



## **Birds of the Konashen COCA, Southern Guyana**

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Source: A Rapid Biological Assessment of the Konashen Community Owned Conservation Area, Southern Guyana: 63

Published By: Conservation International

URL: <https://doi.org/10.1896/054.051.0112>

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## Chapter 7

### Birds of the Konashen COCA, Southern Guyana

Brian J. O'Shea

#### SUMMARY

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Avifaunal surveys were conducted around two sites in the Konashen Community Owned Conservation Area (COCA) between 6 and 28 October 2006. The purpose of the surveys was to obtain a baseline estimate of the avian species richness of the area, and to provide information on the population status of several bird species important to the indigenous people inhabiting the region. Birds were surveyed on foot and by boat during all daylight hours of the study period. Cassette recorders and directional microphones were used to document the avifauna; several species were also documented with a video camera. Species richness was high at both sites; a combined total of 319 species was tallied over the study period. Documentation was obtained for the majority of species encountered. The avifauna was largely composed of species that would be expected to occur in a Guianan lowland forest, and included 27 species that are endemic to the Guayana Shield. There was a high degree of habitat heterogeneity within each site. Six distinct habitats were identified, only two of which were shared between the two study sites. As a result, the avian diversity was higher than expected for the size of the area surveyed. It is probable that at least 400 bird species, or more than half of the number known to occur in Guyana, may be found in the Konashen COCA.

The survey recorded Large-headed Flatbill (*Ramphotrigon megacephalum*), a new record for Guyana and a range extension of approximately 900 km. Populations of parrots, guans, and curassows, all of which are important to the Wai-Wai inhabitants of the region and are of global conservation concern, seemed healthy. Fourteen species of parrots were observed, including Scarlet Macaw (*Ara macao*), a CITES Appendix 1 species, and Blue-cheeked Parrot (*Amazona dufresniana*), listed as Near Threatened (IUCN 2006). Some of the larger parrot species are hunted by local people, but the effects of this hunting appear to be negligible. There was no evidence that parrots in the area are subjected to the intense trapping pressure that exists in more accessible regions of the Guayana Shield. This impression was corroborated through interviews with the Wai-Wai. Spix's Guan (*Penelope jacquacu*) and Black Curassow (*Crax alector*) were common at both survey sites, suggesting that their regional populations are not threatened by current levels of hunting pressure from the local community.

The remarkable avian diversity of the Konashen COCA does not seem to be faced with any immediate threats. The vast majority of bird species in the area are also found in the surrounding region and beyond, and their global populations are not threatened. Parrots and large game birds, though not currently threatened at a regional level, are of global conservation concern. Care should be taken to forestall local declines in their populations. Monitoring is not recommended at the present time, since these species are not amenable to standardized survey methods. Instead, the Wai-Wai community should continue to avoid trapping parrots for the pet trade, and should deny trappers entry to the Konashen COCA. Rather than monitor populations of large game birds, the community should establish a rotation system to distribute the effects of subsistence hunting over as large an area as possible. This should involve the closing of most of the Konashen COCA to hunting at any given time. Finally, the Wai-Wai should aggressively exclude illegal Brazilian miners from their territory, and (if necessary) seek assistance from the government of Guyana to maintain sovereignty over their land.

## INTRODUCTION

Bird communities are generally reflective of environmental conditions. In lowland tropical forest, many of the larger species are important seed dispersers and predators, and thus have a substantial effect on forest dynamics. They are also important food sources for other animals and people. Healthy populations of these larger species are indicative of a relatively intact, undisturbed ecosystem. Since many of these species are conspicuous when they are common, it is comparatively easy to assess their population status, even within the constraints of a rapid inventory. For the purposes of such inventories, birds are excellent indicators – they are primarily diurnal and can therefore be surveyed easily, they are generally easy to detect and identify, and the richness of bird communities tends to correlate positively with other measures of biodiversity.

In contrast to many other taxonomic groups, the avifauna of Guyana is well known (Braun et al. 2000). Numerous inventories have been conducted at multiple sites in the country, and a picture of avian distributions across Guyana is beginning to emerge as the results of those studies are published (e.g., Braun et al. 2003; Finch et al. 2002; Robbins et al. 2004, 2007; Ridgely et al. 2005; O'Shea et al. 2007). Most of the interior of Guyana is still covered by unbroken tropical moist forest and is sparsely populated. Accordingly, the avifauna is rich in species, and previous surveys have found that many sites support healthy populations of species that are of global conservation concern, such as large raptors, cracids, and parrots.

Although current levels of human pressure on Guyana's natural wealth are rather low, the need to identify areas of exceptional biodiversity within the country becomes ever more urgent as Guyana's infrastructure develops. Few formally protected areas currently exist in the country. Previous survey work in the Kanuku Mountains (Parker et al. 1993, Finch et al. 2002) has led to recommendations for protected status in that area, but protective measures have yet to be implemented. The Konashen COCA is one of the most remote regions of Guyana; adjoining areas of Brazil are similarly isolated from the infrastructure of that country, ensuring that the Konashen COCA faces no immediate threats. However, the ongoing construction of a highway across northern Brazil poses a potential threat to the Konashen COCA in the near future. Illegal miners from Brazil are a persistent presence throughout the interior regions of the Guianas, a situation that can be expected to worsen as the highway advances. Documentation of the biodiversity of the Konashen COCA is thus a timely endeavor.

The avifauna of the Acarai Mountains was surveyed in 1999-2000 by researchers from the Smithsonian Institution and University of Kansas (Robbins et al. 2007). Naka et al. (2006), in an exhaustive account of the avifauna of Roraima, Brazil, mentioned several survey localities that are quite close to the Konashen COCA, but their paper does not treat the avifauna of those localities in detail.

We surveyed the avifauna at two localities within the

Konashen COCA between 6 and 28 October 2006:

Site 1. Acarai Mountains N 01° 23' 12.5" W 058° 56' 46.0" elevation 250 m, 6-10 and 15-18 October. This locality includes the satellite camp, New Romeo's Camp (N 01° 21' 19.0" W 058° 57' 25.5" elevation 526 m), surveyed between 11-15 October.

Site 2. Kamoia River N 01° 31' 51.8" W 058° 49' 42.4" elevation 240 m, 19-28 October.

Birds were surveyed by boat and on foot during all daylight hours of the study period. Throughout the study period, we attempted to identify and survey as many different habitats as possible, devoting equal effort to each habitat type as logistics allowed. Our survey coincided with the long dry season, but rainfall was nevertheless substantial, particularly during the first half of the study period.

A complete list of the birds encountered in the Konashen COCA appears in Appendix 3.

## METHODS

At all sites, birds were observed during all daylight hours. Observation methods consisted of walking along trails to locate and identify birds. Coverage of the trail system at each site was intended to maximize observation time in each habitat type. Typically, one observer (BJO) would leave camp 30-60 minutes before first light, to be joined by Wai-Wai parabiologists 2-3 hours later. Morning excursions typically lasted until 10:00 – 11:00, by which time bird activity had decreased considerably. The field team also surveyed areas near the camps on most afternoons between approx. 15:30 and 18:00. Birds were observed opportunistically at all other times of the day.

At the Kamoia site, birds were also surveyed by boat on four mornings by floating down the river at dawn with the boat motor turned off.

Birds were documented using a Sony TCM-5000EV cassette recorder with a Sennheiser ME-66 shotgun microphone and a Sony TC-D5 Pro-II stereo cassette recorder with a Sennheiser ME-62 omni-directional microphone and Telinga parabolic reflector. Due to the pronounced decrease in bird vocal activity after mid-morning, the majority of recordings were made between one hour before and three hours after sunrise on each day. Tape recordings are deposited at the Macaulay Library, Cornell Lab of Ornithology.

At the Kamoia site, several species were recorded opportunistically with a Sony ZR-500 Mini-DV video cassette recorder.

For each site, approximate numbers of each species were recorded on a daily basis, and relative abundances were determined from these data, as follow:

A: abundant; observed every day; always 20 or more individuals, pairs, or groups encountered daily in appropriate habitat

C: common; observed on at least 90% of days at each site; minimum of 5 individuals, pairs, or groups encountered daily in appropriate habitat

F: fairly common; observed on at least 50% of days at each site; average 1-5 individuals, pairs, or groups encountered daily in appropriate habitat

U: uncommon; observed on fewer than 50% of days at each site; average fewer than one individual, pair, or group encountered daily in appropriate habitat.

For the majority of species that were encountered at both sites, abundances between sites did not vary significantly; therefore, data from the two sites was pooled for the final species list. This list (Appendix 3) also includes information on habitat associations and elevation restrictions for each species. Species that were only observed during travel between survey sites were included in the list as well, but relative abundances were not calculated for these species.

## RESULTS

We encountered a total of 319 species during the survey: 250 species were found at the Acarai site, and 232 species at Kamoia. This remarkable diversity was likely related to the high degree of habitat heterogeneity in the Konashen COCA – six distinct habitats were identified, only two of which were shared between the two survey sites. As a result, the avifauna of the two sites, while overlapping broadly, nevertheless contained distinct elements. Seventy-two species were observed only at the Acarai site, and 55 species only at the Kamoia site; the vast majority of such “unique” species were restricted to habitats that were only found at their respective sites (see Appendix 3). Overall, the avian species richness of the Konashen COCA is high. It is certain that well over 400 species, or more than half of the species known to occur in Guyana, occur in the area.

The avifauna of the Konashen COCA yielded few surprises, and consisted of a typical Amazonian/Guianan lowland tropical moist forest assemblage. The majority of species were relatively rare (fewer than five individuals, pairs, or groups encountered daily), a typical abundance pattern in undisturbed regions of lowland forest. At elevations above approx. 800 m at the Acarai site, we encountered a suite of species with highland affinities, such as *Megascops guatemalae* (Vermiculated Screech-Owl), *Aeronautes montivagus* (White-tipped Swift), *Colibri delphinae* (Brown Violet-ear), *Aulacorhynchus derbianus* (Chestnut-tipped Toucanet), and *Hylophilus sclateri* (Tepui Greenlet). We also found several more widespread species that were here restricted to forest above 800 m, such as *Dysithamnus mentalis* (Plain Antwren), *Herpsilochmus rufomarginatus* (Rufous-winged Antwren), *Cyclarhis gujanensis* (Rufous-browed Peppershrike), and *Setophaga ruticilla* (American Redstart). None of the aforementioned species were observed at the Kamoia site. The majority of lowland species at the Acarai site were recorded up to the maximum elevation surveyed (1050 m). Species restricted to riverine forest were not encountered above approx. 300 m.

Many of the expected lowland forest species that we failed to encounter during the survey are generally rare and/or inconspicuous, and are unlikely to be observed over the

course of a short survey with few observers during only one season. It is exceedingly likely that their presence would be revealed with continued survey effort.

Thirty-two species of Guayana Shield endemics were observed during the study period (Table 7.1). Many of those species are geographic representatives of widespread species complexes, and are widely distributed in interior lowland forests of the Guayana Shield.

The most noteworthy record of the study period was our observation of *Ramphotrigon megalcephalum* (Large-headed Flatbill), which was seen and tape-recorded near the Acarai camp on October 8th. We found at least two pairs in a limited area of dense *Guadua* sp. bamboo along a creek

**Table 7.1.** Bird species (32) recorded during the RAP survey that are endemic to the Guayana Shield.

Black Curassow ( <i>Crax alector</i> )
Caica Parrot ( <i>Gypopsitta caica</i> )
Blue-cheeked Parrot ( <i>Amazona dufresniana</i> )
Rufous-winged Ground-Cuckoo ( <i>Neomorphus rufipennis</i> )
Guianan Puffbird ( <i>Notharchus macrorhynchos</i> )
Black Nunbird ( <i>Monasa atra</i> )
Guianan Toucanet ( <i>Selenidera piperivora</i> )
Green Araçari ( <i>Pteroglossus viridis</i> )
Golden-collared Woodpecker ( <i>Veniliornis cassini</i> )
Chestnut-rumped Woodcreeper ( <i>Xiphorhynchus pardalotus</i> )
Black-throated Antshrike ( <i>Frederickena viridis</i> )
Band-tailed Antshrike ( <i>Sakesphorus melanothorax</i> )
Northern Slaty-Antshrike ( <i>Thamnophilus punctatus</i> )
Guianan Streaked-Antwren ( <i>Myrmotherula surinamensis</i> )
Rufous-bellied Antwren ( <i>Myrmotherula guttata</i> )
Brown-bellied Antwren ( <i>Epinecrophylia gutturalis</i> )
Todd's Antwren ( <i>Herpsilochmus stictocephalus</i> )
Guianan Warbling-Antbird ( <i>Hypocnemis cantator</i> )
Black-headed Antbird ( <i>Percnostola rufifrons</i> )
Ferruginous-backed Antbird ( <i>Myrmeciza ferruginea</i> )
Rufous-throated Antbird ( <i>Gymnopithys rufigula</i> )
Boat-billed Tody-Tyrant ( <i>Hemitriccus josephinae</i> )
Painted Tody-Flycatcher ( <i>Todirostrum pictum</i> )
Capuchinbird ( <i>Perissocephalus tricolor</i> )
Guianan Red-Cotinga ( <i>Phoenicercus carnifex</i> )
Guianan Cock-of-the-Rock ( <i>Rupicola rupicola</i> )
White-throated Manakin ( <i>Corapipo gutturalis</i> )
White-fronted Manakin ( <i>Lepidothrix serena</i> )
Tiny Tyrant-Manakin ( <i>Tyrannetes virescens</i> )
Tepui Greenlet ( <i>Hylophilus sclateri</i> )
Blue-backed Tanager ( <i>Cyanicterus cyanicterus</i> )
Golden-sided Euphonia ( <i>Euphonia cayennensis</i> )

downstream from camp. This species specializes on this type of bamboo, and is never found away from it; accordingly, it has a patchy distribution in Amazonia. Our records extend the known range of the species eastward by approximately 900 km; the nearest known locality for this species is along the Rio Siapa in Amazonas, Venezuela (Hilty 2003). This is the first record for any of the Guianas.

Populations of parrots, guans, and curassows in the Konashen COCA seemed healthy. Fourteen species of parrots were encountered, including *Ara macao* (Scarlet Macaw), a CITES I species, and Blue-cheeked Parrot (*Amazona dufresniana*), listed as Near Threatened (IUCN 2006). We did not encounter any other species considered to be of global conservation concern (IUCN), although *Harpia harpyja* (Harpy Eagle; IUCN Near Threatened) is well known to the Wai-Wai and undoubtedly occurs in the Konashen COCA. Guans and curassows were encountered frequently, particularly along the Kamoia River. They showed little fear of human observers, suggesting that hunting pressure on these species is relatively low.

## DISCUSSION

The Konashen COCA has a rich avifauna. 319 species were encountered during our survey, and it is certain that at least 400 species of birds occur in the area. The avifauna was typical of a large region of undisturbed lowland forest in the Guayana Shield. The considerable habitat diversity within a relatively small area at each survey site was probably responsible for species lists that were higher than expected, given the short duration of the survey; however, we only found one species that was genuinely unexpected. Species endemic to the Guayana Shield were well represented in the Konashen COCA; again, virtually all of these were expected to occur at our survey sites, since they are widely distributed in lowland forests of the Guayana Shield.

The majority of birds observed in the Konashen COCA were found inside tall forest – either riverine (RF) or terra firme (TF) forest, or both (Appendix 3). Within these habitats, the bird community was dominated by subsocial passerines in the families Furnariidae (Ovenbirds), Thamnophilidae (Antbirds), and Tyrannidae (Tyrant Flycatchers), which collectively comprised almost one-third of all species recorded. Members of these families formed the core of mixed-species foraging flocks in the understory and canopy. Such flocks were commonly encountered in terra firme forest, where they were typically large and diverse; by contrast, mixed-species flocks were less frequent in riverine forest, especially where the understory was sparse and the forest relatively short in stature (as was the case in the immediate vicinity of the Kamoia River). Flocks in riverine forest tended to contain fewer species than those in terra firme.

Several species that are generally uncommon or local in the Guianas were more common in the Konashen COCA than we had expected. These species include *Touit purpuratus*

(Sapphire-rumped Parrotlet), *Xenops milleri* (Rufous-tailed Xenops), *Myrmotherula guttata* (Rufous-bellied Antwren), and *Tangara chilensis* (Paradise Tanager). Several other species, including *Heliornis fulica* (Sungrebe), *Florisuga melivora* (White-necked Jacobin), *Hypocnemoides melanopogon* (Black-chinned Antbird), *Ramphotrigon ruficauda* (Rufous-tailed Flatbill), *Lathrotriccus euleri* (Euler's Flycatcher), and *Phoenicercus carnifex* (Guianan Red-Cotinga), appeared to be more common in the Konashen COCA during our survey than we have found them to be at other sites in Guyana and Suriname. Other rare or poorly known species that we encountered were *Leucopternis melanops* (Black-faced Hawk), *Nyctibius leucopterus* (White-winged Potoo), *Nyctibius brachyotus* (Rufous Potoo), *Dendrocincla merula* (White-chinned Woodcreeper, rare in Guyana and Suriname), *Sakesphorus melanothorax* (Band-tailed Antshrike), *Hemitriccus josephinae* (Boat-billed Tody-Tyrant), and *Neopipo cinnamomea* (Cinnamon Tyrant-Manakin). We expected to encounter the common and widespread *Piaya cayana* (Squirrel Cuckoo) and *Pachyramphus minor* (Pink-throated Becard) during this survey, but we found neither species. *Piculus flavigula* (Yellow-throated Woodpecker), usually a common member of canopy mixed-species flocks in the Guianas, was unaccountably scarce in the Konashen COCA during our survey.

Eighteen species were found primarily (or only) at and above 800 m during our survey. With the exception of *Hypophilus sclateri* (Tepui Greenlet), the highland avifauna that we could access from the Acarai site did not contain any species endemic to the Pantepui area. However, it is possible that populations of some highland species in the Acarai Mountains may be genetically distinct from Pantepui populations, from which they are isolated by extensive regions of lowland forest.

Although it contained few surprises, the avifauna of the Konashen COCA was representative of a spectacular, undisturbed tropical forest ecosystem, and its global conservation value cannot be overestimated. Birds are a comparatively well-known and easily surveyed group of organisms. The fact that we observed a new bird species for Guyana, despite previous fieldwork in the same area by other researchers, strongly suggests that the biodiversity of the Konashen COCA is greater than we could assess during this brief visit. We have no doubt that the species list for the Konashen COCA would continue to grow with further survey effort.

The parrot fauna of the Konashen COCA seemed not to be affected by the large-scale trapping of birds for the pet trade that plagues more accessible regions of the Guianas (Hanks 2005). Fourteen species were observed, many of which seemed to be in good numbers (with the caveat that parrot populations can fluctuate dramatically at a single location over the course of a year as the birds track the availability of their preferred foods). The Wai-Wai corroborated my impressions, stating that trappers do not visit the Konashen COCA, and that Wai-Wai only trap parrots occasionally for the purpose of keeping them as pets (rather than exporting

them to coastal markets). The Wai-Wai do hunt some larger parrots, particularly the macaws (*Ara* spp.), but the effects of this hunting appear to be negligible.

Guans and curassows (Cracidae; hereafter “cracids”) were seen frequently at both sites during the survey, suggesting that their populations are healthy; this was expected considering the remoteness of the Konashen COCA, the intact nature of the forests in the region, and the low human population density along the Guyana-Brazil border. In general, cracids have relatively low reproductive rates, are rather sluggish and easily shot, and are prized for food. They are notoriously vulnerable to habitat fragmentation, often being among the first species to disappear when humans move into an area. Cracids in the Konashen COCA are subjected to locally intense hunting pressure by the Wai-Wai, but their regional populations appear to be able to withstand the effects of such hunting. While cracid populations in the Konashen COCA are healthy and not immediately threatened, they are nevertheless of great value from the perspective of global conservation. However, current rates of harvesting by the Wai-Wai do not conflict with a global conservation strategy for these species.

## CONSERVATION RECOMMENDATIONS

The remarkable avian diversity of the Konashen COCA is under little threat at the present time. However, its global significance as a large intact region of tropical forest should be recognized, and care taken to forestall declines in species that currently maintain healthier populations here than elsewhere in their ranges. The following guidelines should be adopted.

### 1. *The Wai-Wai should exclude illegal Brazilian gold miners from their territory.*

The greatest potential threat to the Konashen COCA is the ongoing construction of a highway across northern Brazil, which will likely exacerbate the current problems associated with illegal miners in the interior of the Guianas. If necessary, the Wai-Wai should enlist the assistance of the government of Guyana to keep illegal miners out of their territory.

### 2. *Continue to avoid trapping parrots for coastal markets and the international pet trade.*

The Guianas contribute a substantial number of parrots to the international pet trade, and trappers often travel great distances to harvest the most valuable species. This has led to dramatic declines in the populations of some species in accessible areas closer to the coastal plain than the Konashen COCA. The remoteness of the Konashen COCA has no doubt served to protect it from such exploitation.

The status of parrot populations can be difficult to assess, particularly during short surveys. Parrots rely on ephemeral resources and wander widely on a seasonal basis. The 14 species that we observed in the Konashen COCA are presumed to have healthy regional populations when all

factors (isolation, low human population, extent of intact habitat) are taken into account. We draw these conclusions despite the fact that not all species seemed equally common during the survey. We therefore suggest that protection from a known threat (trappers) will be more effective than implementation of a monitoring program. Monitoring of parrots is likely to yield spurious and biased data. Parrots are not amenable to standard survey methods because their abundance in any given area can vary substantially over the course of a year. Such fluctuations are more likely due to local factors, rather than more significant regional population trends, especially in relatively pristine areas such as the Konashen COCA.

### 3. *Develop and implement a rotation system to distribute the effects of subsistence hunting over as large an area as possible.*

Cracids are arguably the most important birds in the diet of the Wai-Wai. They have low reproductive rates and tend to disappear when subjected to heavy hunting pressure. The cracid populations in the Konashen COCA are undoubtedly healthy, and it is likely that local population depletion (due to hunting) is a temporary phenomenon in most cases. Nevertheless, hunting of cracids should be done judiciously by distributing hunting activity over as large an area as possible, such that the majority of the Konashen COCA is not used for hunting at any given time. This simple system would ensure that local populations have time to recover following brief periods of intense hunting.

As is the case for parrots, cracids are difficult to survey using traditional methods. Sample sizes for each survey are likely to be low, since these birds tend to be relatively uncommon. As frugivores that wander widely on a seasonal basis, their local populations may vary in a manner that has no relevance to regional population trends. Data from cracid surveys would therefore be of limited value. Identifying and addressing the most significant current threat (hunting by inhabitants of the Konashen COCA) is the best conservation strategy at the present time.

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