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Mammalian and avian diversity of the Rewa Head, Rupununi, Southern Guyana

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Abstract: We report the results of a short expedition to the remote headwaters of the River Rewa, a tributary of the River Essequibo in the Rupununi, Southern Guyana. We used a combination of camera trapping, mist netting and spot count surveys to document the mammalian and avian diversity found in the region. We recorded a total of 33 mammal species including all 8 of Guyana's monkey species as well as threatened species such as lowland tapir (*Tapirus terrestris*), giant otter (*Pteronura brasiliensis*) and bush dog (*Speothos venaticus*). We recorded a minimum population size of 35 giant otters in five packs along the 95 km of river surveyed. In total we observed 193 bird species from 47 families. With the inclusion of Smithsonian Institution data from 2006, the bird species list for the Rewa Head rises to 250 from 54 families. These include 10 Guiana Shield endemics and two species recorded as rare throughout their ranges: the harpy eagle (*Harpia harpyja*) and crested eagle (*Morphnus guianensis*).

Keywords: Guiana Shield, biodiversity conservation, endemic and threatened birds, endangered species of mammal, Rewa River, Rupununi.

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Resumo: Reportamos os resultados de uma curta expedição às remotas cabeceiras do Rio Rewa, tributário do Rio Essequibo no interior da Guiana. Utilizamos uma combinação de armadilhas fotográficas, redes de neblina e avistamento para documentar a diversidade de mamíferos e aves encontrados na região. Nós registramos um total de 33 espécies de mamíferos, incluindo todas as oito espécies de primatas que ocorrem na Guyana, além de espécies ameaçadas como anta (*Tapirus terrestris*), ariranha (*Pteronura brasiliensis*) e cachorro-do-mato (*Speothos venaticus*). Nós registramos uma população mínima de 35 ariranhas em cinco grupos no 95 km do rio. Registramos também um total de 187 espécies de aves que pertencem a 47 diferentes famílias. Incluindo os dados gerados pelo Smithsonian Institution em 2006, a lista de espécies para a cabeceira do Rio Rewa aumenta para 252, com 48 famílias, incluindo 10 espécies endêmicas do escudo das Guianas e duas espécies consideradas raras: a harpia (*Harpia harpyja*) e o gavião-real-falso (*Morphnus guianensis*).

Palavras-chave: Escudo da Guiana, conservação da biodiversidade, endêmicas e ameaçadas de aves, espécies ameaçadas de mamíferos, Rio do Rewa, Rupununi.

Introduction

The Guiana Shield comprises one of the largest single tracts of forest anywhere in the tropics, spanning 250 million ha, and is consequently of high importance for a range of lowland rainforest species (Hammond 2005). Over 20,000 species of vascular plants are found in the Guiana Shield ecoregion, 35% of which are endemic. Similarly 975 bird species are found in this region, of which over 70 are endemic (Hammond 2005). Guyana itself contains 812 species of bird (Milensky et al. 2005). Our understanding of the diversity and distribution of mammal species in Guyana is patchy and is derived mainly from studies conducted in Iwokrama Forest. So far 225 species of mammal have been identified in Guyana, 146 of which are bats (Engstrom & Lim 2008), and of which 29 are classified as threatened (Lim & Engstrom 2004). Of the mammals found in Guyana, 29 are classified as threatened (IUCN 2008). Furthermore, the Guiana Shield contains some of the most carbon-rich forests in South America and represents an important carbon dioxide sink (Saatchi et al. 2007).

Our expedition in January 2009 followed on from a Conservation International Rapid Assessment Programme (RAP) in the Eastern Kanuku Mountains and Lower Kwitaro River in 2001 (Montambaut & Missa 2002), and a Smithsonian Institution expedition exploring the avifauna of the River Rewa, which sampled two sites in the Rewa Head and a further site below Corona Falls (Milensky & Schmidt 2006). A second Conservation International RAP in 2006, explored the biodiversity of the Konashen Community Owned Conservation Area (COCA) in southern Guyana (Alonso et al. 2006). Apart from these few short expeditions, the biodiversity of the Upper Takutu-Upper Essequibo Region is remarkably unexplored.

Lying between 1 and 9 degrees north of the Equator with a coast in the Caribbean, Guyana's weather patterns are driven by the Caribbean Intertropical Convergence Zone, with the rainy season arriving in early May lasting until mid-August, followed by another short rainy season in December. Its forests are hot and humid with between 2000-4000 mm of rain annually (LOC 2002). Guyana has a small population of 751,000, with a population density of 3.5 per km². 90% of the population live in a strip of land around the cities of Georgetown, Bartica and Linden in the north of the country (Beaie 2002). Guyana has never had government-led drives to open up the interior of the country to commercial development, consequently its forests have remained largely intact and land cover remains 76% rainforest (Guyana Forestry Commission 2007).

The focal species of the expedition, the giant otter, is listed as 'Endangered' under the IUCN Red List due to overhunting during the last century (Duplaix et al. 2008). Following the listing of the giant otter under the Convention on the International Trade in Endangered Species (CITES) and the collapse of the international market for carnivore skins, the species has begun to recover in some areas. However, populations remain fragmented, and although the threat of commercial hunting has declined, habitat degradation such as gold dredging has increased (Groenendijk et al. 2005). Guyana was considered to be one of the strongholds for the giant otter due to the low human density of the country, and the number of inaccessible creeks. Hunting did occur throughout the Rupununi, but the population along this major tributary of the Essequibo was never extirpated (McTurk pers. comm.). Interviews with local fishermen who previously commercially hunted giant otter report that fur hunters never ventured above Corona Falls. The river may therefore provide good baseline data for healthy giant otter population densities.

1. Situation of the Rewa Head

The Rewa Head is located in Southern Guyana, in Upper Takutu-Upper Essequibo Administrative Region (Figure 1). It takes its water from tributaries feeding from the Kanuku Mountains in the South and drains north into the Rupununi and Essequibo before flowing into the Atlantic. The Rewa is a blackwater river due to the humic, yet relatively sediment-free waters. Following the Rewa upstream from where it is met by the Kwitaro, the lowland rainforest vegetation type continues up above Corona Falls. Above here the river is fractured by a series of cataracts and falls which prevent the colonisation of the headwaters by fish common in the Lower Rewa, such as arapaima (*Arapaima gigas*), lukanani (*Cichla ocellaris*), arawana (*Osteoglossum bicirrhosum*). Whereas black caiman (*Melanosuchus niger*), spectacled caiman (*Caiman crocodilus*) and the giant Amazonian river turtle (*Podocnemis expansa*) are found in the Lower Rewa up to the base of Corona Falls, none of these species were recorded in the Rewa Head. A series of narrow tributaries flow into the Rewa along its meandering path above the falls. Continuing upstream, the river narrows to 6m wide by 2° 45.358' N and 58° 37.415' W and shortly after, at 2° 45' N and 58° 33' W the vegetation becomes scrubby riparian bush with dense bamboo groves, cecropia and guava, continuing with patchy forest to 2° 42' N where dense forest once again predominates.

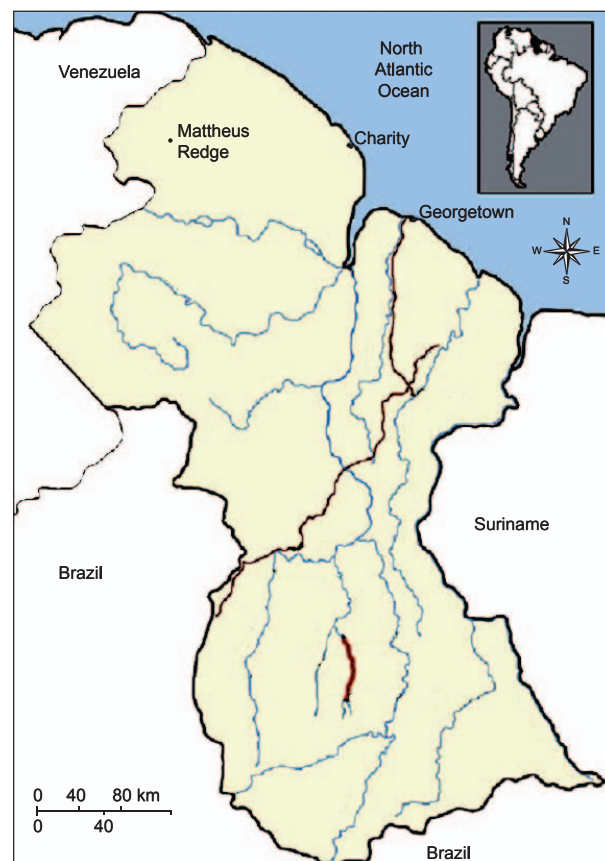


Figure 1. Location of the Rewa Head and extent surveyed by the expedition (highlighted in red).

Figura 1. Localização da cabeceira do Rio Rewa e extensão da área estudada durante a expedição (em vermelho).

2. Specific objectives

The aims of the expedition were to (1) record the diversity of birds and large mammals along a lowland rainforest riparian corridor of very low disturbance in Guyana's interior and (2) to estimate the size of the giant otter population along the focal river. The Rewa Head was selected due to its remote situation and the likelihood of encountering undisturbed forest communities. In addition to our knowledge of the species richness and composition in this region, it was also our objective to increase scientific attention in a largely neglected yet potentially highly diverse section of the Guianas.

Materials and Methods

The headwaters of the River Rewa, the 'Rewa Head' were explored from Corona Falls at 3° 10' 34" N and 58° 40' 26" W for 95 km up to the East-West Rewa split at 2° 37' 45" N and 58° 37' 9" W where the river ceased to be navigable due to fallen logs (Figure 1). The expedition ran from the 31st December 2008 to the 31st January 2009 during the period of low water before the onset of the winter rains. Two 7 m heavy duty aluminium boats with 15 hp outboard engines were used. Positions of camps where mist-netting surveys took place are given in Appendix 1.

1. Camera trapping

Twelve Reconyx RC55 camera traps were set up along the River Rewa above Corona Falls. Each trap was fixed to a tree or stake approximately 50 cm above the ground. The traps were set up in pairs, with one on the river bank itself facing inland and its partner 150 m perpendicular to the river bank facing a direction estimated to best increase the likelihood of capture. The pairs were arranged 8 km apart and left for a maximum of 22 days before collection. Camera traps were situated in open ground where an unobstructed view of the forest floor ensured the maximum potential for capture success. Due to the strict adherence of the 8 km/150 m rule, we ensured that to some extent the placement of the traps was randomised and took in a variety of micro-habitats from dense scrubby marshland to hill tops to open riparian bush. The Relative Abundance Index (RAI) of mammalian species recorded was calculated and each camera was considered a separate sampling site.

2. River surveying

In conducting drift spot count surveys, the Rewa Head was divided into 8 km stretches, with each stretch surveyed once while drifting downstream. The survey boat had three spotters equipped with binoculars and a portable mp3 player containing the vocalisations of the birds of Venezuela to identify calls and song. Spot counts were carried out in the morning, when animal activity was greatest. However, due to the logistics of moving camp, there were several occasions when we were required to continue surveys into the afternoon, when activity generally declined. The boat was kept to mid-river when it was narrow enough to cover both banks, but when the river widened to over 40 m we kept within 15 m of one bank and a constant speed of approximately 3 km/h. For birds we used the reference guides of Hilty (2002), Restall et al. (2006) and checklist of Braun et al. (2007), following the nomenclature of Hilty (2002); and for mammals we used Emmons & Feer (1997). In determining bird species abundance we followed the categorisation of Braun et al. (2007).

3. Giant otter population estimate

In surveying the Rewa Head for signs of giant otters we followed the guidelines of the IUCN/SSC Otter Specialist Group

(Groenendijk et al. 2005). The river and its feeding creeks were searched for sign of giant otters during drifts downstream. The position and age of holts, latrines or scratch walls were recorded in order to determine areas of high giant otter activity. These parts of the river were then targeted for observing packs. We used two Canon EOS 400D cameras with 300 mm and 500 mm lenses and a Sony Handycam mini DV to capture throat markings allowing individual identification and avoiding double-counting (Hajek et al. 2005). Minimum population estimates were derived from these individual sightings.

4. Mist netting

We used three 40ft standard BTO NR nets with a mesh size of 3 cm. The nets were erected 50-200 m from camp in a variety of habitats. Nets were erected at 6:00 AM and taken down at 5:30 PM during surveys and were checked every hour. Five netting sites were used over the length of the Rewa Head covering a variety of habitats from open, scrubby bush, to palm thickets and dense forest.

Results

1. Mammals

In total we recorded the presence of 33 species of large mammal, including two marsupials, four xenarthrans, eight primates, ten carnivores, one perrissodactyl, two artiodactyls, and six rodents (Table 1). The camera traps accumulated a total of 5227 hours, resulting in 214 triggering events. Of these, 167 individual animals could be identified from 16 species of mammal (Figure 2). The mammals most frequently observed were the red rumped agouti (*Dasyprocta cristata*), paca (*Agouti paca*) and green acouchy (*Myoprocta exilis*). Four species of felid were observed in the camera traps and jaguar (*Panthera onca*) were observed from the boat during drift surveys. Lowland tapir (*Tapirus terrestris*) appeared common above Corona Falls, with nine individuals recorded in the camera traps and four encountered during drift surveys. We found a high diversity of primates during the drift surveys, with all of Guyana's eight species recorded. Of particular importance were the Guiana Shield endemics: the black spider monkey (*Ateles paniscus*) classified as 'Vulnerable' by the IUCN, the Guianan saki (*Pithecia pithecia*), and the Guianan red howler monkey (*Alouatta macconnelli*), recently upgraded to full species. Fresh footprints of bush dog (*Speothos venaticus*) seen investigating the burrow of a paca along the banks of a tributary feeding the Rewa, and burrows of giant armadillo (*Priodontes maximus*) are firm evidence for the presence of these threatened species.

2. Giant otter population size

We recorded the presence of five different giant otter packs, with a minimum population size of 35 animals. Over the 95 km surveyed above Corona Falls, this gives a crude density of one otter per 2.7 km of river. Twenty dens were observed, of which 11 showed signs of recent occupation, and 24 latrines were recorded, of which eight had been used within the last 24 hours.

3. Birds

The five netting sites accumulated 420 mist net hours. Eighty-six birds were caught, resulting in 41 different species being identified (Table 2). Twenty three of the species caught in mist nets were not observed during the drift surveys. The most frequently caught family was the Thamnophilidae with 15 of all species and 27% of total number of individuals caught, followed by the Dendrocolaptidae (5 species) and Trochilidae (4 species). The most common

Table 1. List of the mammals species recorded in the Rewa Head, showing the form of record, conservation status and level of endemism.**Tabela 1.** Lista de mamíferos registradas na cabeceira do Rio Rewa, apresentando a forma de amostragem, status da conservação e endemismos.

Families and species	Common name	Conservation and endemism	ZSL Expedition 2009 Evidence
DIDELPHIAE			
<i>Philander opossum</i>	Common Grey Four-eyed Opossum	-	S,C
<i>Didelphis marsupialis</i>	Common Opossum	-	C
EDENTATA			
<i>Bradypus tridactylus</i>	Pale-throated Three-toed Sloth	GS	S
MYRMECOPHAGIDAE			
<i>Myrmecophaga tridactyla</i>	Giant Anteater	NT	C
DASYPODIDAE			
<i>Dasypus novemcinctus</i>	Nine-banded Long-nosed Armadillo	-	C,I
<i>Prionomys maximus</i>	Giant Armadillo	V	I
CALLITRICHIDAE			
<i>Leontideus rosalia</i>	Golden-handed Tamarin	GS	S
CEBIDAE			
<i>Cebus apella</i>	Brown Capuchin	-	S
<i>Cebus olivaceus</i>	Wedge-capped Capuchin	GS	S
<i>Saimiri sciureus</i>	Common Squirrel Monkey	-	S
<i>Alouatta macconnelli</i>	Guianan Red Howler Monkey	GS	S,V
<i>Pithecia pithecia</i>	Guianan Saki	GS	S
<i>Chiropotes chiropotes</i>	Red-backed Bearded Saki	GS	S
<i>Ateles paniscus</i>	Black Spider Monkey	GS, V	S,V
CANIDAE			
<i>Speothos venaticus</i>	Bush Dog	NT	I
PROCYONIDAE			
<i>Nasua nasua</i>	South American Coati	-	S
MUSTELIDAE			
<i>Pteronura brasiliensis</i>	Giant Otter	E	S,I
<i>Lontra longicaudis</i>	Neotropical Otter	-	S,I
<i>Eira barbara</i>	Tayra	-	C
FELIDAE			
<i>Panthera onca</i>	Jaguar	NT	S,C,I
<i>Puma concolor</i>	Puma	-	C
<i>Leopardus pardalis</i>	Ocelot	-	C
<i>Leopardus wiedii</i>	Margay	NT	C
<i>Felis Jaguarundi</i>	Jaguarundi	-	S,C
CERVIDAE			
<i>Mazama americana</i>	Red Brocket Deer	-	C
TAYASSUIDAE			
<i>Tayassu tajacu</i>	Collared Peccary	-	S,C,I
TAPIRIDAE			
<i>Tapirus terrestris</i>	Brazilian Tapir	V	S,C,I
SCIURIDAE			
<i>Sciurus aestuans</i>	Guianan Squirrel	-	C
HYDROCHAERIDAE			
<i>Hydrochaeris hydrochaeris</i>	Capybara	-	S,I
AGOUTIDAE			
<i>Agouti paca</i>	Paca	-	S,C,I
DASYPROCTIDAE			
<i>Dasyprocta cristata</i>	Red-rumped Agouti	-	S,C,I
<i>Myoprocta exilis</i>	Green Acouchy	-	C
ECHIMYIDAE			
<i>Lonchothrix emiliae</i>	Spiny tree rat	-	S

Evidence of presence is described as S (sighting), V (vocalisation), C (camera trap) or I (indirect evidence) such as footprints, scats or burrows. Conservation status is described as NT (near threatened), V (vulnerable), E (endangered). GS (Guiana Shield) refers to a regional endemic.

A evidência da presença de determinada espécie está descrito como S (avistagens), V (vocalização), C (armadilha fotográfica) ou I (evidência indireta), como pegadas, fezes ou tocas. O status da conservação está descrito como NT (ameaçada), V (vulnerável), E (em perigo). GS (Escudo da Guiana) se refere à região de endemismos.

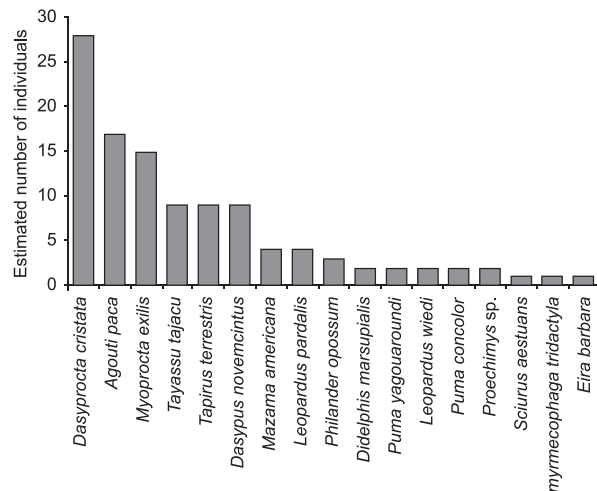


Figure 2. Relative abundance of mammal species recorded in the camera traps.

Figura 2. Abundância relativa de espécies de mamíferos registradas pelas armadilhas fotográficas.

species encountered in the nets was the wedge-billed woodcreeper (*Glyphorhynchus spirurus*), with 11 individuals caught, comprising 13% of the total number of individuals caught. We recorded over 4000 birds during the drift surveys, resulting in the identification of 158 species through both visual observation and vocalisations. Through the combination of sightings made on drift transects, mist-netting, opportunistic sightings and vocalisations, we positively identified 193 species from 47 different families. The most diverse family observed was the Tyrannidae (34 species) and the most abundant family was the Hirundinidae, comprising 20% of total observations (Figure 3). Of chief interest in the sightings are 10 Guiana Shield endemics, the Guianan toucanet (*Selenidera culik*), green aracari (*Pteroglossus viridis*), black nunbird (*Monasa atra*), rufous-throated antbird (*Gymnopithys rufigula*), brown-bellied antwren (*Myrmotherula gutturalis*), rufous-bellied antwren (*Myrmotherula guttata*), caica parrot (*Pionopsitta caica*), black curassow (*Crax allector*), Todd's antwren (*Herpsilochmus stictocephalus*) and little hermit (*Phaethornis longuemareus*). Two species recorded are rare throughout their ranges and classified as 'Near Threatened' in the IUCN Red List, the harpy eagle (*Harpia harpyja*) and crested eagle (*Morphnus guianensis*).

Discussion

While far from complete, this expedition revealed a high diversity of bird and mammal species in the Rewa Head of Southern Guyana, including a number of Guiana Shield endemics and the presence of 50% of Guyana's threatened species (IUCN 2008).

Species accumulation curves (Figure 4) reveal that 96-100% of species observed in the spot count and camera trap survey were recorded after 12 days, after which time catch per unit effort plateaued. By contrast, the mist net species accumulation curve shows a linear trend. These data suggest that further survey work mist-netting beyond twelve days is required, while a camera trap survey of much longer duration, more traps and covering more habitat types would be necessary to conduct a thorough species inventory.

The high diversity of raptor species is a reflection of a strong prey base, and the presence of both the threatened harpy (*Harpia harpyja*) and crested eagle (*Morphnus guianensis*) is likely to be due to both the high cracid, primate and sloth abundance coupled with

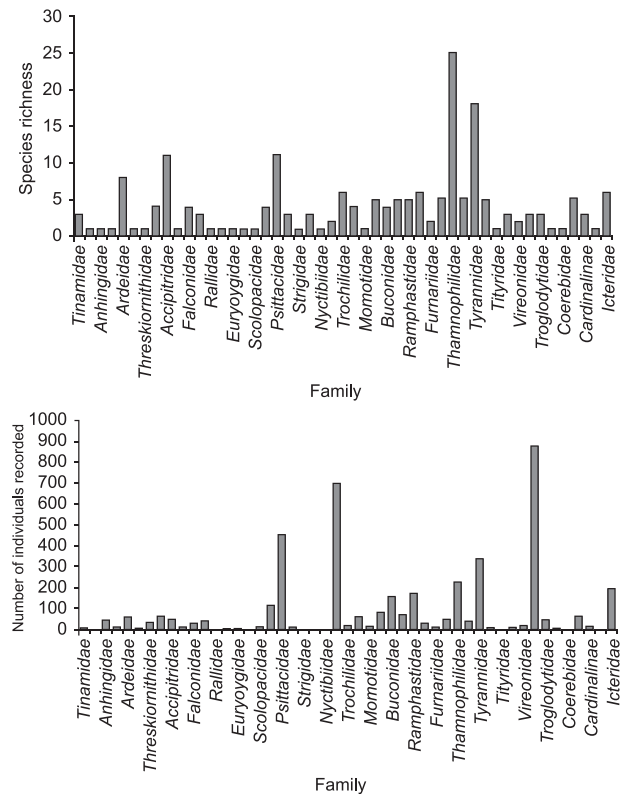


Figure 3. Avifauna species richness and relative abundance by family.

Figura 3. Avifauna riqueza de espécies e abundância relativa por família.

large mature kapok trees (*Ceiba pentandra*) providing nesting sites (Touchton et al. 2002).

Comparing the results of our January 2009 expedition with that of a Smithsonian Institution (SI) expedition in August 2006 gives a fuller picture of avian community composition and species richness as well as seasonal variances in local abundance. During the Smithsonian Institution expedition, they set up two mist netting sites above Corona Falls, using 20 nets and netting for 10 days (Milensky & Schmidt 2006). The combined ZSL/SI figure for bird species in the Rewa Head comes to 250 and number of families to 54, equating to 30% of all Guyana's bird species (812). The difference in season between the August 2006 SI expedition and the January 2009 ZSL expedition is most apparent in the presence in January of migratory species such as the Osprey (*Pandion haliaetus*) and the relative abundance of frugivorous species such as the Psittacidae which were likely more noticeable in January due to congregations forming on fruiting trees. Likewise, whereas the Smithsonian expedition recorded the family Icteridae as uncommon, we often encountered large flocks of yellow-rumped cacique (*Cacicus cela*), red-rumped cacique (*Cacicus haemorrhous*) and crested oropendola (*Psarocolius decumanus*) as they were nesting, leading us to surmise that they were common in the area.

The 33 species of large mammals we recorded equates to 35% of Guyana's total non-volant, non-marine mammalian fauna. A typical high prey to low predator encounter rate was recorded, but the presence of five of the Guianan Shield's six species of felid should be noted as important, and there is no reason to believe that the sixth species, the oncatilla (*Leopardus tigrinus*), would not be recorded during the course of a more comprehensive survey. The area appears

Table 2. List of the bird species recorded in the Rewa Head, showing the abundance, conservation status and level of endemism.**Tabela 2.** Lista de espécies de aves registradas nas cabeceiras do Rio Rewa, apresentando abundância, status da conservação e endemismos.

Families and species	Common name	Conservation and endemism	SI expedition Aug 2006 abundance	ZSL expedition Jan./2009		
				Abundance	Recorded during river counts	Caught in mist nets
TINAMIDAE						
<i>Tinamus major</i>	Great Tinamou	-	F	S	2	-
<i>Crypturellus cinereus</i>	Cinereous Tinamou	-	S	S	4	-
<i>Crypturellus variegatus</i>	Variegated Tinamou	-	F	S	*	-
ANATIDAE						
<i>Cairina moschata</i>	Muscovy duck	-	-	S	*	-
ANHINGIDAE						
<i>Anhinga anhinga</i>	Anhinga	-	F	F	43	-
PHALACROCORACIDAE						
<i>Phalacrocorax brasiliensis</i>	Neotropical Cormorant	-	S	S	6	-
ARDEIDAE						
<i>Zebrilus undualtus</i>	Zigzag Heron	-	S	-	-	-
<i>Tigrisoma lineatum</i>	Rufescent Tiger-Heron	-	U	U	8	-
<i>Tigrisoma fasciatum</i>	Fasciated Tiger-Heron	-	U	S	1	-
<i>Ardea cocoi</i>	Cocoi Heron	-	F	F	44	-
<i>Egretta caerulea</i>	Little Blue Heron	-		S	*	-
<i>Bubulcus ibis</i>	Cattle Egret	-	S	-	-	-
<i>Aredea alba</i>	Great Egret	-	-	S	2	-
<i>Agamia agami</i>	Agami Heron	-	-	S	1	-
<i>Butorides striatus</i>	Striated Heron	-	U	U	5	-
<i>Pilherodias pileatus</i>	Capped Heron	-	U	S	*	-
CICONIIDAE						
<i>Mycteria americana</i>	Wood Stork	-	-	S	2	-
THRESKIORNITHIDAE						
<i>Mesembrinibis cayennensis</i>	Green Ibis	-	C	F	32	-
CATHARTIDAE						
<i>Coragyps atratus</i>	Black Vulture	-	U	U	6	-
<i>Cathartes aura</i>	Turkey Vulture	-		S	1	-
<i>Cathartes melanbrotus</i>	Greater Yellow-headed Vulture	-	F	F	34	-
<i>Sarcoramphus papa</i>	King Vulture	-	F	F	23	-
ACCIPITRIDAE						
<i>Elanoides forficatus</i>	Swallow-tailed Kite	-	S	F	17	-
<i>Harpagus bidentatus</i>	Double-toothed Kite	-	S			-
<i>Leptodon cayanensis</i>	Grey-headed kite	-	-	S	2	-
<i>Ictinia plumbea</i>	Plumbeous Kite	-	S	S	1	-
<i>Buteogallus urubitinga</i>	Great Black-Hawk	-	U	U	12	-
<i>Leucopternis albicollis</i>	White Hawk	-	-	U	8	-
<i>Buteo magnirostris</i>	Roadside Hawk	-	U	S	*	-
<i>Buteo brachyurus</i>	Short-tailed Hawk	-	-	S	2	-
<i>Accipiter superciliosus</i>	Tiny Hawk	-	-	S	1	-
<i>Harpia harpyja</i>	Harpy Eagle	NT	-	S	*	-
<i>Morphnus guianensis</i>	Crested Eagle	NT	-	S	1	-
<i>Spizaetus ornatus</i>	Ornate Hawk Eagle	-	-	S	3	-
PANDIONIDAE						

Conservation status is described as NT (near threatened), V (vulnerable), E (endangered). GS (Guiana Shield) refers to a regional endemic. Abundance is recorded as C (common), more than 20 individuals encountered daily in prime habitat and season; F (fairly common) 5-20 individuals encountered daily in prime habitat and season; U (uncommon), fewer than 5 individuals encountered, not encountered daily even in prime habitat and season; S (scarce) only occasionally encountered in small numbers even in prime habitat and season; * Recorded present above Corona Falls, but not recorded during a survey.

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Tabela 2. Continuação...

Families and species	Common name	Conservation and endemism	SI expedition Aug 2006 abundance	ZSL expedition Jan./2009		
				Abundance	Recorded during river counts	Caught in mist nets
<i>Pandion haliaetus</i>	Osprey	-	-	S	7	-
FALCONIDAE						
<i>Micrastur gilvicolis</i>	Lined Forest-Falcon	-	U	-	-	-
<i>Micrastur semitorquatus</i>	Collared Forest-Falcon	-	-	S	1	-
<i>Daptrius ater</i>	Black Caracara	-	U	U	10	-
<i>Ibycter americanus</i>	Red-throated Caracara	-	F	U	14	-
<i>Falco rufigularis</i>	Bat Falcon	-	F	U	3	-
CRACIDAE						
<i>Ortalis motmot</i>	Little Chachalaca	-	U	U	9	-
<i>Crax alector</i>	Black Curassow	GS	U	F	19	-
<i>Pipile cumanensis</i>	Blue-throated Piping-Guan	-	F	U	12	-
ODONTOPHORIDAE						
<i>Odontophorus gujanensis</i>	Marbled Wood-Quail	-	U	-	-	-
RALLIDAE						
<i>Aramides cajanea</i>	Grey-necked Wood-Rail	-	S	S	1	-
HELIORNITHIDAE						
<i>Heliornis fulica</i>	Sungrebe	-	U	S	3	-
EURYPYGIDAE						
<i>Eurypyga helias</i>	Sunbittern	-	U	S	3	-
PSOPHIDAE						
<i>Psophia crepitans</i>	Grey-winged Trumpeter	-	U	S	*	-
SCOLOPACIDAE						
<i>Actitis macularia</i>	Spotted Sandpiper	-	F	U	13	-
COLUMBIDAE						
<i>Columba plumbea</i>	Plumbeous Pigeon	-	C	F	30	-
<i>Columba subvinacea</i>	Ruddy Pigeon	-	C	F	30	-
<i>Leptotila rufaxilla</i>	Grey-fronted Dove	-	U	F	55	2
<i>Geotrygon montana</i>	Ruddy Quail-Dove	-	F			-
PSITTACIDAE						
<i>Pyrrhura picta</i>	Painted Parakeet	-	C	C	46	-
<i>Brotogeris chrysoptera</i>	Golden-winged Parakeet	-		S	*	-
<i>Ara ararauna</i>	Blue-and-Gold Macaw	-	U	F	31	-
<i>Ara chloropterus</i>	Red-and-green Macaw	-	F	F	21	-
<i>Ara macao</i>	Scarlet Macaw	-	U	F	51	-
<i>Brotogeris chrysopterus</i>	Golden-winged Parakeet	-	C	C	73	-
<i>Pionus menstruus</i>	Blue-headed parrot	-		C	96	-
<i>Pionopsitta caica</i>	Caica Parrot	GS	C	U	17	-
<i>Amazona amazonica</i>	Orange-winged Parrot	-	U	C	98	-
<i>Amazona ochrocephala</i>	Yellow-crowned Parrot	-	U			-
<i>Amazona farinosa</i>	Mealy Parrot	-		U	10	-
<i>Derophtus accipitrinus</i>	Red-fan Parrot	-	F	U	10	-
CUCULIDAE						
<i>Piaya cayana</i>	Squirrel Cuckoo	-	F	U	12	-
<i>Piaya minuta</i>	Little Cuckoo	-	-	S	1	-
<i>Crotophaga major</i>	Greater Ani	-	U	S	*	-

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STRIGIDAE						
<i>Otus watsoni</i>	Tawny-bellied Screech-Owl	-	U	-	-	-
<i>Pulsatrix perspicillata</i>	Spectacled Owl	-	U	S	1	-
<i>Glaucidium hardyii</i>	Amazonian Pygmy-Owl	-	F			-
CAPRIMULGIDAE						
<i>Lurocalis semitorquatus</i>	Short-tailed Nighthawk	-	U	U	*	-
<i>Nyctidromus albicollis</i>	Common Pauraque	-	-	F	*	-
<i>Caprimulgus nigrescens</i>	Blackish Nightjar	-	U	U	2	2
NYCTIBIIDAE						
<i>Nyctibius grandis</i>	Great Potoo	-	-	S	*	-
APODIDAE						
<i>Chaetura spinicauda</i>	Band-rumped Swift	-	C	C	707	-
<i>Chaetura cinereiventris</i>	Grey-rumped Swift	-	-	S	*	-
TROCHILIDAE						
<i>Phaethornis superciliosus</i>	Eastern Long-tailed Hermit	-	U	U	*	7
<i>Phaethornis bourcieri</i>	Straight-billed Hermit	-	U	-	-	-
<i>Phaethornis ruber</i>	Reddish Hermit	-	F	-	-	-
<i>Phaethornis longuemareus</i>	Little hermit	GS		S	2	1
<i>Campylopterus largipennis</i>	Grey-breasted Sabrewing	-	S	S	-	3
<i>Florisuga mellivora</i>	White-necked Jacobin	-	U	-	-	-
<i>Thalurania furcata</i>	Fork-tailed Woodnymph	-	U	S		2
<i>Topaza pella</i>	Crimson Topaz	-	S	S	3	-
<i>Heliothryx aurita</i>	Black-eared Fairy	-	S	S	*	-
TROGONIDAE						
<i>Trogon viridis</i>	White-tailed Trogon	-	F	F	33	-
<i>Trogon violaceus</i>	Violaceous Trogon	-	U	U	24	-
<i>Trogon collaris</i>	Collared Trogon	-	F	-	-	-
<i>Trogon personatus</i>	Masked Trogon	-	U	-	-	-
<i>Trogon melanurus</i>	Black-tailed Trogon	-	-	S	2	-
MOMOTIDAE						
<i>Momotus momota</i>	Blue-crowned Motmot	-	F	U	14	1
ALCEDINIDAE						
<i>Ceryle torquata</i>	Ringed Kingfisher	-	C	U	19	-
<i>Chloroceryle amazona</i>	Amazon Kingfisher	-	C	F	33	1
<i>Chloroceryle americana</i>	Green Kingfisher	-	U	F	24	-
<i>Chloroceryle inda</i>	Green-and-Rufous Kingfisher	-	U	S	3	
<i>Chloroceryle aenea</i>	Pygmy Kingfisher	-	S	S	1	1
BUCCONIDAE						
<i>Notharchus macrorhincus</i>	Guianan puffbird	-	-	S	2	-
<i>Bucco capensis</i>	Collared Puffbird	-	U	S	3	-
<i>Malacoptila fusca</i>	White-chested Puffbird	-	U	-	-	-
<i>Monasa atra</i>	Black Nunbird	GS	F	F	37	-
<i>Chelidoptera tenebrosa</i>	Swallow-wing Puffbird	-	C	C	113	-
GALBULIDAE						

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<i>Galbula galbula</i>	Green-tailed Jacamar	-	U	F	32	-
<i>Galbula albirostris</i>	Yellow-billed Jacamar	-	F	S	-	1
<i>Galbula dea</i>	Paradise Jacamar	-	U	S	3	-
<i>Jacamerops aurea</i>	Great Jacamar	-	U	S	3	1
<i>Brachygalba lugubris</i>	Brown jacamar	-	-	F	29	-
RAMPHASTIDAE						
<i>Pteroglossus viridis</i>	Green Aracari	GS	-	U	12	-
<i>Pteroglossus aracari</i>	Black-necked Aracari	-	U	S	*	-
<i>Selenidera culik</i>	Guianan Toucanet	GS	U	S	7	-
<i>Ramphastos vitellinus</i>	Channel-billed Toucan	-	C	F	38	-
<i>Ramphastos tucanus</i>	White-throated Toucan	-	C	C	114	-
PICIDAE						
<i>Dryocopus lineatus</i>	Lineated Woodpecker	-	S	S	13	-
<i>Veniliornis cassini</i>	Golden-collared Woodpecker	-	U			
<i>Piculus flavigula</i>	Yellow-throated Woodpecker	-	F	S	*	-
<i>Celeus elegans</i>	Chestnut Woodpecker	-	F	S	2	-
<i>Celeus undatus</i>	Waved Woodpecker	-	S	S	2	-
<i>Celeus flavus</i>	Cream-colored Woodpecker	-	U	-	-	-
<i>Campephilus rubricollis</i>	Red-necked Woodpecker	-	F	S	1	1
<i>Campephilus melanoleucos</i>	Crimson-crested Woodpecker	-	F	U	9	-
FURNARIIDAE						
<i>Philydor pyrrhodes</i>	Cinnamon-rumped Foliage-gleaner	-	S	-	-	-
<i>Philydor erythrocercus</i>	Rufous-rumped Foliage-gleaner	-	F	-	-	-
<i>Automolus ochrolaemus</i>	Buff-throated Foliage-gleaner	-	F	S	-	1
<i>Automolus rufipileatus</i>	Chestnut-crowned Foliage-gleaner	-	-	U	12	
<i>Xenops minutus</i>	Plain Xenops	-	U	-	-	-
DENDROCOLAPTIDAE						
<i>Dendrocincla fuliginosa</i>	Plain-brown Woodcreeper	-	F	S	1	3
<i>Glyphorhynchus spirurus</i>	Wedge-billed Woodcreeper	-	C	F	3	11
<i>Dendrocolaptes certhia</i>	Amazonian Barred Woodcreeper	-	S	S	3	-
<i>Xiphocolaptes promeropyrhynchus</i>	Strong-billed Woodcreeper	-	S	S	-	1
<i>Xiphorhynchus pardalotus</i>	Chestnut-rumped Woodcreeper	-	C	-	-	-
<i>Xiphorhynchus guttatus</i>	Buff-throated Woodcreeper	-	U	S	24	2
<i>Campylorhamphus procurvoides</i>	Curve-billed Scythebill	-	U			
THAMNOPHILIDAE						
<i>Cymbilaimus lineatus</i>	Fasciated Antshrike	-	F	S	7	-

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<i>Frederikena viridis</i>	Black-throated Antshrike	-	U	-	-	-
<i>Taraba major</i>	Great Antshrike	-		S	1	-
<i>Thamnophilus murinus</i>	Mouse-colored Antshrike	-	F	U	5	-
<i>Thamnophilus punctatus</i>	Guianan Slaty-Antshrike	-	U	-	-	-
<i>Pygiptila stellaris</i>	Spot-winged Antshrike	-	U	-	-	-
<i>Thamnomanes ardesiacus</i>	Dusky-throated Antshrike	-	F	S	-	2
<i>Thamnomanes caesi</i>	Cinereous Antshrike	-	F	S	2	1
<i>Myrmotherula brachyura</i>	Pygmy Antwren	-	F	S	3	-
<i>Myrmotherula surinamensis</i>	Guianan Streaked Antwren	-	C	C	100	1
<i>Myrmotherula guttata</i>	Rufous-bellied Antwren	GS	U	U	*	5
<i>Myrmotherula gutturalis</i>	Brown-bellied Antwren	GS	U	S	-	1
<i>Myrmotherula menetriesii</i>	Grey Antwren	-	-	S	-	1
<i>Myrmotherula longipennis</i>	Long-winged Antwren	-	C	U	-	2
<i>Herpsilochmus sticturus</i>	Spot-tailed Antwren	-	F	F	14	-
<i>Herpsilochmus stictocephalus</i>	Todd's Antwren	GS	F	U	8	-
<i>Microrhopias quixensis</i>	Dot-winged Antwren	-	S	-	-	-
<i>Terenura spodiopila</i>	Ash-winged Antwren	-	S	-	-	-
<i>Cercomacra cinerascens</i>	Grey Antbird	-	C	U	9	-
<i>Cercomacra tyrannina</i>	Dusky Antbird	-	F	U	9	1
<i>Myrmoborus myotherinus</i>	White-browed Antbird	-	-	U	7	-
<i>Hypocnemis cantator</i>	Warbling Antbird	-	F	F	14	1
<i>Hypocnemoides melanopogon</i>	Black-chinned Antbird	-	F	U	9	-
<i>Percnostola rufifrons</i>	Black-headed Antbird	-	F	U	12	-
<i>Hylophylax poecilinota</i>	Scale-backed Antbird	-	F	S	-	2
<i>Hylophylax naevia</i>	Spot-backed Antbird	-	F	S	1	1
<i>Myrmeciza ferruginea</i>	Ferruginous-backed Antbird	-	-	S	2	-
<i>Myrmornis torquata</i>	Wing-banded Antbird	-	U	S	-	-
<i>Pithys albifrons</i>	White-plumed Antbird	-	F	S	-	2
<i>Gymnopithys rufigula</i>	Rufous-throated Antbird	GS	F	S	-	1
<i>Sclateria naevia</i>	Silvered Antbird	-	-	S	-	1
FORMICARIIDAE						
<i>Formicarius analis</i>	Black-faced Antthrush	-	U	U	5	-
<i>Formicarius colma</i>	Rufous-capped Antthrush	-	-	S	*	2
<i>Hylopezus macularius</i>	Spotted Antpitta	-	F	U	5	1
<i>Myrmothera campanisona</i>	Thrush-like Antpitta	-	F	F	21	-
<i>Grallaria varia</i>	Variegated Antpitta	-	-	S	1	1
CONOPOPHAGIDAE						
<i>Conopophaga aurita</i>	Chestnut-belted Gnateater	-	U	-	-	-
TYRANNIDAE						
<i>Tyrannulus elatus</i>	Yellow-crowned Tyrannulet	-	F	-	-	-
<i>Myiopagis gaimardii</i>	Forest Elaenia	-	U	U	11	-
<i>Mionectes macconnelli</i>	McConnell's Flycatcher	-	U	-	-	-
<i>Legatus leucophaeus</i>	Piratic Flycatcher	-	-	S	2	-
<i>Mionectes oleagineus</i>	Ochre-bellied Flycatcher	-	U	S	-	2
<i>Miarchus ferox</i>	Short-crested Flycatcher	-	-	S	-	3

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<i>Colonia colonus</i>	Long-tailed Tyrant	-	-	S	2	-
<i>Ochthornis littoralis</i>	Drab Water Tyrant	-	-	F	80	-
<i>Zimmerius gracilipes</i>	Slender-footed Tyrannulet	-	S	-	-	-
<i>Lophotriccus vitiosus</i>	Double-banded Pygmy-Tyrant	-	F	-	-	-
<i>Lophotriccus galeatus</i>	Helmeted Pygmy-Tyrant	-	U	U	5	-
<i>Myiornis ecuadatus</i>	Short-tailed Pygmy-Tyrant	-	-	F	18	-
<i>Todirostrum pictum</i>	Painted Tody-Flycatcher	-	U	-	-	-
<i>Todirostrum cinereum</i>	Common Tody-Flycatcher	-	-	S	1	-
<i>Corythopsis torquata</i>	Ringed Antpipit	-	U	-	-	-
<i>Tolmomyias assimilis</i>	Yellow-margined Flycatcher	-	F	-	-	-
<i>Platyrinchus coronatus</i>	Golden-crowned Spadebill	-	F	F	-	9
<i>Platyrinchus platyrhynchos</i>	White-crested Spadebill	-	S	-	-	-
<i>Platyrinchus saturatus</i>	Cinnamon-crested Spadebill	-	S	-	-	-
<i>Onychorhynchus coronatus</i>	Royal Flycatcher	-	U	-	-	-
<i>Myiobius barbatus</i>	Sulphur-rumped Flycatcher	-	U	-	-	-
<i>Attila spadiceus</i>	Bright-rumped Attila	-	U	S	3	-
<i>Attila cinnamomeus</i>	Cinnamon Attila	-	-	S	1	-
<i>Rhytipterna simplex</i>	Grayish Mourner	-	U	-	-	-
<i>Myiozetetes luteiventris</i>	Dusky-chested Flycatcher	-	U	-	-	-
<i>Myiozetetes cayanensis</i>	Rusty-margined Flycatcher	-	-	F	21	-
<i>Conopias parva</i>	Yellow-throated Flycatcher	-	F	U	8	-
<i>Tyrannus melancholicus</i>	Tropical Kingbird	-	U	F	17	-
<i>Pitangus lictor</i>	Lesser Kiskadee	-	-	U	7	-
<i>Schiffornis turdinus</i>	Thrush-like Schiffornis	-	F	S	3	1
<i>Lipaugus vociferans</i>	Screaming Piha	-	F	C	145	-
<i>Laniocera hypopyrra</i>	Cinereous Mourner	-	U	-	-	-
<i>Pachyramphus marginatus</i>	Black-capped Becard	-	U	-	-	-
<i>Pachyramphus minor</i>	Pink-throated Becard	-	S	-	-	-
COTINGIDAE						
<i>Xipholena punicea</i>	Pompadour Cotinga	-	S	S	3	-
<i>Perissocephalus tricolor</i>	Capuchinbird	-	U	S	1	-
<i>Phoenicircus carnifex</i>	Guianan Red Cotinga	-	-	S	1	-
<i>Cotinga cayana</i>	Spangled Cotinga	-	-	S	1	-
<i>Querula purpurata</i>	Purple-throated Fruitcrow	-	-	S	1	-
TITYRIDAE						
<i>Tityra cayana</i>	Black-tailed Tityra	-	-	S	1	-
PIPRIDAE						
<i>Pipra pipra</i>	White-crowned Manakin	-	F	S	-	2
<i>Pipra erythrocephala</i>	Golden-headed Manakin	-	F	-	-	-
<i>Tyrannneutes virescens</i>	Tiny Tyrant-Manakin	-	U	U	6	-
<i>Manacus manacus</i>	White-bearded Manakin	-	-	S	1	-
VIREONIDAE						
<i>Hylophilus muscicapinus</i>	Buff-cheeked Greenlet	-	F	-	-	-

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O status da conservação está descrito como NT (ameaçada), V (vulnerável), E (em perigo). GS (Escudo da Guiana) se refere à região de endemismos. A abundância foi registrada como C (comum), quando mais de 20 indivíduos foram encontrados diariamente em seu habitat original e estação ótimos; F (relativamente comum) 5-20 indivíduos encontrados diariamente em seu habitat e estação ótimos; U (incomum) menos de 5 indivíduos encontrados; não encontrados diariamente mesmo no habitat original e estação ótimos; S (raro) apenas ocasionalmente encontrados em pequeno número mesmo no habitat original e estação ótimos. * Indivíduos encontrados acima Corona Falls, mas não encontrados durante um exame.

Table 2. Continued...

Tabela 2. Continuação...

Families and species	Common name	Conservation and endemism	SI expedition Aug 2006 abundance	ZSL expedition Jan./2009		
				Abundance	Recorded during river counts	Caught in mist nets
<i>Cyclarhis gujanensis</i>	Rufous-browed Peppershrike	-	-	U	10	-
<i>Vireolaneus leucotis</i>	Slatey-capped Shrike-Vireo	-	-	U	8	-
HIRUNDINIDAE						
<i>Tachycineta albiventer</i>	White-winged Swallow	-	F	C	136	-
<i>Atticora fasciata</i>	White-banded Swallow	-	C	C	735	-
<i>Progne chalybea</i>	Grey-breasted martin	-	-	S	3	-
TROGLODYTIDAE						
<i>Henicorhina leucosticta</i>	White-breasted Wood-Wren	-	S	-	-	-
<i>Thryothorus coraya</i>	Coraya Wren	-	U	U	13	-
<i>Thryothorus leucotis</i>	Buff-breasted Wren	-	U	F	29	-
<i>Microcerculus bambla</i>	Wing-banded Wren	-	S	-	-	-
<i>Cyphorhinus arada</i>	Musician Wren	-	S	S	1	-
SYLVIIDAE						
<i>Ramphocaenus melanurus</i>	Long-billed Gnatwren	-	S	-	-	-
TURDIDAE						
<i>Turdus albicollis</i>	White-necked Thrush	-	U	-	-	-
<i>Turdus fumigatus</i>	Cocoa Thrush	-	-	S	4	-
PARULIDAE						
<i>Phaeothlypis rivularis</i>	River Warbler	-	S	-	-	-
COEREBOIDAE						
<i>Coereba flaveola</i>	Bananaquit	-	U	S	1	-
THRAUPIDAE						
<i>Lanio fulvus</i>	Fulvous Shrike-Tanager	-	?	-	-	-
<i>Tachyphonus surinamus</i>	Fulvous-crested Tanager	-	U	S	*	-
<i>Ramphocelus carbo</i>	Silver-beaked Tanager	-	U	F	30	-
<i>Thraupis episcopus</i>	Blue-gray Tanager	-	-	-	-	-
<i>Tangara mexicana</i>	Turquoise Tanager	-	U	S	3	-
<i>Tangara velia</i>	Opal-rumped Tanager	-	-	S	4	-
<i>Dacnis cayana</i>	Blue Dacnis	-	S	-	-	-
<i>Tersina viridis</i>	Swallow Tanager	-	-	U	28	-
EMBERIZINAE						
<i>Paroaria gularis</i>	Red-capped Cardinal	-	U	-	-	-
CARDINALINAE						
<i>Pitylus grossus</i>	Slate-colored Grosbeak	-	F	U	11	-
<i>Saltator coerulescens</i>	Greyish Saltator	-	S	S	1	-
<i>Caryothraustes canadensis</i>	Yellow-green Grosbeak	-	F	-	-	-
<i>Cyanocopsa cyanoides</i>	Blue-black Grosbeak	-	U	S	3	-
FRINGILIDAE						
<i>Euphonia violacea</i>	Violaceous Euphonia	-	-	S	1	-
ICTERIDAE						
<i>Scaphidura oryzivora</i>	Giant Cowbird	-	-	F	32	-
<i>Molothrus bonariensis</i>	Shiny Cowbird	-	-	U	5	-
<i>Cacicus cela</i>	Yellow-rumped Cacique	-	U	C	60	-
<i>Cacicus haemorrhous</i>	Red-rumped Cacique	-	-	C	29	-
<i>Psarocolius decumanus</i>	Crested Oropendola	-	U	C	64	-
<i>Psarocolius viridis</i>	Green Oropendola	-	U	U	8	-

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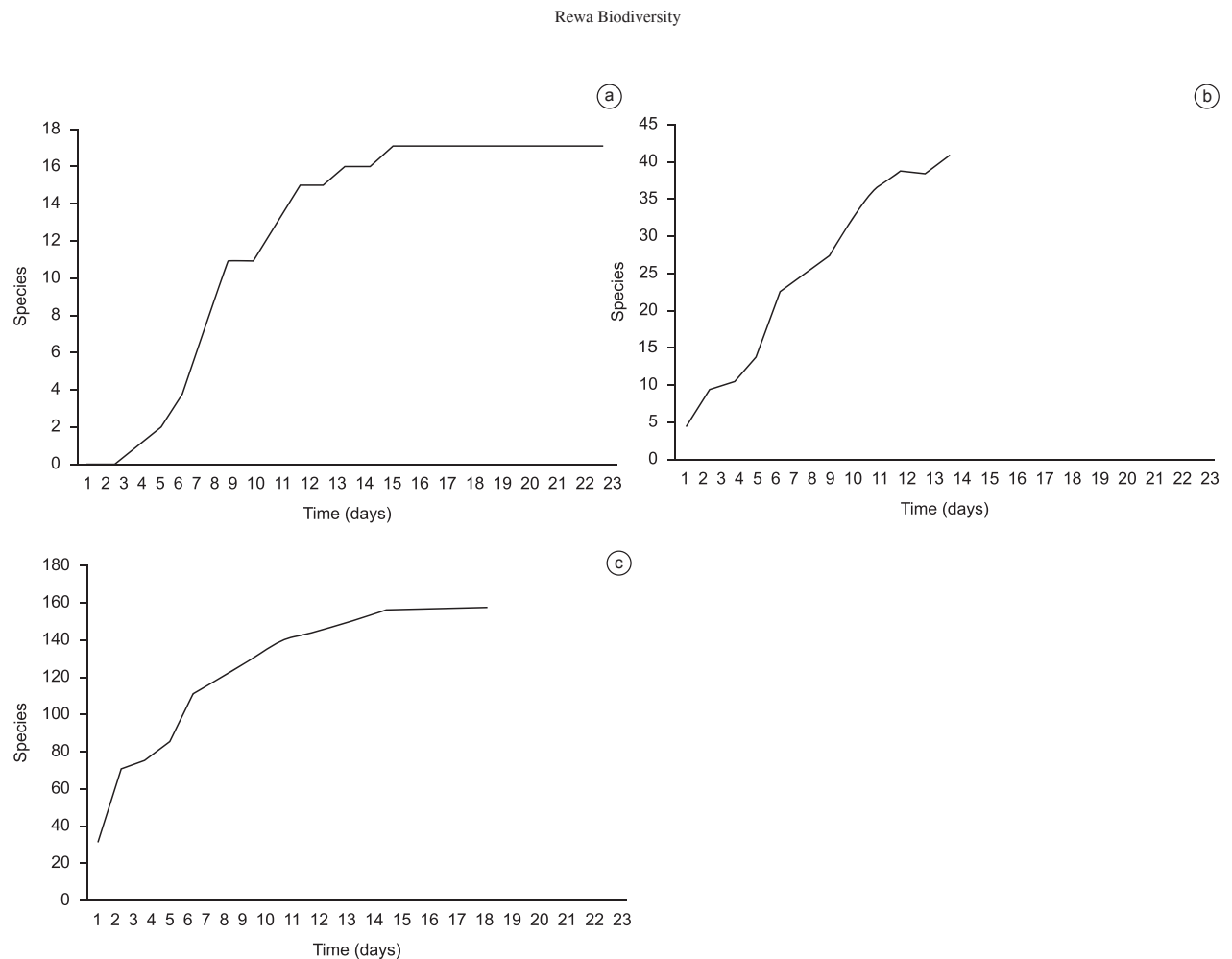


Figure 4. Species accumulation curves: a) camera trap survey (top left), b) mist net survey (top right), c) drift spot count survey (bottom).

Figura 4. As curvas de acúmulo de espécies: a) armadilha fotográficas (canto superior esquerdo), b) redes de neblina (acima à direita), c) avistamentos do aves (em baixo).

to be important for jaguar (*Panthera onca*): three were recorded during our expedition and numerous faecal deposits were also encountered. Holland recorded 11 daylight jaguar sightings over six weeks during a period of extreme low water in 2006. The difficulty of portaging boats above the falls into the Rewa Head has prevented the expansion of hunters into the area. Consequently game species such as lowland tapir (*Tapirus terrestris*), paca (*Agouti paca*) and black curassow (*Crax alector*) are both common and naïve. During the course of the expedition four tapirs were encountered in the river during the day and tolerated us approaching to within 5 m.

The presence of the bush dog is also important. The bush dog is an elusive and poorly understood animal, with most data on its behaviour and diet derived from anecdotes. In one study on diet in the Brazilian Pantanal, de Souza Lima et al. (2009) recorded that the predominant prey found in faeces was the nine-banded long-nosed armadillo (*Dasypus novemcinctus*), which appears abundant in the Rewa Head. Although its range is large and it is found throughout Amazonia, it is considered to occur in low densities. The IUCN red list classifies the species as 'Near Threatened' being likely to suffer a 10% decline over the following decade due to habitat degradation (Zuercher et al. 2008).

The density of the giant otter is similar to that recorded on the Rio San Martin in Bolivia by Zambrana Rojas (2007). Following the cessation of commercial hunting, these headwaters of the River

Rewa likely constituted a source for giant otter expansion within Guyana. While there is no commercial hunting of giant otters, they are occasionally persecuted due to the perceived competition with fishermen, and suffer from habitat loss and disturbance due to gold mining (Groenendijk et al. 2005).

The demands of resource extraction in Southern Guyana in the near future may lead to conflict with the interests of conservation of biodiversity. The Rewa Head constitutes part of a 400,000 ha logging concession (Simon & Shock International 2007). While there has recently been a moratorium put in place on gold dredging in the Rewa, the security of the rivers from wildcat miners is in doubt.

Conclusion

River surveys were conducted alongside to the secondary goal of searching for sign of giant otter activity. Such surveys are biased towards riparian species of bird and further expeditions should also include spot-count transects within the forest itself. Small mammal trapping and bat netting were also not conducted and yet these surveys as well as extensive ichthyological surveys are extremely important for determining the community assemblage of this important forest, especially in light of the recent identification of 86 species of bat in the Iwokrama reserve alone (the highest of any protected area), and of the identification of a high degree of endemism in the aquatic fauna of the Essequibo drainage basin. The conservation potential of the Rewa

Head is high in that it lies between the Upper Essequibo Concession, maintained by Conservation International and the proposed Kanuku Mountains Protected Area (Montaubaut & Missa 2002). Protection of the Rewa Head would form a protected area spanning almost the width of Guyana. We conclude from our results that the Rewa Head is an ecologically important area within the Guiana Shield rainforest and merits recognition, and that further studies exploring the biological richness of the region are recommended.

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Appendix 1. Mist-net survey sites.

Monkey Ladder Camp	N2 59.773 W58 35.971
Powys Camp	N3 07.901 W58 37.896
Split Camp	N2 37.752 W58 37.152
Tayra Camp	N2 45.358 W58 37.415
Onca Camp	N2 53.697 W58 35.225