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## The Avifauna of the Ebo Forest, Cameroon

by Robbie C. Whytock<sup>1,2</sup> & Bethan J. Morgan<sup>1,3</sup>

<sup>1</sup>Ebo Forest Research Project, BP 3055, Messa, Yaoundé, Cameroon

<sup>2</sup><robbie@eboforest.org>

<sup>3</sup>Institute for Conservation Research, Zoological Society of San Diego,  
15600 San Pasqual Valley Road, Escondido, CA 92027-7000, U.S.A.  
and Department of Psychology, University of Stirling, U.K.

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### Summary

The Ebo forest is one of the largest remaining tracts of lowland and submontane rainforest north of the Sanaga River in Cameroon. The avian assemblage so far identified is typical for the region and currently numbers 160 species recorded from seven forest habitats. The presence of *Malimbus racheliae* and *M. erythrogaster* indicates that the forest may provide a link between the lowland forests southeast of the Sanaga River and the montane forests to the northwest. It is expected that the list of species will increase as more of the forest is surveyed and different methods employed.

### Résumé

**L'avifaune de la forêt d'Ebo, Cameroun.** La forêt d'Ebo est l'une des plus vastes étendues de forêt sempervirente submontagnarde ou de basse altitude subsistant au Nord de la rivière Sanaga au Cameroun. La composition de l'avifaune identifiée est typique de la région et compte actuellement 160 espèces enregistrées dans sept habitats forestiers. La présence de *Malimbus racheliae* et *M. erythrogaster* indique que la forêt peut constituer un lien entre les forêts de basse altitude au sud-est de la rivière Sanaga et les forêts de montagne au Nord-Ouest. Il est probable que la liste des espèces s'allongera lorsque l'étude de la forêt sera complétée et que différentes méthodes seront employées.

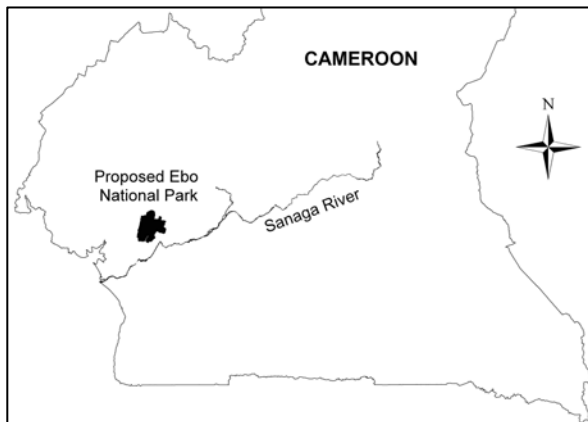
### Introduction

The Ebo forest covers >1000 km<sup>2</sup> of lowland and submontane rainforest in SW Cameroon (4°21' N, 10°25' E), and is the largest of three contiguous forest blocks that

compose the Yabassi Important Bird Area (Fotso *et al.* 2001). The only bird survey in Ebo to date was a four-day assessment at a single locality in 2000 (Dowsett-Lemaire & Dowsett 2001), but the resulting species list did not distinguish species recorded in Ebo from those found elsewhere in the wider region. The Ebo forest is currently being classified by the Government of Cameroon as a national park. Surveys to determine species presence and abundance are a prerequisite to successful management, and this is the first comprehensive list of birds for the area.

The Ebo forest is located within the region of high biodiversity between the Sanaga river in Cameroon and the Cross river in Nigeria (Fig. 1). It retains an almost intact large mammal population, including Forest Elephant *Loxodonta cyclotis*, Gorilla *Gorilla gorilla*, Chimpanzee *Pan troglodytes* and nine other diurnal primate species. The forest has a complex history of human habitation and, although much of the region is devoid of permanent habitation today, until the 1960s several villages existed within it, including Mopoun and Bekob, where two of the three permanently manned Ebo Forest Research Project stations are now based.

The forest flora has links on the one hand to the volcanic mountains to the northwest, and on the other to the distinctive flora of SE Cameroon (M. Cheek pers. comm.). The topography is highly variable: much of the northern section is relatively mountainous whereas the southern half is considerably flatter.



**Figure 1. Location of Ebo forest in southwest Cameroon.**

### Methods

The bird list was compiled during a total of 12 weeks of fieldwork while studying the nesting ecology of *Picathartes oreas*, from March to December 2008. Excluding the

two large rivers (the Dibamba and the Sanaga), all habitat types were surveyed in both the dry and the wet seasons. Surveying consisted of walking established trails, transects, and walks around the Ebo forest research stations at Bekob and Mopoun and a third site in the western part of the Ebo forest known as Mismis.

Surveys usually began at 6h30 and ended by 17h00. We walked at a maximum speed of 1 km.h<sup>-1</sup> in a team of two or three people. Birds were identified both by sight and sound, using Chappuis (2000) and Borrow & Demey (2004) for reference. Where possible, photographs and audio recordings were made for identification and archival purposes. Common and scientific names follow Borrow & Demey (2004).

Results

Table 1 lists the 160 species that we recorded in the Ebo forest. Column “Obs.” indicates observation type: S = identified by sight; V = identified by voice; P = photographed; T = audio-recorded. Column “Ab.” indicates abundance: VA = Very Abundant (>100 individuals may be seen or heard in suitable habitat daily); A = Abundant (11–100 individuals may be seen or heard in suitable habitat daily); C = Common (1–10 individuals may be seen or heard in suitable habitat daily); F = Frequent (often seen, but not every day); U = Uncommon (5–10 records during survey period); R = Rare (1–4 records during survey period). Habitat categories: 1 = closed canopy old secondary forest and occasionally primary forest (at hill summits); 2 = swamp forest in riverine valleys, dominated by *Raphia* spp.; 3 = young secondary open-canopy forest and farm-bush near inhabited villages and roadsides and where logging previously occurred; 4 = farmland surrounding inhabited villages; 5 = ancient abandoned farms dominated by Zingiberaceae and Marantaceae; 6 = streams and rivers; 7 = low vegetation on basalt outcrops.

Table 1. Bird species recorded in Ebo forest. For column header and other abbreviations, see text above.

			Habitat						
	Obs.	Ab.	1	2	3	4	5	6	7
<b>Ardeidae</b>									
<i>Egretta garzetta</i> Little Egret	S	R						x	
<i>E. intermedia</i> Intermediate Egret	S	R						x	
<i>Tigriornis leucolophus</i> White-crested Tiger Heron	V	R	x						
<b>Threskiornithidae</b>									
<i>Bostrychia hagedash</i> Hadada Ibis	SVP	F						x	
<b>Accipitridae</b>									
<i>Kaupifalco monogrammicus</i> Lizard Buzzard	SV	F			x	x			
<i>Spizaetus africanus</i> Cassin's Hawk Eagle	SV	U	x						

				Habitat						
		Obs.	Ab.	1	2	3	4	5	6	7
<i>Dryotriorchis spectabilis</i>	Congo Serpent Eagle	V	U	x						
<i>Haliaeetus vocifer</i>	African Fish Eagle	SP	R			x				
<i>Stephanoaetus coronatus</i>	Crowned Eagle	SV	R	x						
<i>Polyboroides typus</i>	African Harrier Hawk	SV	F	x		x	x			
<i>Urotriorchis macrourus</i>	Long-tailed Hawk	SV	U	x						
<i>Milvus migrans</i>	Black Kite	SV	C			x	x			
<i>Accipiter tachiro</i>	African Goshawk	S	U				x			
<i>Accipiter</i> sp. ( <i>castanilius</i> or <i>erythropus</i> )		S	U	x						
<i>A. melanoleucus</i>	Black Sparrowhawk	S	F	x						
<i>Gypohierax angolensis</i>	Palm-nut Vulture	SVP	C	x		x	x			
<i>Buteo auguralis</i>	Red-necked Buzzard	SP	F			x				
<b>Phasianidae</b>										
<i>Francolinus lathamii</i>	Latham's Forest Francolin	VT	F	x						
<i>F. squamatus</i>	Scaly Francolin	V	F			x	x			
<b>Numididae</b>										
<i>Agelastes niger</i>	Black Guinea Fowl	S	U	x						
<i>Guttera pucherani</i>	Crested Guinea Fowl	SV	U	x		x				
<b>Rallidae</b>										
<i>Himantornis haematopus</i>	Nkulengu Rail	VT	F	x						
<b>Columbidae</b>										
<i>Turtur afer</i>	Blue-spotted Wood Dove	SV	C			x				
<i>T. brehmeri</i>	Blue-headed Wood Dove	SVP	C	x						
<i>T. tympanistris</i>	Tambourine Dove	SV	F	x		x	x			
<i>Columba unicincta</i>	Afep Pigeon	V	F	x						
<i>Treron calva</i>	African Green Pigeon	SV	C	x		x	x			
<b>Psittacidae</b>										
<i>Psittacus erithacus</i>	African Grey Parrot	SVP	C	x		x				
<b>Musophagidae</b>										
<i>Corythaeola cristata</i>	Great Blue Turaco	SVP	C	x		x				
<i>Tauraco macrorhynchus</i>	Yellow-billed Turaco	SV	A	x						
<i>T. persa</i>	Green Turaco	SV	F	x		x	x			
<b>Cuculidae</b>										
<i>Centropus leucogaster</i>	Black-throated Coucal	SVT	F	x						
<i>Chrysococcyx cupreus</i>	African Emerald Cuckoo	SV	C	x		x				
<i>C. klaas</i>	Klaas's Cuckoo	V	F	x		x				
<i>Cuculus clamosus</i>	Black Cuckoo	SVP	F	x		x				
<i>C. solitarius</i>	Red-chested Cuckoo	SV	A	x		x				
<i>Ceuthmochares aereus</i>	Yellowbill	SV	F	x						
<b>Strigidae</b>										
<i>Otus icterorhynchus</i>	Sandy Scops Owl	S	R	x						

				Habitat						
				Obs.	Ab.	1	2	3	4	5 6 7
<i>Strix woodfordii</i>	African Wood Owl	SVP	F	x		x				
<b>Apodidae</b>										
<i>Raphidura sabini</i>	Sabine's Spinetail	SV	C			x		x		
<i>Apus affinis</i>	Little Swift	SV	C			x		x		
<i>Cypsiurus parvus</i>	African Palm Swift	SV	F			x		x		
<b>Trogonidae</b>										
<i>Apaloderma aequatoriale</i>	Bare-cheeked Trogon	V	R	x						
<b>Alcedinidae</b>										
<i>Ceyx lecontei</i>	African Dwarf Kingfisher	SV	R	x						
<i>C. pictus</i>	African Pygmy Kingfisher	SV	U					x		
<i>Halcyon badia</i>	Chocolate-backed Kingfisher	SV	A	x						
<i>H. malimbica</i>	Blue-breasted Kingfisher	SVP	F			x				x
<i>H. senegalensis</i>	Woodland Kingfisher	SV	C					x	x	
<b>Meropidae</b>										
<i>Merops albicollis</i>	White-throated Bee-eater	SVP	F	x		x				
<i>M. gularis</i>	Black Bee-eater	SP	U	x		x				
<b>Coraciidae</b>										
<i>Eurystomus glaucurus</i>	Blue-throated Roller	SVP	U	x		x				
<b>Bucerotidae</b>										
<i>Bycanistes albotibialis</i>	White-thighed Hornbill	SVP	C	x		x				
<i>B. fistulator</i>	Piping Hornbill	SVP	C	x		x		x		
<i>Ceratogymna atrata</i>	Black-casqued Hornbill	SVP	A	x		x				
<i>Tockus camurus</i>	Red-billed Dwarf Hornbill	SVP	A	x						
<i>T. fasciatus</i>	African Pied Hornbill	SVP	A	x		x		x		
<i>Tropicranus albocristatus</i>	White-crested Hornbill	SVP	A	x						
<b>Capitonidae</b>										
<i>Buccanodon duchaillui</i>	Yellow-spotted Barbet	SV	C	x		x				
<i>Gymnobucco calvus</i>	Naked-faced Barbet	SV	C	x		x				
<i>Trachylaemus purpuratus</i>	Yellow-billed Barbet	SV	U			x				
<i>Tricholaema hirsuta</i>	Hairy-breasted Barbet	SV	C	x						
<i>Pogoniulus atroflavus</i>	Red-rumped Tinkerbird	SV	C	x						
<i>P. scolopaceus</i>	Speckled Tinkerbird	SV	C	x		x				
<i>P. subsulphureus</i>	Yellow-throated Tinkerbird	SV	C	x		x				
<b>Indicatoridae</b>										
<i>Melichneutes robustus</i>	Lyre-tailed Honeyguide	V	U	x						
<b>Picidae</b>										
<i>Sasia africana</i>	African Piculet	SV	F	x						
<i>Campethera nivosus</i>	Buff-spotted Woodpecker	S	F	x						
<b>Eurylaimidae</b>										
<i>Smithornis rufolateralis</i>	Rufous-sided Broadbill	SVP	F	x						

											Habitat								
											Obs.	Ab.	1	2	3	4	5	6	7
<b>Hirundinidae</b>																			
<i>Psalidoprocne pristoptera</i>	Black Saw-wing	S	F			x									x				
<i>Hirundo abyssinica</i>	Lesser-striped Swallow	SV	F												x				
<i>H. fuliginosa</i>	Forest Swallow	S	F			x									x				
<i>H. rustica</i>	Barn Swallow	SV	C												x				
<b>Motacillidae</b>																			
<i>Anthus pallidiventris</i>	Long-legged Pipit	SP	R																
<i>Motacilla aguimp</i>	African Pied Wagtail	SV	F																x
<i>M. clara</i>	Mountain Wagtail	SV	F																x
<b>Campephagidae</b>																			
<i>Coracina azurea</i>	Blue Cuckoo-shrike	SV	U			x													
<b>Pycnonotidae</b>																			
<i>Pycnonotus barbatus</i>	Common Bulbul	SV	A												x				
<i>Thescelocichla leucopleura</i>	Swamp Palm Bulbul	SV	A											x					
<i>Bleda notata</i>	Lesser Bristlebill	SV	A			x													
<i>B. syndactyla</i>	Red-tailed Bristlebill	SV	A			x													
<i>Andropadus ansorgei</i>	Ansorge's Greenbul	V	U			x													
<i>A. curvirostris</i>	Cameroon Sombre Greenbul	V	F			x													
<i>A. gracilirostris</i>	Slender-billed Greenbul	SV	F			x													
<i>A. latirostris</i>	Yellow-whiskered Greenbul	SV	A			x		x		x							x		x
<i>A. virens</i>	Little Greenbul	SVT	A			x		x		x							x		x
<i>Baeopogon indicator</i>	Honeyguide Greenbul	SV	C			x													
<i>Criniger calurus</i>	Red-tailed Greenbul	SV	C			x													
<i>C. chloronotus</i>	Eastern Bearded Greenbul	SVT	C			x													
<i>C. ndussumensis</i>	White-bearded Greenbul	SVP	C			x													
<i>Ixonotus guttatus</i>	Spotted Greenbul	SV	C			x									x				
<i>Phyllastrephus icterinus</i>	Icterine Greenbul	V	F			x													
<i>P. xavieri</i>	Xavier's Greenbul	V	F			x													
<i>Chlorocichla simplex</i>	Simple Leaflove	SV	F													x			
<i>Nicator chloris</i>	Western Nicator	SVP	C			x									x				x
<i>N. vireo</i>	Yellow-throated Nicator	SV	F			x									x				x
<b>Turdidae</b>																			
<i>Alethe diademata</i>	Fire-crested Alethe	SVT	C			x													
<i>A. poliocephala</i>	Brown-chested Alethe	SV	C			x													
<i>Stiphrornis erythrorhox</i>	Forest Robin	SVT	A			x													
<i>Neocossyphus poensis</i>	White-tailed Ant Thrush	SV	U			x													
<i>Stizorhina fraseri</i>	Rufous Flycatcher Thrush	SV	C			x													
<i>Turdus pelios</i>	African Thrush	SV	C													x			
<b>Sylviidae</b>																			
<i>Cisticola anonymus</i>	Chattering Cisticola	SV	C													x			





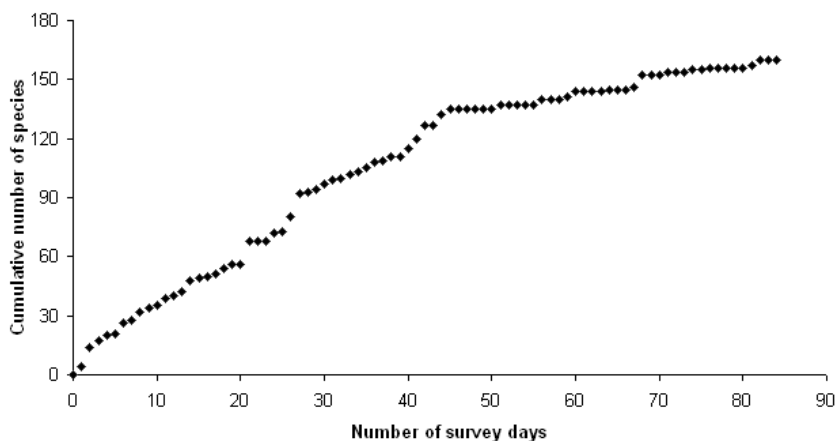
				Habitat						
		Obs.	Ab.	1	2	3	4	5	6	7
<b>Oriolidae</b>										
<i>Oriolus brachyrhynchus</i>	Western Black-headed Oriole	SVP	C	x		x				
<i>O. nigripennis</i>	Black-winged Oriole	S	U	x						
<b>Dicuridae</b>										
<i>Dicrurus atripennis</i>	Shining Drongo	SVP	C	x						
<i>D. modestus</i>	Velvet-mantled Drongo	SVPT	U	x						
<b>Corvidae</b>										
<i>Corvus albus</i>	Pied Crow	SV	A				x			
<b>Sturnidae</b>										
<i>Lamprotornis purpureiceps</i>	Purple-headed Glossy Starling	S	R	x						
<i>L. purpureus</i>	Splendid Glossy Starling	SV	R				x			
<i>Onychognathus fulgidus</i>	Forest Chestnut-winged Starling	SV	R	x			x			
<b>Passeridae</b>										
<i>Passer griseus</i>	Northern Grey-headed Sparrow	SV	C				x			
<b>Ploceidae</b>										
<i>Malimbus erythrogaster</i>	Red-bellied Malimbe	SV	R	x						
<i>M. malimbicus</i>	Crested Malimbe	SVP	F	x						
<i>M. nitens</i>	Blue-billed Malimbe	SV	F	x						
<i>M. racheliae</i>	Rachel's Malimbe	SV	F	x						
<i>M. scutatus</i>	Red-vented Malimbe	SVP	C	x	x	x				
<i>Ploceus cucullatus</i>	Village Weaver	SV	VA				x			
<i>P. nigerrimus</i>	Veillot's Black Weaver	SV	C				x			
<b>Estrildidae</b>										
<i>Parmoptila woodhousei</i>	Woodhouse's Antpecker	S	U	x						
<i>Spermophaga haematina</i>	Western Bluebill	SV	U	x						
<i>Lonchura bicolor</i>	Black-and-white Manikin	SV	C				x			
<i>L. cucullata</i>	Bronze Manikin	SV	A				x			
<i>Nigrita bicolor</i>	Chestnut-breasted Negrofinch	SV	F				x			
<i>N. canicapilla</i>	Grey-crowned Negrofinch	SV	C	x			x			
<i>N. fusconota</i>	White-breasted Negrofinch	S	F	x						
<i>N. luteifrons</i>	Pale-fronted Negrofinch	SV	F	x			x			
<i>Estrilda melpoda</i>	Orange-cheeked Waxbill	SV	C				x			
<b>Viduidae</b>										
<i>Vidua macroura</i>	Pin-tailed Whydah	SV	U				x			

## Discussion

The species so far identified in the Ebo forest are generally typical of those inhabiting the lowland rainforest of the region. A number of families are probably under-

represented in this list, including Strigidae, Picidae and Nectariniidae, mainly because of identification difficulties (especially in dense forest) or because the species are shy. Several families are not represented at all, including Ciconiidae, Anatidae and Glareolidae, probably because large rivers were not surveyed.

The number of new species being identified continued to increase during the study period (Fig. 2). Although the detection rate declined, the total Ebo forest list is evidently far from complete and further surveys are needed. A mist-netting and ringing program is planned and is likely to result in an upward inflexion in the curve.



**Figure 2.** The rate at which new species were identified over the study period.

Abundance categories indicate only perceived abundance and vocal species such as *Cuculus solitarius* and *Ceratogymna atrata* that can be heard from some distance were regularly recorded, whereas quiet, unobtrusive species such as *Ceyx lecontei* were rarely seen or heard but may be more common, as suggested by Borrow & Demey (2001).

*Malimbus racheliae* was seen regularly in the Ebo forest and *M. erythrogaster* was also observed. Both represent extensions to the known ranges (Borrow & Demey 2004) and their presence together indicates that the Ebo forest may be an important link between the montane forests to the northwest of the Sanaga River and the lowland forests to the east. It is worth noting that the maps for both species in Borrow & Demey (2004) are otherwise remarkably accurate and presumably both species were omitted from the region because neither was observed by Dowsett-Lemaire & Dowsett (2001).

In all, 18 attended *Picathartes oreas* nests were found; the forest's eventual national park status should result in significant protection for this Vulnerable species.

All hornbills (Bucerotidae) identified appear to be doing well in the forest and most were considered abundant. The large numbers of these conspicuous birds may indicate a generally healthy avifauna in the forest. *Tockus camurus* was seen and heard daily in groups of 5–12 individuals and is regularly encountered in mixed-species flocks. The only species in the family likely to be found in the Ebo forest but not recorded during this survey is the Black Dwarf Hornbill *Tockus hartlaubi* but this unobtrusive species (Borrow & Demey 2001) was probably overlooked.

Birds are frequently hunted by people in the Ebo forest and we discovered that hunters regularly eat large raptors, including *Stephanoaetus coronatus*, *Spizaetus africanus* and *Gypohierax angolensis* (Whytock & Morgan in press). Owls are also regularly killed because of associated taboo but are not eaten. The larger hornbills are commonly hunted and feathers from *Ceratogymna atrata* and *Bycanistes albotibialis* were found in hunting camps on several occasions along with feathers of various raptors including *Stephanoaetus coronatus*.

The only *Haliaeetus vocifer* recorded during the study was one bird photographed in June, perched by the roadside on the southwestern edge of the forest. It had a large crop and had presumably been hunting in a small stream nearby. Further work is required to determine whether this species is resident in the area or if the bird was on passage. It is likely that the Dibamba River, which runs along the western boundary of the forest, could support a population of this species.

We also recorded a small unidentified accipiter on four occasions which we believe to be is either the Chestnut-flanked Sparrowhawk *Accipiter castanilius* or Red-thighed Sparrowhawk *A. erythropus* but these two species are difficult to differentiate in the field.

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