

Avian range extensions from the southern headwaters of the río Caroní, Gran Sabana, Bolívar, Venezuela

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Este artículo se refiere a mis observaciones de aves durante más de ocho años de residencia en la región de las cabeceras sureñas del río Caroní en la parte sur de la Gran Sabana, en el Estado Bolívar de Venezuela. Para 145 especies, presento nuevos registros que están significativamente distantes de los publicados o fuera de los rangos altitudinales establecidos para Venezuela al sur del Orinoco. La gran cantidad de observaciones ha sido resumida en una tabla para proveer información sobre la magnitud de las extensiones aparentes dentro de Venezuela, una indicación aproximada de la abundancia y distribución detallada dentro del área de estudio y sus diferentes tipos de hábitat. Se proveen descripciones más completas, incluyendo detalles de distribución en zonas circundantes, para algunas especies seleccionadas, para las cuales la distancia a los registros establecidos son mayores o donde existe evidencia respecto a movimientos estacionales. Las especies tratadas incluyen *Poecilatriccus fumifrons*, conocida previamente en Venezuela de un solo espécimen colectado en el extremo sur del país en 1992.

The Gran Sabana in south-east Venezuela, in Bolívar state, comprises a remnant of a band of elevated savannas that once separated the Amazonian and Guianan lowlands. In its southern part, the río Cukuanan crosses east–west from near the border with Guyana to the junction with the río Caroní, forming the southern border of Canaima National Park, which is dominated by savanna. Four tributaries (Uairén, Surucún, Uaiparú and Icabarú) drain the more forested area south of the Cukuanan from the Orinoco / Amazon watershed on the Sierra de Pacaraima, which marks the border with Brazil. I refer to this area as the southern headwaters of the Caroní. As a resident of the region since 2000, I have discovered avifaunal diversity to be much greater than previously recognised (>500 species). Here I detail the numerous range extensions I have documented, in order to promote ornithological interest in the area.

Most of the area lies at 800–1,000 m with tepuis to 1,600 m (Chirikayén) and valleys at c.650 m (río Uaiparú) and 500 m (río Icabarú). With annual rainfall of c.2,000–2,250 mm, the three main bioclimatic types in the area are savanna, wet premontane forest and, at lower elevations in the Uaiparú and Icabarú valleys, tropical humid forest⁵.

Savannas, mostly in the elevation range 850–1,000 m, exist in the form of islands, up to 100 km², surrounded by forest. The savannas around Santa Elena, at the east end of the study area, form the southern tip of the much more extensive savanna occupying the north-east Gran Sabana and were bordered to the south until recent times by unbroken forest. The forest border along the steep southern flank south of Santa Elena is now being breached by slash-and-burn agriculture, facil-

itating the arrival of lowland savanna species from Roraima state in Brazil.

The study area (Fig. 1), a strip of land c.80 km × 15 km, refers to that part of the southern headwater region accessible via the limited road system, in particular the Paují road linking Santa Elena to Icabarú, which is mentioned in birders' guidebooks^{6,18,25}. I refer to this accessible part as the Paují road area. Ornithological exploration was initiated here by Phelps in 1945¹⁹, specifically around Santa Elena and Pauraitépu. Although much of the forest habitat along the roads is now disturbed by slash-and-burn agriculture, the area still possesses several extensions of largely continuous forest, notably in the Uaiparú Valley (c.200 km²) and the Surucún basin (c.400 km²). The forests of the Uairén basin are more fragmented and disturbed due to the proximity to Santa Elena (c.25,000 inhabitants). Forested areas in the

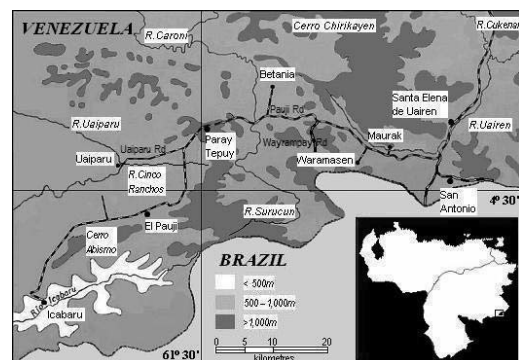


Figure 1. Map of the southern Gran Sabana, showing the Paují Road area.

headwaters of the Icabarú (c.500 km²), although largely untouched, are inaccessible.

Methods

Since 2000, I have devoted on average about one morning per week, mostly from first light until c.11 am, to field work, with the aim of compiling an avian inventory. Frequent opportunistic observations have also been made, particularly around Paují village and along the Paují road during trips to Santa Elena. Observations are recorded in a database¹.

Sight identification, using binoculars and telescope, was based on Meyer de Schauensee & Phelps⁹, Ridgely & Tudor for passerines^{16,17}, latterly Hilty⁷ and, even more recently, Restall *et al.*¹⁵. Photography, using a digital camera hand-held to the telescope, has been used in the last three years to document sight records. Photographs have been deposited at VIREO (Philadelphia, PA).

Recording of vocalisations has been used increasingly, particularly for forest interior and other hard-to-see species, by comparison with commercial CDs^{2,22}, the voice descriptions in Hilty⁷ and recordings posted on the website www.xeno-canto.org. A digital voice recorder with external microphone is used for recording field notes and readily audible vocalisations, and a Sony MZ-R37 Minidisc recorder with a Sennheiser K6 / ME67 microphone for better quality recording. Recordings evidencing species occurrence in the area have been deposited at the British Library Sound Archive (London, UK).

Altitudes were obtained from three sources: contour maps of the area published by Cartografía Nacional in the 1: 25,000 and 1: 100,000 series, a GPS or a watch altimeter. The study area has been divided into eight sub-areas, with roughly homogeneous habitats (see Table 1), to permit observations (Table 2) to be associated with a predominant habitat type and to permit more precise localisation.

Species inclusion

Most published records for Venezuela, until to year 2002, were mapped as points by Hilty⁷. A more recent guide to the northern South America region¹⁵ shows updated expected distributions but no actual records, presumably in part due to the very small scale of the maps. Since 2002 to date, no further specimen or sighting records have been published for the Paují Road area. The limited number of published records, together with the deliberate omission from the Hilty guide⁷ of unpublished and unconfirmed sightings, means that the presence of many species in the area is not reflected. Although the paucity of records was compensated, to some extent, in Hilty⁷ by marking expected distributions, derived from actual records using habitat distribution and elevational contours, the necessity of consolidating the actual record base remains. I used the following criteria for inclusion in Table 2: (a) observed *outside* the expected distributions⁷ >50 km from the nearest actual record; (b) observed *within* the expected distributions⁷ but >100 km from the nearest actual record; (c) observed significantly outside the altitudinal ranges of the guide⁷; and (d) evidence of seasonal movement obtained. Based on these criteria, 146 species are included in Table 2. As my main purpose is to present new range information with respect to the Hilty guide⁷, systematic order and species nomenclature follow the latter.

Range extensions

I have registered 79 species in the Paují area at elevations well above published altitudinal limits of these birds south of the Orinoco⁷. However, many of these limits evidently understate altitude range, since the maps actually show an expected presence or records at locations considerably higher than the stated limits. In reality, apparently most species that occupy lowland forest or 'edge' habitat adjacent to the Gran Sabana have also occupied all areas of contiguous forest or 'edge' up to at least 900 m in the same area. A similar observation was made for the nearby Mt. Kopinang, in the Wokamung Tepui massif of Guyana, where many

Table 1. Details of Paují Road sub-areas.

Sub-Area		Elevational range	Habitat types	Coordinates of sub-area midpoint
Code	Description			
a	El Paují area	800-1,000 m	savannas, scrub, white-sand woodlands, some narrow gallery	04°28.5'N 61°35.4'W
b	Savannas west of El Paují	800-1,000 m	forests, forest islands, conucos and edge of forests of rio	04°27.6'N 61°38.9'W
c	Savannas north-east of El Paují	800-1,000 m	Icabarú basin	04°33.9'N 61°31.7'W
d	Savannas around Santa Elena	800-1,000 m	savannas, morichales, narrow gallery forests and forest islands, conucos, forest edge, ponds	04°36.2'N 61°06.4'W
e	Tepui summits	1,050-1,600 m	white-sand woodlands, savanna scrub	04°36.5'N 61°27.3'W
f	Río Uaiparú Valley forest	650-850 m		04°32.0'N 61°37.3'W
g	Río Cinco Ranchos forest	800-950 m	primary and degraded forest, conucos and clearings along road, forest edge (including forest rivers and ponds)	04°32.5'N 61°31.5'W
h	Río Surucún basin forests	800-950 m		04°37.0'N 61°23.8'W

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Table 2. Summary of range extensions.

Inclusion. Rationale. R = outside expected distribution per Hilty⁷ and at least 100 km from nearest known published record in Venezuela; r = less-surprising range extension, see text; h = outside Hilty's⁷ altitudinal range; M = evidence of migratory movement. Categories R and M detailed in Selected species accounts.

No. of observations. Observation signifies at least one identification in a given location in a given week (to July 2004) or day (after July 2004) between 1997 to date.

Location. Letters a-h signify different areas of the Pauji Road, see Table 1 for details and coordinates. ® signifies river or pond.

Km. Distance from nearest known published record in Venezuela per Hilty⁷ or other source (nearest records in Guyana or Brazil may be closer). (x = within Hilty's expected distribution; - = no significant geographical range extension).

Max. elevation. Max. elevation/upper limit of range per Hilty⁷ or other published source (when exceeded by my observation). + signifies elevation noted is lower limit. # in () = higher personal sightings from the northern Gran Sabana.

Evidence. P = photograph (deposited at VIREO, Philadelphia); R = sound-recording (deposited at British Library Sound Archive, London, UK); ^{a,k,m,r} = also seen and/or heard by D. Ascanio, J. Kvarnback, T. Mischler or A. Renaudier; blank = sight record.

English	Species name	Scientific	Inclusion	No. of obs.	Location	Km	Max. elevation	Evidence
Pied-billed Grebe		<i>Podilymbus podiceps</i>	R	1	d®	600	920	P
Neotropic Cormorant		<i>Phalacrocorax brasilianus</i>	r	2	d®	230x	920	
Anhinga		<i>Anhinga anhinga</i>	h,r	2	f®	230x	650/300	
Black-bellied Whistling Duck		<i>Dendrocygna autumnalis</i>	h,R	1	c	320	850/600	
Muscovy Duck		<i>Cairina moschata</i>	h,r	5	h®	110x	930/300	P
Masked Duck		<i>Nomonyx dominicus</i>	R	2	dh®	110	880	
American Flamingo		<i>Phoenicopterus ruber</i>	h,R	2	a	740	900/SL	
Pinnated Bittern		<i>Botaurus pinnatus</i>	h,R	1	c	110	1,000/400	
Rufescent Tiger Heron		<i>Tigrisoma lineatum</i>	h	4	gh®	-	920/300	P
Great Egret		<i>Ardea alba</i>	r	31	adh®	300x	900	P
Cattle Egret		<i>Bubulcus ibis</i>	R,M	51	acdfh	220	900	P
Striated Heron		<i>Butorides striatus</i>	h,r	1	a®	190x	860/250	P
Green Ibis		<i>Mesembrinibis cayennensis</i>	h	7	dfh®	-	870/500	
Greater Yellow-headed Vulture		<i>Cathartes melambrotus</i>	h	52	fgh	-	850/500	P
Swallow-tailed Kite		<i>Elanoides forficatus</i>	M	109	abcdefgh	-	1,200	P
Tiny Hawk		<i>Accipiter superciliosus</i>	r	9	fgh	150x	900	P
Grey-bellied Hawk		<i>Accipiter poliogaster</i>	h,r	6	cfg	170x	880/400	
White Hawk		<i>Leucopternis albicollis</i>	r	73	afh	120x	950	P
Savanna Hawk		<i>Buteogallus meridionalis</i>	h	24	adf	-	930/500	P
Great Black Hawk		<i>Buteogallus urubitinga</i>	h	2	df	-	970/500	P
Grey Hawk		<i>Asturina nitida</i>	h	18	dfgh	-	900/250	P
Broad-winged Hawk		<i>Buteo platypterus</i>	r	13	afh	150x	900	P
Short-tailed Hawk		<i>Buteo brachyurus</i>	r	23	abdfgh	120x	950	P
Crested Eagle		<i>Morphnus guianensis</i>	r	1	h	150x	970	P
Harpy Eagle		<i>Harpia harpyja</i>	r	2	h	110x	980	P
Black-and-white Hawk-Eagle		<i>Spizastur melanoleucus</i>	r	3	fh	150x	930	P
Ornate Hawk-Eagle		<i>Spizaetus ornatus</i>	r	1	f	170x	700	^k
Black Caracara		<i>Daptrius ater</i>	h,R	20	df	320	890/300	P
Laughing Falcon		<i>Herpetotheres cachinnans</i>	h,r	18	afgh	230x	(1,350)/500	^a
Orange-breasted Falcon		<i>Falco deiroleucus</i>	r	2	dh	70x	1,100	P
Grey-necked Wood Rail		<i>Aramides cajanea</i>	h	15	afh	-	930/650	R
Russet-crowned Crane		<i>Laterallus viridis</i>	r	54	abcfgh	120x	950	R
Sunbittern		<i>Eurypyga helias</i>	h,r	6	dfgh®	150x	900/500	
Limpkin		<i>Aramus guarauna</i>	h,R	1	h®	300	900/300	
Double-striped Thick-knee		<i>Burhinus bistriatus</i>	h,R	3	d	330	890/200	P
Wattled Jacana		<i>Jacana jacana</i>	h,R	8	h®	300	920/300	P
Greater Yellowlegs		<i>Tringa melanoleuca</i>	r	2	d®	110x	950	
Whimbrel		<i>Numenius phaeopus</i>	R	1	a	250	890	
Giant Snipe		<i>Gallinago undulata</i>	h,r	183	adfgh	50	(1,800)/1,400	R
Common Ground Dove		<i>Columbina passerina</i>	h,R	5	d	240	890/500	
Plain-breasted Ground Dove		<i>Columbina minuta</i>	h	63	acf	-	900/500	P
Blue Ground Dove		<i>Claravis pretiosa</i>	h	62	abdfgh	-	930/300	P
Blue-and-yellow Macaw		<i>Ara ararauna</i>	h,R	see text	af	400	870/500	P
Scarlet Macaw		<i>Ara macao</i>	h,R	6	af	190	950/500	P
Red-and-green Macaw		<i>Ara chloroptera</i>	r	146	acdfh	130x	1,040	P
White-eyed Parakeet		<i>Aratinga leucophthalma</i>	h,R	3	d,g	260	930/500	^m
Blue-cheeked Parrot		<i>Amazona dufresniana</i>	R	13	cfgh	120	940	P
Mealy Parrot		<i>Amazona farinosa</i>	h,R	38	f	140	930/500	P
Red-fan Parrot		<i>Derophtus accipitrinus</i>	h,R	102	fgh	130	870/200	P
Dark-billed Cuckoo		<i>Coccyzus melacoryphus</i>	r,M	30	acfgh	60	870	P
Black-bellied Cuckoo		<i>Piaya melanogaster</i>	h,R	3	f	120	870/500	
Little Cuckoo		<i>Piaya minuta</i>	r	18	dfh	60	900	P

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Striped Cuckoo	<i>Tapera naevia</i>	r	299	abcdeh	110x	1,050	P
Rufous-winged Ground Cuckoo	<i>Neomorphus rufipennis</i>	r	1	f	120x	800	
Barn Owl	<i>Tyto alba</i>	r	1	d	100	930	
Tropical Screech Owl	<i>Otus chaliba</i>	r	47	ab	300x	870	P,R
Stygian Owl	<i>Asio stygius</i>	R	18	a	270	1,000	P
Tepui Swift	<i>Cypseloides nheleus</i>	R	25	acdfgh	120	910	a
Short-tailed Swift	<i>Chaetura brachyura</i>	R	9	acdfh	150	870	a
Lesser Swallow-tailed Swift	<i>Panyptila cayennensis</i>	R	7	dffh	150	970	r
Rufous-breasted Hermit	<i>Glaucis hirsutus</i>	h,R	6	ah	170	920/600	P
Pale-tailed Barbthroat	<i>Threnetes niger</i>	R	4	fh	110	850	
White-necked Jacobin	<i>Florisuga mellivora</i>	r	193	abcdfgh	110x	970	P
Ruby-topaz Hummingbird	<i>Chrysolampis mosquitus</i>	R	5	ach	190	880	P
Crimson Topaz	<i>Topaza pella</i>	h	18	abcf	-	880/500	P
Tufted Coquette	<i>Lophornis ornatus</i>	h,R	79	acdfgh	110	1,000/700	P
Festive Coquette	<i>Lophornis chalybeus</i>	h	3	fg	-	850/500	
Racket-tailed Coquette	<i>Discosura longicauda</i>	h,R	3	a,f,g	150	900/200	
Rufous-throated Sapphire	<i>Hylocharis sapphirina</i>	h,R	7	af	110	900/500	P
Gould's Jewelfront	<i>Heliodoxa aurescens</i>	r	1	a	50	900	
Black-eared Fairy	<i>Heliodytes aurita</i>	r	84	abcdfgh	100x	920	P
Ringed Kingfisher	<i>Ceryle torquata</i>	h	12	bdfh	-	900/500	P
Amazon Kingfisher	<i>Chloroceryle amazona</i>	h	11	bdf	-	930/500	
Green-and-rufous Kingfisher	<i>Chloroceryle inda</i>	h	5	afh	-	870/400	
Green-tailed Jacamar	<i>Galbula galbula</i>	h,r	42	f	90	850/450	P
Great Jacamar	<i>Jacamerops aureus</i>	h,R	4	f	140	840/500	P
White-necked Puffbird	<i>Notarctus macrorhynchus</i>	r	1	g	150x	850	
Chestnut-capped Puffbird	<i>Bucco macrorhynchus</i>	h,R	2	f	120	660/550	P
Spotted Puffbird	<i>Bucco tamatia</i>	h,r	5	abf	100	900/700	P
Ivory-billed Aracari	<i>Pteroglossus azara</i>	h,R	30	fh	190	890/350	P
Green Aracari	<i>Pteroglossus viridis</i>	h,R	85	dffh	140	910/600	P
Yellow-throated Woodpecker	<i>Picus flavigula</i>	h,r	11	ffh	100	750/700	P
McConnell's Spinetail	<i>Synallaxis macconnelli</i>	r	14	dh	90	910	R
Plain-crowned Spinetail	<i>Synallaxis gujanensis</i>	h	96	af	-	870/550	P,R
Speckled Spinetail	<i>Cranioleuca gutturata</i>	R	3	df	110	910	R
Buff-throated Foliage-gleaner	<i>Automolus ochrolaemus</i>	R	24	afh	170	800	R
Plain Xenops	<i>Xenops minutus</i>	r	19	ffh	150x	880	
Fasciated Antshrike	<i>Cymbilaimus lineatus</i>	r	7	ff	150x	840	a
Black-throated Antshrike	<i>Frederickia viridis</i>	h,R	1	f	150	850/500	R
White-shouldered Antshrike	<i>Thamnophilus aethiops</i>	h,r	16	ff	70	850/400	R
Guianan Streaked Antwren	<i>Myrmotherula surinamensis</i>	h	5	f	-	660/400	
Spot-backed Antwren	<i>Herpilochmus dorsimaculatus</i>	h,R	1	f	130	830/400	R
Rufous-throated Antbird	<i>Gymnophaps rufigula</i>	r	9	f	130x	850	R
Sooty-headed Tyrannulet	<i>Phyllomyias griseiceps</i>	h	68	dffh	-	930/460	R
Grey Elaenia	<i>Myiobagis caniceps</i>	h,R	4	fh	190	950/300	P
Slaty Elaenia	<i>Elaenia strepera</i>	r	1	d	150	900	
Yellow Tyrannulet	<i>Capsiempis flaveola</i>	h,R	6	fh	140	650/300	P,R
Pearly-vented Tody-Tyrant	<i>Hemitriccus margaritaceiventer</i>	h,r	22	abc	70	800/1,000+	P,R
Painted Tody-Flycatcher	<i>Todirostrum pictum</i>	h,r	13	ff	150x	850/400	P
Smoky-fronted Tody-Flycatcher	<i>Poecilatriccus fumifrons</i>	R	10	df	580	910	P,R
Rufous-tailed Flatbill	<i>Ramphotrigon ruficauda</i>	h,R	2	f	130	830/500	R
White-crested Spadebill	<i>Platyrinchus platyrinchos</i>	h,R	4	f	180	670/300	r
Amazonian Royal Flycatcher	<i>Anchorhynchus coronatus</i>	R	2	fh	140x	860	
Ruddy-tailed Flycatcher	<i>Terenotriccus erythrurus</i>	r	1	f	100x	650	R
Olive-sided Flycatcher	<i>Contopus cooperi</i>	R	7	ffh	160	920	P
Long-tailed Tyrant	<i>Colonia colonus</i>	h,R	134	dffh	160	900/350	P
Bright-rumped Attila	<i>Attila spadiceus</i>	h,R	48	ffh	150	900/400	R
Great Kiskadee	<i>Pitangus sulphuratus</i>	h	3	cd	-	900/500	
Dusky-chested Flycatcher	<i>Myiozetetes luteiventris</i>	h,R	12	ff	190	800/350	P
Yellow-throated Flycatcher	<i>Conopias parva</i>	r	42	ffh	60	900	P
Streaked Flycatcher	<i>Myiodynastes maculatus</i>	h	21	afgh	-	920/300	a
Piratic Flycatcher	<i>Legatus leucophaeus</i>	h	102	acdfgh	-	900/600	a
Sulphury Flycatcher	<i>Tyrannopsis sulphurea</i>	h	6	adf	-	890/500	R
Grey Kingbird	<i>Tyrannus dominicensis</i>	R	1	d	400	880	P
Cinereous Mourner	<i>Laniocera hypopyrra</i>	h	13	ff	-	830/500	R
Pink-throated Becard	<i>Platyparis minor</i>	h,r	8	ffh	170x	900/800	
Dusky Purpletuft	<i>Iodopleura fusca</i>	h	68	afgh	-	920/500	P
Spangled Cotinga	<i>Cotinga cayana</i>	h	85	dffh	-	950/500	P
Black Manakin	<i>Xenopipo atronitens</i>	r	11	abf	100	910	R
Dwarf Tyrant Manakin	<i>Tyrannetes stolzmanni</i>	h	123	adffh	-	920/300	P,R
Saffron-crested Tyrant-Manakin	<i>Neopelma chrysocephalum</i>	h,r	10	f	90	850/700	R

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Grey-chested Greenlet	<i>Hylophilus semicinereus</i>	h,R	22	fgh	130	650/350	P,R
Buff-cheeked Greenlet	<i>Hylophilus muscicapinus</i>	r	18	fgh	110x	1,000	R
Blue-and-white Swallow	<i>Pygochelidon cyanoleuca</i>	R	287	abcdefgh	120	950	P
White-banded Swallow	<i>Aticora fasciata</i>	r	9	f@	120x	690	P
Coraya Wren	<i>Thryothorus coraya</i>	r	240	abcdfgh	100x	920	R
Swainson's Thrush	<i>Catharus ustulatus</i>	h,r	1	a	120x	930/150	
Veery	<i>Catharus fuscescens</i>	r	1	f	150x	850	R
Prothonotary Warbler	<i>Protonotaria citrea</i>	R	1	c	500	920	
Rose-breasted Chat	<i>Granatellus pelzelni</i>	r	3	f	140x	660	R
Hooded Tanager	<i>Nemosia pileata</i>	h,R	1	g	290	820/600	
White-lined Tanager	<i>Tachyphonus rufus</i>	R	44	acdfgh	250	920	P
Rufous-bellied Euphonia	<i>Euphonia rufiventris</i>	R	18	dfg	140	1,050	^a
Speckled Tanager	<i>Tangara guttata</i>	r	4	fgh	90	980	
Yellow-bellied Tanager	<i>Tangara xanthogastra</i>	r	39	afgh	100x	920	^a
Dotted Tanager	<i>Tangara varia</i>	R	1	g	190	860	
Short-billed Honeycreeper	<i>Cyanerpes nitidus</i>	h,r	35	abdfg	130x	910/400	P
Red-and-black Grosbeak	<i>Periporphyrus erythromelas</i>	R	2	a,f	110	880	P
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	R	2	f	650	860	
Lined Seedeater	<i>Sporophila lineola</i>	R,M	42	acdf	100	890	P
Lesson's Seedeater	<i>Sporophila bouvronides</i>	h,R	3	f	300	650/500	
Saffron Finch	<i>Sicalis flaveola</i>	R	10	a,d	350	900	P
Giant Cowbird	<i>Molothrus oryzivora</i>	r	69	abcdfgh	100x	920	P
Yellow-rumped Cacique	<i>Cacicus cela</i>	h	19	cf	-	850/500	P
Crested Oropendola	<i>Psarocolius decumanus</i>	h	128	abcdfgh	-	900/500	P
Olive Oropendola	<i>Psarocolius yuracares</i>	h,R	65	abcdfgh	380	910/200	P

'lowland' species were observed up to 1,400 m¹³. It appears that habitat is more important than elevation in determining species distributions. The altitudinal extensions reported here are therefore probably unsurprising and, although listed in Table 2, I have generally not made further mention of them in the species accounts.

Some 118 species were registered beyond their previously known geographical range. For the 61 species for which a more significant extension was recorded (as 'a' above but >100 km from the nearest published record) I present details in the following accounts. A few additional species are also mentioned to present evidence of migratory behaviour or due to their rarity.

Species accounts

Pied-billed Grebe *Podilymbus podiceps*.—One photographed on 28 January 2006 on a small reservoir 12 km south of Santa Elena, at 900 m, with several reedbeds at the margins. None was seen on 16 June 2006, but the pump station operator reported that a pair had been present for several months and had raised three young. His description tallied well with the grebe. Although the site is c.600 km from the nearest published record in Venezuela⁷, there is a much closer record for Roraima, from the vicinity of Boa Vista¹² and I also have a sighting from the latter state, at a permanent small lagoon beside the BR174 just north of the rio Uraricoera, on 21 December 2001.

Black-bellied Whistling Duck *Dendrocygna autumnalis*.—One in savanna 10 km north-east of

Paují, at 850 m, on 19 July 1999, had possibly been blown north in a heavy storm the night before from northern Brazil, c.100 km distant, where the species is common (pers. obs.). The nearest published record in Venezuela is >300 km distant⁷.

Masked Duck *Nomonyx dominicus*.—A bird in female plumage, with its distinctive horizontal, double-striped, face pattern, was seen swimming quietly downstream in the río Uairén c.18 km north of Santa Elena on 10 January 2005. Another female-plumaged bird was observed, on 10 January 2008, in the río Surucún. These sightings are of interest not only because of the paucity of reports from south of the Orinoco⁷ but also because the species is not normally associated with flowing water, although D. Ascanio (*in litt.* 2006) has observations from slow-running rivers in Surinam.

American (=Greater) Flamingo *Phoenicopterus ruber*.—On 16 December 2008, my son, Marcus Leuzinger, and others, saw c.140 flying north >200 m above the ground, over Paují village, in two groups (the first of c.80 birds). The observers know the species from northern Venezuela and noted the large size, pink colour, and the very long outstretched neck and legs. Three days later, two of the same observers reported a group of c.40 about 1 km south of the village, which also proceeded north. There are a very few records from inland locations in the western llanos of Venezuela, and none from south of the Orinoco⁷ or from Roraima¹².

Pinnated Bittern *Botaurus pinnatus*.—On 13 April 2002 one was at Peraitepuy, c.25 km north-

east of El Paují, at 1,000 m, in tall-grass damp savanna c.200 m from a stream. Initially it adopted the typical 'sky-pointing' posture of all *Botaurus*, but thereafter it ducked out of sight before reappearing several metres away, again pointing skyward. It eventually disappeared into taller grass. Although only the neck and head could be well seen, the hindneck was finely barred confirming the identification. The nearest published records are c.110 km to the north⁷ and 120 km to the south¹².

Cattle Egret *Bubulcus ibis*.—Observed on 51 dates since August 1997, almost exclusively in May–August, mainly around El Paují village but also east towards Santa Elena, in savannas and larger clearings around communities. Individuals, pairs or groups up to 11, occasionally around the few livestock kept in the area. Expected throughout northern South America¹⁵, but apparently no published records for southern Bolívar within 220 km of the study area⁷. I have also observed *B. ibis* on four out of five visits to northern Roraima, including in December and March. It is probably a breeding resident in adjacent Brazil and a seasonal (altitudinal) migrant to the southern Gran Sabana during the wet season.

Swallow-tailed Kite *Elanoides forficatus*.—Present principally in January–July. The complete lack of sightings in September–December suggests that the boreal migrant race *forficatus* does not reach the Paují area and that all those in the study area are of the race *yetapa*. Copulation was observed on 6 February 2006, 4 March 2007, 14 June 2007, 2 April 2008 and 21 May 2008. On 16 March 2007, one flew overhead with a stick in its bill and landed on a nest in the canopy of a tall isolated tree. Again, on 2 April 2008, a bird was observed on a nest, apparently brooding. Thus *yetapa* breeds in the area but apparently migrates elsewhere for the latter part of the year. Post-departure, around late July, the species can be seen in considerable numbers further north, probably implying a northern migration from the southern Gran Sabana.

Crested Eagle *Morphnus guianensis*.—Included given the paucity of records. An adult was seen for 15 minutes and photographed in a large dead tree at a forest edge surrounding a small savanna in the eastern Surucún basin, on 5 June 2008. It was mobbed by a Tropical Kingbird *Tyrannus melancholicus*. Although expected in the area, the nearest record in Venezuela is from lowland forest north of the Sierra de Lema, c.180 km to the north⁷.

Black Caracara *Daptrius ater*.—Seen on 20 occasions, once a group of five, mostly in the lower,

partly deforested Uaiparú Valley at 660 m but also recently (30 July and 21 August 2008) in savanna with patchy forest near Santa Elena, at 900 m. These sightings are c.300 km south-east of the nearest published records for Venezuela⁷ but only 120 km north of records in northern Roraima¹². The expected regional distribution extends south from the Orinoco to the Amazon and beyond¹⁵.

Orange-breasted Falcon *Falco deiroleucus*.—Few records for Venezuela. One seen with J. Kvarnback (and photographed by him) on 20 May 2008, at the Gua Tepui c.25 km north-east of El Paují. Another was well seen in good light, perched near the top of a high dead tree and close to high cliffs, c.10 km south-east of Santa Elena on 26 July 2003. It was distinguished from the common Bat Falcon *F. ruficularis* by the larger size and white throat and chest bordered below by rufous. Also, a large dark falcon, presumably this species, was seen circling back and forth, and landing well up the near-vertical south-west face (800 m) of Cerro Roraima on 12–13 February 2005, indicating continued presence at this site⁷.

Limpkin *Aramus guarauna*.—One on 22 May 2007 was in a small temporarily flooded depression amid tall grass around houses, in the middle of the extensive forests of the upper Surucún basin, at c.900 m. Although c.300 km from the nearest published record for Venezuela⁷, the bird probably originated from northern Roraima, where the species is known to be present just 120 km to the south¹².

Double-striped Thick-knee *Burhinus bistriatus*.—Three spent at least a week at Santa Elena airport (900 m) from 17 May 2007. Although >300 km south of the nearest published record and 700 m higher than the published altitudinal range for Venezuela⁷, the species is well known in Roraima, including close to the frontier with Venezuela¹², and it seems more likely that these birds crossed the now-breached forested southern flank of the Gran Sabana.

Wattled Jacana *Jacana jacana*.—An adult and two young, on 30 October 2006, at a permanent pond bordered by tall grass, reeds and woodland c.22 km west of Santa Elena airport, at c.930 m. Subsequently, two adults have remained until the present. Presumably, the young were bred on the pond. The nearest published records in Bolívar are from 300 km further north⁷, where the altitudinal range is suspected of reaching just 300 m. However, the species can clearly be expected throughout the Gran Sabana in suitable habitat¹⁵.

Whimbrel *Numenius phaeopus*.—One, presumably a transient, was observed overflying Paují airstrip south-east on 1 October 2008, giving a short series of six loud, piped whistles, *pee-pee-pee-pee-pee*, at steady speed and pitch. The large size and long decurved bill were visible. There are three published records from Bolívar⁷, but none for Roraima¹².

Giant Snipe *Gallinago undulata*.—The species' status and behaviour are poorly known⁷. It is commonly heard around Paují, c.50 km west of the nearest published record⁷, but I have only three sightings, on 20 December 2003, 8 July 2006 and 20 March 2007, all of birds flushed from moist savanna that swiftly dropped back into the grass. Their large size distinguished them from the smaller South American Snipe *G. paraguaiae*, which is also present in the wider local area. Much more frequently detected by voice since early April 2002, when first identified. Based on vocalisations, it is present year-round in Paují, except for a 3–4-month period starting early–mid August (though there are reports of the species displaying at the base of Cerro Roraima in October 1988 and September 1996: C. Sharpe *in litt.* 2005). Vocalisations are exclusively crepuscular, typically during c.10–15 minutes at dawn and dusk, and for longer periods of up to c.2 hours on moonlit nights.

In addition to a winnowing sound, recalling that made by a large bee swarm²⁴, two types of call are given. The first approximates to published descriptions^{7,8,24}, e.g. *gá-ga ga*. In the Paují area, close study of two recordings, and sonograms, reveals that the call might be rendered *guh-go ga*, with the first note short, second downslurred and third rising, with a very short separation between each group. This call may be given just once or repeated as many as 12 times in a series. Intervals between each series are variable, but typically are of one minute. This call is given in flight and is normally associated with winnowing, and should therefore pertain to the male. Flight displays are always conducted when there is insufficient light for the bird to be detected visually, even when directly overhead, but have never been heard in total darkness, in contrast to Sick's observation²⁴ that calling is more common on hot, rainy (and presumably dark) nights. The second vocalisation is a rather explosive *cha!* or *chack* repeated every 0.5–0.66 second, with 5–20 repetitions per series and typically 0.5–1.0 minute between series. This vocalisation was recorded by Boesman² and recognised by J. Minns (*in litt.* 2005) as pertaining to the species. It is normally given at the same time and in the areas that the first call is heard, but apparently from the ground. During late August–November, neither call is heard, but both are heard within a few days of each other once the

birds commence vocalising again in November / December. In view of its distinctiveness and that it is given from the ground, I suggest that the second call might pertain to the female. Distinctive female vocalisations amongst *Gallinago* are known for Noble Snipe *G. nobilis*⁷ and Great Snipe *G. media*²⁰.

I have also detected *G. undulata* 13 km north-east of Paují, on the main road c.18 km north of Santa Elena and at the base of Cerro Roraima, in February 2005.

Common Ground Dove *Columbina passerina*.—Observed on five occasions in savannas around Santa Elena in June to August, but never further to the west. My records are 240 km south of the nearest in Venezuela, but the species is probably a seasonal visitor from northern Roraima, where it is relatively common (pers. obs.).

Blue-and-yellow Macaw *Ara ararauna*.—According to members of the El Paují community, *A. ararauna* is present in southernmost Bolívar, 400 km from the nearest published records for Venezuela⁷ but much closer to the known range in northern Brazil¹². In July 2000, two young were brought to Paují from an area of very difficult access in the headwaters of the río Icabarú, c.13 km south of Paují, known as Masatey. The area, at c.500 m, apparently has extensive stands of Moriche palms. Further evidence comes from sightings in 1992 in lowland forest c.9 km south of Paují, or only 5 km north-west of Masatey. Other sightings have been reported in the Uaiparú Valley (c.25 km north of Masatey) by inhabitants of Uaiparú. Many of the older inhabitants of El Paují claim that a substantial group was present in the 1960s in the gallery forest of the río Espinoza, adjacent to El Paují, at 870 m, but that it disappeared as the village grew.

Scarlet Macaw *Ara macao*.—Seen six times. On 6 August 2002 a mixed flock of c.20 macaws was seen in a large dead tree c.2 km from Uaiparú. About two-thirds were Red-and-green Macaws *A. chloroptera*, the rest *A. macao*. Further sightings in the Uaiparú Valley were made on 19 April 2003, 29 August 2006, 29 September 2007 and 4 October 2008. A group of six was also seen on 17 January 2004 from the crest of the small tepui, El Abismo, 3 km south of El Paují. The nearest published records in Venezuela⁷ are from west of the río Paragua, c.190 km distant. However, the presence here more likely reflects an extension of the population known to be present in Roraima to near the border with Venezuela¹².

White-eyed Parakeet *Aratinga leucophthalmus*.—Identified on 13 April 2001 at a forest border east of the río Cinco Ranchos bridge, 13 km east of

El Paují, and on 8 July 2001, in a narrow gallery forest through extensive savanna at the bridge over the río Uairén, 15 km north of Santa Elena. Another sighting, at Quebrada de Jaspé just north of the latter location, was made on 12 February 2008 by T. Mischler (pers. comm.) The nearest records in Venezuela are from the Cuyuní basin, 240 km to the north, but the species comes much closer in central Guyana¹⁵.

Blue-cheeked Parrot *Amazona dufresniana*.—Only recently identified after seeing a locally captured bird in November 2006, but since observed on 13 dates in three forested areas. It is very probable that it was previously overlooked amongst the relatively common Orange-winged Parrots *A. amazonica*, as *A. dufresniana* is not illustrated, or recorded in the area by Hilty⁷. With experience, the species can be recognised by its call and when perched can be identified even at a distance using a telescope, by the blue lower cheek patch (yellow in *amazonica*). The nearest published records for Venezuela are from the Sierra de Lema⁷, 120 km to the north, but a wider distribution in the Gran Sabana is expected per BNSA¹⁵. It is not recorded for Roraima¹² but is listed for Guyana (uncommon)³ and the wider Guianas¹⁰.

Mealy Parrot *Amazona farinosa*.—Recorded on 38 dates since June 2002, and is locally common in disturbed forest in the lower Uaiparú Valley, c.120 km from the nearest published record⁷. Occasionally observed in other forested areas along the Paují Road at up to 930 m. The species is reported from Ilha de Maracá, only 120 km to the south in Roraima.

Red-fan Parrot *Deroptyus accipitrinus*.—Locally common in the Uaiparú Valley at up to 870 m, well above the published altitudinal limit⁷ and 140 km from the nearest published record in Venezuela⁷. Also observed in other forested areas along the Paují Road. Presence is, however, unsurprising given the expected regional distribution throughout the Gran Sabana and south into Brazil and east to the Guianas¹⁵.

Dark-billed Cuckoo *Coccyzus melacoryphus*.—Observed on 30 dates since 1999, from mid-May to late August, many of them in my garden in Paují, eating caterpillars, including *Helicoiinae dione* (Nymphalidae) in *Passiflora edulis* (Passifloraceae) vines. Notably more abundant in the exceptionally wet year of 2008 (17 sightings). Although these records do not reflect a major range extension⁷, they are of some interest because their pattern suggests that all are austral migrants.

Black-bellied Cuckoo *Piaya melanogaster*.—Seen in the Uaiparú Valley, to 870 m, on 26 July 2002, 28 June 2003 and 20 December 2003, c.120 km south-east of the nearest published record for Venezuela, from the middle Caroni Valley⁷. Records also exist for Ilha de Maraca in Roraima, a similar distance to the south¹².

Stygian Owl *Asio stygius*.—Observed on 18 dates since August 2003. Considered ‘very rare’⁷ in Venezuela, where known to 250 m, with the nearest sightings in central Amazonas, but there is a more recent record from Cerro Guaiquinima 300 km west of El Paují and at much higher altitude (2,200 m)¹⁴. My sightings have been made in two areas, separated by c.2 km, from trails through white-sand woodland and savanna scrub at 930–1,020 m south of El Paují. In the first area, on 23 August and 7 December 2003 a pair was seen. On seven subsequent occasions in this area, between 28 December 2003 and 15 July 2006, only one was seen. The second location was discovered on 23 February 2005, when a pair was seen. Subsequently birds were seen on eight occasions, from 26 December 2005 to 15 April 2008, always a pair, except on 7 January 2007, when only one was found. I believe three individuals are involved, a pair, which probably moved from the first to the second area in late 2003, and a third bird, possibly offspring of the pair, which remained in the original area for some time. The birds generally perch at mid height in small trees (4–8 m), at the transition from low woodland to savanna, and will permit observers to approach to 15–25 m. If flushed during daytime, the birds fly 40–100 m, and normally perch again in similar ‘edge’ situations. Once a bird was observed to tilt (rather than rotate) its head very slowly 90° left and right while watching the observers. Only once was a vocalisation heard during daytime; a deep, soft, *hu*. No pellets have been found below their perches, perhaps implying that regurgitation is performed away from the day roosts to help conceal their position.

Tepui Swift *Cypseloides phelpsi*.—Identified on 25 dates since August 2003. The long, somewhat forked, tail and broad chestnut collar are diagnostic, but the latter can only be seen in adults and in favourable light conditions (juveniles lack the chestnut collar). The closest published records are from the northern Gran Sabana⁷ and Mt. Roraima⁴, c.110 km distant. The species has not been reported from nearby Roraima.

Short-tailed Swift *Chaetura brachyura*.—Identified on nine dates since January 2006. Undoubtedly more abundant than my few observations indicate. Although its regional distribution suggests the species can be expected throughout

Venezuela¹⁵ and south, the nearest published records are from the Sierra de Lema, 150 km to the north⁷.

Lesser Swallow-tailed Swift *Panyptila cayennensis*.—One in a small mixed flock of swifts on 5 June 2008 over savanna enclosed by forest on the east side of the Surucún basin. The white throat and chest were readily visible and the white flank patches and scissoring action of the tail completed the identification. On 3 July and 19 September 2008 I made further sightings nearby, and on 13 and 23 July two more, from clearings in the forested Uaiparú Valley. A. Renaudier (pers. comm.) also observed the species, 14 km west of Santa Elena airport on 16 August 2008 and near Paují on 18 August 2008. The nearest record for Venezuela is from the Sierra de Lema, c.150 km north⁷, and the species is also reported for Roraima¹².

Rufous-breasted Hermit *Glaucis hirsutus*.—First observed on 21 October 2003, at 950 m, descending into the forests of the western Surucún basin. Further sightings were made on 30 October 2006, 21 February 2007 and 5 June 2008, on the new Wairampay road in the east of the same basin. On 1 November 2007 I trapped one in my house in El Paují and on 1 October 2008 another was trapped in plastic mesh shading in my garden. Although expected throughout Venezuela south of the Orinoco, the nearest published record⁷ is c.160 km to the north on the Sierra de Lema.

Pale-tailed Barbthroat *Threnetes niger* (=White-tailed Barbthroat *T. leucurus*¹⁵).—Seen on four occasions since 16 August 2002 at three sites in the Uaiparú Valley and Surucún basin. The nearest published record in Venezuela is from the northern Gran Sabana c.110 km distant⁷, but there are equally close records for Brazil¹².

Ruby-topaz Hummingbird *Chrysolampis mosquitus*.—Adult males were seen twice. On 15 February 2002, c.5 km east of El Paují, one was in white-sand scrub, together with four other species of hummingbirds, feeding at mature *Sarcopera tepuiensis* (Marcgraviaceae) plants; and on 15 February 2005, in the Surucún basin, one was feeding at an unidentified roadside tree, with large, cream-coloured, trumpet-shaped flowers protruding above the leaf canopy, known to be very attractive to hummingbirds. I also photographed a juvenile feeding at a *Lantana camera* (Verbenaceae) plant in my garden on 12–14 April 2008. The nearest published record is from Cerro Urutaní, on the Brazilian border c.150 km to the west¹², but the vast majority of Venezuelan records are from much further north and west⁷. The Urutaní record and my own undoubtedly represent

an extension from Brazil, where the species is known to closely approach the Venezuelan border¹².

Tufted Coquette *Lophornis ornatus*.—On 19 August 2003, a subadult male of this species, which is quite common and widespread in the area, was seen (confirming the expected regional distribution¹⁵). The entire bill was black, immediately distinguishing it from the adult, which has a bright orange-red bill with a black tip. The nearest published records in Venezuela are c.110 km to the north⁷.

Racket-tailed Coquette *Discosura longicauda*.—Males seen three times: on 18 September 2001, at forest edge in the Cinco Ranchos Valley; on 4 March 2002, in an old clearing in the Independencia Valley 4 km east of El Paují; and on 26 October 2007 c.2 km south of Paují village (910 m), along with 11 other hummingbird species, at a stand of small *Caesalpinoidae dicymbe* (Fabaceae) trees in flower. The nearest published record in Venezuela is from the northern flank of the Gran Sabana, at 400 m, but presence might reflect an extension from nearby Roraima or Guyana, from where the species is continuously distributed south to the Amazon¹⁵. The *C. dicymbe* trees (identified by P. Perret *in litt.* 2006) flower for a couple of months during which period they attract large numbers of hummingbirds, which may ignore other, apparently equally attractive, trees nearby. I identified 15 different hummingbird species in two short afternoon visits in October 2007.

Rufous-throated Sapphire *Hylocharis sapphirina*.—Seen on seven dates since 11 March 2005, including in my garden in Paují, where an immature was photographed. Although the species can be expected throughout the Gran Sabana¹⁵, the nearest published records are c.110 km to the north and north-east⁷.

Great Jacamar *Jacamerops aureus*.—Heard and seen on 16 and 18 May 2008 and heard on 17 August 2008 in the forested Uaiparú Valley. Also seen on 19 June 2005, when a bird flushed from the ground in a 800 m-wide savanna surrounded by forest, at 840 m, on the road to Uaiparú. It flew to a small tree, c.5 m high, before continuing to the forest after c.10 minutes. The bird was observed through a telescope and was of the nominate race. The throat had no white, showing instead a transition from the rufous of the underparts to dark green on the upper throat, which became almost black on the chin; the crown was clearly tinged blue. As the nominate race in Venezuela is known only from the Cuyuní basin⁷, and this is the subspecies in Guyana¹⁵, my record presumably represents a range extension of >100 km from central Guyana.

Chestnut-capped Puffbird *Bucco macrodactylus*.—Seen twice (24 May 2002 and 6 November 2005) in the Uaiparú Valley. The nearest published record⁷ for Venezuela is c.120 km to the west in the Caroní Valley, but the species' presence could equally well reflect an extension from Roraima, where there are records from the Ilha de Maracá¹².

Ivory-billed Araçari *Pteroglossus azara*.—Not uncommon in two forested areas, where it has been observed on 30 dates since August 2001. The nearest published record in Venezuela is from the upper río Paragua⁷, c.190 km distant, but it clearly might be expected throughout north-west Amazonia, including in Roraima¹⁵, where there are records for Ilha de Maracá (unconfirmed) and another east of the río Branco¹².

Green Araçari *Pteroglossus viridis*.—Fairly common along the Paují Road and towards Uaiparú, both in forested and forest edge habitats. The nearest published records in Venezuela⁷ are from near the lower río Caroní and the northern Gran Sabana, c.140 km from El Paují. There are records from the Ilha de Maracá¹² and the regional distribution indicates that the species should be expected throughout southern Venezuela and the Guianan Shield¹⁵.

Speckled Spinetail *Cranioleuca gutturata*.—Heard on 18 August 2008 in the lower Uaiparú Valley and identified by A. Renaudier who is familiar with the song. Also heard on 16 August 2008 by AR 14 km west of Santa Elena airport and recorded there by myself on 19 September 2008. These records represent an eastward range extension of 110 km from the nearest published record in Venezuela⁷. It was also recorded for the first time in Roraima recently¹², but is not listed for Guyana³.

Buff-throated Foliage-gleaner *Automolus ochrolaemus*.—The species' distinctive call was recorded and identified initially on 4 December 2005 in the forested Uaiparú Valley very close to the transition to savanna, 10 km west of El Paují. The song was identified by reference to Boesman³ and Schulenberg *et al.*²², and was independently confirmed by C. Sharpe and D. Ascanio (*in litt.* 2005). DA has records from the eastern part of the area since 1996. Since then regularly heard and seen (23 records) at the same locality and elsewhere in the Uaiparú Valley and in edge habitat and forest south of El Paují. Although the regional distribution includes most of southern Venezuela southwards¹⁵, the nearest published record for Venezuela is from the northern Gran Sabana⁷, c.140 km away.

Black-throated Antshrike *Frederickena viridis*.—On 18 May 2006, on the upper Uaiparú Road, I sound-recorded an unfamiliar vocalisation and on playback briefly observed a large near-black antshrike. The recording was sent to C. Sharpe who confirmed the identification as *F. viridis* (*in litt.* 2006). This record is c.150 km from the nearest published Venezuelan record, in the middle Caroní Valley⁷. From Roraima, there is a specimen¹² and the species can also apparently be expected c.120 km to the south-east¹⁵.

Spot-backed Antwren *Herpsilochmus dorsimaculatus*.—A. Renaudier, I. Tepedino and myself sound-recorded (but did not see) this species on 17 August 2008, c.3 km north of El Paují village, in or below a canopy flock in forest. The rattle trill was virtually identical to one recorded in 1985 by C. Parrish from Amazonas (www.xeno-canto.org, XC 6150). The nearest published record for Venezuela⁷ is from the Caroní Valley c.130 km to the north-west, but there are closer records for Roraima¹².

Grey Elaenia *Myiopagis caniceps*.—A single grey-morph bird was seen well with J. Kvarnback & I. Tepedino on 17 May 2008 in low bushes on a riverside bank at the edge of a clearing in forest near the río Uaiparú. On 16 August 2008, the species was seen and recorded by A. Renaudier (*in litt.* 2008) c.30 km west of Santa Elena airport. On 18 August 2008, one or more were identified by voice by A. Renaudier in forest c.4 km south of the original sighting. I. Tepedino (pers. comm.) saw the species again on 25 August 2008 in the eastern Surucún basin. The nearest records in Venezuela are from the río Paragua, c.200 km to the north-west but there are also records for south-west Guyana, only a little more distant⁷.

Slaty Elaenia *Elaenia strepera*.—One, perched quietly in a small roadside tree in savanna c.100 m from the transition to forest, 12 km west of Santa Elena airport, on 29 January 2006, flew off towards the forest after several minutes. It had the size and erect posture of smaller *Elaenia*, but scarcely any crest. Overall rather uniform slate grey, though primaries and tail slightly darker, and a white median patch on the lower belly and vent; greyish-white eye-ring, two wingbars and fringes to the secondaries and tertials; bill rather short, grey with a slightly yellowish lower mandible; legs dusky. An austral migrant to Venezuela, this bird was unusually early (c.5 weeks earlier than previous records⁷). The nearest published record in Venezuela is from below the northern Gran Sabana, 150 km away, on 4 March 1998⁷.

Yellow Tyrannulet *Capsiempis flaveola*.—Detected in the lower Uaiparú Valley on six dates

between 16 April and 28 August 2008, where photographed by J. Kvarnback on 21 May. The species' voice had already been recorded in the same place on 7 October 2006. A. Renaudier (*in litt.* 2008) also saw the species on the Paují road in August 2008. The nearest record in Venezuela is 150 km to the north⁷. The regional distribution¹⁵ also indicates an absence of records for the entire Gran Sabana, nor is it recorded for Ilha de Maracá¹² a little further south. However it is known elsewhere in Roraima¹² and the regional distribution¹⁵ indicates it to be present in the eastern half of the state, as well as in Guyana and to the east and south.

Smoky-fronted Tody-Flycatcher *Poecilatriccus fumifrons*.—Previously known in Venezuela only from a specimen collected in 1992 at the Cerro Unturán, identified and reported a decade later²¹. In 2008 J. Kvarnback, I. Tepedino and myself observed it at three different locations in the Uaiparú Valley, at 650 m, on 16–21 May. On 13–14 July, J. Kvarnback and myself mist-netted a male, female and juvenile at a fourth location within a large area of bracken *Pteridium aquilinum* (Dennstaedtiaceae) c.600 m from one of the previous sites, and obtained photographs and recordings. In the same valley, the species was heard in three locations, two of them new, on 18 August 2008, with A. Renaudier, who is familiar with the species in French Guiana, where it is relatively common. In the latter country the species has a virtually identical voice (based on sonogram analysis) and is morphologically indistinguishable based on photographs in the hand. A. Renaudier (*in litt.* 2008) also heard the species on 16 August 2008 c.14 km west of Santa Elena airport in a yucca *Manihot esculenta* (Euphorbiaceae) plantation, where I also found it on 18 September 2008. The species appears to favour bracken and yucca with a leaf canopy of c.2 m and well-spaced stems. These localities are c.600 km from the Cerro Unturán and a similar distance from the nearest locations in Surinam / French Guiana and the lower Amazon of Brazil¹⁵. JK is investigating the subspecies involved.

Rufous-tailed Flatbill *Ramphotrigon ruficauda*.—Detected twice in 2008 (24 June and 11 July) in the Uaiparú valley, c.2 km north of El Pauji. In June the distinctive call was recorded and subsequently identified. In July the bird was photographed, by J. Kvarnback. The location is over 130 km east of the nearest published record for Venezuela (the upper río Paragua)⁷ and a similar distance from the Ilha de Maracá in Roraima¹².

White-crested Spadebill *Platyrinchus platyrhynchos*.—Three sightings in a small area of the

Uaiparú Valley forest in 2006, were later supported by A. Renaudier, who identified the voice with certainty on 18 August 2008, in the same area. The location is c.180 km east of the nearest record for Venezuela (Cerro Guaiquinima)⁷. The species is also recorded for Roraima¹².

Amazonian Royal Flycatcher *Onychorhynchus coronatus*.—Two on 26 December 2007, in the forested Independencia Valley, 3.5 km east of Paují village, were initially detected by their vocalisation, a whistled *peee-yuc*, falling at the end, delivered every few seconds between longer pauses. Eventually two were heard and then seen, at 7–15 m distance, flycatching for insects from perches 1–3 m above ground in second growth adjacent to taller forest. On 23 July 2008 the same voice was heard close to the earlier location. Comparison revealed the calls heard to be near-identical to two very similar recordings, one made c.80 km south of Santarém on the rio Tapajós, Pará, Brazil (LNS [Library of Natural Sounds, Cornell] 115001), the other from the río Tambopata in Peru (LNS 29050)²², and both presumably race *castelnaii* by range¹⁵. They also appeared very similar to the first of three call variants, described in *BNSA*¹⁵, from Ecuador and presumably also *castelnaii*, but quite unlike the other two, from Colombia⁷ (possibly race *fraterculus*, now treated within Northern Royal Flycatcher *O. mexicanus*) and Venezuela⁷ (probably race *coronatus*). The nearest records are c.140 km north and west⁷, but the taxon expected there is *coronatus* rather than *castelnaii*⁷.

Olive-sided Flycatcher *Contopus cooperi*.—Seen in three forested areas along the Paují Road as follows: 9 and 22 November 2002, 22 January and 7 October 2006, and 21 and 24 March and 6 October 2007. Good field marks are the pale brown 'unbuttoned waistcoat' effect, contrasting white throat, yellow base to the lower mandible in adults, and the white tufts on the rump-sides are sometimes visible (if the wings are slightly drooped). South of the Orinoco, there is a specimen from the Cerro de la Neblina, Amazonas, on the frontier with Brazil, and two sight records in Bolívar, the nearest on the north flank of the Gran Sabana, 160 km to the north⁷. In Venezuela, principally winters just south of the northern mountains, 600 km away⁷, and also reported from Roraima¹².

Long-tailed Tyrant *Colonia colonus*.—Common in all forested areas along the Paují Road, at 650–900 m. The nearest published records are for the upper ríos Paragua and Cuyuni⁷, 160 km away, but it is mapped for north-east Bolívar and much of Guyana and eastward¹⁵, and is also known from Roraima¹².

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Bright-rumped Attila *Attila spadiceus*.—Seen on 26 July 2001 in the forested Surucún basin and its unmistakable call is frequently noted in all forests up to 900 m. Published records are only available south of the Orinoco from the lowlands (<400 m) north and west of the Gran Sabana, c.150 km away⁷, but the species is apparently widespread south of the Orinoco, to the Amazon and beyond^{12,15}.

Dusky-chested Flycatcher *Myiozetetes luteiventris*.—Twelve sightings at forest edge and clearings in the Uaiparú Valley since 7 July 2004. There are records for Venezuela from an area 150 km away, at La Paragua, central Bolívar⁷ and also from Roraima¹².

Grey Kingbird *Tyrannus dominicensis*.—One photographed in bushy savanna c.15 km north of Santa Elena, on 10 November 2007, is the first published record in Venezuela south of the Orinoco and a winter range extension of over 400 km^{7,15}. An unconfirmed sighting is available from the Ilha de Maraca, only 120 km to the south in Roraima¹².

Grey-chested Greenlet *Hylophilus semicinereus*.—A common voice in the Uaiparú Valley, where positive visual identification was made on 17 June 2007 and a photograph taken on 18 March 2008. An eastward range extension of c.130 km from the nearest known records in Venezuela⁷. There is one record for Roraima¹².

Blue-and-white Swallow *Notiochelidon cyanoleuca*.—The nominate resident race, which has near-black undertail-coverts, is very common in the area, particularly in the village, where it breeds. Hilty⁷ reported the resident race only in the mountains; and in the Gran Sabana, just c.100 km from Paují, to the north and east on the Brazilian / Guyana borders (where it is also reported for Roraima [Uei Tepui]¹²). For Guyana, only the austral migrant race is listed³.

Prothonotary Warbler *Protonotaria citrea*.—A single male, seen well 5 km east of El Paují on 9 December 2008, was foraging in bushy terrain. The bright yellow head (with clear black eye) and underparts, becoming bright white on the undertail-coverts, and blue-grey wings were clearly visible. This sighting is c.500 km south-east of the winter range in Venezuela, although there are closer records in Guyana^{3,10} and others from coastal Surinam (see www.nhl.nl/~ribot/), but the species has never been recorded in Roraima¹².

Hooded Tanager *Nemosia pileata*.—A male on 18 July 2005, close to the bridge over the río Cinco Ranchos in forest edge, was well seen by several other observers and myself. This represents an

extension of almost 300 km from the nearest published records in Venezuela⁷ but the species is also common in Roraima, including near the Venezuelan border¹².

White-lined Tanager *Tachyphonus rufus*.—Fairly common in partly cleared and disturbed habitats throughout the Paují area. The nearest published records in Venezuela are 250 km to the north⁷. However, the species is well known from the Guianas¹⁰ and its presence in the southern Gran Sabana probably reflects an extension from central Guyana. Although the regional distribution¹⁵ indicates the species can be expected even closer in extreme north-east Roraima, the only state record is a sighting by S. H. Borges near Boa Vista, which was later doubted but may well have been correct¹².

Rufous-bellied Euphonia *Euphonia rufiventris*.—Observed on 18 dates since March 2002 in the forested valleys of the río Uaiparú and its tributaries. Although expected around El Paují, the nearest records are almost 150 km to the north and west⁷. The species is also recorded in Roraima¹².

Dotted Tanager *Tangara varia*.—A male was seen nearby (c.4 m) at eye level in low roadside shrubbery west of the Cinco Ranchos bridge, in a mixed-species flock mostly comprising other tanagers, by R. Crease & M. Hernández, on 28 August 2008. It was seen for long enough to confirm the all apple-green body, turquoise-blue wings and the dark, downward-curving post-ocular streak. This sighting represents an eastward range extension of c.190 km from the headwaters of the río Paragua⁷. There is a specimen record for Roraima¹².

Red-and-black Grosbeak *Periporphyrus erythromelas*.—This scarce species was photographed by D. Southall on 19 July 2005. The bird was observed in a garden with mature trees in Paují village, adjacent to open scrubby savanna. A pair was reported by J. C. Hirlimann (pers. comm.), on 23 December 2007, in forest edge in the Uaiparú Valley, c.1 km north-west of Paují. These records are a range extension of 110 km west from the nearest published Venezuelan record⁷ on the border with Brazil. The species occurs in the Cuyuní basin in Venezuela⁷, the Guianas¹⁰ and north-east Brazil¹⁵ but not in Roraima¹².

Rose-breasted Grosbeak *Pheucticus ludovicianus*.—Seen twice in the upper Uaiparú Valley, c.4 km north-east of Paují, at 860 m. On 6 February 2004 one was perched near the top of a tall dead tree for a few minutes, before disappearing into nearby forest. Through a telescope the very deep

bill, the culmen line running 'into' the head almost without a notch, head pattern, with dark central crown-stripe and long white eyestripe, and buffy-white underparts with much spotty streaking, identified the bird as a female. On 28 December 2004 a male in non-breeding plumage was observed. It was a darker brown on the back with some white markings; the head and breast were less obviously streaked, and distinct traces of rose were visible on the upper breast. These sightings are c.650 km beyond the normal wintering range, but there are a few other records south and east of the core range into Venezuelan Amazonas, in the Andes to Ecuador and the Guianas^{7,15}. In Guyana, its unconfirmed presence was listed in 2005¹⁰ and there were still no confirmed records two years later³. In Surinam, up to April 2008, there was a single unconfirmed sighting by H. Hendriks from Raleigh Falls on 8 August 1982 (see www.nhl.nl/~ribof/). In French Guiana, the only records are a first-winter male, taken near Cayenne on 3 December 1975¹¹ and an adult male in breeding plumage, seen on 3 March 1996, in Kourou, by O. Claessens (A. Renaudier *in litt.* 2008).

Lined Seedeater *Sporophila lineola*.—An austral migrant seen on 42 dates in savannas and cleared areas along the Paují Road, since December 1998. All sightings are June–December, with the majority (33) in June–August and nearly half (20) in July. The July peak is mirrored by records from the northern Gran Sabana, c.100 km to the north, during July 1997²³. Other than the latter records, the nearest in Venezuela are from north-west Bolívar, 250 km from El Paují⁷, but presence throughout the Gran Sabana is clearly expected¹⁵. The species is also well known from Roraima¹².

Lesson's Seedeater *Sporophila bouvronides*.—On 19–21 April 2006 several males were north-east of Uaiparú village at 660 m. Readily separated from Lined Seedeater *S. lineola* by lack of a white coronal stripe and the smaller malar stripes, whilst *S. lineola* usually appears later in the year (by c.6 weeks). They were near the edge of a forest clearing, feeding in long grass with other seedeaters (including Yellow-bellied *S. nigricollis*). The species breeds in Venezuela, mostly north of the Orinoco, from May–early November, and migrates to west and central Amazonia⁷. The nearest published record is 300 km to the north in the Cuyuní basin⁷, but the species can be expected east to the southern Gran Sabana and in the Guianas¹⁵.

Saffron Finch *Sicalis flaveola*.—A colony in Santa Elena, now expanding. My first sighting was in July 2003, and singles and small groups have since been

seen in Santa Elena on at least seven further dates. On 27 March and 14 May 2008, I photographed single males in El Paují, 70 km west of Santa Elena. Published records in Venezuela are mainly from north of the Orinoco and west into northern Colombia⁷. The Santa Elena colony is almost 300 km south of this established population. However, L. F. Silveira reports that in Brazil *S. flaveola* is used in bird fighting (R. Restall *in litt.* 2007). Breeders commenced smuggling birds from Venezuela into Brazil, but a shipment of 400 birds was intercepted by the police at Pacaraima and returned to Venezuela. The Venezuelan border police at Santa Elena simply released the birds, and their descendants are now apparently established, breeding on both sides of the border and expanding to surrounding areas.

Olive Oropendola *Psarocolius yuracares*.—Some 65 sightings in or near forest and overflying savanna, from 10 km west of El Paují to the río Uairén basin. A colony beside the Uaiparú Road has been active since 2002 (when the road was built) and probably earlier, but is now threatened by deforestation. When last visited, only two birds and no nests were seen. At times the tree was occupied simultaneously by nesting Crested Oropendolas *P. decumanus* and Yellow-rumped Caciques *Cacicus cela*. On 13 July 2008, a group of c.45 was moving steadily through the canopy of flooded forest in the Uaiparú Valley. Published records in Venezuela are from Amazonas and north-west Bolívar, the nearest c.450 km distant⁷. Given the species' large size and visibility it seems unlikely that it has gone unrecognised in intermediate areas, suggesting that the population may be disjunct.

Discussion

The large number of extensions reported here underlines the considerable species diversity found in the southern headwaters of the Caroní and the limited amount of previous ornithological exploration of this region. Species diversity results not only from the presence of generalists, boreal and austral migrants, and those species restricted to the Guianan Shield, wherein the study area lies, but also of more widespread Amazonia species (e.g. *Pteroglossus azara*, *Euphonia rufiventris* and *Psarocolius yuracares*) and from those principally associated with the tepuis (e.g. *Cypseloides nelsoni*, *Lophornis ornatus*, *L. chalybeus* and *Pygochelidon cyanoleuca*). The elevational range of the southern headwaters, although higher than that normally associated with lowland species, appears to have presented no obstacle to occupation, as evidenced by the many altitudinal extensions reported here. Nor do any geographical barriers to the spread of lowland species into the area exist, as the region is

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connected by near-continuous forest along the valley of the río Caroní, below 500 m, to the forests of the middle Orinoco basin. These in turn link with the forests of Guyana and the upper Orinoco; there is also a direct, low-level forested connection to the Amazon basin via the atypically low frontier watershed (550 m) south of the headwaters of the río Icabarú. Previously unrecorded savanna species (e.g. *Burhinus bistriatus* and *Columbina passerina*) have appeared on the Gran Sabana, probably from the savannas of Roraima, presumably as a result of recent breaches in the forests on its southern flank. The present paper should help draw attention to the ample and interesting range of species present in the Caroní's southern headwaters, and thereby encourage further exploration and a more complete knowledge base to serve as a foundation for conservation measures to counteract ongoing habitat destruction.

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