and wildlife perspective; at each, the more intrepid ecotourists would be able to spend one or more nights, with organized itineraries. We suggest the inclusion of the base of Turtle Mountain; Kabocalli Landing; and Pakatau Falls among these satellite areas. These sites, together with a forest trail system set up around a new ecotourism facility, as well as observations along the main road, should be sufficient to enable the visitor to obtain a full comprehension of the diversity of environments within the Iwokrama Forest.
- 3) A "canopy tower" should be constructed, ideally in forest situated reasonably close to the new ecotourism facility, to permit visitors to gain a better understanding of the forest canopy. This does not need to be a complex undertaking; it merely needs to be a well-constructed platform built up around the trunk of an emergent tree, with sufficient platform space at the top for 10-15 people. A "walkway" is not absolutely necessary for ecotourism: at the several walkways I have visited around the world, everyone observes from the platforms anyway (there being too much motion on the swinging walkways themselves). However, walkways may be useful for research purposes. Siting the "observation tower" is, however, of paramount importance, and local Amerindians should be consulted in this regard; ideally it should be close to several trees that seasonally produce flowers and fruit.



- 4) We also suggest that timber production needs not necessarily conflict with ecotourism. The majority of the specialized "birding" microhabitats that would attract ecotourists have no commercially valuable timber or are inaccessible – the Muri scrub areas, savanna forest ecotones, and the mountains. Indeed, timber operations would facilitate access to some and as such could actually prove to be helpful in an ecotourism program. One major concern would be that hunting be strongly controlled in timber operations to ensure the continued presence of the larger ground frugivores that are characteristic of the Iwokrama Forest.
- 5) Amerindians from local villages should be hired preferentially for all positions in any ecotourism venture undertaken by the Iwokrama Centre. Ecotourists deeply appreciate the interactions between local people and themselves and the local people also have a strong comparative advantage in the traditional knowledge of the forest. The Iwokrama Centre has the tremendous advantage of not having to contend with the usual language barrier between local people and visitors.
- 6) Consideration might also be given to building a comfortable ecotourism facility at the edge of the savanna near the Iwokrama Forest's southern border. A site somewhere near Surama itself, constructed in partnership with the people from Surama, might be ideal. Ecotourists like to see habitat variety, and after several days in the enclosed forest, the open savannas will provide a welcome change.
- 7) Bird-oriented ecotourists inevitably have a list of certain "target" species that they especially would like to see. Typically these are birds that are difficult or impossible to see elsewhere, or at least are perceived to be easier to see at that site than anywhere else. A selected list of such birds can be found in Table 8, but here I should like to emphasize the desirability of attempting to re-establish a population of what could become the greatest avian "draw" of them all, the Sun Parakeet. This lovely yellow parrot has a restricted overall range and habitat in northeastern South America, and cannot easily be seen anywhere. Though it used to be numerous in the Annai/Surama area, trapping for the cage bird market has long since eliminated it from this region. Sun Parakeets remain, however, numerous in captivity, and under the auspices of one of several suitable organizations - the World Parrot Trust for example - a soft release program in which birds are gradually released into the wild near, for instance, Surama would almost certainly be successful. And I can guarantee that it would put the Iwokrama Forest on the birder's map.

Table 8: List of birds particularly important for ecotourism in the Iwokrama Forest

Common Name and Scientific Name
Black-faced Hawk <i>Leucopternis melanops</i>
Crestless Curassow <i>Mitu tomentosa</i>
Black Curassow <i>Crax alector</i>
Gray-winged Trumpeter <i>Psophia crepitans</i>
Blue-cheeked Amazon <i>Amazona dufresniana</i>
Red-fan Parrot <i>Deroptyus accipitrinus</i>
Rufous-winged Ground-Cuckoo <i>Neomorphus rufipennis</i>
White-winged Potoo <i>Nyctibius leucopterus</i>
Racket-tailed Coquette <i>Discosura longicauda</i>
Crimson Topaz <i>Topaza pella</i>
Guianan Toucanet <i>Selenidera culik</i>
Red-billed Woodcreeper <i>Hylexetastes perrottii</i>
Black-throated Antshrike <i>Frederickena viridis</i>

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**Common Name and Scientific Name**

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Wing-banded Antbird *Myrmornis torquata*  
Olive-green Tyrannulet *Phylloscartes virescens*  
Dusky Purpletuft *Iodopleura fusca*  
Crimson Fruitcrow *Haematoderus militaris*  
Capuchinbird *Perissocephalus tricolor*  
Guianan Red-Cotinga *Phoenicircus carnifex*  
Black-collared Swallow *Atticora melanoleuca*  
Guianan Gnatcatcher *Polioptila guianensis*  
Blue-backed Tanager *Cyanicterus cyanicterus*  
Red-and-black Grosbeak *Periporphyrus erythromelas*

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## **SPECIMEN COLLECTING**

### THE NEED TO COLLECT

The ongoing need to collect samples of certain groups of organisms for preparation as scientific specimens has been questioned by individuals and groups around the world. In particular, public concerns about collecting bird specimens have been raised. Many people question the need to obtain new specimen material, and also question the morality of doing so. For those that work with biological collections, it is clear that there is a startling paucity of the raw materials (specimens) to adequately address questions of spatial and temporal variation in plumage and other characteristics. For many of the taxa collected in the Iwokrama Forest, the specimens represent the most recent collections of these birds since the early 19<sup>th</sup> century. As such the collections are of inestimable scientific value. Many of the tissue samples collected are unique and particularly valuable because they are associated with voucher study skins that will enable researchers to cross check morphology with biochemistry.

### THE IMPACT OF COLLECTING

As to the morality, we would suggest that the primary concern is the confusion of species and population conservation - and the protection of biodiversity generally - with the protection of individuals. Our over-riding concern should be to endeavor to ensure that species and populations endure. Limited scientific collecting has no affect whatsoever on the vast majority of species or populations. For those species deemed to be rare or endangered, tight restrictions on collecting are appropriate. For those species that are not, regulations can be, and in our opinion should be, far looser. The last thing that such scientists would do would be to imperil any species or population, and they are perhaps in a position better to judge such issues than anyone else.

### PERMITTING DIFFICULTIES

Collections of birds have no commercial value. Scientists will not even attempt to undertake collecting if the regulations imposed by the host country are deemed overly restrictive, or the conditions overly onerous. In certain Neotropical countries there are, for instance, requirements that 50% of all material obtained remain within the host country. In countries where such regulations are in place, scientific collecting, at least of birds - which, as noted above, are difficult and time-consuming to obtain and prepare - will be inhibited or will simply stop. Research activities already have ceased, or been much reduced, in some countries. The undesirable result will be that no longer will foreign scientists conduct research involving collecting in that country, to the detriment of that country's institutions and the development and training of its scientific personnel. On a more global level, scientific research more generally will be impeded. We would suggest that insofar as birds are concerned, no restrictions be placed on the number of individuals to be collected (as noted above,

the difficulty in preparing birds itself has a self-regulating inhibitory effect). A list of proscribed species or groups should be prepared, with input from knowledgeable individuals (both scientists and conservationists). We would suggest that the second individual (a "duplicate") of each species collected should be retained by the host country, with another specimen to be retained if five or more individuals are obtained. We would also suggest that the latter requirement be designed with flexibility in mind, allowing for - for instance - increased local retention of specimen material if there is increased local staffing for specimen preparation.

#### THE CENTRE FOR THE STUDY OF BIOLOGICAL DIVERSITY

This CSBD may be adequate for the curation and storage of some groups of organisms but it is not presently adequate for birds. We recognize the desirability of Guyana's having a representative collection of at least the major elements of its avifauna, and indeed applaud this effort and want to encourage it. However, the facility needs upgrading through the provision of adequate cabinet space. We are presently uncomfortable with returning the specimen material that was obtained at such great cost. Perhaps, indeed, some consideration should be given to material being retained at ANSP, on a loan agreement, until such time as the facility at The University of Guyana has been upgraded. We are also willing to offer advice and material aid to the development of the facilities should this be required.

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## ABUNDANCE ESTIMATES FOR BIRDS IN THE IWOKRAMA FOREST

Table 9: Abundance Indices Used in Table 10<sup>2</sup>

A (Abundant)	More than 20 individuals encountered daily
C (Common)	More than 5 and less than 20 individuals encountered daily
F (Fairly Common)	Less than 5 individuals recorded daily
U (Uncommon)	Small numbers recorded, but not encountered daily
R (Rare)	Very scarce, fewer than 5 individuals recorded during survey
X	Species recorded, status uncertain

Table 10: Birds Encountered in the Iwokrama Forest and Abundance Estimates at 11 Locations

Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
<i>Tinamidae</i> (Tinamous)												
Great Tinamou	<i>Tinamus major</i>	C	C	C	C	C		C	C	C	C	C
Cinereous Tinamou	<i>Crypturellus cinereus</i>							R				
Little Tinamou	<i>Crypturellus soui</i>	U						U				
Variiegated Tinamou	<i>Crypturellus variegatus</i>	C	C	C	C	C		C	C	C	C	C
Red-legged Tinamou	<i>Crypturellus erythropus</i>							C				
<i>Phalacrocoracidae</i> (Cormorants)												
Neotropic Cormorant	<i>Phalacrocorax brasilianus</i>	F			F		F					F
<i>Anhingidae</i> (Anhingas)												
Anhinga	<i>Anhinga anhinga</i>	F	F		F		F		F	F	F	
<i>Anatidae</i> (Ducks and geese)												
Blue-winged Teal	<i>Anas discors</i>						R					
Muscovy Duck	<i>Cairina moschata</i>	U	U	X			U					U
<i>Ardeidae</i> (Hérons, bitterns, egrets)												
Cocoi Heron	<i>Ardea cocoi</i>	F	F		F		F		F		F	
Great Egret	<i>Ardea alba</i>		U				U				U	
Capped Heron	<i>Pilherodius pileatus</i>	U	U	U	U		U	U	U		U	U
Striated Heron	<i>Butorides striatus</i>	F	F		F		F		F	F	F	
Little Blue Heron	<i>Egretta caerulea</i>		F				F				F	
Cattle Egret	<i>Bubulcus ibis</i>		U		U		U			U	U	
Agami Heron	<i>Agamia agami</i>						R		R			
Boat-billed Heron	<i>Cochlearius cochlearius</i>	U	U		U		U					
Rufescent Tiger-Heron	<i>Tigrisoma lineatum</i>	U	U				U		U	U	U	

<sup>2</sup> K-Kabocalli; PM-Pakutau Mountains; M3-Three Mile; TM-Turtle Mountain; IM-Iwokrama Mountain; R-Along the Essequibo River; M26-Muri Scrub Camp; BB-White Water Camp on the Burro-Burro River; BW-Black Water Camp on the Siparuni; KU-Kurupukari; M12-Twelve Mile Camp (see Map for Details).



Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
Orange-breasted Falcon	<i>Falco deiroleucus</i>						U					
<i>Cracidae (Curassows, guans, chachalacas)</i>												
Little Chachalaca	<i>Ortalis motmot</i>	F	F		F		F	F		F	F	
Spix's Guan	<i>Penelope jacquacu</i>	F	F	F	F	F		F	F	F	F	F
Marail Guan	<i>Penelope marail</i>	F	F	F	F	F		F	F	F	F	F
Crestless Curassow	<i>Mitu tomentosa</i>	X										
Black Curassow	<i>Crax alector</i>	F	F	F	F	F		F	F	F		F
<i>Odontophoridae (New World Quail)</i>												
Marbled Wood-Quail	<i>Odontophorus gujanensis</i>	F	F	F	F	F		F	F	F	F	F
<i>Rallidae (Rails, coots)</i>												
Russet-crowned Crane	<i>Laterallus castanciceps</i>											
Gray-necked Wood-Rail	<i>Aramides cajanea</i>	U	U		U		U		U			
<i>Heliornithidae (Sungrebe)</i>												
Sungrebe	<i>Heliornis fulica</i>		U		U		U	U				
<i>Eurypygidae (Sunbittern)</i>												
Sunbittern	<i>Eurypyga helias</i>	U	U		U		U			U		
<i>Psophiidae (Trumpeters)</i>												
Gray-winged Trumpeter	<i>Psophia crepitans</i>	C	C	C	C	C	C	C	C	C	C	C
<i>Scolopacidae (Snipes, sandpipers)</i>												
Solitary Sandpiper	<i>Tringa solitaria</i>							U	U		U	U
Spotted Sandpiper	<i>Actitis macularia</i>							U	U	U	U	U
White-rumped Sandpiper	<i>Calidris fuscicollis</i>							X				
<i>Charadriidae (Plovers, lapwings)</i>												
Pied Plover	<i>Hoploxypterus cayanus</i>							F				F
Collared Plover	<i>Charadrius collaris</i>							F				F
<i>Laridae (Gulls, terns)</i>												
Large-billed Tern	<i>Phaetusa simplex</i>							F				F
Yellow-billed Tern	<i>Stern supercilirais</i>							F				F
<i>Rynchopidae (Skimmers)</i>												
Black Skimmer	<i>Rynchops nigra</i>							F				F
<i>Columbidae (Pigeons, doves)</i>												
Scaled Pigeon	<i>Columba speciosa</i>		U		U	U		F	U			U
Pale-vented Pigeon	<i>Columba cayennensis</i>				U		U	F				U
Ruddy Pigeon	<i>Columba subvinacea</i>	C	C	C	C	C	C	C		C	C	C
Plumbeous Pigeon	<i>Columba plumbea</i>	C	C	C	C	C		C	C	C	C	C

Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
White-tipped Dove	<i>Leptotilla verreauxi</i>											
Ruddy Quail-Dove	<i>Geotrygon montana</i>	F	F	F	F	F		F	F	F	F	F
Violaceous Quail-Dove	<i>Geotrygon violacea</i>			X	X							
<i>Psittacidae (Parrots, macaws)</i>												
Blue-and-yellow Macaw	<i>Ara ararauna</i>	U	U	U	U		U	U	U	U	U	U
Scarlet Macaw	<i>Ara macao</i>	F	F	F	F	F	F	F	F	F	F	F
Red-and-green Macaw	<i>Ara chloroptera</i>	F	F	F	F	F	F	F	F	F	F	F
Red-bellied Macaw	<i>Orthopsittaca manilata</i>		U					U	U	U	U	
Red-shouldered Macaw	<i>Diopsittaca nobilis</i>		X		U		U				U	
Painted Parakeet	<i>Pyrrhura picta</i>	C	C	C	C	C	C	C	C	C	C	C
Golden-winged Parakeet	<i>Brotogeris chrysopterus</i>	C	C	C	C	C	C	C	C	C	C	C
Tepui Parrotlet	<i>Nannopsittaca panychlora</i>	U	U	U	U					U	U	
Lilac-tailed Parrotlet	<i>Touit batavica</i>	U	U	U		U	U	U		U	U	U
Sapphire-rumped Parrotlet	<i>Touit purpurata</i>	U	U	U	U	U		U	U	U	U	
Black-headed Parrot	<i>Pionites melanocephala</i>	F	F	F	F	F	F	F	F	F	F	F
Caica Parrot	<i>Pionopsitta caica</i>	F	F	F	F	F	F	F	F	F	F	
Blue-headed Parrot	<i>Pionus menstruus</i>	F	F	F	F	F	F	F	F	F	F	F
Dusky Parrot	<i>Pionus fuscus</i>	F	F	F	F	F	F	F	F	F	F	F
Blue-cheeked Amazon	<i>Amazona dufresniana</i>	U	U	U	U		U			U		
Orange-winged Amazon	<i>Amazona amazonica</i>	F	F	F	F	F	F	F	F	F	F	F
Mealy Amazon	<i>Amazona farinosa</i>	F	F	F	F	F	F	F	F	F	F	F
Red-fan Parrot	<i>Deroptryus accipitrinus</i>	F	F	F	F	F	F	F	F	F	F	F
<i>Cuculidae (Cuckoos, anis)</i>												
Dark-billed Cuckoo	<i>Coccyzus melanocoryphus</i>							X				
Squirrel Cuckoo	<i>Piaya cayana</i>							U			U	
Black-bellied Cuckoo	<i>Piaya melanogaster</i>	F	F	F	F	F	F	F	F	F	F	F
Greater Ani	<i>Crotophaga major</i>		F		F		F			F	F	
Smooth-billed Ani	<i>Crotophaga ani</i>											U
Pavonine Cuckoo	<i>Dromococcyx pavoninus</i>	X										
Rufous-winged Ground-Cuckoo	<i>Neomorphus rufipennis</i>		U		U	U		U		U	X	
<i>Strigidae (Owls)</i>												
Tropical Screech-Owl	<i>Otus choliba</i>							X				
Sharpe's Screech-Owl	<i>Otus guatemalae</i>		F		F	F					F	
Crested Owl	<i>Lophotrix cristata</i>	U	U		X						U	
Spectacled Owl	<i>Pulsatrix perspicillata</i>	F		F		F		F	F	F	F	F
Ferruginous Pygmy-Owl	<i>Glaucidium brasilianum</i>											X X
Amazonian Pygmy-Owl	<i>Glaucidium hardyi</i>	U	U	U	U		U			U	U	U
Mottled Owl	<i>Strix virgata</i>	U	U		U					U		
Black-banded Owl	<i>Strix huhula</i>		X		X							
Striped Owl	<i>Pseudoscops clamator</i>							X				
<i>Steatornithidae (Oilbird)</i>												
Oilbird	<i>Steatornis caripensis</i>							X				







Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
Chestnut Woodpecker	<i>Celeus elegans</i>	F	F	F	F	F		F	F	F	F	F
Waved Woodpecker	<i>Celeus undatus</i>	C	C	C	C	C		C	C	C	C	C
Cream-colored Woodpecker	<i>Celeus flavus</i>	R										
Ringed Woodpecker	<i>Celeus torquatus</i>	F	F	F	F	F		F	F	F	F	F
Lineated Woodpecker	<i>Dryocopus lineatus</i>						U		U		U	
Yellow-tufted Woodpecker	<i>Melanerpes cruentatus</i>		U	U	U		U		U		U	U
Golden-collared Woodpecker	<i>Veniliornis cassini</i>	F	F	F	F	F	F	F	F		F	
Crimson-crested Woodpecker	<i>Phloeoeastes melanoleucus</i>				F		F				F	F
Red-necked Woodpecker	<i>Phloeoeastes rubricollis</i>	F	F	F	F	F		F	F	F	F	F
<i>Dendrocolaptidae (Woodcreepers)</i>												
White-chinned Woodcreeper	<i>Dendrocincla merula</i>	F	F	F	F	F		F	F	F	F	F
Plain-brown Woodcreeper	<i>Dendrocincla fuliginosa</i>	C	C	C	C	C		C	C	C	C	C
Wedge-billed Woodcreeper	<i>Glyphorhynchus spirurus</i>	C	C	C	C	C		C	C	C	C	C
Long-tailed Woodcreeper	<i>Deconychura longicauda</i>	R										
Olivaceous Woodcreeper	<i>Sittasomus griseicapillus</i>	R										
Cinnamon-throated Woodcreeper	<i>Dendrexetastes rufigula</i>											R
Red-billed Woodcreeper	<i>Hylexetastes perrottii</i>	R										
Strong-billed Woodcreeper	<i>Xiphocolaptes promeropirhynchus</i>	R							X			
Amazonian Barred-Woodcreeper	<i>Dendrocolaptes certhia</i>	C	C	C	C	C		C	C	C	C	C
Black-banded Woodcreeper	<i>Dendrocolaptes picumnus</i>	U										
Straight-billed Woodcreeper	<i>Xiphorhynchus picus</i>	R										
Striped Woodcreeper	<i>Xiphorhynchus obsoletus</i>	F	F		F		F			F		
Buff-throated Woodcreeper	<i>Xiphorhynchus guttatus</i>	C	C	C	C	C		C	C	C	C	C
Chestnut-rumped Woodcreeper	<i>Xiphorhynchus pardalotus</i>	C	C	C	C	C		C	C	C	C	C
Lineated Woodcreeper	<i>Lepidocolaptes albolineatus</i>	U	U		U							
<i>Furnariidae (Ovenbirds)</i>												
Point-tailed Palmcreeper	<i>Berlepschia rikeri</i>						R					
Rufous-rumped Foliage-Gleaner	<i>Philydor erythrocerus</i>	F	F	F	F	F		F	F	F	F	F
Rufous-tailed Foliage-Gleaner	<i>Philydor ruficaudatus</i>			X								
Cinnamon-rumped Foliage-Gleaner	<i>Philydor pyrrhodes</i>	X										
Buff-throated Foliage-Gleaner	<i>Automolus ochrolaemus</i>	U	U	U	U	U		U	U	U		
Olive-backed Foliage-Gleaner	<i>Automolus infuscatus</i>	F	F	F	F	F		F	F	F	F	F
Plain Xenops	<i>Xenops minutus</i>	C	C	C	C	C	C	C	C	C	C	C
Tawny-throated Leaftosser	<i>Sclerurus mexicanus</i>	U	U	U	U	U		U	U	U		
Short-billed Leaftosser	<i>Sclerurus rufigularis</i>	U	U	U	U	U		U	U			
Black-tailed Leaftosser	<i>Sclerurus caudacutus</i>		U		U	U						
<i>Thamnophilidae (Typical Antbirds)</i>												
Fasciated Antshrike	<i>Cymbilaimus lineatus</i>	F	F	F	F	F		F	F	F	F	F
Black-throated Antshrike	<i>Frederikena viridis</i>		U		U							
Mouse-coloured Antshrike	<i>Thamnophilus murinus</i>	C	C	C	C	C		C	C	C	C	C
Eastern Slaty-Antshrike	<i>Thamnophilus punctatus</i>	F			F		F	F	F	F		
Amazonian Antshrike	<i>Thamnophilus amazonicus</i>	F	F		F	F	F			F		
Dusky-throated Antshrike	<i>Thamnomanes ardesiacus</i>	C	C	C	C	C		C	C	C	C	C

Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
Cinereous Antshrike	<i>Thamnomanes caesius</i>	C	C	C	C	C		C	C	C	C	C
Pygmy Antwren	<i>Myrmotherula brachyura</i>	F	F	F	F	F	F	F	F	F	F	
Guianan Streaked-Antwren	<i>Myrmotherula surinamensis</i>	F	F	F	F	F	F		F	F	F	F
Rufous-bellied Antwren	<i>Myrmotherula guttata</i>	C	C	C	C	C		C	C	C	C	C
Brown-bellied Antwren	<i>Myrmotherula gutturalis</i>	C	C	C	C	C		C	C	C	C	C
White-flanked Antwren	<i>Myrmotherula axillaris</i>	C	C	C	C	C		C	C	C	C	C
Long-winged Antwren	<i>Myrmotherula longipennis</i>	C	C	C	C	C		C	C	C	C	C
Gray Antwren	<i>Myrmotherula menetriesii</i>	C	C	C	C	C		C	C	C	C	C
Spot-tailed Antwren	<i>Herpsilochmus sticturus</i>	C	C	C	C	C		C	C	C	C	
Todd's Antwren	<i>Herpsilochmus stictocephalus</i>	C	C	C	C	C		C	C	C	C	
Roraiman Antwren	<i>Herpsilochmus roraimae</i>						F					
White-fringed Antwren	<i>Formicivora grisea</i>							C				
Ash-winged Antwren	<i>Terenura spodioptila</i>	F	F	F	F	F		F	F	F	F	
Gray Antbird	<i>Cercomacra cinerascens</i>	C	C	C	C	C		C	C	C	C	C
Dusky Antbird	<i>Cercomacra tyrannina</i>	F	F	F	F	F	F	F	F	F	F	F
Warbling Antbird	<i>Hypocnemis cantator</i>	F	F	F	F	F		F	F	F	F	F
Black-chinned Antbird	<i>Hypocnemoides melanopogon</i>	F	F	F	F	F	F	F	F	F		F
Spot-winged Antbird	<i>Schistocichla leucostigma</i>	U	U	U	U	U		U	U	U		U
Silvered Antbird	<i>Sclateria naevia</i>						R		R			
Ferruginous-backed Antbird	<i>Myrmeciza ferruginea</i>	F	F	F	F	F		F	F	F	F	F
Black-throated Antbird	<i>Myrmeciza atrothorax</i>							U				
White-plumed Antbird	<i>Pithys albifrons</i>	C	C	C	C	C		C	C	C	C	C
Rufous-throated Antbird	<i>Gymnopithys rufigula</i>	C	C	C	C	C		C	C	C	C	C
Scale-backed Antbird	<i>Hylophylax poecilinota</i>	C	C	C	C	C		C	C	C	C	C
Wing-banded Antbird	<i>Myrmornis torquata</i>	U	U	U	U	U		U	U		U	
<i>Formicariidae (Ground Antbirds)</i>												
Black-faced Antthrush	<i>Formicarius analis</i>	U	U	U	U	U			U		U	U
Rufous-capped Antthrush	<i>Formicarius colma</i>	U	U	U	U	U		U	U		U	U
Short-tailed Antthrush	<i>Chamaeza campanisoma</i>						F					
Variegated Antpitta	<i>Grallaria varia</i>				X							
Thrush-like Antpitta	<i>Myrmothera campanisona</i>	F	F	F	F	F		F	F	F	F	F
Spotted Antpitta	<i>Hylopezus macularius</i>	F	F	F	F	F		F	F	F	F	F
<i>Tyrannidae (Tyrant Flycatchers)</i>												
Lesser Elaenia	<i>Elaenia chiriquensis</i>								R			
Rufous-crowned Elaenia	<i>Elaenia ruficeps</i>								U			
Plain-crested Elaenia	<i>Elaenia cristata</i>								R			
Small-billed Elaenia	<i>Elaenia parvirostris</i>								R			
Amazonian Scrub Flycatcher	<i>Sublegatus obscurior</i>						R	R				
Forest Elaenia	<i>Myiopagis gaimardii</i>	F	F	F	F	F	F	F	F	F	F	F
Southern Beardless-Tyrannulet	<i>Camptostoma obsoletum</i>	U	U	U	U		U	U	U	U	U	
Yellow-crowned Tyrannulet	<i>Tyrannulus elatus</i>	F	F	F	F	F	F	F	F	F	F	F
White-lored Tyrannulet	<i>Ornithion inerme</i>	F	F	F	F	F		F	F	F	F	F
Slender-footed Tyrannulet	<i>Zimmerius gracilipes</i>	F	F	F	F	F	F	F	F	F	F	F
Sooty-headed Tyrannulet	<i>Phyllomyias griseiceps</i>						U					

Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
Olive-green Tyrannulet	<i>Phylloscartes virescens</i>	F	F	F	F	F		F	F	F	F	
Ochre-bellied Flycatcher	<i>Mionectes oleagineus</i>	F	F	F	F	F		F	F	F	F	F
MacConnell's Flycatcher	<i>Mionectes macconnelli</i>	F	F	F	F	F		F	F	F	F	F
Short-tailed Pygmy-Tyrant	<i>Myiornis ecaudatus</i>	F	F	F	F		F	F	F	F	F	
Helmeted Pygmy-Tyrant	<i>Lophotriccus galeatus</i>	F	F	F	F	F		F	F	F	F	F
Common Tody-Flycatcher	<i>Todirostrum cincereum</i>						U					U
Painted Tody-Flycatcher	<i>Todirostrum pictum</i>	U										
Ringed Antpiper	<i>Corythopis torquata</i>	U		U	U	U		U				
White-crested Spadebill	<i>Platyrrhinus platyrhynchos</i>	F	F		F	F		F	F			
Cinnamon-crested Spadebill	<i>Platyrrhinus saturatus</i>	F	F	F	F	F		F	F	F	F	F
Golden-crowned Spadebill	<i>Platyrrhinus coronatus</i>	U	U		U	U		U				
Yellow-olive Flatbill	<i>Tolmomyias sulphurescens</i>	U			U		U					
Gray-crowned Flatbill	<i>Tolmomyias poliocephalus</i>	U	U		U		U	U				U
Zimmer's Flatbill	<i>Tolmomyias assimilis</i>	C	C	C	C	C	C	C	C	C	C	C
Yellow-breasted Flatbill	<i>Tolmomyias flaviventris</i>							U				
Olivaceous Flatbill	<i>Rhynchocyclus olivaceus</i>	F	F	F	F	F		F	F	F	F	
Rufous-tailed Flatbill	<i>Ramphotrigon ruficauda</i>	F	F	F	F	F		F	F	F	F	
Amazonian Royal-Flycatcher	<i>Onychorhynchus coronatus</i>	F	F		F				F	F		
Whiskered Flycatcher	<i>Myiobius barbatus</i>	F	F	F	F	F		F	F	F	F	F
Ruddy-tailed Flycatcher	<i>Terentriacus erythrurus</i>	F	F	F	F	F		F	F	F	F	F
Cinnamon Tyrant	<i>Neopipo cinnamomea</i>							R				
Fuscous Flycatcher	<i>Cnemotriccus fuscatus</i>						R					
Amazonian Black-Tyrant	<i>Knipolegus poecilocercus</i>		R		R		R					
Olive-sided Flycatcher	<i>Contopus cooperi</i>											X
Tropical Pewee	<i>Contopus cinereus</i>											
Drab Water-Tyrant	<i>Ochthornis littoralis</i>	U	U		U		U					U
Long-tailed Tyrant	<i>Colonia colonus</i>											
Bright-rumped Attila	<i>Attila spadiceus</i>	U	U	U	U			U	U	U	U	
Cinnamon Attila	<i>Attila cinnamomeus</i>							F				
Grayish Mourner	<i>Rhytipterna simplex</i>	F	F	F	F	F		F	F	F	F	F
Short-crested Flycatcher	<i>Myiarchus ferox</i>						U	U				U
Dusky-capped Flycatcher	<i>Myiarchus tuberculifer</i>							R				
Boat-billed Flycatcher	<i>Megarynchus pitangua</i>						X					
Great Kiskadee	<i>Pitangus sulphuratus</i>							U				U
Lesser Kiskadee	<i>Philohydor lictor</i>							U				U
Rusty-margined Flycatcher	<i>Myiozetetes cayanensis</i>	U	U				U					U
Sulphury Flycatcher	<i>Myiozetetes sulphurea</i>							R	R			
Yellow-throated Flycatcher	<i>Conopias parva</i>	F	F	F	F	F	F	F	F	F	F	F
Piratic Flycatcher	<i>Legatus leucophaeus</i>				U							
Variegated Flycatcher	<i>Empidonomus varius</i>							U				
Tropical Kingbird	<i>Tyrannus melancholicus</i>	F	F	F	F		F	F	F	F	F	F
Fork-tailed Flycatcher	<i>Tyrannus savana</i>						F	F				F
Black-capped Becard	<i>Pachyrhamphus marginatus</i>	F	U		U			U	U	F		U
Pink-throated Becard	<i>Platypsaris minor</i>	U	U		U	U		U	U	U		U
Black-tailed Tityra	<i>Tityra cayana</i>	U		U	U		U	U				U
Black-crowned Tityra	<i>Tityra inquisitor</i>	U			U		U	U				U

Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
<i>Pipridae</i> (Manakins)												
Thrush-like Schiffornis	<i>Schiffornis turdinus</i>	F	F	F	F	F		F	F	F	F	F
Tiny Tyrant-Manakin	<i>Tyranneutes virescens</i>	F	F	F	F	F		F	F	F	F	
Saffron-crested Tyrant-Manakin	<i>Neopelma chrysocephalum</i>	U	U		U			U	U	U		
Wing-barred Piprites	<i>Piprites chloris</i>						R	R				
Black Manakin	<i>Xenopipo atronitens</i>							F				
White-throated Manakin	<i>Corapipo gutturalis</i>	C	C	C	C	C		C	C	C	C	C
Orange-bellied Manakin	<i>Lepidothrix suavisissima</i>						C					
White-crowned Manakin	<i>Dixiphia pipra</i>	C	C	C	C	C		C		C	C	C
Golden-headed Manakin	<i>Pipra erythrocephala</i>	F	F	F	F	F		F	F	F	F	F
<i>Cotingidae</i> (Cotingas)												
Sharpbill	<i>Oxyruncus cristatus</i>						U					
Dusky Purpletuft	<i>Iodopleura fusca</i>	U			U	U			U			
Purple-breasted Cotinga	<i>Cotinga cotinga</i>	F	F	F	F	F	F	F	F	F	F	F
Spangled Cotinga	<i>Cotinga cayana</i>	F	F	F	F	F	F	F	F	F	F	F
Pompadour Cotinga	<i>Xipholena punicea</i>	F	F	F	F	F	F	F	F	F	F	F
Cinereous Mourner	<i>Laniocera hypopyrra</i>	F	F		F	F		F	F	F	F	
Screaming Piha	<i>Lipaugus vociferans</i>	A	A	A	A	A		A	A	A	A	A
White Bellbird	<i>Procnias alba</i>		U		U	U		U				
Crimson Fruitcrow	<i>Haematoderus militaris</i>	U										U
Purple-throated Fruitcrow	<i>Querula purpurata</i>	U	U	U	U	U		U	U	U	U	U
Capuchinbird	<i>Perissocephalus tricolor</i>	F	F		F	F		F	F	F		
Guianan Red-Cotinga	<i>Phoenicircus carnifex</i>	F	F	F	F	F		F	F	F		
Guianan Cock-of-the-rock	<i>Rupicola rupicola</i>						U					
<i>Hirundinidae</i> (Swallows)												
Brown-chested Martin	<i>Progne tapera</i>	U	U				U					U
Gray-breasted Martin	<i>Progne chalybea</i>						U					U
White-winged Swallow	<i>Tachycineta albiventer</i>	C	C		C		C		C	C	C	
White-banded Swallow	<i>Atticora fasciata</i>	C	C		C		C		C	C	C	
Black-collared Swallow	<i>Atticora melanoleuca</i>	C	C		C		C	C			C	
Southern Rough-winged Swallow	<i>Stelgidopteryx ruficollis</i>		U	U			U	U				U
Sand Martin	<i>Riparia riparia</i>						R					
Barn Swallow	<i>Hirundo rustica</i>	U	U				U	U	U			
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>						R					
<i>Troglodytidae</i> (Wrens)												
Coraya Wren	<i>Thryothorus coraya</i>	F	F	F	F		F	F	F	F	F	F
Buff-breasted Wren	<i>Thryothorus leucotis</i>						F					F
White-breasted Wood-Wren	<i>Henicorhina leucosticta</i>	F	F		F	F		F				
Musician Wren	<i>Cyphorhinus arada</i>	F	F		F	F		F	F	F		
Wing-banded Wren	<i>Microcerculus bambla</i>	F	F		F	F		F				
<i>Poliptilidae</i> (Gnatcatchers)												

Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
Long-billed Gnatwren	<i>Ramphocaenus melanurus</i>	U	U	U	U			U	U		U	
Tropical Gnatcatcher	<i>Polioptila plumbea</i>		U				U				U	
Guianan Gnatcatcher	<i>Polioptila guianensis</i>	U	U		U	U		U	U		U	
<i>Corvidae</i> (Jays and crows)												
Cayenne Jay	<i>Cyanocorax cayanus</i>	R										
<i>Turdidae</i> (Thrushes)												
Gray-cheeked Thrush	<i>Catharus minimus</i>	R										
Rufous-brown Solitaire	<i>Cichlopsis leucogenys</i>						R					
White-necked Thrush	<i>Turdus albicollis</i>	F	F	F	F	F		F	F	F	F	F
Cocoa Thrush	<i>Turdus fumigatus</i>	U										
<i>Vireonidae</i> (Vireos)												
Rufous-browed Peppershrike	<i>Cyclarhis gujanensis</i>							R				
Slaty-capped Shirke-Vireo	<i>Vireolanus leucotis</i>	F	F	F	F	F		F	F	F	F	
Red-eyed Vireo	<i>Vireo olivaceus</i>	C	C	C	C		C	C	C	C	C	C
Black-whiskered Vireo	<i>Vireo altiloquus</i>	R	R		R		R					
Tepui Greenlet	<i>Hylophilus sclateri</i>						U					
Lemon-chested Greenlet	<i>Hylophilus thoracicus</i>	F	F	F	F	F		F	F	F	F	
Buff-cheeked Greenlet	<i>Hylophilus muscicapinus</i>	F	F	F	F	F		F	F	F	F	F
Tawny-crowned Greenlet	<i>Hylophilus ochraceiceps</i>	F	F	F	F	F		F	F	F	F	F
<i>Parulidae</i> (Wood Warblers)												
Tropical Parula	<i>Parula pitiaiyumi</i>						U					
Blackpoll Warbler	<i>Dendroica striata</i>											R
Streamside Warbler	<i>Basileuterus rivularis</i>	U	U	U	U	U		U	U	U		
Rose-breasted Chat	<i>Granatellus pelzelni</i>		U		U							
<i>Thraupidae</i> (Tanagers)												
Bananaquit	<i>Coereba flaveola</i>	U	U	U	U	U	U	U	U	U	U	
Blue Dacnis	<i>Dacnis cayana</i>	U	U	U	U	U	U	U	U	U	U	U
Black-faced Dacnis	<i>Dacnis lineata</i>	U	U	U							U	U
Purple Honeycreeper	<i>Cyanerpes caeruleus</i>	F	F	F	F	F	F	F	F	F	F	F
Red-legged Honeycreeper	<i>Cyanerpes cyaneus</i>						U	U			U	U
Short-billed Honeycreeper	<i>Cyanerpes nitidus</i>							R				
Green Honeycreeper	<i>Chlorophanes spiza</i>	C	C	C	C	C	C	C	C	C	C	C
Guira Tanager	<i>Hemithraupis guira</i>	F	F	F		F			F		F	F
Yellow-backed Tanager	<i>Hemithraupis flavicollis</i>	F	F	F	F	F		F	F	F	F	F
Bay-headed Tanager	<i>Tangara gyrola</i>	F	F	F	F	F		F	F	F	F	F
Spotted Tanager	<i>Tangara punctata</i>	F	F	F	F	F		F	F	F	F	F
Yellow-bellied Tanager	<i>Tangara xanthogastra</i>						U					
Turquoise Tanager	<i>Tangara mexicana</i>		F		F		F				F	
Opal-rumped Tanager	<i>Tangara velia</i>	U	U	U				U			U	U
Plumbeous Euphonia	<i>Euphonia plumbea</i>											X
White-vented Euphonia	<i>Euphonia minuta</i>							X				

Families and Common Names	Genus and Species	K	PM	M3	TM	IM	R	M26	BB	BW	KU	M12
Orange-bellied Euphonia	<i>Euphonia xanthogaster</i>						X					
Golden-sided Euphonia	<i>Euphonia cayennensis</i>	F	F	F	F	F	F	F	F	F	F	F
White-lored Euphonia	<i>Euphonia chrysopasta</i>	F	F	F	F	F	F	F	F	F	F	
Violaceous Euphonia	<i>Euphonia violacea</i>		F		F						F	
Blue-naped Chlorophonia	<i>Chlorophonia cyanea</i>						U					
Swallow Tanager	<i>Tersina viridis</i>											X
Blue-gray Tanager	<i>Thraupis episcopus</i>		U				U	U				U
Palm Tanager	<i>Thraupis palmarum</i>		U				U	U				U
Silver-beaked Tanager	<i>Ramphocelus carbo</i>	U		F			F	F			F	F
Fulvous Shrike-Tanager	<i>Lanio fulvus</i>	U	U	U	U	U		U	U		U	
Blue-backed Tanager	<i>Cyanicterus cyanicterus</i>	U	U	U	U	U		U	U	U	U	U
White-shouldered Tanager	<i>Tachyphonus luctuosus</i>											X
Flame-crested Tanager	<i>Tachyphonus cristatus</i>	U	U		U	U		U		U		
Fulvous-crested Tanager	<i>Tachyphonus surinamus</i>	F	F	F	F	F		F	F	F	F	F
Red-shouldered Tanager	<i>Tachyphonus phoeniceus</i>							C				
White-lined Tanager	<i>Tachyphonus rufus</i>											X
Magpie Tanager	<i>Cissopis leveriana</i>						X					
<i>Icteridae (American Blackbirds)</i>												
Giant Cowbird	<i>Scaphidura oryzivora</i>					R		R				R
Orange-backed Troupial	<i>Icterus croconotus</i>							X				
Moriche Oriole	<i>Icterus chryscephalus</i>							U				U
Epaulet Oriole	<i>Icterus cayanensis</i>							U				U
Red-rumped Cacique	<i>Cacicus haemorrhous</i>	U			U		U	U		U	U	
Yellow-rumped Caicique	<i>Cacicus cela</i>	U	U		U		U		U	U	U	
Crested Oropendola	<i>Psarocolius decumanus</i>	F	F	F	F	F	F	F	F	F	F	F
Green Oropendola	<i>Psarocolius viridis</i>	C	C	C	C	C	C	C	C	C	C	C
<i>Cardinalidae (Saltators, grosbeaks)</i>												
Red-and-black Grosbeak	<i>Periporphyrus erythromelas</i>	U	U	U	U	U		U				U
Buff-throated Saltator	<i>Saltator maximus</i>					R						R
Slate-colored Grosbeak	<i>Saltator grossus</i>	U	U	U	U	U		U	U	U	U	U
Yellow-green Grosbeak	<i>Caryothraustes canadensis</i>	F	F	F	F	F		F	F	F	F	F
Red-capped Cardinal	<i>Paroaria gularis</i>	F	F		F		F		F	F	F	F
Blue-black Grosbeak	<i>Cyanocompsa cyanooides</i>	U	F	U	U	U		U	U	U	U	U
<i>Emberizidae (Emberizine Finches)</i>												
Blue-black Grassquit	<i>Volatinia jacarina</i>											R
Lined Seedeater	<i>Sporophila lineola</i>	F		F			F	F				F
Lesser Seed-Finch	<i>Oryzoborus angolensis</i>			U			U					
Pectoral Sparrow	<i>Arremon taciturnus</i>	R	R		R	R			R			
	<i>Total Species</i>	273	269	207	258	202	194	246	216	212	265	146

**COMPLETE LIST OF BIRDS ENCOUNTERED IN THE IWOKRAMA FOREST**

**Tinamidae (Tinamous)**

Great Tinamou *Tinamus major*  
Cinereous Tinamou *Crypturellus cinereus*  
Little Tinamou *Crypturellus soui*  
Variegated Tinamou *Crypturellus variegatus*  
Red-legged Tinamou *Crypturellus erythropus*

**Phalacrocoracidae (Cormorants)**

Neotropic Cormorant *Phalacrocorax brasilianus*

**Anhingidae (Darters)**

Anhinga *Anhinga anhinga*

**Anatidae (Ducks and geese)**

Blue-winged Teal *Anas discors*  
Muscovy Duck *Cairina moschata*

**Ardeidae (Hérons, bitterns, egrets)**

Cocoi Heron *Ardea cocoi*  
Great Egret *Ardea alba*  
Capped Heron *Pilherodius pileatus*  
Striated Heron *Butorides striatus*  
Little Blue Heron *Egretta caerulea*  
Snowy Egret *Egretta thula*  
Tricolored Heron, *Egretta tricolor*  
Cattle Egret *Bubulcus ibis*  
Agami Heron *Agamia agami*  
Black-crowned Night-Heron *Nycticorax nycticorax*  
Boat-billed Heron *Cochlearius cochlearius*  
Rufescent Tiger-Heron *Tigrisoma lineatum*  
Zigzag Heron *Zebrilus undulatus*

**Threskiornithidae (Ibises, spoonbills)**

Green Ibis *Mesembrinibis cayennensis*

**Ciconiidae (Storks)**

Wood Stork *Mycteria americana*  
Jabiru *Jabiru mycteria*

**Cathartidae (New World Vultures)**

King Vulture *Sarcoramphus papa*  
Black Vulture *Coragyps atratus*



Turkey Vulture *Cathartes aura*  
Lesser Yellow-headed Vulture *Cathartes burrovianus*  
Greater Yellow-headed Vulture *Cathartes melambrotus*

**Accipitridae (Kites, hawks, eagles)**

Osprey *Pandion haliaetus*  
Gray-headed Kite *Leptodon cayanensis*  
Swallow-tailed Kite *Elanoides forficatus*  
Pearl Kite *Gampsonyx swainsonii*  
Hook-billed Kite *Chondrohierax uncinatus*  
Snail Kite *Rostrhamus sociabilis*  
Slender-billed Kite *Rostrhamus hamatus*  
Double-toothed Kite *Harpagus bidentatus*  
Plumbeous Kite *Ictinia plumbea*  
Tiny Hawk *Accipiter superciliosus*  
Crane Hawk *Geranospiza caerulescens*  
Gray Hawk *Buteo nitida*  
Roadside Hawk *Buteo magnirostris*  
Broad-winged Hawk *Buteo platypterus*  
Short-tailed Hawk *Buteo brachyurus*  
White-tailed Hawk *Buteo albicaudatus*  
Zone-tailed Hawk *Buteo albonotatus*  
Gray Hawk *Buteo nitida*  
White Hawk *Leucopternis albicollis*  
Black-faced Hawk *Leucopternis melanops*  
Savanna Hawk *Buteogallus meridionalis*  
Great Black-Hawk *Buteogallus urubitinga*  
Black-collared Hawk *Busarellus nigricollis*  
Crested Eagle *Morphnus guianensis*  
Harpy Eagle *Harpia harpyja*  
Black-and-white Hawk-Eagle *Spizastur melanoleucus*  
Ornate Hawk-Eagle *Spizaetus ornatus*  
Black Hawk-Eagle *Spizaetus tyrannus*

**Falconidae (Falcons, caracaras)**

Laughing Falcon *Herpetotheres cachinnans*  
Barred Forest-Falcon *Micrastur ruficollis*  
Lined Forest-Falcon *Micrastur gilvicollis*  
Slaty-backed Forest-Falcon *Micrastur mirandollei*  
Collared Forest-Falcon *Micrastur semitorquatus*  
Crested Caracara *Caracara plancus*  
Yellow-headed Caracara *Milvago chimachima*  
Black Caracara *Daptrius ater*  
Red-throated Caracara *Ibycter americanus*  
Bat Falcon *Falco rufigularis*  
Orange-breasted Falcon *Falco deiroleucus*

**Cracidae (Curassows, guans, chachalacas)**

Little Chachalaca *Ortalis motmot*

Spix's Guan *Penelope jacquacu*

Marail Guan *Penelope marail*

Common Piping-Guan *Pipile pipile*

Crestless Curassow *Mitu tomentosa*

Black Curassow *Crax alector*

**Odontophoridae (New World Quail)**

Marbled Wood-Quail *Odontophorus gujanensis*

**Rallidae (Rails, coots)**

Russet-crowned Crake *Laterallus castanciceps*

Gray-necked Wood-Rail *Aramides cajanea*

**Heliornithidae (Sungrebe)**

Sungrebe *Heliornis fulica*

**Eurypygidae (Sunbittern)**

Sunbittern *Eurypyga helias*

**Aramidae (Limpkins)**

Limpkin *Aramus guarauna*

**Psophiidae (Trumpeters)**

Gray-winged Trumpeter *Psophia crepitans*

**Jacanidae (Jacanas)**

Wattled Jacana *Jacana jacana*

**Scolopacidae (Snipes, sandpipers)**

South American Snipe *Gallinago paraguaiiae*

Solitary Sandpiper *Tringa solitaria*

Spotted Sandpiper *Actitis macularia*

White-rumped Sandpiper *Calidris fuscicollis*

**Charadriidae (Plovers, lapwings)**

Pied Plover *Hoploxypterus cayanus*

Collared Plover *Charadrius collaris*

Southern Lapwing *Vanellus chilensis*

**Laridae (Gulls, terns)**

Large-billed Tern *Phaetusa simplex*

Yellow-billed Tern *Sterna supercilirais*

**Rynchopidae (Skimmers)**

Black Skimmer *Rynchops nigra*

**Columbidae (Pigeons, doves)**

Scaled Pigeon *Columba speciosa*

Pale-vented Pigeon *Columba cayennensis*

Ruddy Pigeon *Columba subvinacea*

Plumbeous Pigeon *Columba plumbea*

Scaly Ground-Dove *Columbina passerina*

Ruddy Ground-Dove *Columbina talpacoti*

Blue Ground-Dove *Claravis pretiosa*

Gray-fronted Dove *Leptotilla rufaxilla*

White-tipped Dove *Leptotilla verreauxi*

Ruddy Quail-Dove *Geotrygon montana*

Violaceous Quail-Dove *Geotrygon violacea*

**Psittacidae (Parrots, macaws)**

Blue-and-yellow Macaw *Ara ararauna*

Scarlet Macaw *Ara macao*

Red-and-green Macaw *Ara chloroptera*

Red-bellied Macaw *Orthopsittaca manilata*

Red-shouldered Macaw *Diopsittaca nobilis*

Brown-throated Parakeet *Aratinga pertinax*

Painted Parakeet *Pyrrhura picta*

Golden-winged Parakeet *Brotogeris chrysopterus*

Tepui Parrotlet *Nannopsittaca panychlora*

Lilac-tailed Parrotlet *Touit batavica*

Sapphire-rumped Parrotlet *Touit purpurata*

Scarlet-shouldered Parrotlet *Touit huetii*

Black-headed Parrot *Pionites melanocephala*

Caica Parrot *Pionopsitta caica*

Blue-headed Parrot *Pionus menstruus*

Dusky Parrot *Pionus fuscus*

Blue-cheeked Amazon *Amazona dufresniana*

Orange-winged Amazon *Amazona amazonica*

Mealy Amazon *Amazona farinosa*

Red-fan Parrot *Deroptyus accipitrinus*

**Cuculidae (Cuckoos, anis)**

Dark-billed Cuckoo *Coccyzus melacoryphus*

Pearly-breasted Cuckoo *Coccyzus euleri*

Squirrel Cuckoo *Piaya cayana*

Black-bellied Cuckoo *Piaya melanogaster*

Greater Ani *Crotophaga major*

Smooth-billed Ani *Crotophaga ani*

Pavonine Cuckoo *Dromococcyx pavoninus*

Rufous-winged Ground-Cuckoo *Neomorphus rufipennis*

**Strigidae (Owls)**

Tropical Screech-Owl *Otus choliba*  
Sharpe's Screech-Owl *Otus guatemalae*  
Tawny-bellied Screech-Owl *Otus watsonii*  
Crested Owl *Lophotrix cristata*  
Spectacled Owl *Pulsatrix perspicillata*  
Ferruginous Pygmy-Owl *Glaucidium brasilianum*  
Amazonian Pygmy-Owl *Glaucidium hardyi*  
Mottled Owl *Strix virgata*  
Black-banded Owl *Strix huhula*  
Striped Owl *Pseudoscops clamator*

**Steatornithidae (Oilbird)**

Oilbird *Steatornis caripensis*

**Nyctibiidae (Potoos)**

Great Potoo *Nyctibius grandis*  
Long-tailed Potoo *Nyctibius aethereus*  
Common Potoo *Nyctibius griseus*  
White-winged Potoo *Nyctibius leucopterus*  
Rufous Potoo *Nyctibius bracteatus*

**Caprimulgidae (Nightjars)**

Short-tailed Nighthawk *Lurocalis semitorquatus*  
Least Nighthawk *Chordeiles pusillus*  
Lesser Nighthawk *Chordeiles acutipennis*  
Nacunda Nighthawk *Podager nacunda*  
Pauraque *Nyctidromus albicollis*  
White-tailed Nightjar *Caprimulgus cayennensis*  
Blackish Nightjar *Caprimulgus nigrescens*  
Ladder-tailed Nightjar *Hydropsalis climacocerca*

**Apodidae (Swifts)**

White-collared Swift *Streptoprocne zonaris*  
Chapman's Swift *Chaetura chapmani*  
Band-rumped Swift *Chaetura spinicauda*  
Short-tailed Swift *Chaetura brachyura*  
Neotropical Palm-Swift *Tachornis squamata*  
Lesser Swallow-tailed Swift *Panyptila cayennensis*

**Trochilidae (Hummingbirds)**

Rufous-breasted Hermit *Glaucis hirsuta*  
Pale-tailed Barbthroat *Threnetes leucurus*  
Long-tailed Hermit *Phaethornis superciliosus*

Straight-billed Hermit *Phaethornis bourcieri*  
Sooty-capped Hermit *Phaethornis augusti*  
Reddish Hermit *Phaethornis ruber*  
Gray-breasted Sabrewing *Campylopterus largipennis*  
White-necked Jacobiin *Florisuga mellivora*  
Brown Violetear *Colibri delphinae*  
Black-throated Mango *Anthracothorax nigricollis*  
Fiery-tailed Awlbill *Avocettula recurvirostris*  
Tufted Coquette *Lophornis ornatus*  
Racket-tailed Coquette *Discosura longicauda*  
Blue-chinned Sapphire *Chlorestes notatus*  
Blue-tailed Emerald *Chlorostilbon mellisugus*  
Fork-tailed Woodnymph *Thalurania furcata*  
Rufous-throated Sapphire *Hylocharis sapphirina*  
White-chinned Sapphire *Hylocharis cyanus*  
Green-tailed Goldenthrroat *Polytmus theresiae*  
Glittering-throated Amazilia *Amazilia fimbriata*  
White-chested Amazilia *Amazilia chionopectus*  
Crimson Topaz *Topaza pella*  
Black-eared Fairy *Heliathryx aurita*  
Long-billed Starthroat *Heliomaster longirostris*

#### **Trogonidae (Trogons, quetzals)**

Black-tailed Trogon *Trogon melanurus*  
Amazonian White-tailed Trogon *Trogon viridis*  
Collared Trogon *Trogon collaris*  
Black-throated Trogon *Trogon rufus*  
Amazonian Violaceous Trogon *Trogon violaceus*

#### **Alcedinidae (Kingfishers)**

Ringed Kingfisher *Megaceryle torquata*  
Amazon Kingfisher *Chloroceryle amazona*  
Green Kingfisher *Chloroceryle americana*  
Green-and-rufous Kingfisher *Chloroceryle inda*  
American Pygmy Kingfisher *Chloroceryle aenea*

#### **Momotidae (Motmots)**

Blue-crowned Motmot *Momotus momota*

#### **Galbulidae (Jacamars)**

Green-tailed Jacamar *Galbula galbula*  
Bronzy Jacamar *Galbula leucogastra*  
Paradise Jacamar *Galbula dea*  
Yellow-billed Jacamar *Galbula albirostris*  
Great Jacamar *Jacamerops aurea*

**Bucconidae (Puffbirds)**

White-necked Puffbird *Notharchus macrorhynchos*  
Pied Puffbird *Notharchus tectus*  
Spotted Puffbird *Bucco tamatia*  
Collared Puffbird *Bucco capensis*  
Black Nunbird *Monasa atra*  
Swallow-winged Puffbird *Chelidoptera tenebrosa*

**Capitonidae (New World barbets)**

Black-spotted Barbet *Capito niger*

**Ramphastidae (Toucans)**

Chestnut-tipped Toucanet *Aulacorhynchus derbianus*  
Black-necked Araçari *Pteroglossus aracari*  
Green Araçari *Pteroglossus viridis*  
Guianan Toucanet *Selenidera culik*  
White-throated Toucan *Ramphastos tucanus*  
Channel-billed Toucan *Ramphastos vitellinus*

**Woodpeckers, piculets**

Golden-spangled Piculet *Picumnus exilis*  
Golden-olive Woodpecker *Piculus rubiginosus*  
Yellow-throated Woodpecker *Piculus flavigula*  
Chestnut Woodpecker *Celeus elegans*  
Waved Woodpecker *Celeus undatus*  
Cream-colored Woodpecker *Celeus flavus*  
Ringed Woodpecker *Celeus torquatus*  
Lineated Woodpecker *Dryocopus lineatus*  
Yellow-tufted Woodpecker *Melanerpes cruentatus*  
Golden-collared Woodpecker *Veniliornis cassini*  
Crimson-crested Woodpecker *Phloeoceastes melanoleucos*  
Red-necked Woodpecker *Phloeoceastes rubricollis*

**Dendrocolaptidae (Woodcreepers)**

Plain-brown Woodcreeper *Dendrocincla fuliginosa*  
White-chinned Woodcreeper *Dendrocincla merula*  
Wedge-billed Woodcreeper *Glyphorhynchus spirurus*  
Long-tailed Woodcreeper *Deconychura longicauda*  
Olivaceous Woodcreeper *Sittasomus griseicapillus*  
Cinnamon-throated Woodcreeper *Dendrexetastes rufigula*  
Red-billed Woodcreeper *Hylexetastes perrottii*  
Strong-billed Woodcreeper *Xiphocolaptes promeropirhynchus*  
Amazonian Barred-Woodcreeper *Dendrocolaptes certhia*

Black-banded Woodcreeper *Dendrocolaptes picumnus*  
Straight-billed Woodcreeper *Xiphorhynchus picus*  
Striped Woodcreeper *Xiphorhynchus obsoletus*  
Buff-throated Woodcreeper *Xiphorhynchus guttatus*  
Chestnut-rumped Woodcreeper *Xiphorhynchus pardalotus*  
Lineated Woodcreeper *Lepidocolaptes albolineatus*  
Curve-billed Scythebill *Campylorhamphus procurvoides*

#### **Furnariidae (Ovenbirds)**

Point-tailed Palmcreeper *Berlepschia rikeri*  
Rufous-rumped Foliage-Gleaner *Philydor erythrocerus*  
Rufous-tailed Foliage-Gleaner *Philydor ruficaudatus*  
Cinnamon-rumped Foliage-Gleaner *Philydor pyrrhodes*  
Buff-throated Foliage-Gleaner *Automolus ochrolaemus*  
Olive-backed Foliage-Gleaner *Automolus infuscatus*  
Chestnut-crowned Foliage-Gleaner *Automolus rufipileatus*  
Slender-billed Xenops *Xenops tenuirostris*  
Plain Xenops *Xenops minutus*  
Tawny-throated Leaf-tosser *Sclerurus mexicanus*  
Short-billed Leaf-tosser *Sclerurus ruficularis*  
Black-tailed Leaf-tosser *Sclerurus caudacutus*

#### **Thamnophilidae (Typical Antbirds)**

Fasciated Antshrike *Cymbilaimus lineatus*  
Black-throated Antshrike *Frederickena viridis*  
Great Antshrike *Taraba major*  
Black-crested Antshrike *Sakesphorus canadensis*  
Mouse-coloured Antshrike *Thamnophilus murinus*  
Guianan Slaty-Antshrike *Thamnophilus punctatus*  
Amazonian Antshrike *Thamnophilus amazonicus*  
Dusky-throated Antshrike *Thamnomanes ardesiacus*  
Cinereous Antshrike *Thamnomanes caesius*  
Pygmy Antwren *Myrmotherula brachyura*  
Guianan Streaked-Antwren *Myrmotherula surinamensis*  
Rufous-bellied Antwren *Myrmotherula guttata*  
Brown-bellied Antwren *Myrmotherula gutturalis*  
White-flanked Antwren *Myrmotherula axillaris*  
Long-winged Antwren *Myrmotherula longipennis*  
Gray Antwren *Myrmotherula menetriesii*  
Spot-tailed Antwren *Herpsilochmus sticturus*  
Todd's Antwren *Herpsilochmus stictocephalus*  
Roraiman Antwren *Herpsilochmus roraimae*  
White-fringed Antwren *Formicivora grisea*  
Ash-winged Antwren *Terenura spodioptila*  
Gray Antbird *Cercomacra cinerascens*  
Dusky Antbird *Cercomacra tyrannina*

Warbling Antbird *Hypocnemis cantator*  
White-browed Antbird *Myrmoborus leucophrys*  
Black-chinned Antbird *Hypocnemoides melanopogon*  
Spot-winged Antbird *Schistocichla leucostigma*  
Silvered Antbird *Sclateria naevia*  
Ferruginous-backed Antbird *Myrmeciza ferruginea*  
White-bellied Antbird *Myrmeciza longipes*  
Black-throated Antbird *Myrmeciza atrothorax*  
White-plumed Antbird *Pithys albifrons*  
Rufous-throated Antbird *Gymnopithys rufigula*  
Scale-backed Antbird *Hylophylax poecilinota*  
Wing-banded Antbird *Myrmornis torquata*

#### **Ground Antbirds (Formicariidae)**

Black-faced Antthrush *Formicarius analis*  
Rufous-capped Antthrush *Formicarius colma*  
Short-tailed Antthrush *Chamaeza campanisoma*  
Variegated Antpitta *Grallaria varia*  
Thrush-like Antpitta *Myrmothera campanisona*  
Spotted Antpitta *Hylopezus macularius*

#### **Tyrannidae (Tyrant Flycatchers)**

Yellow-bellied Elaenia *Elaenia flavogaster*  
Lesser Elaenia *Elaenia chiriquensis*  
Rufous-crowned Elaenia *Elaenia ruficeps*  
Plain-crested Elaenia *Elaenia cristata*  
Small-billed Elaenia *Elaenia parvirostris*  
Amazonian Scrub-Flycatcher *Sublegatus obscurior*  
Forest Elaenia *Myiopagis gaimardii*  
Gray Elaenia *Myiopagis caniceps*  
Yellow-crowned Elaenia *Myiopagis flavivertex*  
Southern Beardless-Tyrannulet *Camptostoma obsoletum*  
Yellow-crowned Tyrannulet *Tyrannulus elatus*  
White-lored Tyrannulet *Ornithion inerne*  
Slender-footed Tyrannulet *Zimmerius gracilipes*  
Sooty-headed Tyrannulet *Phyllomyias griseiceps*  
Olive-green Tyrannulet *Phylloscartes virescens*  
Ochre-bellied Flycatcher *Mionectes oleagineus*  
MacConnell's Flycatcher *Mionectes macconnelli*  
Short-tailed Pygmy-Tyrant *Myiornis ecaudatus*  
Helmeted Pygmy-Tyrant *Lophotriccus galeatus*  
Slate-headed Tody-Flycatcher *Poecilatriccus sylvia*  
Common Tody-Flycatcher *Todirostrum cincereum*  
Painted Tody-Flycatcher *Todirostrum pictum*  
Ringed Antpiper *Corythopis torquata*  
White-crested Spadebill *Platyrinchus platyrhynchos*



Cinnamon-crested Spadebill *Platyrinchus saturatus*  
Golden-crowned Spadebill *Platyrinchus coronatus*  
Yellow-olive Flatbill *Tolmomyias sulphurescens*  
Gray-crowned Flatbill *Tolmomyias poliocephalus*  
Zimmer's Flatbill *Tolmomyias assimilis*  
Yellow-breasted Flatbill *Tolmomyias flaviventris*  
Olivaceous Flatbill *Rhynchocyclus olivaceus*  
Rufous-tailed Flatbill *Ramphotrigon ruficauda*  
Amazonian Royal-Flycatcher *Onychorhynchus coronatus*  
Whiskered Flycatcher *Myiobius barbatus*  
Ruddy-tailed Flycatcher *Terenotriccus erythrurus*  
Cinnamon Tyrant *Neopipo cinnamomea*  
Fuscou Flycatcher *Cnemotriccus fuscatus*  
Olive-sided Flycatcher *Contopus cooperi*  
Tropical Pewee *Contopus cinereus*  
Long-tailed Tyrant *Colonia colonus*  
Amazonian Black-Tyrant *Knipolegus poecilocercus*  
Pied Water-Tyrant *Fluvicola pica*  
Drab Water-Tyrant *Ochthornis littoralis*  
Bright-rumped Attila *Attila spadiceus*  
Cinnamon Attila *Attila cinnamomeus*  
Grayish Mourner *Rhytipterna simplex*  
Short-crested Flycatcher *Myiarchus ferox*  
Dusky-capped Flycatcher *Myiarchus tuberculifer*  
Boat-billed Flycatcher *Megarynchus pitangua*  
Great Kiskadee *Pitangus sulphuratus*  
Lesser Kiskadee *Philohydor lictor*  
Rusty-margined Flycatcher *Myiozetetes cayanensis*  
Dusky-chested Flycatcher *Myiozetetes luteiventris*  
Sulphury Flycatcher *Tyrannopsis sulphurea*  
Yellow-throated Flycatcher *Conopias parva*  
Streaked Flycatcher *Myiodynastes maculatus*  
Piratic Flycatcher *Legatus leucophaeus*  
Variegated Flycatcher *Empidonomus varius*  
Tropical Kingbird *Tyrannus melancholicus*  
Fork-tailed Flycatcher *Tyrannus savana*  
Xenopsaris *Xenopsaris albinucha*  
White-winged Becard *Pachyramphus polychopterus*  
Black-capped Becard *Pachyramphus marginatus*  
Pink-throated Becard *Pachyramphus minor*  
Black-tailed Tityra *Tityra cayana*  
Black-crowned Tityra *Tityra inquisitor*

### **Pipridae (Manakins)**

Thrush-like Schiffornis *Schiffornis turdinus*  
Tiny Tyrant-Manakin *Tyranneutes virescens*

Saffron-crested Tyrant-Manakin *Neopelma chrysocephalum*  
Wing-barred Piprites *Piprites chloris*  
Black Manakin *Xenopipo atronitens*  
White-bearded Manakin *Manacus manacus*  
White-throated Manakin *Corapipo gutturalis*  
Orange-bellied Manakin *Lepidothrix suavissima*  
White-crowned Manakin *Dixiphia pipra*  
Golden-headed Manakin *Pipra erythrocephala*

### **Cotingidae (Cotingas)**

Sharpbill *Oxyruncus cristatus*  
Dusky Purpletuft *Iodopleura fusca*  
Purple-breasted Cotinga *Cotinga cotinga*  
Spangled Cotinga *Cotinga cayana*  
Pompadour Cotinga *Xipholena punicea*  
Cinereous Mourner *Laniocera hypopyrra*  
Screaming Piha *Lipaugus vociferans*  
White Bellbird *Procnias alba*  
Crimson Fruitcrow *Haematoderus militaris*  
Purple-throated Fruitcrow *Querula purpurata*  
Capuchinbird *Perissocephalus tricolor*  
Guianan Red-Cotinga *Phoenicircus carnifex*  
Guianan Cock-of-the-Rock *Rupicola rupicola*

### **Hirundinidae (Swallows)**

Brown-chested Martin *Progne tapera*  
Gray-breasted Martin *Progne chalybea*  
White-winged Swallow *Tachycineta albiventer*  
White-banded Swallow *Atticora fasciata*  
Black-collared Swallow *Atticora melanoleuca*  
Southern Rough-winged Swallow *Stelgidopteryx ruficollis*  
Sand Martin *Riparia riparia*  
Barn Swallow *Hirundo rustica*  
Cliff Swallow *Petrochelidon pyrrhonota*

### **Troglodytidae (Wrens)**

Coraya Wren *Thryothorus coraya*  
Buff-breasted Wren *Thryothorus leucotis*  
House Wren *Troglodytes aedon*  
White-breasted Wood-Wren *Henicorhina leucosticta*  
Musician Wren *Cyphorhinus arada*  
Wing-banded Wren *Microcerculus bambla*

### **Poliptilidae (Gnatcatchers)**

Long-billed Gnatwren *Ramphocaenus melanurus*  
Tropical Gnatcatcher *Poliptila plumbea*

Guianan Gnatcatcher *Polioptila guianensis*

**Corvidae (Jays and crows)**

Cayenne Jay *Cyanocorax cayanus*

**Turdidae (Thrushes)**

Gray-cheeked Thrush *Catharus minimus*

Rufous-brown Solitaire *Cichlopsis leucogenys*

Pale-breasted Thrush *Turdus leucomelas*

White-necked Thrush *Turdus albicollis*

Black-billed Thrush *Turdus ignobilis*

Cocoa Thrush *Turdus fumigatus*

**Vireonidae (Vireos)**

Rufous-browed Peppershrike *Cyclarhis gujanensis*

Slaty-capped Shrike-Vireo *Vireolanius leucotis*

Red-eyed Vireo *Vireo olivaceus*

Black-whiskered Vireo *Vireo altiloquus*

Tepui Greenlet *Hylophilus sclateri*

Lemon-chested Greenlet *Hylophilus thoracicus*

Buff-cheeked Greenlet *Hylophilus muscicapinus*

Tawny-crowned Greenlet *Hylophilus ochraceiceps*

**Parulidae (Wood Warblers)**

Tropical Parula *Parula pitiayumi*

Yellow Warbler *Dendroica aestiva*

Blackpoll Warbler *Dendroica striata*

Streamside Warbler *Basileuterus rivularis*

Rose-breasted Chat *Granatellus pelzelni*

**Thraupidae (Tanagers)**

Bananaquit *Coereba flaveola*

Blue Dacnis *Dacnis cayana*

Black-faced Dacnis *Dacnis lineata*

Purple Honeycreeper *Cyanerpes caeruleus*

Red-legged Honeycreeper *Cyanerpes cyaneus*

Short-billed Honeycreeper *Cyanerpes nitidus*

Green Honeycreeper *Chlorophanes spiza*

Guira Tanager *Hemithraupis guira*

Yellow-backed Tanager *Hemithraupis flavicollis*

Bay-headed Tanager *Tangara gyrola*

Spotted Tanager *Tangara punctata*

Dotted Tanager *Tangara varia*

Yellow-bellied Tanager *Tangara xanthogastra*

Turquoise Tanager *Tangara mexicana*

Opal-rumped Tanager *Tangara velia*

Plumbeous Euphonia *Euphonia plumbea*  
White-vented Euphonia *Euphonia minuta*  
Finsch's Euphonia *Euphonia finschi*  
Orange-bellied Euphonia *Euphonia xanthogaster*  
Golden-sided Euphonia *Euphonia cayennensis*  
White-lored Euphonia *Euphonia chrysopasta*  
Violaceous Euphonia *Euphonia violacea*  
Blue-naped Chlorophonia *Chlorophonia cyanea*  
Swallow Tanager *Tersina viridis*  
Blue-gray Tanager *Thraupis episcopus*  
Palm Tanager *Thraupis palmarum*  
Hepatic Tanager *Piranga flava*  
Silver-beaked Tanager *Ramphocelus carbo*  
Fulvous Shrike-Tanager *Lanio fulvus*  
Blue-backed Tanager *Cyanicterus cyanicterus*  
White-shouldered Tanager *Tachyphonus luctuosus*  
Flame-crested Tanager *Tachyphonus cristatus*  
Fulvous-crested Tanager *Tachyphonus surinamus*  
Red-shouldered Tanager *Tachyphonus phoeniceus*  
White-lined Tanager *Tachyphonus rufus*  
Magpie Tanager *Cissopis leveriana*

#### **Icteridae (American Blackbirds)**

Giant Cowbird *Scaphidura oryzivora*  
Orange-backed Troupial *Icterus croconotus*  
Moriche Oriole *Icterus chryscephalus*  
Epaulet Oriole *Icterus cayanensis*  
Red-rumped Cacique *Cacicus haemorrhous*  
Yellow-rumped Caicique *Cacicus cela*  
Crested Oropendola *Psarocolius decumanus*  
Green Oropendola *Psarocolius viridis*

#### **Cardinalidae (Saltators, grosbeaks)**

Buff-throated Saltator *Saltator maximus*  
Grayish Saltator *Saltator coerulescens*  
Slate-colored Grosbeak *Saltator grossus*  
Red-capped Cardinal *Paroaria gularis*  
Yellow-green Grosbeak *Caryothraustes canadensis*  
Red-and-black Grosbeak *Periporphyrus erythromelas*  
Blue-black Grosbeak *Cyanocompsa cyanoides*

#### **Emberizidae (Emberizine Finches)**

Grassland Sparrow *Ammodramus humeralis*  
Wedge-tailed Grass-Finch *Emberizoides herbicola*  
Blue-black Grassquit *Volatinia jacarina*  
Gray Seedeater *Sporophila intermedia*

Lined Seedeater *Sporophila lineola*  
Lesser Seed-Finch *Oryzoborus angolensis*  
Pectoral Sparrow *Arremon taciturnus*