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The avifauna of Bui National Park in western Ghana

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Summary

Bui National Park covers *c.* 1821 km² and is crossed by the Black Volta river. A narrow rocky escarpment extends from Bui Gorge to the extreme southwest. The vegetation consists of dry Sudanian woodland types, including an *Acacia*-dominated community and dense riparian and seasonally flooded forest on the Volta and some tributaries. We visited at the start of the rains (15–24 March 2005) and report 227 bird species. The main biome is Sudanian, with 23 biome-restricted species so far (two thirds of the total known for this biome in Ghana). We found nine regular Guineo-Congolian species, one marginal in the far south and one vagrant, all reaching their northern limits of range here. The first indications of breeding in Ghana were obtained for Plain Nightjar *Caprimulgus inornatus*, which was singing in rocky habitats, and Brown Sunbird *Anthreptes gabonicus*, nest-building on the edge of the Volta. Several species poorly known in Ghana were recorded, including White-backed Night Heron *Gorsachius leuconotus*, Pel's Fishing Owl *Scotopelia peli*, Barred Owlet *Glaucidium capense*, Dorst's Cisticola *Cisticola guinea*, Puvél's Illadopsis *Illadopsis puvéli* and Yellow-billed Oxpecker *Buphagus africanus*. The dam soon to be built at Bui Gorge will flood all land below *c.* 180 m, including the southern two-thirds of the riparian forest, forested islands and adjacent woodland. A unique community will be destroyed, at the northern limit of the Guineo-Congolian/Sudanian transition zone.

Résumé

L'avifaune du Parc National de Bui à l'ouest du Ghana. Le Parc National de Bui couvre *c.* 1821 km² et est traversé par la Volta noire. Une crête rocheuse s'étend des gorges de Bui jusqu'à l'extrême sud-ouest du Parc. La végétation consiste en différents faciès de forêt claire soudanienne sèche, dont une formation à dominante d'*Acacia* et une forêt-galerie dense et inondée de manière saisonnière le long de la Volta et de certains de ses affluents. Une visite au début des pluies (15–24 mars 2005) a permis d'établir une liste de 227 espèces d'oiseaux. Le biome principal est soudanien, avec 23 espèces

restreintes à ce biome (les deux tiers du total connu pour ce biome au Ghana). Nous avons observés neuf espèces guinéo-congolaises pouvant être considérées comme régulières, outre une espèce marginale à l'extrême sud et une erratique, toutes atteignant leurs limites septentrionales ici. Pour la première fois ont été observés au Ghana des indices de nidification de l'Engoulevent terne *Caprimulgus inornatus*, chantant dans les milieux rocheux, et le Souimanga brun *Anthreptes gabonicus*, construisant son nid au bord de la Volta. Plusieurs espèces mal connues au Ghana ont été observés, dont le Bihoreau à dos blanc *Gorsachius leuconotus*, la Chouette-pêcheuse de Pel *Scotopelia peli*, la Chevêchette du Cap *Glaucidium capense*, la Cisticole de Dorst *Cisticola guinea*, la Grive-akalat de Puvél *Illadopsis puvéli* et le Pique-boeuf à bec jaune *Buphagus africanus*. Le barrage qui va être construit dans les gorges de Bui inondera toutes les terres d'une altitude inférieure à *c.* 180 m, dont les deux tiers de la forêt-galerie au sud, les îles boisées et les forêts adjacentes. Une communauté unique sera détruite, à la limite septentrionale de la zone de transition guinéo-congolaise/soudanienne.

Introduction

Bui National Park is the third largest wildlife reserve in Ghana, covering *c.* 1821 km². Its western boundary follows the border with Ivory Coast. Its main feature is the Black Volta river, which crosses the Park from the Ivory Coast border in the northwest at Ntereso, leaving in the south, just north of Bui Gorge, which is the site of a future dam (Fig. 1). In the southwest a narrow rocky escarpment extending SSW from Bui Gorge is included in the park, representing a habitat rather different from the generally flat plains of the main section. Most of the park lies at 140–250 m altitude, the hills in the southwest rising to *c.* 500 m.

The vegetation consists of several types of Sudanian woodland (*sensu* White 1983), with dense riparian and seasonally flooded forests lining the Black Volta and some tributaries. The river often floods extensively in the southern two-thirds of the park, when it forms islands of densely-forested alluvial sands. The natural regime of annual flooding and deposit of alluvials has created optimal conditions for grazing by Hippopotamus *Hippopotamus amphibius*; hence the park boasts the largest population of Hippos in the country (recently estimated at *c.* 290 animals, R. Ofori-Amanfo pers. comm.). The park was gazetted in 1971, even though it was known by then that the projected dam would flood most of the riverine forests and surrounding plains.

Prior to our visit, the avifauna of Bui N.P. was virtually unknown. The account in Ntiamoa-Baidu *et al.* (2001) is brief and contains errors (see list of species rejected below): only two of the common Guineo-Congolian species that we found are mentioned and most of the Sudanian species were missed. D. Hoddinott visited Bui on 19 May 2002 and reported one species of interest (*per* Riley 2003 and *in litt.*).

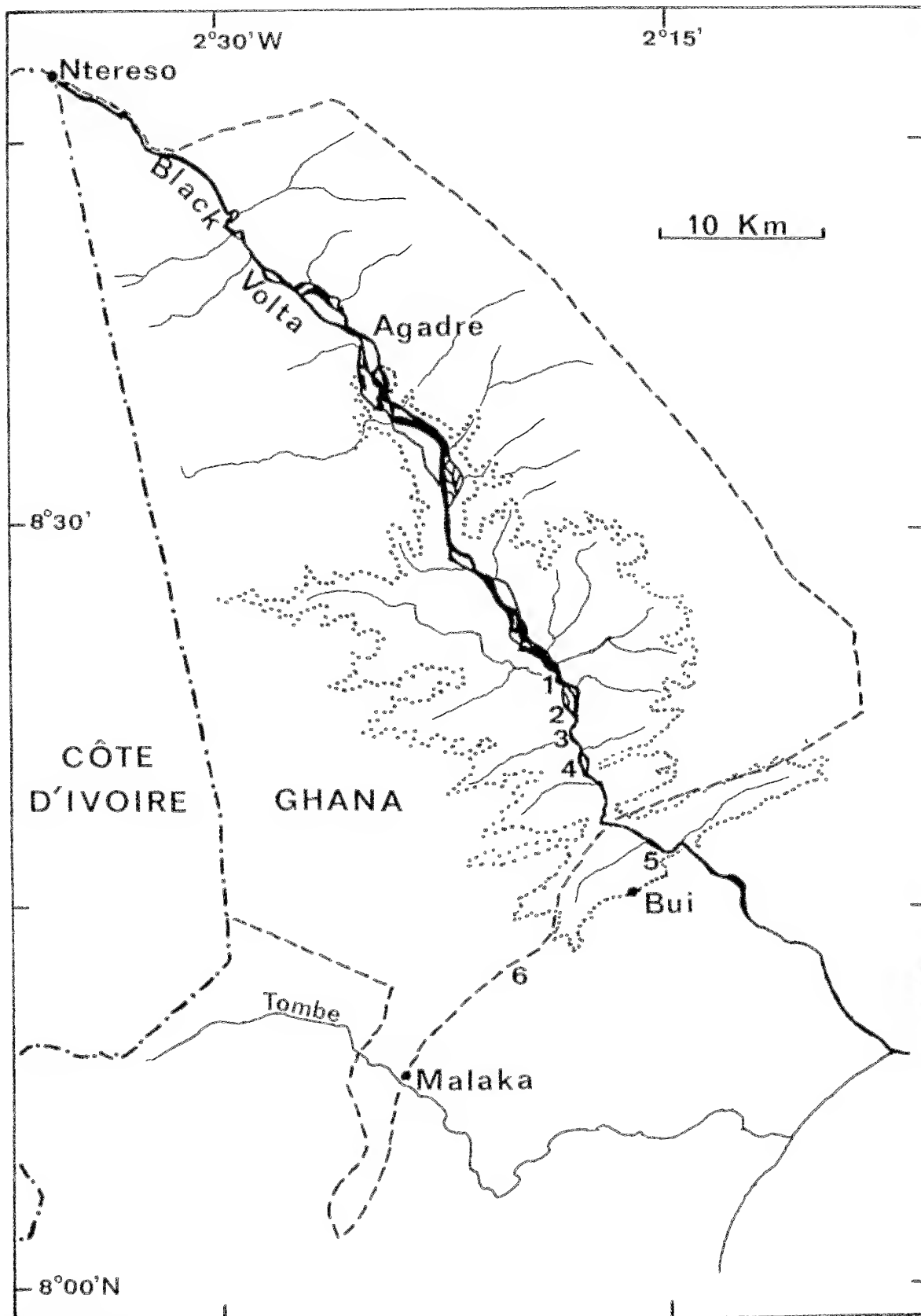


Figure 1. Map of Bui NP showing all localities visited. Numbers are: 1 = Issaka camp, 2 = Bope Island, 3 = Asantekwa camp, 4 = Tree House, 5 = Bui Gorge, 6 = Brosan. The dotted line shows the probable dam flood-line along the 180 m contour.

We spent nearly 10 days in Bui N.P., 15–24 March 2005, at a time when the interior of the park is as accessible as can be, the two best months for reaching the riverbanks being February and March. The weather was hot and humid, with several early but local storms, particularly heavy over the escarpment on 20 and 21 March. We visited all the main bush camps established by wildlife guards on the river, north to Ntereso, as well as two sites on the southwestern scarp (Fig. 1). We camped for three nights at Tree House, one at Asantekwa camp near Bope Island, one at Issaka, one each at Brosan and Malaka camps on the southwestern scarp, one at Agadre and two at Ntereso, visiting Bui camp and Bui Gorge en route. We were accompanied throughout by wildlife guard Yinye Kwaku, and he and his colleagues provided some bird records. Although our list cannot be considered complete, we place it on record in view of the forthcoming dam construction. Work started in 2008 on a hydro-electric power station and dam at Bui Gorge immediately to the south of the park, and more than half of the riparian habitat and adjacent woodland will be flooded.

Habitats

The park is entirely wooded or forested. Most of the dry forest lines rivers, but there are some patches away from streams in the south. The river is often > 100 m broad, but may braid around islands. In March a few rocks were emerging locally around or between islands. Large rocky outcrops are to be found along the southwestern scarp. In the south of the park, wooded hills near Bui Gorge and opposite Tree House have a rather pebbly substrate. Savanna vegetation nomenclature follows Arbonnier (2000).

Woodland

There are several distinct woodland types, albeit intermingling. Mature, tall *Isoberlinia*/*Azelia* is most extensive over the southwestern escarpment and in the foothills stretching towards the Ivory Coast border. Around Brosan camp, the main trees were *Azelia africana*, *Combretum fragrans*, *Daniellia oliveri*, *Entada africana*, *Erythrophleum africanum*, *Isoberlinia doka*, *Lannea acida*, *Monotes kerstingii*, *Parinari curatellifolia*, *Terminalia laxiflora*, *Vitellaria paradoxa*. *Azelia*, *Daniellia* and *Isoberlinia* are often 20–22 m tall, as also near Malaka camp. *Isoberlinia* is much less common in the main body of the park. A typical list of trees on the road to Issaka camp in the centre includes *Acacia gourmaensis*, *Combretum fragrans*, *Gardenia ternifolia*, *Lannea acida*, *L. barteri*, *Piliostigma thonningii*, *Pseudocedrela kotschyi*, *Terminalia avicennioides*, *Vitellaria paradoxa*.

In the vicinity of the Volta, close to the outer edges of riparian and dry *Anogeissus* forest, the woodland is dominated by *Acacia* spp., often in monospecific stands (especially *A. gerrardii* and *A. sieberiana*); some patches may be subject to flooding and often occur next to groves of *Mitragyna inermis*, which is typical of seasonally flooded woodland. In many places thorn woodland merges gradually into dry

Anogeissus forest. In the north (Ntereso), dry open woodland, with many *Combretum fragrans* and *Pseudocedrela*, is dotted about with small thickets where *Tamarindus indica* is common, alongside *Acacia gourmaensis*, *Balanites aegyptiaca* and occasional *Ficus*. Baobabs *Adansonia digitata* are uncommon.

Forest

Riparian and seasonally flooded forest lines the Black Volta almost without interruption. It may be reduced locally to a single line of trees along some sharp bends. It is best developed in the southern two-thirds of the park, where it can be up to 100 m wide, and several large forested islands occur from Bope to Agadre (8°22' to 8°37'N). A large proportion of the trees are evergreen. The canopy is often 20–25 m tall, with some trees up to 30 m. The dominant trees on the water's edge in sections subject to flooding (Tree House, Bope, Issaka) are *Cola laurifolia*, *Cynometra vogelii*, *Parinari congensis* (usually associated with an understorey of *Myrianthus serratus*), *Pterocarpus santalinoides* and *Syzygium guineense*. Liane tangles are well developed, with *Combretum paniculatum*, *Lonchocarpus cyanescens*, *Paullinia pinnata*, *Quisqualis indica*, *Saba* and *Strophanthus*. Emergents include *Ceiba pentandra* and *Albizia ferruginea*. *Diospyros mespiliformis* is often common, also on the drier, outer edge, next to *Dialium guineense* and *Manilkara multinervis*, and there are some large *Celtis integrifolia*. Occasional figs (*Ficus platyphylla*, *F. sur* and *F. cyathistipuloides*) occur. At Issaka camp, *Berlinia grandiflora*, *Erythrophleum suaveolens* and *Uapaca heudelotii* were also noted on the water's edge. Further north near Ntereso the main tall trees lining the Volta belong to much the same species: *Albizia ferruginea*, *Ceiba*, *Celtis integrifolia*, *Cynometra vogelii*, *Dialium guineense*, *Diospyros mespiliformis*, *Manilkara multinervis*, *Parinari congensis* (over *Myrianthus serratus*), and *Pterocarpus santalinoides* is common on the water's edge.

Thinner riparian forest occurs along a number of tributaries, including the Tombe stream in the south (Malaka camp). *Raphia sudanica* was noted on several small streams in the south, not on the Volta itself, whereas occasional *Elaeis guineensis* and *Borassus aethiopum* occur on the main river.

Away from the river, riparian forest often gives way to dry semi-deciduous forest dominated by *Anogeissus leiocarpus*, with *Diospyros mespiliformis*, *Lecaniodiscus cupanioides*, *Malacantha alnifolia*, *Tamarindus indica* and others. This formation then gives way to *Acacia* or other types of woodland.

The avifauna

Nomenclature follows Dowsett & Forbes-Watson (1993), with a few changes as explained in Dowsett-Lemaire & Dowsett (2007, 2008).

Altogether 227 species were recorded, all but four by ourselves, as detailed below. Biomes are indicated where relevant: GC = Guineo-Congolian element (following

Dowsett-Lemaire & Dowsett 2001); SUD = Sudanian element (belonging to the Sudanian region of White (1983), synonymous with the “Sudan-Guinea” savanna biome of Fishpool & Evans (2001). Dates are given for migrants and some other species, where considered relevant.

Phalacrocoracidae

Phalacrocorax africanus Long-tailed Cormorant. A few on the river, often perching on rocks.

Ardeidae

Nycticorax nycticorax Black-crowned Night Heron. Heard at night on the river (Issaka, Agadre), 18–21 Mar.

Gorsachius leuconotus White-backed Night Heron. A pair flushed by day from dense riparian forest on Bope Island, 18 Mar, and an old nest was seen nearby. A pair in thicket near our camp at Ntereso, coming out to fish at dusk. First reported by D. Hoddinot (*per* Riley 2003), who observed four adults and a juvenile on 19 May 2002.

Ardeola ralloides Squacco Heron. One on the river, 16 Mar.

Bubulcus ibis Cattle Egret. A small flock flying over Agadre, 22 Mar. More common outside the park.

Butorides striata Green-backed Heron. Common on the river and at pools, as on the Tombe.

Egretta garzetta Little Egret. A few on the river in the south, 15–18 Mar.

Ardea cinerea Grey Heron. A few on the river, throughout.

Scopidae

Scopus umbretta Hamerkop. Common on the river and pools of tributaries.

Threskiornithidae

Bostrychia hagedash Hadada. A few in riparian forest around Tree House and Asantekwa.

Accipitridae

Aviceda cuculoides African Cuckoo Hawk. Singles and pairs (some displaying) in riparian forest and *Acacia* woodland from Tree House to Agadre.

Macheiramphus alcinus Bat Hawk. One flying over the river at dawn, Ntereso.

Milvus migrans Yellow-billed Kite. Widespread.

Gypohierax angolensis Palm-nut Vulture. A few on the river, including one that landed briefly on a nest in a *Ceiba* at Issaka. Both *Elaeis* and *Raphia* palms (important food plants) are present in small numbers, *Raphia* mainly on tributaries.

Gyps africanus African White-backed Vulture. One at Tree House, 17 Mar.

Trionoceph occipitalis White-headed Vulture. One at Tree House, with the previous species.

Circaetus cinereus Brown Snake Eagle. One near Bui Gorge.

Terathopius ecaudatus Bateleur. Common and widespread.

Polyboroides typus African Harrier Hawk. Widespread.

Accipiter badius Shikra. A common woodland species.

Butastur rufipennis Grasshopper Buzzard. A common dry season visitor. Some moving north on the eastern boundary, 21 Mar. Singles seen drinking in the river.

Kaupifalco monogrammicus Lizard Buzzard. Widespread and common.

Buteo auguralis Red-necked Buzzard. Widespread, common on the escarpment.

Aquila wahlbergi Wahlberg's Eagle. Two circling overhead, Agadre, 22 Mar.

Hieraaetus spilogaster African Hawk Eagle. One pair at Agadre.

Polemaetus bellicosus Martial Eagle. One subadult tried but failed to catch an immature Olive Baboon *Papio anubis* near Tree House.

Pandion haliaetus Osprey. One flying north over the river, Bope, 18 Mar.

Falconidae

Falco naumanni Lesser Kestrel. One flying north, 16 Mar.

F. alopex Fox Kestrel (SUD). Noisy territorial pair at cliff at Brosan camp; there is much suitable habitat along the escarpment.

F. ardosiaceus Grey Kestrel. One record near Tree House.

F. cuvierii African Hobby. A few seen from Tree House to Agadre; one carrying a small bird, another catching insects with its talons.

F. biarmicus Lanner Falcon. One near the escarpment.

Phasianidae

Francolinus albogularis White-throated Francolin. Calling in woodland near Ntereso. Also known to guards in the south. May be more common, as sings mainly in the rains.

F. bicalcaratus Double-spurred Francolin. Common and widespread.

F. ahantensis Ahanta Francolin (GC). Local: confined to the densest riparian forest and thicket, from Asantekwa to Agadre. Not recorded at Tree House.

Ptilopachus petrosus Stone Partridge. Common and widespread, all habitats.

Numididae

Numida meleagris Helmeted Guineafowl. Small numbers in main section of the park.

Rallidae

Amaurornis flavirostra Black Crake. A pair duetting in herbaceous vegetation on the river, Ntereso.

Heliornithidae

Podica senegalensis African Finfoot. Widespread on the river, along wooded banks and on well wooded arms of the Black Volta.

Otididae

Eupodotis melanogaster Black-bellied Bustard. Well known to guards, in woodland.

Jacanidae

Actophilornis africanus African Jacana. A few on the river, on sand and short grassland.

Burhinidae

Burhinus senegalensis Senegal Thick-knee. Widespread along the river in territorial pairs, on sand and rocks.

B. capensis Spotted Thick-knee. Local near Tree House and Agadre, calling at night, 16–22 Mar.

Charadriidae

Vanellus albiceps White-headed Plover. Widespread along the river in territorial pairs, on sand and rocks.

Scolopacidae

Actitis hypoleucos Common Sandpiper. Widespread along the river.

Pteroclididae

Pterocles quadricinctus Four-banded Sandgrouse. Dry season visitor with numbers decreasing in Mar according to the guards. Seen and heard when coming to drink at dusk at Asantekwa, 17 Mar, and a pair at Ntereso, 22 Mar.

Columbidae

Streptopelia senegalensis Laughing Dove. Commensal, near Bui camp and Tree House.

S. vinacea Vinaceous Dove. Very common throughout.

S. semitorquata Red-eyed Dove. Common, especially in riparian vegetation.

Turtur abyssinicus Black-billed Wood Dove. Common throughout.

T. afer Blue-spotted Wood Dove. Confined to riparian forest where common, alongside congener.

Treron waalia Bruce's Green Pigeon. Noted only near Ntereso, feeding on figs of *Ficus platyphylla* with African Green Pigeons.

T. calvus African Green Pigeon. Small numbers throughout.

Psittacidae

Poicephalus robustus Brown-necked Parrot. A few seen flying over riparian forest, from Tree House to Ntereso; also in escarpment woodland near Malaka.

P. senegalus Senegal Parrot (SUD). Very common throughout.

Agapornis pullarius Red-headed Lovebird. Guard Seidu Mulbassi gave a good description of this species.

Psittacula krameri Rose-ringed Parakeet. Local in riparian forest in the north (Ntereso), but present in the south at times (Yinye Kwaku); probably subject to local movements.

Musophagidae

Tauraco persa Green Turaco (GC). Common in riparian forest and adjacent thicket or woodland. A chorus of Violet Turaco almost always led to an answer by Green Turacos, but when Green Turacos sang spontaneously (especially at dawn and dusk), their calls did not prompt Violet Turacos into song. Seen eating flowers of *Khaya senegalensis*.

Musophaga violacea Violet Turaco (SUD). Common in riparian forest, thicket and woodland.

Crinifer piscator Western Grey Plantain-eater. Common throughout.

Cuculidae

Clamator levaillantii Striped Cuckoo. Common, calling at all localities in woodland and especially riparian forest.

Pachycoccyx audeberti Thick-billed Cuckoo. Small numbers heard calling in most localities (mainly riparian forest), from Bope Island to Ntereso.

Cuculus solitarius Red-chested Cuckoo. Calling throughout.

C. clamosus Black Cuckoo. Heard only in escarpment woodland (near Brosan camp, 19–20 Mar), where African Golden Oriole (a potential host) was very common, but not found in riparian on the Black Volta (normally a good habitat), perhaps as a result of the scarcity of orioles, even though Tropical Boubou (another potential host) was very common in the area.

C. gularis African Grey Cuckoo. Calling throughout.

Chrysococcyx klaas Klaas's Cuckoo. Widespread, especially in riparian forest.

C. caprius Didric Cuckoo. Widespread in small numbers.

Ceuthmochares aereus Green Coucal. In dense riparian forest and thicket, in small numbers throughout, from the Tombe stream to Ntereso.

Centropus leucogaster Black-throated Coucal (GC). Locally near Ntereso and Agadre in very dense riparian forest.

C. senegalensis Senegal Coucal. Very common throughout.

Tytonidae

Tyto alba Barn Owl. Heard at both camps on the escarpment (in rocky woodland).

Strigidae

Otus senegalensis African Scops Owl. Widespread in woodland and dry riparian forest.

O. leucotis White-faced Owl. Uncommon, heard near Tree House and Asantekwa in *Acacia* woodland and edge of riparian forest.

Bubo africanus Spotted Eagle Owl. Widespread on rocky hills, escarpment, dry woodland.

B. lacteus Verreaux's Eagle Owl. Heard only in riparian forest near Asantekwa.

Scotopelia peli Pel's Fishing Owl. Adult heard near Tree House.

Glaucidium perlatum Pearl-spotted Owlet. Widespread in woodland in the south.

G. capense Barred Owlet. Heard on the edge of riparian forest near Tree House.

Strix woodfordii African Wood Owl. Widespread in riparian forest from Tree House to Agadre.

Caprimulgidae

Caprimulgus pectoralis Fiery-necked Nightjar. On the edge of riparian forest, at Asantekwa and Issaka, not singing much. Song imitated by Snowy-headed Robin Chat.

C. inornatus Plain Nightjar. A male seen at close range by day resting in riparian forest near Tree House, 16 Mar. The white edging for at least half the length of the outer tail feather was clearly seen. The low churring song, half the speed of that of Long-tailed Nightjar, was heard on the opposite side of the river (at dusk) from a pebbly hill; also heard on the top of the escarpment, in rocky woodland near Malaka camp, 20–21 Mar.

C. tristigma Freckled Nightjar. Common and very noisy in rocky woodland on the escarpment.

C. climacurus Long-tailed Nightjar. Common in woodland.

Macrodipteryx longipennis Standard-winged Nightjar. A male seen in woodland at dusk near Ntereso, 23 Mar. Also reported from the south by guards.

Apodidae

Telacanthura ussheri Mottled Spinetail. In woodland with Baobabs: three near Bope; a pair near Ntereso.

Cypsiurus parvus Palm Swift. Small numbers throughout, nesting in *Borassus*.

Apus apus Eurasian Swift. Common, moving through daily.

A. affinis Little Swift. A few near cliff on the escarpment at Brosan camp.

Trogonidae

Apaloderma narina Narina's Trogon. Widespread in riparian woodland, from Tree House to Ntereso; very vocal. Appeared more common in Bui than in many parts of Ghana.

Alcedinidae

Alcedo quadibrachys Shining Blue Kingfisher. Several pairs on the river where the water is shallow, with rapids and rocks (e.g. Asantekwa, Bope Island, Issaka).

A. cristata Malachite Kingfisher. Several on the river at pools or in areas of shallow water; also at pools on the Tombe stream.

Ceyx pictus Pygmy Kingfisher. Widespread in thicket and riparian vegetation.

Halcyon leucocephala Grey-headed Kingfisher. In rocky woodland and edge of riparian vegetation, but rather uncommon, north to Agadre. Breeding in small sand banks.

H. malimbica Blue-breasted Kingfisher. Common in riparian forest throughout.

H. senegalensis Woodland Kingfisher. One silent bird seen on the edge of the river at Agadre, 22 Mar.

H. chelicuti Striped Kingfisher. Uncommon in woodland.

Megaceryle maxima Giant Kingfisher. Several noisy pairs on the river, throughout, especially near rocks and rapids.

Ceryle rudis Pied Kingfisher. One pair near Asantekwa, by shallow water in a sandy section.

Meropidae

Merops hirundineus Swallow-tailed Bee-eater. Widespread in small numbers, woodland and edge of riparian forest.

M. apiaster Eurasian Bee-eater. Passing through daily, in groups of up to several dozen.

Coraciidae

Coracias abyssinicus Abyssinian Roller. Only two observations: on eastern boundary near Maluwe, and near Ntereso.

C. naevius Rufous-crowned Roller. Common in woodland throughout; noisy, often displaying.

C. cyanogaster Blue-bellied Roller (SUD). A few in woodland in the central section (Asantekwa and Issaka) and near the escarpment at Brosan.

Eurystomus glaucurus Broad-billed Roller. Widespread in riparian situations.

Phoeniculidae

Phoeniculus purpureus Red-billed Wood Hoopoe. Widespread in woodland and dry forest.

P. aterrimus Black Wood Hoopoe. Woodland and dry forest, widespread but less common than its congener.

Upupidae

Upupa epops Hoopoe. Heard near Tree House, in dry woodland on pebbly hill, 16 Mar.

Bucerotidae

Tockus erythrorhynchus Red-billed Hornbill. A large population in the *Acacia/Anogeissus* woodland just outside the riparian forest. More common in the south (Tree House to Issaka). In the north, a pair in Baobab/*Anogeissus* on the boundary near Ntereso, where the favoured dry woodland is less extensive. Also on the edge of the park near Malaka camp.

T. fasciatus African Pied Hornbill (GC). Small numbers in dense riparian forest, from Bope to Agadre. Two singles near Ntereso. One on the Tombe stream in the south.

T. nasutus African Grey Hornbill. Very common in woodland throughout.

Bycanistes fistulator Piping Hornbill (GC). Frequent on the best section of riparian forest, from Tree House to Agadre.

Bucorvus abyssinicus Abyssinian Ground Hornbill. Heard near Ntereso, but guards also reported it in other areas of woodland in the south.

Lybiidae

Pogoniulus chrysoconus Yellow-fronted Tinkerbird. Small numbers throughout, in woodland and forest.

Lybius vieilloti Vieillot's Barbet. Recorded only near Agadre, Ntereso and Bui camp.

L. dubius Bearded Barbet (SUD). Frequent in woodland and riparian forest.

Indicatoridae

Indicator indicator Greater Honeyguide. Widespread and noisy in woodland.

I. minor Lesser Honeyguide. On the edge of and in riparian forest, some in song.

Picidae

Campethera punctuligera Fine-spotted Woodpecker. Uncommon in woodland near Agadre and Ntereso.

C. abingoni Golden-tailed Woodpecker. Confined to riparian forest from Tree House to Ntereso, also on the Tombe stream near Malaka camp. More often heard than seen.

Dendropicos fuscescens Cardinal Woodpecker. Widespread in riparian forest from Tombe stream to Ntereso.

Mesopicos goertae Grey Woodpecker. Common in riparian and dry forest.

Picoides obsoletus Brown-backed Woodpecker. Local in woodland near the Tombe stream and near Agadre.

Alaudidae

Mirafra rufocinnamomea Flappet Lark. Seen in woodland on the park boundary near Brosan Camp. Not displaying, so could be more common than this single record suggests.

Hirundinidae

Psalidoprocne obscura Fanti Saw-wing. One seen over the river at Issaka, 18 Mar.

Hirundo senegalensis Mosque Swallow. One pair around Baobabs on the boundary near Ntereso; one pair on the eastern boundary.

H. fuligula Rock Martin. Several around a rock face on the escarpment at Brosan, and in Bui Gorge.

H. rustica Barn Swallow. Common, passing through daily.

Delichon urbicum House Martin. Common, passing through daily.

Motacillidae

Anthus trivialis Tree Pipit. Common throughout, in woodland.

Campephagidae

Campephaga phoenicea Red-shouldered Cuckoo-shrike. AM. A few of both sexes in riparian forest.

Coracina pectoralis White-breasted Cuckoo-shrike. Several pairs in tall, mature *Isobertinia/Afzelia* woodland near the escarpment.

Pycnonotidae

Chlorocichla flavicollis Yellow-throated Leaflove. Several pairs in riparian forest in the north (Ntereso).

Pyrrhurus scandens Leaflove (GC). Very common in riparian forest in the main section of the park, from Tree House to Agadre; less common in the north (Ntereso).

Bleda canicapillus Grey-headed Bristlebill (GC). Small numbers in dense riparian forest, from Tree House to Agadre.

Pycnonotus barbatus Common Bulbul. Common throughout.

Turdidae

Turdus pelios West African Thrush. Fairly common in forest and woodland. Some imitating the song of Greater Honeyguide (also imitated by Snowy-crowned Robin Chat).

Cossypha niveicapilla Snowy-crowned Robin Chat. Common in riparian forest with a few also in deciduous thicket. Less numerous in evergreen riparian than its congener. Song included imitations of Fiery-necked Nightjar.

C. albicapilla White-crowned Robin Chat (SUD). Common in riparian forest throughout.

Saxicola rubetra Whinchat. One in open woodland near Ntereso, 23 Mar.

Cercomela familiaris Familiar Chat. Common in rocky woodland on the escarpment at Brosan and Malaka.

Sylviidae

Melocichla mentalis African Moustached Warbler. Common in rank grass on the outer edge of riparian vegetation, also in low thickets and herbage on the edge of water.

Hippolais polyglotta Melodious Warbler. Common, often singing, in medium to large trees in woodland and edge of riparian forest, throughout.

Eremomela pusilla Green-backed Eremomela (SUD). Very common in woodland, throughout.

Sylvietta brachyura Northern Crombec. Common in woodland, thicket and edge of riparian forest.

Phylloscopus trochilus Willow Warbler. Common in woodland.

P. sibilatrix Wood Warbler. Common, passing through, feeding next to Willow Warbler and singing frequently.

Hyliota flavigaster Yellow-bellied Hyliota. Several in tall, mature *Isobertinia/Afzelia* woodland near the escarpment in the south.

Cisticolidae

Cisticola natalensis Croaking Cisticola. In unburnt grass in open woodland near Ntereso, likely to be slightly flooded in the rains, where some early song heard, 24 Mar.

C. guinea Dorst's Cisticola (SUD). Found in open woodland next to Croaking Cisticola near Ntereso (one singing). Almost silent at this time of year, and could be more widespread.

C. rufus Rufous Cisticola (SUD). Locally common in woodland.

C. brachypterus Short-winged Cisticola. Widespread, mainly in short, open woodland just outside riparian forest, and in seasonally flooded *Mitragyna* woodland (dry in Mar), usually with some unburnt grass.

C. aberrans Rock-loving Cisticola. Noisy pairs in grass among rocks on the escarpment at Brosan.

C. lateralis Whistling Cisticola. Widespread overall, mainly in rank grass on the landward edge of riparian forest; also in mature, rich woodland near the escarpment.

C. erythropus Red-faced Cisticola. Common in open herbage on islands, and at landward edge of riparian forest.

C. cantans Singing Cisticola. Locally common in woodland with a shrub layer and on the landward edge of riparian forest.

Prinia subflava Tawny-flanked Prinia. Common in woodland and thicket edges.

Heliolais erythropterus Red-winged Warbler. In the same habitat as Tawny-flanked Prinias, somewhat less common and more tied to rank grass.

Apalis flavida Yellow-breasted Apalis. Common throughout in riparian forest and thicket, Tree House to Ntereso; also on the Tombe stream.

A. sharpii Sharpe's Apalis (GC). A lone male singing in several large trees at Asantekwa, 18 Mar, preened and fed for a long time in a *Celtis integrifolia* and *Albizia ferruginea*, then moved north around midday.

Camaroptera brachyura Grey-backed Camaroptera. Very common in riparian forest and any thicket or dense woodland.

Hypergerus atriceps Oriole Warbler (SUD). Common in riparian forest on the Volta throughout. Not noted in thinner riparian forest on the Tombe near Malaka.

Muscicapidae

Bradornis pallidus Pallid Flycatcher. Local in woodland at Agadre, Ntereso.

Melaenornis edolioides Northern Black Flycatcher. Scattered pairs in large trees on the edge of riparian forest, all localities.

Ficedula hypoleuca Pied Flycatcher. Common in any woodland or forest edge, throughout.

Muscicapa aquatica Swamp Flycatcher. Local in riparian forest, feeding low over the water from wooded banks at Asantekwa and Bope Island.

Myioparus plumbeus Lead-coloured Flycatcher. Common in small thickets, riparian forest and adjacent woodland throughout.

Platysteiridae

Batis senegalensis Senegal Batis. Common in woodland.

Platysteira cyanea Common Wattle-eye. Common in riparian forest throughout.

Monarchidae

Elminia longicauda Blue Flycatcher. Noted only at Ntereso, where common, and in thin riparian forest on the Tombe stream.

Terpsiphone viridis African Paradise Flycatcher. Common in riparian or dry forest and thicket; more locally in dense woodland.

T. rufiventer Red-bellied Paradise Flycatcher (GC). One pair in riparian forest on the Tombe stream in the far south.

Timaliidae

Illadopsis puveli Puvel's Illadopsis (GC). Widespread in riparian forest along the Volta, from Tree House to at least Agadre. Sang mainly at dawn, occasionally in mid-morning.

Turdoides plebejus Brown Babbler. In dry thickets, on the edge of riparian and in dense woodland; widespread.

T. reinwardtii Blackcap Babbler (SUD). Very common and noisy in riparian forest throughout, including on the Tombe stream.

Paridae

Parus leucomelas White-winged Black Tit. Widespread in woodland and edge of riparian forest.

Nectariniidae

Anthreptes gabonicus Brown Sunbird (GC). Three birds seen in low thickets on the edge of the Volta at Agadre. Two were apparently a pair, of which one bird was collecting dry vegetation from old inflorescences of *Salix* while the other sang in a subdued fashion; they flew off together.

A. collaris Collared Sunbird. Widespread in riparian forest from Tree House to Agadre.

A. platurus Pygmy Sunbird. One in non-breeding dress, calling in dry woodland near Ntereso, 24 Mar.

Nectarinia verticalis Green-headed Sunbird. Widespread in riparian forest, including on the Tombe and north to Ntereso; often on flowers of *Albizia ferruginea* and *Berlinia grandiflora*.

N. senegalensis Scarlet-chested Sunbird. Abundant in woodland and riparian forest throughout. Fond of *Albizia* flowers, alongside Splendid and Green-headed Sunbirds.

N. venusta Variable Sunbird. One in breeding dress on flowers of *Gmelina* on the boundary at Brosan, with many Scarlet-chested and some Coppery Sunbirds.

N. cuprea Coppery Sunbird. Widespread in small numbers in woodland and riparian thicket or forest, including near the escarpment.

N. coccinogastra Splendid Sunbird (SUD). Widespread, mainly in riparian forest but also in adjacent tall woodland, north to at least Agadre.

Zosteropidae

Zosterops senegalensis Yellow White-eye. Small numbers in riparian forest and thicket, also adjacent woodland.

Oriolidae

Oriolus auratus African Golden Oriole. Common in tall *Isoberlinia*/*Azelia* woodland near the escarpment; rare in woodland in the main section of the park.

Laniidae

Corvinella corvina Yellow-billed Shrike (SUD). Locally common in open woodland, in small pockets of several territorial groups, as near Issaka and Agadre.

Malaconotidae

Nilaus afer Brubru. Local in woodland.

Dryoscopus gambensis Northern Puffback. Very common in riparian forest; also in adjacent woodland or anywhere in dry forest.

Tchagra senegalus Black-crowned Tchagra. Common in any woodland.

Laniarius aethiopicus Tropical Boubou. Common in riparian forest, including the escarpment area.

L. barbarus Yellow-crowned Gonolek. Local in riparian forest: frequent at Ntereso, uncommon at Bui Gorge and Tree House; one pair heard on the island at Agadre.

Malaconotus sulfureopectus Sulphur-breasted Bush Shrike. Common in riparian forest throughout, including the Tombe stream.

M. blanchoti Grey-headed Bush Shrike. Local on the edge of riparian and adjacent woodland, north to Ntereso.

Prionopidae

Prionops plumatus White Helmet Shrike. Fairly common in tall *Isoberlinia* woodland near the escarpment; local elsewhere.

Dicruridae

Dicrurus ludwigii Square-tailed Drongo. Common in dense, tall-canopy riparian forest on the Volta, north to Ntereso.

D. adsimilis Fork-tailed Drongo. Widespread in tall woodland.

Corvidae

Corvus albus Pied Crow. Seen only on the eastern boundary near the road.

Sturnidae

Lamprotornis purpureus Purple Glossy Starling (SUD). Isolated pairs seen at two localities in woodland, on the escarpment and at Ntereso.

L. chalybaeus Greater Blue-eared Starling. One pair in an area with *Acacia*, *Anogeissus* and Baobabs on the park boundary near Ntereso, breeding in a dead *Anogeissus*. The male gave some nasal song, which confirmed the identification.

L. caudatus Long-tailed Glossy Starling. Confined to the extreme north, in dry woodland with *Acacia*, *Ficus*, *Lannea*, *Tamarindus*, Baobabs. At least five birds seen feeding on fruit of *Lannea acida*.

Cinnyricinclus leucogaster Violet-backed Starling. Widespread in small numbers throughout, in any woodland and thicket edge. Singing.

Buphagus africanus Yellow-billed Oxpecker. Reported by several guards, especially around Buffalo *Syncerus caffer*.

Passeridae

Passer griseus Northern Grey-headed Sparrow. Local in dry woodland in the south.

Petronia dentata Bush Petronia (SUD). Small numbers in woodland throughout.

Plocepasser superciliosus Chestnut-crowned Sparrow Weaver (SUD). Widespread in any woodland, especially common in mixed *Acacia* woodland on the edge of riparian forest, with nests often in *Acacia gourmaensis* or *A. gerrardii*.

Ploceidae

Ploceus luteolus Little Weaver. Uncommon in riparian vegetation on the Volta, and adjacent *Acacia* woodland north to Ntereso. Some moulting into breeding dress, Issaka, 19 Mar.

P. nigricollis Black-necked Weaver. Uncommon in evergreen riparian forest, Tree House and Ntereso.

P. heuglini Heuglin's Masked Weaver (SUD). At least two males in breeding dress and a female, in a mixed bird party in *Acacia* woodland at Agadre; typical round, solitary nest also seen at Issaka, in an *Acacia gourmaensis* full of wasps' nests.

P. cucullatus Village Weaver. Widespread, groups feeding in riparian forest and adjacent woodland.

Anaplectes rubriceps Red-headed Weaver. Widespread in tall, mature *Isobertinia* woodland on the escarpment, as well as in drier woodland including mixed *Acacia* near the Volta. Nests seen in *Acacia gerrardii* at Issaka; occupied nest at Ntereso, hanging at the tip of a slender branch of Baobab.

Euplectes afer Yellow-crowned Bishop. Not in breeding dress; some flocks coming to drink in the Volta at Ntereso.

E. hordeaceus Black-winged Bishop. Several groups in the north, in non-breeding dress.

E. franciscanus Northern Red Bishop. Several groups in the north, in non-breeding dress.

E. macroura Yellow-mantled Whydah. Several at Agadre and Ntereso, in open woodland.

Estrildidae

Pytilia phoenicoptera Red-winged Pytilia. Adult and immature seen in woodland at Issaka.

Lagonosticta rufopicta Bar-breasted Firefinch (SUD). Widespread, with small numbers in riparian thickets and rank grass, Tree House to Ntereso.

L. rara Black-bellied Firefinch (SUD). A few pairs on the edge of riparian forest with rank grass, at Ntereso.

L. larvata Black-faced Firefinch (SUD). Pairs seen in woodland at Issaka and Ntereso.

Estrilda caerulescens Lavender Waxbill (SUD). Widespread in riparian thickets and forest; also in adjacent woodland.

E. melpoda Orange-cheeked Waxbill. Locally from Tree House to Ntereso, edge of riparian vegetation and rank growth on the river.

Uraeginthus bengalus Red-cheeked Cordon-bleu. Very common in small thickets in woodland and edge of riparian vegetation.

Lonchura cucullata Bronze Mannikin. Widespread and common in open habitats.

Viduidae

Vidua macroura Pin-tailed Widow. Reported for the rains by a guard and by D. Bennett & B. Basuglo in 1997 (pers. comm.).

Fringillidae

Serinus mozambicus Yellow-fronted Canary. Widespread in woodland, in small numbers.

S. gularis Streaky-headed Seedeater. Fairly conspicuous in tall *Isoberlinia* woodland on the escarpment; also a few near Ntereso. Song first heard near Malaka on 21 Mar, after rain.

Emberizidae

Emberiza affinis Brown-rumped Bunting (SUD). Only in short open woodland near Issaka.

E. cabanisi Cabanis's Bunting. In tall woodland near Agadre and Ntereso.

Breeding records

Stone Partridge. Pair with a tiny chick, 15 Mar (= egg laying Feb).

Grey-headed Kingfisher. Incubating bird flushed from nest, 19 Mar (= laying Mar).

Red-billed Wood Hoopoe. Pair carrying food to nest in a dead tree, 24 Mar (laying probably Feb).

Piping Hornbill. Males carrying food to nests in two places, 18 Mar.

Common Wattle-eye. Two females begging from males, so probably incubating, 16 and 23 Mar (= laying Mar).

White-winged Black Tit. Occupied nest in dead tree, 24 Mar.

Brown Sunbird. One collecting nest material, accompanied by singing mate, 22 Mar.

White Helmet Shrike. Nest with three young almost ready to fledge, in a bare tree in woodland, 20 Mar (= laying Feb).

Greater Blue-eared Starling. Pair feeding small young in a hole in a dead *Anogeissus*, 24 Mar, still brooded by female (= laying Feb).

Red-headed Weaver. Female entering nest with food and brooding, 24 Mar (= laying Feb).

Discussion

Bui N.P. is a third of the size of Mole N.P. and the vegetation is more uniform, as unlike Mole there are no open floodplains and no bovals (grassland on laterite). Thus the above list of nearly 230 species (compared to 350 in Mole: Dowsett-Lemaire &

Dowsett 2008) likely represents a substantial proportion of the avifauna. March is a good month for detecting Palaearctic migrants and most of the breeding intra-African migrants (cuckoos especially), although granivorous birds with seasonal plumage such as widows and indigobirds *Vidua* spp. are best studied in the second half of the rains and were under-represented in this survey.

Rejected species

The following species reported by Ntiamoa-Baidu *et al.* (2001) appear unlikely and are rejected pending confirmation: Red-thighed Sparrowhawk *Accipiter erythropus*, Long-tailed Hawk *Urotriorchis macrourus*, White-bellied Bustard *Eupodotis senegalensis*, Red-throated Bee-eater *Merops bulocki*, White-bellied Kingfisher *Alcedo leucogaster*, Green Crombec *Sylvietta virens*, Buff-throated Sunbird *Nectarinia adelberti*, Superb Sunbird *N. superba* and Crested Malimbe *Malimbus malimbicus*. The few Guineo-Congolian species in the biome table in Ntiamoa-Baidu *et al.* (2001) look as if they had come from a list for a different part of the country. For instance the Long-tailed Hawk is restricted to rain forest of SW Ghana, and it is highly unlikely to occur in the dry environments of Bui.

The composition of the avifauna

The birds and vegetation indicate that Bui is at the northern limit of the Guineo-Congolian/Sudanian transition zone of White (1983). The Sudanian biome is dominant, with at least 23 Sudanian bird species, thus two-thirds of the species recorded for this biome in Ghana (Fishpool & Evans 2001). Of these, three are not known to occur further south in the country: Chestnut-crowned Sparrow Weaver, Lavender Waxbill and Brown-rumped Bunting (Grimes 1987 and Tauraco data bank). Bui is close to the type locality of *Cisticola guinea* at Kintampo, which is just to the south (8°4'N, 1°44'W: Dowsett-Lemaire *et al.* 2005), where the woodland vegetation has been destroyed (pers. obs.).

There are only 10 Guineo-Congolian elements, plus a vagrant, all reaching their northern limits within west-central Ghana in Bui. There appears to be a gradual dropping out of species from south to north: the Red-bellied Paradise Flycatcher has been found only in the extreme south on the Tombe stream (8°8'N), and only four species appear to reach Ntereso in the north (8°47'N). Of these, Green Turacos are common, but the numbers of Leaflove are noticeably lower (its niche being partly occupied by Yellow-throated Leaflove), and Pied Hornbill and Black-throated Coucal appear rare. Excepting Sharpe's Apalis, the remaining five Guineo-Congolian species all reach Agadre (8°37'N), where the riparian forest is still fairly luxuriant. Sharpe's Apalis is probably a vagrant, as it is present in only some of the more extensive forests in the forest/savanna transition zone in Ghana (e.g. Kyabobo: Dowsett-Lemaire & Dowsett 2007) and the riparian forests at Bui appear much too dry for it. Its normal forest range in western Ghana is not completely known, but it reaches at least the Sunyani area close to 7°30'N (A. Hester pers. comm.) and there is at least

one reliable record of a vagrant in a small forest patch at Boabeng-Fiema (7°43'N, 1°42'W, J. Teichroeb pers. comm.). For the Brown Sunbird our observations represent not only the northernmost sighting for this species in Ghana but the first indication of breeding in the country.

Other species of interest include the Plain Nightjar, as the persistent singing suggests this bird is likely to breed at Bui, in short pebbly or rocky grassland of open woodland; Grimes (1987) had no breeding records. The Red-billed Hornbill was previously known only from the far north (Grimes 1987) but we found it widespread in woodland north of 8°30'N in 2009 (pers. obs.), and densities in Bui are high in *Acacia*-dominated habitat. We have since found it in pockets of dry woodland in the southeast of the country (Shai Hills in 2005, Kalakpa Resource Reserve in 2008). Yellow-billed Oxpecker was mentioned only from Mole in the past (Grimes 1987), but is known also from Gbele Resource Reserve in the northwest and around the Penbik plain in the northeast (pers. obs.). Wildlife guards in Bui mention it as rare, and numbers must have decreased generally in Ghana (as elsewhere) through the application of pesticides on cattle. Other species with few records in the country include White-backed Night Heron, Pel's Fishing Owl, Barred Owlet, Fiery-necked Nightjar, Golden-tailed Woodpecker and Puvell's Illadopsis. The last four are now known to be widespread and locally common through the forest/savanna transition zone from the Ivory Coast border to the Togo border (pers. obs.).

Conservation issues

The Bui Gorge dam is expected to flood all land below *c.* 180 m (R. Ofori-Amanfo pers. comm.). This means that all riparian forest and adjacent woodland of the southern half or two-thirds of the park will disappear (Fig. 1). This affects all the main forested islands with the possible exception of Agadre. If Agadre is spared, the special forest avifauna of Bui, in particular the relict Guineo-Congolian species, might survive in a small pocket from there to Ntereso. If the floods reach Agadre, this avifauna will probably disappear. In any case the natural link between the forest/savanna transition zone to the south and Sudanian woodlands to the north will be interrupted. Judging by what happened after the creation of the enormous lake on the White Volta in SE Ghana, riparian forests will not regrow as the alluvial matter will sink into the lake. The Akosombo dam was constructed in the mid-1960s, flooding the riparian forests along the Afram, Sene and Volta rivers. The edges of the current Lake Volta are occupied by a thin belt of aquatic grassland and sedges, giving way to a belt of *Hyparrhenia* grass then to dry woodland, as in Digya N.P. (Dowsett-Lemaire & Dowsett 2009). The disappearance of large areas of forest seems to have led to a local drying out of the climate, whereas away from the lake the forest/savanna transition zone is in fact getting wetter, with forest expanding over savanna (cf. Dowsett-Lemaire & Dowsett 2007). As a result, the semi-forested land in the Afram plains has suffered from recurrent bush fires, so severe in 1983–4 that all cocoa farms had to be abandoned, and many of the remnant forest patches were also destroyed.

Thus the ecological future of the Black Volta region looks grim. Some of the trees and mammals are seriously threatened. In 2005 we discovered a rare species of strangling fig, *Ficus cyathistipuloides*, growing on the edge of forest islands at Issaka and Bope (identification confirmed by J.-Y. Rasplus). This tree was known only from a handful of specimens in Ivory Coast, Gabon and Congo-Kinshasa (Berg *et al.* 1984, Hawthorne & Jongkind 2006), and our record is the first for Ghana. Of the mammals, the riparian forests of Bui represent the northernmost refuge in Ghana for the Lesser Spot-nosed Monkey *Cercopithecus petaurista*: this and a small population of Black-and-White Colobus *Colobus vellerosus* will soon become extinct as they are confined to a limited area of seasonally flooded forest in the centre of the park. The population of Hippos will be particularly hard hit, as these animals depend on good-quality grazing on alluvial sands deposited by the river floods. A few individuals may survive in the north, but the river does not flood there and at present they are not common in the Ntereso area, which they visit mainly in the rainy season. With the collapse of mammal populations, the survival of vultures and oxpeckers is also in question. The conservation status of White-backed Vulture and White-headed Vulture has recently been raised to "Near-Threatened" and "Vulnerable" respectively on the IUCN Red List (BirdLife International 2008); they will probably disappear from the Bui area.

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The Avifauna of the Ebo Forest, Cameroon

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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 km² 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.

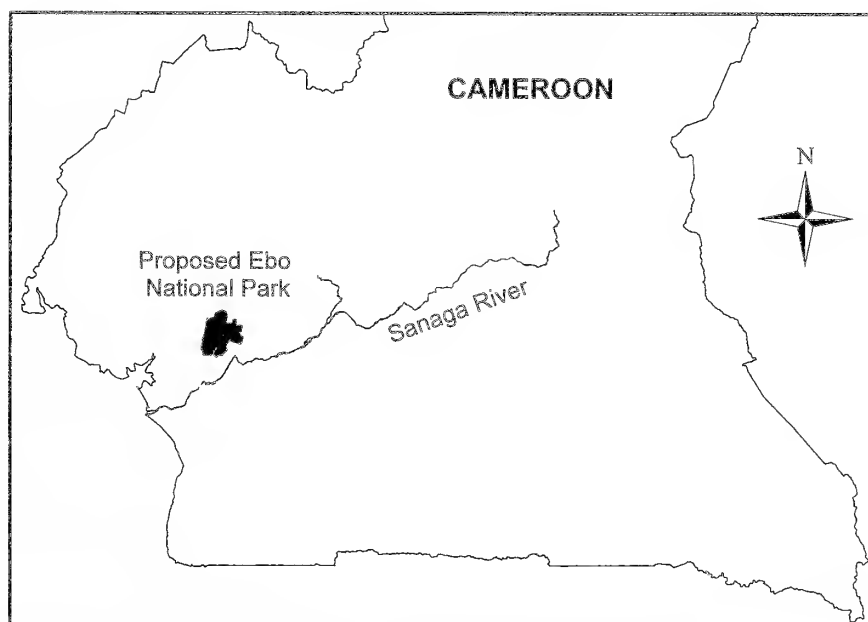


Figure 1. Location of Ebo forest in southwest Cameroon.

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⁻¹ 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.

	Obs.	Ab.	Habitat						
			1	2	3	4	5	6	7
Ardeidae									
<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						
Threskiornithidae									
<i>Bostrychia hagedash</i> Hadada Ibis	SVP	F						x	
Accipitridae									
<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				
Phasianidae									
<i>Francolinus lathamii</i> Latham's Forest Francolin	VT	F	x						
<i>F. squamatus</i> Scaly Francolin	V	F			x	x			
Numididae									
<i>Agelastes niger</i> Black Guinea Fowl	S	U	x						
<i>Guttera pucherani</i> Crested Guinea Fowl	SV	U	x		x				
Rallidae									
<i>Himantornis haematopus</i> Nkulengu Rail	VT	F	x						
Columbidae									
<i>Turtur afer</i> Blue-spotted Wood Dove	SV	C			x				
<i>T. brehmeri</i> Blue-headed Wood Dove	SVP	C	x						
<i>T. tympanistreria</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			
Psittacidae									
<i>Psittacus erithacus</i> African Grey Parrot	SVP	C	x		x				
Musophagidae									
<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			
Cuculidae									
<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						
Strigidae									
<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				
Apodidae										
<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			
Trogonidae										
<i>Apaloderma aequatoriale</i>	Bare-cheeked Trogon	V	R	x						
Alcedinidae										
<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			
Meropidae										
<i>Merops albicollis</i>	White-throated Bee-eater	SVP	F	x		x				
<i>M. gularis</i>	Black Bee-eater	SP	U	x		x				
Coraciidae										
<i>Eurystomus glaucurus</i>	Blue-throated Roller	SVP	U	x		x				
Bucerotidae										
<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						
Capitonidae										
<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				
Indicatoridae										
<i>Melichneutes robustus</i>	Lyre-tailed Honeyguide	V	U	x						
Picidae										
<i>Sasia africana</i>	African Piculet	SV	F	x						
<i>Campethera nivosa</i>	Buff-spotted Woodpecker	S	F	x						
Eurylaimidae										
<i>Smithornis rufolateralis</i>	Rufous-sided Broadbill	SVP	F	x						

	Obs.	Ab.	Habitat						
			1	2	3	4	5	6	7
Hirundinidae									
<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				
Motacillidae									
<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
Campephagidae									
<i>Coracina azurea</i> Blue Cuckoo-shrike	SV	U	x						
Pycnonotidae									
<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		x
Turdidae									
<i>Alethe diademata</i> Fire-crested Alethe	SVT	C	x						
<i>A. poliocephala</i> Brown-chested Alethe	SV	C	x						
<i>Stiphrornis erythrothorax</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				
Sylviidae									
<i>Cisticola anonymus</i> Chattering Cisticola	SV	C			x				

				Habitat						
		Obs.	Ab.	1	2	3	4	5	6	7
<i>Prinia bairdii</i>	Banded Prinia	SVPT	C			x				x
<i>Camaroptera brachyura</i>	Grey-backed Camaroptera	SV	C			x				
<i>C. chloronota</i>	Olive-green Camaroptera	SV	F	x						
<i>C. superciliaris</i>	Yellow-browed Camaroptera	SVP	C	x				x		
<i>Sylvietta denti</i>	Lemon-bellied Crombec	SV	C	x		x				
<i>S. virens</i>	Green Crombec	SV	C	x		x				
<i>Macrosphenus concolor</i>	Grey Longbill	SVT	C	x						
Muscicapidae										
<i>Fraseria cinerascens</i>	White-browed Forest Flycatcher	S	R	x						
<i>F. ocreata</i>	Fraser's Forest Flycatcher	SVP	C	x						
<i>Muscicapa sethsmithi</i>	Yellow-footed Flycatcher	SP	U	x						
<i>M. striata</i>	Spotted Flycatcher	SP	U			x				
<i>Myioparus plumbeus</i>	Lead-coloured Flycatcher	SV	F	x		x				
Monarchidae										
<i>Erythrocercus mccallii</i>	Chestnut-capped Flycatcher	SV	F	x						
<i>Terpsiphone rufiventer</i>	Red-bellied Paradise Flycatcher	SVP	C	x						
<i>T. batesi</i>	Bates's Paradise Flycatcher	S	U			x				
<i>Trochocercus nitens</i>	Blue-headed Crested Flycatcher	SV	C	x		x				
Platysteiridae										
<i>Dyaphorophya tonsa</i>	White-spotted Wattle-eye	S	R	x						x
<i>D. castanea</i>	Chestnut Wattle-eye	SVP	C	x		x				
<i>D. concreta</i>	Yellow-bellied Wattle-eye	SVP	F	x						
<i>Platysteira cyanea</i>	Common Wattle-eye	SV	C			x				
<i>Megabyas flammulatus</i>	Shrike Flycatcher	S	R	x						
Picathartidae										
<i>Picathartes oreas</i>	Red-headed Picathartes	S	U	x						
Timaliidae										
<i>Illadopsis cleaveri</i>	Blackcap Illadopsis	SVT	C	x						
<i>I. fulvescens</i>	Brown Illadopsis	SVT	C	x		x				
<i>I. rufipennis</i>	Pale-breasted Illadopsis	SV	C	x		x				
Nectariniidae										
<i>Cyanomitra cyanolaema</i>	Blue-throated Brown Sunbird	SV	F	x		x				
<i>C. obscura</i>	Western Olive Sunbird	SV	C	x						
<i>Deleornis fraseri</i>	Fraser's Sunbird	SV	C	x						
<i>Hedydipna collaris</i>	Collared Sunbird	S	U	x		x				
<i>Cinnyris johannae</i>	Johanna's Sunbird	S	U	x		x				
Prionopidae										
<i>Prionops rufiventris</i>	Rufous-bellied Helmet-shrike	SVP	A	x						
Malaconotidae										
<i>Laniarius luehderi</i>	Lühder's Bush-shrike	V	U	x						

				Habitat						
		Obs.	Ab.	1	2	3	4	5	6	7
Oriolidae										
<i>Oriolus brachyrhynchus</i>	Western Black-headed Oriole	SVP	C	x		x				
<i>O. nigripennis</i>	Black-winged Oriole	S	U	x						
Dicuridae										
<i>Dicrurus atripennis</i>	Shining Drongo	SVP	C	x						
<i>D. modestus</i>	Velvet-mantled Drongo	SVPT	U	x						
Corvidae										
<i>Corvus albus</i>	Pied Crow	SV	A				x			
Sturnidae										
<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			
Passeridae										
<i>Passer griseus</i>	Northern Grey-headed Sparrow	SV	C					x		
Ploceidae										
<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		
Estrildidae										
<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		
Viduidae										
<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.

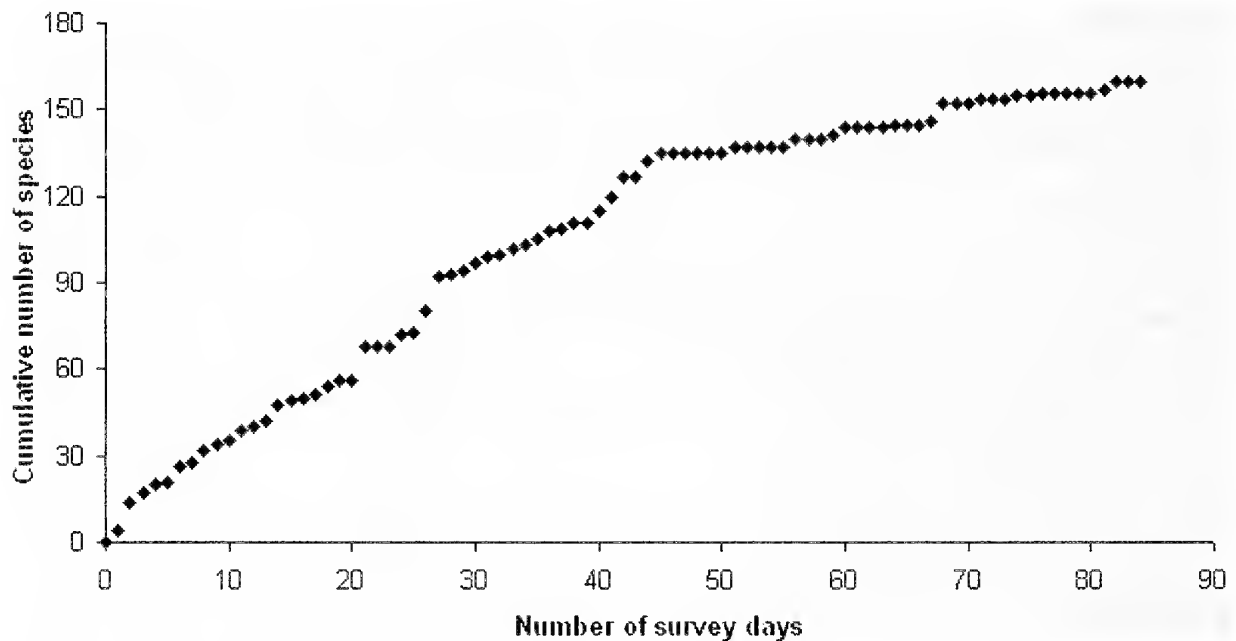


Figure 2. The rate at which new species were identified over the study period.

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 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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The birds of Gola Forest and Tiwai Island, Sierra Leone

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Summary

Recent surveys identified 294 species of birds in Gola Forest and the neighbouring Tiwai Island, of which 287 were recorded in Gola and 133 on Tiwai. These results bring the total number of species recorded in these areas to 327, of which 313 in Gola and 176 on Tiwai Island. Of these, 27 species were new records for these areas, and two are new to Sierra Leone. Around 80 species were restricted to forest habitats, of which nine were confined to primary forest. All species of global conservation concern that have previously been recorded from Gola were found, including significant numbers of White-breasted Guineafowl *Agelastes meleagrides* and Yellow-headed Picathartes *Picathartes gymnocephalus*, and several records of the endangered Rufous Fishing-owl *Scotopelia ussheri*. However, Western Wattled Cuckoo-shrike *Lobotos lobatus*, Nimba Flycatcher *Melaenornis annamarulae* and Gola Malimbe *Malimbus ballmanni* were very rare. The high avian diversity and healthy populations of several threatened species confirm the importance of Gola for bird conservation.

Résumé

Les oiseaux de la forêt de Gola et de l'île Tiwai, Sierra Leone. Des études récentes ont identifié 294 espèces d'oiseaux dans la forêt de Gola et l'île Tiwai située à proximité, dont 287 observées dans Gola et 133 sur Tiwai. Ces résultats portent le nombre total d'espèces enregistrées dans ces zones à 327, dont 313 dans Gola et 176 sur l'île Tiwai. Parmi elles, 27 espèces sont de nouvelles observations pour ces zones et deux sont nouvelles pour la Sierra Leone. Environ 80 espèces sont restreintes à des habitats forestiers, dont neuf confinées à la forêt primaire. Toutes les espèces considérées comme menacées au plan global qui avaient été antérieurement observées dans Gola l'ont été à nouveau, dont en nombres significatifs la Pintade à poitrine blanche *Agelastes meleagrides* et le Picathartes de Guinée *Picathartes gymnocephalus*, et plusieurs observations de la Chouette-pêcheuse rousse *Scotopelia ussheri*. Cependant,

l'Echenilleur caronculé *Lobotos lobatus*, le Gobemouche du Liberia *Melaenornis annamarulae* et le Malimbe de Gola *Malimbus ballmanni* ont été très rarement observés. La richesse de la diversité aviaire et des populations bien portantes de plusieurs espèces menacées confirment l'importance de Gola pour la conservation des oiseaux.

Introduction

The Upper Guinea forests of West Africa are remnants of a belt of lowland rainforest that stretched from Guinea and Sierra Leone eastwards to Ghana. These forests are one of the most important biodiversity hotspots in the world (Myers *et al.* 2000) and are a high priority for conservation. Isolation from the Lower Guinea or Congolian forest block resulted in significant levels of endemism, including around 15 forest birds.

Gola Forest is the largest area of lowland forest (*c.* 710 km²) left in Sierra Leone. Highlighted early on by ICBP (Collar & Stuart 1988) and subsequently listed as an Important Bird Area (Fishpool & Evans 2001) the forest holds a high proportion of the threatened and endemic species of the region and a good representation of Guinea-Congolian forest biome species. The forest is also important for other taxa, notably mammals, with populations of Chimpanzee *Pan troglodytes*, African Forest Elephant *Loxodonta (africana) cyclotis* and Pygmy Hippopotamus *Hexaprotodon liberiensis* (Davies *et al.* 1987, Lindsell *et al.* in press).

Preliminary surveys of the birds of Gola Forest were carried out by G. Field (reported in Allport *et al.* 1989), Davies (1987) and Allport *et al.* (1989). Access to Gola was limited during Sierra Leone's civil war (1991–2002) but Thompson (1997) undertook some work on Yellow-headed Picathartes in the area. After 2002, Gola became accessible again and a major conservation programme was initiated by the Royal Society for the Protection of Birds (RSPB), the Conservation Society of Sierra Leone (CSSL) and the Forest Department of Sierra Leone. A large-scale biodiversity survey was undertaken to re-assess the conservation status of Gola's wildlife after the war. In contrast to earlier work, which focused on a small number of study sites, the present survey covered all parts of the forest. In this paper we review the diversity and status of Gola's avifauna and provide an updated species list. We also include records from neighbouring Tiwai Island, since it forms part of the same landscape unit and is managed in close co-operation with the Gola Forest Programme. For each species recent information on status, distribution and habitat is given.

Study site and methods

Gola Forest is located in the Eastern Province of Sierra Leone, and consists of three forest blocks (Fig. 1): Gola West (67 km²) and Gola East (205 km²) which are

contiguous, and Gola North (417 km²) and its Extension 2 (61 km²). Gola West and East are predominantly low-lying and swampy, whereas Gola North is more rugged with some hills reaching up to 500 m altitude. Tiwai Island (12 km²) is located in the Moa River northwest of Gola West and is low lying. Total annual rainfall in 2007 was 3117 mm with a single strong peak in July–August. The months of December to March are mostly dry. The main vegetation type is moist evergreen forest, with dominant tree species including *Heritiera utilis*, *Cynometra leonensis*, *Brachystegia leonensis* and *Parinari excelsa*. Additional habitats include swamp forest, forest regrowth and secondary forest, and farmbrush which is often dominated by the invasive shrub *Chromolaena odorata*. Tiwai Island is covered in secondary forest, palm swamps and riverine forest. Dominant tree species on Tiwai include *Funtumia africana* and *Pentaclethra macrophylla* (Davies 1987).

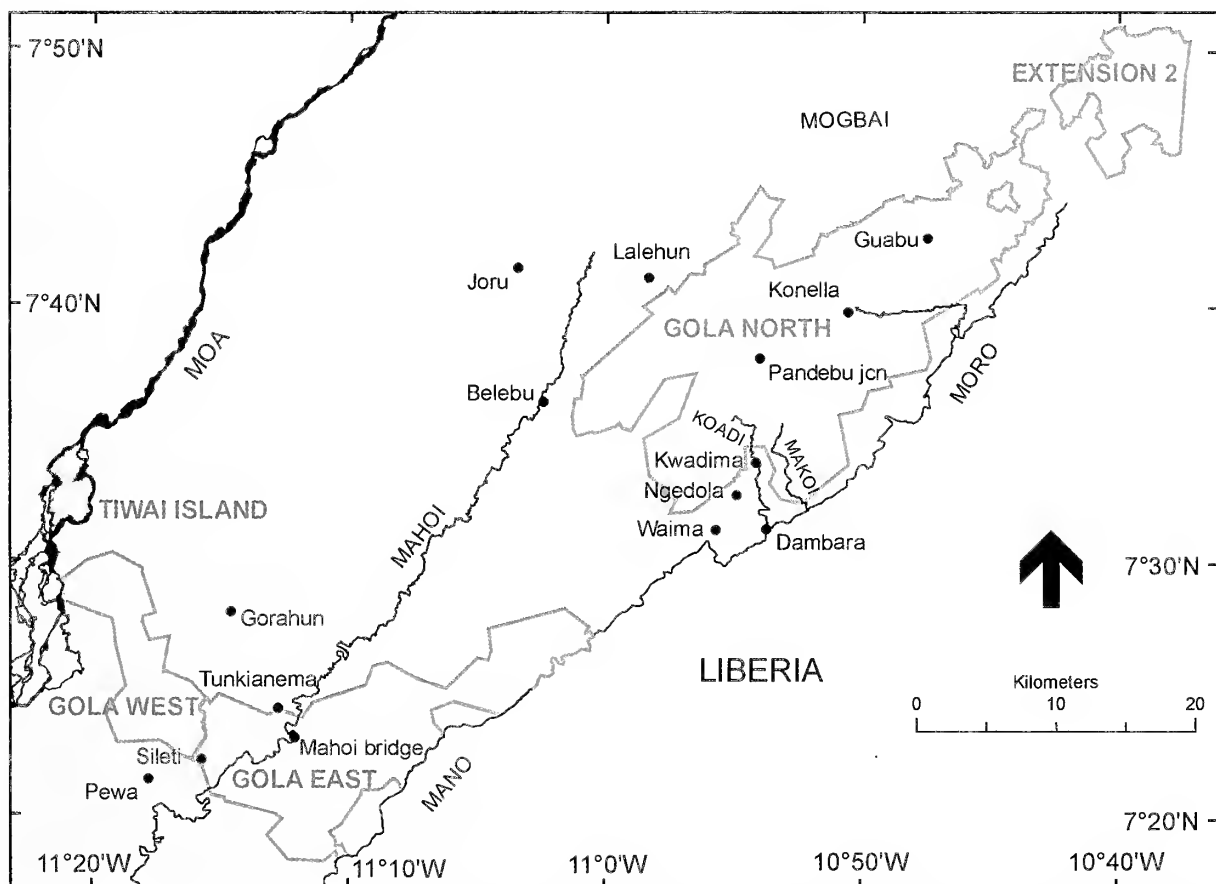


Figure 1. Gola Forest reserves and Tiwai Island showing locations mentioned in the text.

Various census methods were used during the bird survey. Point counts (Bibby *et al.* 2000) were conducted by EK over the entire forest. The points were spaced at 200 m intervals along a series of transects which followed a systematic segmented grid sampling design (Buckland *et al.* 2004) that was randomly superimposed onto the

area. Point counts were carried out in two dry seasons, starting in Dec 2005 and ending in Mar 2007. Six weeks of intensive searches, focusing on key species, were conducted in Jan–Mar 2007 (Dowsett-Lemaire & Dowsett 2008) along with nine days of mist-netting at five locations. Surveys of watercourses for riverine species were conducted in Nov–Dec 2006 by G. Anderson, G. Shorrocks and F. Hunter, and a one-month survey of nest colonies of Yellow-headed Picathartes was undertaken in Oct–Nov 2006 by S. Wotton and T. Morris (summarised in Wotton *et al.* 2010). These records are on file as unpublished reports at the RSPB, and are referred to in the species list by the observers' initials, as are unpublished records by F. Dowsett-Lemaire and R. Dowsett. Additional records were made *ad hoc* by the authors and further information compiled from visiting birders and trip reports. Although no systematic survey was undertaken on Tiwai Island, several visits were made to the island by the authors and others. Sites mentioned in the text are shown in Fig. 1. Taxonomy and nomenclature follow Borrow & Demey (2001).

Results

During visits to 627 count points, of which 61 were in Gola West, 186 in Gola East, 333 in Gola North and 47 in Extension 2, 140 bird species were recorded. A further 122 species were recorded as *ad hoc* observations by the authors. Dowsett-Lemaire & Dowsett (2008) and Wotton *et al.* (2010) recorded an additional 32 species, bringing the total to 294 species in 57 families recorded during this survey in or close to Gola Forest and Tiwai Island. The presence of an additional five species needs further confirmation (Table 1). Including records from previous surveys results in a total of 313 species in Gola, of which 251 species have been recorded within the boundaries of the forest reserves. A total of 133 species were recorded on Tiwai, bringing the total for the island to 176. Species not recorded within the boundaries of the Gola reserves, including species recorded only on Tiwai Island, are enclosed in square brackets. The 14 species that were recorded only on Tiwai are indicated by a ¹. A ² indicates new records for the Gola area since the studies of the 1980s (see Introduction) and a ³ indicates the new species for Sierra Leone that were found during this survey (see Dowsett-Lemaire & Dowsett 2008, Lindsell *et al.* 2008). For each species, the 2009 IUCN Red List category is given, where NT = Near-Threatened, VU = Vulnerable, EN = Endangered and DD = Data Deficient. Species where no Red List category is mentioned are listed by IUCN as Least Concern (LC).

Podicipedidae

[¹*Tachybaptus ruficollis* Little Grebe. One record from Tiwai Island (Davies 1987).]

Phalacrocoracidae

Phalacrocorax africanus Long-tailed Cormorant. One immature bird on Mahoi River below Mahoi Bridge, Mar 2007; also recorded at Tiwai Island (Davies 1987).

Ardeidae

Ardea cinerea Grey Heron. Uncommon in open habitats around Gola and Tiwai.

[¹*A. goliath* Goliath Heron. Recorded on Tiwai Island (Davies 1987).]

[²*Nycticorax nycticorax* Black-crowned Night Heron. One bird flying over a marsh, 2 km south of Gola East reserve boundary (FDL & RD).]

[*Bubulcus ibis* Cattle Egret. One record from Lalehun (Allport *et al.* 1989). Common in rice paddies around Kenema; also Tiwai Island (Davies 1987).]

[¹*Egretta gularis* Western Reef Egret. Listed for Tiwai Island (Davies 1987) and frequent in rice fields around Kenema.]

[¹*E. intermedia* Intermediate Egret. One bird flying over Tiwai Island, Nov 2006 (SW & TM).]

[*E. alba* Great Egret. One bird flying over Gorahun, Jan 2006. Also recorded at Tiwai Island (Davies 1987).]

Butorides striata Green-backed Heron. Uncommon in riverine forest along small and large rivers; recorded in Gola East, North, and Tiwai Island.

Tigriornis leucolophus White-crested Tiger Heron. At least 12 records during the current survey. Generally uncommon along small, shaded forest streams throughout; locally frequent along the Makoi and Kwadi Rivers south of Gola North.

Ciconiidae

Ciconia episcopus Woolly-necked Stork. Uncommon to frequent at ecotone of forest and open habitats, usually near rivers. Recorded from Gola East, North, and Tiwai Island. A pair attending a nest near Gorahun, Jan 2008. At Tiwai Island, a pair at a nest with at least one nestling, Mar 2008 (R. Demey *in litt.*).

Threskiornithidae

Bostrychia hagedash Hadada Ibis. Common in riverine forest along Mahoi River but uncommon elsewhere. Frequent along the Moa River around Tiwai Island.

[^{1,2}*B. olivacea* Olive Ibis. Uncommon on Tiwai Island. Four seen together, Oct 2005; one seen alongside Hadada Ibis, Jun 2006.]

Anatidae

[*Dendrocygna viduata* White-faced Whistling Duck. Uncommon in rice paddies around Gola West; also Tiwai Island (Davies 1987).]

Pteronetta hartlaubi Hartlaub's Duck. Frequent along streams and rivers throughout, especially the Mahoi, including Tiwai Island.

[¹*Plectropterus gambensis* Spur-winged Goose. Recorded at Tiwai Island by Davies (1987).]

Accipitridae

²*Haliaeetus vocifer* African Fish Eagle. Uncommon to rare along large forest rivers. Two records, Mahoi River (Gola East) and Moa River (Tiwai Island).

[¹*Pandion haliaetus* Osprey. Recorded at Tiwai Island by Davies (1987).]

Gypohierax angolensis Palm-nut Vulture. Common throughout Gola and Tiwai, largely confined to watercourses with *Raphia* palms.

Polyboroides typus African Harrier Hawk. Common in all habitats throughout, including Tiwai Island.

[*Necrosyrtes monachus* Hooded Vulture. Uncommon, usually around human habitation around Gola and Tiwai.]

[*Milvus migrans* Black Kite. Uncommon to frequent around human habitation around Gola and Tiwai. All records refer to *M. m. parasitus*.]

[*Circaetus cinereus* Brown Snake Eagle. Vagrant from the savanna zone: recorded by Field (Allport *et al.* 1989); one photographed between Zimmi and Kenema by N. Borrow (*in litt.*), Feb 2008.]

[*Aviceda cuculoides* African Cuckoo Hawk. One record in secondary forest on Tiwai Island; recorded in small numbers in farmbrush and cocoa plantation around Gola by Allport *et al.* (1989).]

Macheiramphus alcinus Bat Hawk. Recorded in Gola North by Allport *et al.* (1989) and Tiwai Island, Feb 2008 (N. Borrow *in litt.*).

Dryotriorchis spectabilis Congo Serpent Eagle. Generally uncommon in open-canopy forest, riverine forest, forest edges and clearings throughout, including Tiwai, though frequently recorded near Pewa and Sileti Camp. Calling mostly Jan–Feb; mating observed at Pewa, Sep 2005.

Urotriorchis macrourus Long-tailed Hawk. Four records in primary and secondary forest in Gola East and North, including a family with fledged young. Also known from Tiwai Island (Davies 1987).

[*Kaupifalco monogrammicus* Lizard Buzzard. Common in farmbrush around Gola and Tiwai though not inside forest.]

Accipiter erythropus Red-thighed Sparrowhawk. Uncommon at forest edges and clearings; recorded in Gola West, East and North. Recorded at Tiwai Island by Davies (1987).

A. tachiro African Goshawk. Uncommon to frequent in secondary forest, forest edges and farmbrush throughout, including Tiwai Island.

A. melanoleucus Black Sparrowhawk. Uncommon to frequent in secondary forest, forest edge and farmbrush; Gola East and North. Also recorded at Tiwai Island (Davies 1987).

Pernis apivorus European Honey Buzzard. Uncommon Palearctic migrant in open forest in Gola East, North, and Tiwai Island.

[¹*Butastur rufipennis* Grasshopper Buzzard. Recorded at Tiwai Island by Davies (1987).]

[*Buteo auguralis* Red-necked Buzzard. Uncommon intra-African migrant in farmbrush and forest edge, Gola North and Extension 2.]

Stephanoaetus coronatus Crowned Eagle. Uncommon but widespread, in low numbers throughout Gola and Tiwai Island. Calling birds recorded Nov–Feb at least. A nesting bird found in Dec 2006.

Hieraaetus ayresii Ayres's Hawk Eagle. One record of a single bird (white-headed morph) flying over Konella, Gola North, Dec 2006.

[*H. spilogaster* African Hawk Eagle. Vagrant from the savanna zone; one record in farmbrush by Allport *et al.* (1989).]

Spizaetus africanus Cassin's Hawk Eagle. Uncommon; Gola East, North and Tiwai Island. Most records from the southwestern part of Gola North.

Phasianidae

²*Francolinus ahantensis* Ahanta Francolin. Uncommon at forest edge and clearings, recorded in Gola East and North.

[*F. bicalcaratus* Double-spurred Francolin. Common in dry farmbush around Gola and Tiwai, often seen along roadsides. Not in forest.]

F. lathamii Latham's Forest Francolin. Common throughout Gola; also on Tiwai Island (Davies 1987). Recorded mainly in primary and secondary forest, but also in farmbush at the forest edge where there was dense cover.

Numididae

Agelastes meleagrides White-breasted Guineafowl (VU). Uncommon in primary and secondary forest in Gola East and North though locally frequent in central Gola North (Mogbai area). Also known from Tiwai Island (Davies 1987) with many recent records but not recorded there during the present survey. More than ten records were made in Gola, including a group of 24 birds on one occasion.

Guttera pucherani Crested Guineafowl. Uncommon to frequent in primary and secondary forest throughout, including Tiwai Island.

Rallidae

Sarothrura pulchra White-spotted Flufftail. Common but localised throughout, including Tiwai Island but most records from Gola West and East, in swamps inside forest or along forest edges, always in rank herbage or other dense undergrowth.

Canirallus oculeus Grey-throated Rail. Uncommon in Gola East and North along small, shaded forest streams with dense cover on riverbanks, in primary and secondary forest.

Himantornis haematopus Nkulengu Rail. Uncommon to frequent throughout Gola and Tiwai. Calling throughout the dry season.

[²*Amaurornis flavirostra* Black Crake. Recorded from rice paddies and swamps around Gola.]

Heliornithidae

Podica senegalensis African Finfoot. Locally frequent on watercourses throughout, including Tiwai Island.

Glareolidae

[^{1,2}*Pluvianus aegyptius* Egyptian Plover. Locally frequent along Moa River. Two birds on different sand banks in Moa River at Tiwai Island, Mar 2005. Five birds recorded at Tiwai and a pair at the ferry crossing to the south of the island, Feb 2008 (N. Borrow *in litt.*).]

[¹*Glareola pratincola* Collared Pratincole. Listed by Davies (1987) for Tiwai Island.]

G. nuchalis Rock Pratincole. Local, restricted to large rocky rivers; recorded on Mahoi River, Jan 2006, and Moa River at Tiwai Island.

Charadriidae

Vanellus albiceps White-headed Lapwing. Local in Gola, restricted to large rivers with sandbars: on Mano River, Jan 2006; Mogbai River close to the Moro River, Dec

2006; common on Moa River at Tiwai Island, Nov 2006 (R. Demey *in litt.*; N. Borrow *in litt.*).

Scolopacidae

²*Tringa ochropus* Green Sandpiper. Common Palaearctic migrant, recorded from the Mahoi River and Konella. Frequently flushed from small streams and marshes in farmbush around the forest.

²*Actitis hypoleucos* Common Sandpiper. Uncommon to frequent Palaearctic migrant on various watercourses: most records from Mahoi River, but also at Mano, Mogbai and the Moa River at Tiwai Island.

Rynchopidae

[¹*Rynchops flavirostris* African Skimmer. Listed for Tiwai Island by Davies (1987).]

Columbidae

Treron calva African Green Pigeon. Common in primary and secondary forest and forest edges throughout, including Tiwai Island.

Columba iriditorques Western Bronze-naped Pigeon. Common in primary forest throughout; also in secondary forest and farmbush. Recorded at Tiwai (Davies 1987).

C. uncinata Afep Pigeon. Uncommon and localised in primary and secondary forest, Gola East and North.

Aplopelia larvata Lemon Dove. Two records in primary forest: Gola East, Nov 2006; Gola North, Feb 2007 (FDL & RD).

Turtur tympanistris Tambourine Dove. Common in secondary forest throughout Gola and Tiwai; frequent in primary forest, farmbush and other habitats.

T. brehmeri Blue-headed Wood Dove. Abundant in primary and secondary forest throughout, including Tiwai Island.

[*T. afer* Blue-spotted Wood Dove. Frequent in farmbush and secondary growth throughout, including Tiwai Island.]

Streptopelia semitorquata Red-eyed Dove. Uncommon to frequent in secondary forest, forest edges and clearings throughout Gola and Tiwai.

Psittacidae

^{2,3}*Agapornis swindernianus* Black-collared Lovebird. Heard once, calling over the canopy of primary forest near Konella (Dowsett-Lemaire & Dowsett 2008). This was the first record for Sierra Leone. Sightings by Allport *et al.* (1989) of lovebirds flying over the forest most likely also refer to this species.

[²*A. pullarius* Red-headed lovebird. Small groups were seen in Kenema, Jan 2008. A single lovebird flying over farmbush near Gola North was probably this species (SW & TM).]

Psittacus erithacus Grey Parrot (NT). Frequent throughout Gola and Tiwai, in primary and secondary forest, forest edge and farmbush; most records from the northeastern part of Gola East.

Musophagidae

Tauraco macrorhynchus Yellow-billed Turaco. Common in primary and secondary forest throughout, including Tiwai Island.

[²*T. persa* Green Turaco. One bird calling, 2 km south of Gola East (FDL & RD). Not inside the forest, where it is replaced by *T. macrorhynchus*.]

[*Crinifer piscator* Western Grey Plantain-eater. A few sightings in farmbush by Allport *et al.* (1989), frequent along road between Joru and Gorahun.]

Corythaeola cristata Great Blue Turaco. Common at forest edges and secondary forest throughout Gola and Tiwai.

Cuculidae

Chrysococcyx klaas Klaas's Cuckoo. Frequent in secondary forest, forest edges and farmbush throughout.

[*C. caprius* Didric Cuckoo. Rare in farmbush around Gola North. Not in forest. One on Tiwai Island, February 2008 (N. Borrow *in litt.*).]

C. cupreus African Emerald Cuckoo. Frequent throughout Gola and Tiwai in a wide range of habitats, mostly primary and secondary forest but also farmbush and large clearings with some large trees.

C. flavigularis Yellow-throated Cuckoo. Two records in secondary forest near Lalehun, Feb 2006 and Feb 2007, where also recorded by Allport *et al.* (1989); and one record on Tiwai Island, Sep 2005.

Oxylophus levillantii Levillant's Cuckoo. Uncommon intra-African migrant, recorded from large clearings and farmbush in Gola East and North. One seen in mixed-species flock in forest, Gola North. Also recorded at Tiwai Island (Davies 1987).

Cuculus canorus Common Cuckoo. Uncommon Palaearctic migrant, recorded from Gola West, East and North; also Tiwai Island (Davies 1987).

C. solitarius Red-chested Cuckoo. Frequent throughout Gola and Tiwai in primary and secondary forest and forest edges.

²*C. clamosus* Black Cuckoo. Uncommon in Gola East, North and Tiwai Island, in secondary habitats such as farmbush, clearings or open-canopy forest. Mostly silent, suggesting it is largely a non-breeding migrant in Gola.

Cercococcyx mechowi Dusky Long-tailed Cuckoo. Recorded once in Gola North, May 2006; a probable record in Gola West; Dec 2005.

C. olivinus Olive Long-tailed Cuckoo. Frequent in primary forest in Gola East and North.

[*Pachycoccyx audeberti* Thick-billed Cuckoo. One bird in very degraded forest near Lalehun (FDL & RD), where also observed by Allport *et al.* (1989).]

Ceuthmochares aereus Yellowbill. Uncommon to frequent throughout, including Tiwai Island, preferring dense tangles and lianes in primary and secondary forest and forest edges.

Centropus senegalensis Senegal Coucal. Frequent in dry farmbush around Gola and Tiwai; not in forest. Inside Gola only recorded from a large clearing at Gombu, Gola North.

C. leucogaster Black-throated Coucal. Frequent in dense secondary growth and forest edges throughout Gola and Tiwai.

Strigidae

Scotopelia ussheri Rufous Fishing Owl (EN). Uncommon and local along at least four and possibly six different shaded streams in primary and secondary forest in Gola East and North; possibly most common along Kwadi River where a pair was found, Mar 2007. Prefers smaller streams than *S. peli*. On Tiwai Island seen in Mar 2008 (AMS and R. Demey).

S. peli Pel's Fishing Owl. Uncommon and localised along large watercourses: the Mahoi in Gola East, the Mogbai in Gola North, the Magboi in Extension 2 and the Moa River at Tiwai Island.

Glaucidium tephronotum Red-chested Owlet. Frequent in primary and secondary forest and forest edges in Gola East, North and Extension 2; probably overlooked in Gola West.

Strix woodfordii African Wood Owl. Common throughout Gola and Tiwai, found in all wooded areas, including primary forest, forest edge and villages.

Bubo poensis Fraser's Eagle Owl. Uncommon in secondary forest, forest edge and clearings around Gola East, North and Tiwai Island.

B. leucostictus Akun Eagle Owl. Uncommon in primary forest, forest edge and plantations in and around Gola East and Tiwai Island.

B. shelleyi Shelley's Eagle Owl (NT). Recorded by Allport *et al.* (1989). Two probable records in primary forest in Gola North, Dec 2006 (GA) and Feb 2007 (FDL & RD).

[*B. africanus* Spotted Eagle Owl. Uncommon in farmbush around Gola North; not in forest.]

Caprimulgidae

^{2,3}*Caprimulgus binotatus* Brown Nightjar. Frequent in primary and secondary forest and forest edges in Gola West, East and North (Lindsell *et al.* 2008). This was the first record for Sierra Leone. Also on Tiwai, where heard in Mar 2008 (AMS and R. Demey) and reported by N. Borrow (*in litt.*).

[²*C. nigriscapularis* Black-shouldered Nightjar. Two records at the same location in farmbush at Lalehun, Feb 2006 and Feb 2007. Reported near Tiwai Island, Feb 2008, and near Gola West (N. Borrow *in litt.*).]

[^{1,2}*C. europaeus* European Nightjar. Photographed near Tiwai Island, Feb 2008 (N. Borrow *in litt.*).]

[*C. climacurus* Long-tailed Nightjar. Recorded in small numbers by Allport *et al.* (1989); one possible record in open farmbush at Belebu.]

[*C. inornatus* Plain Nightjar. Recorded in small numbers in farmbush by Allport *et al.* (1989).]

[*Macrodipteryx longipennis* Standard-winged Nightjar. Allport *et al.* (1989) recorded two displaying males and two females near Lalehun in Jan.]

Apodidae

Rhaphidura sabini Sabine's Spinetail. Frequent throughout, often over large rivers or clearings.

Neafrapus cassini Cassin's Spinetail. Uncommon to rare, Gola North only.

Telacanthura melanopygia Black Spinetail. Uncommon and localised, singly or in small groups at forest clearings and rivers in Gola East, North, and Tiwai Island (SW, TM).

[*Apus pallidus* Pallid Swift. Palaearctic migrant, recorded in farmbush by Allport *et al.* (1989).]

[*A. affinis* Little Swift. Two records from farmbush near Gola North (SW & TM).]

²*A. barbatus* African Black Swift. Frequently recorded flying over forest and farmbush. It is uncertain whether groups of large black swifts identified as Common Swift *A. apus* were correctly identified or confused with *A. barbatus* (Dowsett-Lemaire & Dowsett 2008).

[*A. caffer* White-rumped Swift. One record of a single bird near Tiwai Island, Mar 2005. Allport *et al.* (1989) recorded two birds over farmbush.]

²*A. batesi* Bates's Swift. Uncommon, recorded in groups of up to ten in Gola West, East and North; probably also Tiwai Island (SW & TM).

A. aequatorialis Mottled Swift. Rare in Gola West and East.

[*A. melba* Alpine Swift. One record of a single bird by Allport *et al.* (1989).]

[*Cypsiurus parvus* African Palm Swift. Rare around human habitation near Gola North and Extension 2.]

Trogonidae

Apaloderma narina Narina's Trogon. Frequent in primary forest and uncommon in secondary forest in Gola North; uncommon in Gola West and East where mainly in riverine forest.

Alcedinidae

Ceyx lecontei African Dwarf Kingfisher. Uncommon but probably overlooked in understorey and edge of primary and secondary forest in Gola East and North.

C. pictus African Pygmy Kingfisher. Uncommon to frequent intra-African migrant; although normally a species of open habitats, it was mistnetted inside the forest near Sileti, Tunkia Nema and Konella (FDL & RD). Recorded at Tiwai Island and Gola North by N. Borrow (*in litt.*).

Alcedo leucogaster White-bellied Kingfisher. Uncommon to frequent along shaded forest streams in Gola East, North, and Extension 2. Listed for Tiwai Island by Davies (1987).

A. cristata Malachite Kingfisher. Uncommon in rice paddies around Gola; also in the forest along large open rivers such as the Mahoi River in Gola East.

A. quadribrachys Shining-blue Kingfisher. Common on all larger watercourses throughout Gola and Tiwai.

Halcyon badia Chocolate-backed Kingfisher. Common in primary and secondary forest throughout Gola and Tiwai.

H. senegalensis Woodland Kingfisher. Uncommon to frequent in farmbush in and around Gola West, East, North and Tiwai Island (SW & TM); in the reserves, restricted to large clearings such as Sileti, Konella and Gombu.

[*H. leucocephala* Grey-headed Kingfisher. Rare intra-African migrant, recorded occasionally in farmbush near Belebu.]

H. malimbica Blue-breasted Kingfisher. Frequent to common in primary and secondary forest, forest edge and farmbush throughout Gola and Tiwai Island.

Megaceryle maxima Giant Kingfisher. Uncommon and local along large, rocky rivers in Gola East and North. Recorded at Tiwai Island by Davies (1987).

Meropidae

Merops gularis Black Bee-eater. Frequent in farmbush and forest edges throughout Gola and Tiwai; inside the reserves, only in large clearings or open habitats such as Mahoi Bridge.

M. muelleri Blue-headed Bee-eater. Uncommon in open-canopy forest and small forest clearings in Gola East and North.

²*M. nubicus* Northern Carmine Bee-eater. Vagrant from Sahel and savanna zones; one record in Gola East, Jan 2007 (FDL & RD).

[*M. pusillus* Little Bee-eater. Uncommon in farmbush around Gola and Tiwai; not in forest.]

M. albicollis White-throated Bee-eater. Common intra-African migrant in primary and secondary forest throughout Gola and Tiwai.

Coraciidae

Eurystomus glaucurus Broad-billed Roller. Common in farmbush and forest edge around Gola North. Recorded at Tiwai Island by Davies (1987).

E. gularis Blue-throated Roller. Uncommon to frequent in canopy of primary and secondary forest throughout, including Tiwai Island.

[*Coracias abyssinicus* Abyssinian Roller. Recorded at Lalehun by Allport *et al.* (1989).]

Bucerotidae

Tockus camurus Red-billed Dwarf Hornbill. Common in primary and secondary forest throughout Gola and Tiwai.

T. hartlaubi Black Dwarf Hornbill. Uncommon in primary and secondary forest throughout Gola and Tiwai.

T. fasciatus African Pied Hornbill. Common in farmbush and forest edge throughout Gola and Tiwai; not normally in primary forest, although present in large clearings such as Konella.

Bycanistes fistulator Piping Hornbill. Frequent to common in degraded forest, forest edge and clearings in Gola West and East; uncommon in Gola North. Also on Tiwai Island.

B. cylindricus Brown-cheeked Hornbill (NT). Frequent to common but rather local; mostly in primary forest and its edge, but also secondary forest and farmbush. Most records from northeastern Gola East and eastern Gola North; rare in Gola West. Also on Tiwai Island.

Ceratogymna elata Yellow-casqued Hornbill (NT). Common to abundant in primary and secondary forest throughout Gola and Tiwai.

C. atrata Black-casqued Hornbill. Locally frequent to common in primary forest; its distribution in Gola closely resembles that of *B. cylindricus*. Recorded on Tiwai Island by Davies (1987).

Tropicranus albocristatus White-crested Hornbill. Frequent in primary forest throughout Gola and Tiwai; also enters secondary forest and occasionally dense farmbush.

Capitonidae

Pogoniulus scolopaceus Speckled Tinkerbird. Frequent in farmbush, secondary forest and forest edge throughout Gola and Tiwai.

P. subsulphureus Yellow-throated Tinkerbird. Common in primary and secondary forest, forest edge and farmbush throughout Gola and Tiwai.

P. atroflavus Red-rumped Tinkerbird. Common in primary and secondary forest throughout Gola and Tiwai.

Buccanodon duchaillui Yellow-spotted Barbet. Common to abundant in primary and secondary forest, forest edge and clearings throughout Gola and Tiwai.

Tricholaema hirsuta Hairy-breasted Barbet. Frequent in primary and secondary forest, forest edge and clearings throughout Gola and Tiwai.

Gymnobucco calvus Naked-faced Barbet. Uncommon and local throughout Gola and Tiwai; locally common in secondary forest near Sileti compound in Gola East.

G. peli Bristle-nosed Barbet. Recorded by Allport *et al.* (1989) in cocoa plantation, farmbush and logged forest.

[*Lybius vieilloti* Vieillot's Barbet. A single record by Allport *et al.* (1989) in farmbush.]

Trachyphonus purpuratus Yellow-billed Barbet. Uncommon in farmbush, forest edge and secondary forest in Gola West, East, North and Tiwai Island.

Indicatoridae

[²*Indicator indicator* Greater Honeyguide. A pair seen in farmbush near Gola North (SW & TM).]

I. maculatus Spotted Honeyguide. Uncommon to frequent in primary and secondary forest in Gola West, East and North and Tiwai Island.

I. conirostris Thick-billed Honeyguide. Uncommon in riverine and primary forest in Gola East (Mahoi River) and North.

I. willcocksii Willcocks's Honeyguide. Uncommon in tall secondary forest and forest edge in Gola East (FDL & RD) and North (GA & GS); also Tiwai Island.

Melichneutes robustus Lyre-tailed Honeyguide. Frequent in Gola North and Extension 2; not recorded in Gola West and East. Largely restricted to primary forest, with few records from secondary forest.

Melignomon eisentrauti Yellow-footed Honeyguide (DD). Uncommon in primary and secondary forest, and riverine forest-floodplain mosaic: Gola West, Sep 2005; Gola East, Feb 2007 (FDL & RD); Gola North, Feb–Mar 2007 (FDL & RD); Tiwai Island, Oct 2005.

Prodotiscus insignis Cassin's Honeybird. One in a large clearing at Konella. Two records by Allport *et al.* (1989), of which one in forestry plantation near Gola North. Recorded in Gola East and at Tiwai Island, Feb 2008 (N. Borrow *in litt.*).

Picidae

Campethera maculosa Little Green Woodpecker. Uncommon to frequent in primary and secondary forest throughout Gola and Tiwai.

C. caroli Brown-eared Woodpecker. Frequent in understorey of primary forest throughout, but especially Gola North; occasionally recorded in secondary forest and farmbush.

C. nivosus Buff-spotted Woodpecker. Frequent in understorey of primary and secondary forest throughout Gola and Tiwai.

Dendropicos gabonensis Gabon Woodpecker. Uncommon to frequent, mostly in secondary forest, clearings and farmbush in Gola North and Tiwai Island.

[*D. fuscescens* Cardinal Woodpecker. One seen in Belebu. A single record by Allport *et al.* (1989) in farmbush.]

D. pyrrhogaster Fire-bellied Woodpecker. Frequent to locally common at forest edge and in secondary forest throughout Gola and Tiwai; occasionally in primary forest.

Eurylaimidae

Smithornis capensis African Broadbill. One in logged forest (Allport *et al.* 1989).

S. rufolateralis Rufous-sided Broadbill. Frequent to locally common in primary forest, especially eastern Gola North and Extension 2; rare to uncommon in secondary forest and in Gola West and East. Recorded at Tiwai Island by Davies (1987).

Pittidae

[¹*Pitta angolensis* African Pitta. Recorded at Tiwai Island by Davies (1987). Two records of probably this species by Allport *et al.* (1989) in central Gola North.]

Hirundinidae

Riparia riparia Common Sand Martin. Rare Palearctic migrant, recorded from Gola East, North and Tiwai Island.

Hirundo nigrita White-throated Blue Swallow. Frequent on large, sunlit rivers; usually in pairs, recorded on the Mahoi, Mano, Moro and Moa Rivers (Tiwai Island). Nesting on Mahoi, Jan 2008.

H. rustica Barn Swallow. Common Palearctic migrant, in large numbers throughout Gola and Tiwai Island.

[²*H. lucida* Red-chested Swallow. Frequent in farmbush around Gola. A few *Hirundo* sp. in a large forest clearing in Gola East were probably this species.]

[*H. abyssinica* Lesser Striped Swallow. Uncommon in farmbush areas near Gola North. Also recorded at Tiwai Island (Davies 1987).]

[*H. semirufa* Rufous-chested Swallow. One record, a group of ≥ 10 flying over farmbush near Gola North (SW & TM).]

²*H. preussi* Preuss's Cliff Swallow. Uncommon at the Sileti compound, Belebu and Konella.

[*Delichon urbica* Common House Martin. Recorded in farmbush by Allport *et al.* (1989).]

Psalidoprocne nitens Square-tailed Saw-wing. Frequent to common throughout Gola and Tiwai, usually in small groups over clearings and at forest edge.

[²*P. obscura* Fanti Saw-wing. One bird in a mixed species flock with *Hirundo rustica*, *Rhaphidura sabini* and *Apus apus/barbatus*, near Gola West, Jan 2006.]

Motacillidae

Anthus trivialis Tree Pipit. Recorded in farmbush, cocoa plantation and logged forest by Allport *et al.* (1989).

[¹*Motacilla aguimp* African Pied wagtail. Common on Tiwai Island and along adjacent Moa River.]

M. clara Mountain Wagtail. Frequent to common on rocky watercourses throughout Gola and Tiwai.

M. flava Yellow Wagtail. Uncommon Palaearctic migrant, Gola East and Gola North.

Campephagidae

Coracina azurea Blue Cuckoo-shrike. Frequent to locally common in Gola West, East, North and Tiwai Island; mostly in primary forest, occasionally in secondary forest and at forest edges.

Campephaga phoenicea Red-shouldered Cuckoo-shrike. Uncommon intra-African migrant: two records in clearings and forest edge in Gola North, Dec 2006 and Feb 2007; three records near Lalehun and at Tiwai Island, Feb 2008 (N. Borrow *in litt.*).

C. quiscalina Purple-throated Cuckoo-shrike. Uncommon at forest edge and in secondary forest in Gola East and Gola North.

Lobotos lobatus Western Wattled Cuckoo-shrike (VU). Two records from the southern part of Gola North in primary forest and in open-canopy forest near Belebu.

Pycnonotidae

Andropadus virens Little Greenbul. Common at forest edges, clearings and shrubby farmbush throughout Gola and Tiwai; absent from primary or tall secondary forest.

A. gracilis Little Grey Greenbul. Common in secondary forest throughout Gola and Tiwai; not in primary forest.

A. curvirostris Cameroon Sombre Greenbul. Frequent to common in understorey of primary and secondary growth and at forest edges.

A. ansorgei Ansorge's Greenbul. Common in upper levels of primary and secondary forest throughout Gola and Tiwai.

A. gracilirostris Slender-billed Greenbul. Frequent to common in canopy of primary and secondary forest, forest edges and farmbush throughout Gola and Tiwai.

A. latirostris Yellow-whiskered Greenbul. Common to abundant in primary and secondary forest throughout Gola and Tiwai.

[*Pycnonotus barbatus* Common Bulbul. Common around human habitation around Gola and Tiwai Island.]

Chlorocichla simplex Simple Leaflove. Common in low secondary growth, farmbush and forest edge throughout. Inside the reserves restricted to large clearings, such as Sileti, Konella and Gombu.

Thescelocichla leucopleura Swamp Palm Bulbul. Locally common throughout Gola and Tiwai, usually in monospecific groups in swampy areas with *Raphia* palms.

Baeopogon indicator Honeyguide Greenbul. Common in primary and secondary forest throughout, also at forest edges.

Phyllastrephus icterinus Icterine Greenbul. Common to abundant in primary and secondary forest throughout Gola and Tiwai.

P. albigularis White-throated Greenbul. Frequent to locally common in secondary forest in Gola West, East and North (Dowsett-Lemaire & Dowsett 2008); also on Tiwai Island.

[*P. baumanni* Baumann's Greenbul. Two records: in low regrowth dominated by *Chromolaena odorata* south of Sileti, and in similar habitat near Tunkia Nema (Dowsett-Lemaire & Dowsett 2008).]

Calyptocichla serina Golden Greenbul. Uncommon to frequent in canopy of mostly secondary forest in Gola West and North.

Ixonotus guttatus Spotted Greenbul. Uncommon to frequent in canopy of mostly secondary but also primary forest in Gola West, East and North.

Nicator chloris Western Nicator. Common in dense tangles at low and mid-levels in primary and secondary forest; also regularly recorded at forest edge and in farmbush. Throughout Gola and Tiwai.

Criniger calurus Red-tailed Greenbul. Frequent to common in understorey of primary and secondary forest in Gola West, East and North; also Tiwai Island.

C. barbatus Western Bearded Greenbul. Common in lower strata of primary forest throughout; less common in secondary forest.

C. olivaceus Yellow-bearded Greenbul (VU). Frequent in primary forest in Gola East, North and Extension 2; uncommon in secondary forest.

Bleda eximia Green-tailed Bristlebill (VU). Uncommonly recorded in primary and secondary forest throughout Gola and Tiwai; rather silent, and mist-netting suggested that it is probably more common than the aural records indicated.

B. canicapilla Grey-headed Bristlebill. Common to abundant in understorey of primary and secondary forest throughout Gola and Tiwai.

B. syndactyla Red-tailed Bristlebill. Frequent to common in lower strata of primary and secondary forest throughout Gola and Tiwai.

Turdidae

Zoothera princei Grey Ground Thrush. One bird observed in primary forest in Gola East (Allport *et al.* 1989).

[*Turdus pelios* African Thrush. Recorded in farmbush (Allport *et al.* 1989).]

Stiphrornis erythrothorax Forest Robin. Common in understorey of primary and secondary forest and forest edge throughout Gola and Tiwai.

Sheppardia cyornithopsis Lowland Akalat. Two records: in swamp forest in Gola East, Nov 2005, and in primary forest in Gola North, Dec 2006 (GA & GS).

Alethe diademata Fire-crested Alethe. Common throughout Gola and Tiwai. Recorded in primary and secondary forest; less common at forest edge and in farmbush.

A. poliocephala Brown-chested Alethe. Uncommon and local in primary forest in Gola East and North.

Neocossyphus poensis White-tailed Ant Thrush. Frequent in understorey of primary and secondary forest throughout Gola and Tiwai.

Stizorhina finschi Finsch's Flycatcher Thrush. Common throughout Gola and Tiwai, especially in primary forest; also in secondary forest and at forest edge.

[*Luscinia megarhynchos* Common Nightingale. Palaearctic migrant, recorded once in forest regrowth near Lalehun (FDL & RD).]

Cercotrichas leucosticta Forest Scrub Robin. Rare to uncommon in primary and secondary forest in Gola East and North.

[*Saxicola rubetra* Whinchat. Recorded in farmbush near Gola North (Allport *et al.* 1989).]

Sylviidae

[*Melocichla mentalis* African Moustached Warbler. Rare to uncommon in rank herbage; recorded at Lalehun (SW & TM, FDL & RD) and near Pewa.]

²*Acrocephalus scirpaceus* European Reed Warbler. Palaearctic migrant, recorded once at Konella, Dec 2006 (GA & GS).

Hippolais polyglotta Melodious Warbler. Uncommon Palaearctic migrant, recorded at a large clearing at Gombu (EK) and in forest regrowth near Lalehun (FDL & RD), both in Feb 2007.

Sylvia borin Garden Warbler. Palaearctic migrant, recorded once in farmbush of Gombu clearing, Feb 2007.

[*S. atricapilla* Blackcap. One in a forestry plantation (Allport *et al.* 1989).]

Phylloscopus sibilatrix Wood Warbler. Uncommon Palaearctic migrant, recorded in primary forest near Konella, Dec 2006, and in clearing at Gombu, Feb 2007.

P. trochilus Willow Warbler. Uncommon Palaearctic migrant. Recorded at Konella, Dec 2006, and Gombu clearing, Feb 2007. Also Tiwai Island, Feb 2008 (N. Borrow *in litt.*).

Hylia prasina Green Hylia. Common in primary and secondary forest, forest edge and clearings throughout Gola and Tiwai; mostly where canopy opened such as by tree-falls.

Eremomela badiceps Rufous-crowned Eremomela. Uncommon in primary and secondary forest in Gola North.

Sylvietta virens Green Crombec. Frequent in farmbush, forest edge and large clearings in and around Gola West, East and North. Rare inside the forest.

S. denti Lemon-bellied Crombec. One record in canopy of large tree at Konella clearing, Dec 2006 (GA & GS).

[*Hypergerus atriceps* Oriole Warbler. Listed by Field (Allport *et al.* 1989, p. 81).]

Hyliota violacea Violet-backed Hyliota. Uncommon. A pair near Lalehun, Nov 2006 (SW & TM) and a small group in the Konella clearing, Dec 2006 (GA, GS, EK). A group of ≥ 4 birds recorded in Gola East, Dec 2006 (J. Hornbuckle *in litt.*).

Camaroptera superciliaris Yellow-browed Camaroptera. Uncommon to locally frequent in dense undergrowth in farmbush, secondary scrub and floodplains throughout.

C. chloronota Olive-green Camaroptera. Uncommon to locally frequent in dense tangles in moist farmbush, forest edge and clearings; less common in primary and secondary forest. Recorded in Gola West, East, North and Tiwai Island.

C. brachyura Grey-backed Camaroptera. Common in low scrub and farmbush around Gola; inside forest in large clearings such as Konella and Gombu.

Macrosphenus kempii Kemp's Longbill. Uncommon to frequent, mainly in dense undergrowth and thickets in secondary forest and forest edge. Throughout, including Tiwai Island.

M. concolor Grey Longbill. Common in dense tangles and vines at mid-levels of primary and secondary forest throughout Gola and Tiwai.

Prinia subflava Tawny-flanked Prinia. Common in low secondary scrub and farmbush; also in large clearings such as Sileti and Gombu.

²*Apalis nigriceps* Black-capped Apalis. Rare; restricted to hilly terrain in Gola North (Dowsett-Lemaire & Dowsett 2008).

A. sharpii Sharpe's Apalis. Common in primary and secondary forest, forest edges and clearings throughout Gola and Tiwai.

[*Cisticola lateralis* Whistling Cisticola. Uncommon in farmbush around Gola North.]

C. anonymus Chattering Cisticola. Frequent in moist farmbush and swamps around Gola; inside the reserves restricted to large clearings such as Konella and Gombu. This population is separated by at least 1500 km from the species' main range east of the Dahomey Gap (Lindsell 2007).

Muscicapidae

Melaenornis annamarulae Nimba Flycatcher (VU). One record of a single bird in primary forest in northern Gola North. Recorded twice in Gola North by Allport *et al.* (1989).

[*Muscicapa striata* Spotted Flycatcher. A few recorded in farmbush by Allport *et al.* (1989).]

M. olivascens Olivaceous Flycatcher. Uncommon in canopy or sub-canopy of primary and secondary forest in Gola East and North.

M. cassini Cassin's Flycatcher. Common on wide sun-exposed rivers throughout Gola and Tiwai.

M. epulata Little Grey Flycatcher. A pair hawking insects from a large *Ficus lutea* tree near Mahoi Bridge, Jan 2007 (FDL & RD).

M. caerulescens Ashy Flycatcher. Uncommon at forest edges and in large trees in farmbush in Gola North.

M. tessmanni Tessmann's Flycatcher (DD). A single bird *c.* 4–5m high under open canopy in primary forest near Konella, Dec 2006.

²*M. comitata* Dusky-blue Flycatcher. A pair nesting in an old nest of Blue-billed Malimbe *Malimbus nitens*, overhanging a small stream near Tunkia Nema, Mar 2007.

M. ussheri Ussher's Flycatcher. Frequent around dead trees in primary and secondary forest, forest edge and farmbush in Gola East, North and Extension 2. Recorded at Tiwai Island by Davies (1987).

Myioparus plumbeus Lead-coloured Flycatcher. Rare to uncommon at forest edges and clearings (Konella) in Gola North (Dowsett-Lemaire & Dowsett 2008).

M. griseigularis Grey-throated Flycatcher. Uncommon to locally common in Gola East and North, inhabiting low tangles in tall secondary forest; much more local in primary forest (Dowsett-Lemaire & Dowsett 2008).

Ficedula hypoleuca Pied Flycatcher. Recorded in small numbers in all habitats by Allport *et al.* (1989).

Fraseria cinerascens White-browed Forest Flycatcher. Frequent to common along forested rivers throughout Gola and Tiwai.

F. ocreata Fraser's Forest Flycatcher. Frequent to common in primary and secondary forest and forest edge in Gola West, East and North.

Monarchidae

Terpsiphone viridis African Paradise Flycatcher. Uncommon intra-African migrant, recorded in primary and secondary forest in Gola West, East, North and Tiwai Island.

T. rufiventer Red-bellied Paradise Flycatcher. Common at low or mid-levels in primary and secondary forest throughout Gola and Tiwai.

Erythrocerus mcallii Chestnut-capped Flycatcher. Uncommon and local in Gola East, common in Gola North, in primary and secondary forest, forest edge and farmbush. Recorded at Tiwai Island by Davies (1987).

Elminia nigromitrata Dusky Crested Flycatcher. One record in understorey of primary forest in Gola North, Dec 2006.

Trochocercus nitens Blue-headed Crested Flycatcher. Common throughout Gola and Tiwai, especially in dense vines and tangles at mid-level in secondary forest; more local in primary forest.

Platysteiridae

Bias musicus Black-and-white Flycatcher. Uncommon in secondary forest, forest edge and farmbush near Gola North and Tiwai Island; recorded mainly from Lalehun area.

Megabyas flammulatus Shrike Flycatcher. Uncommon to common in primary and secondary forest and forest edge in Gola West, North and Extension 2. Possibly overlooked in Gola East. Recorded at Tiwai Island, Feb 2008 (R. Demey *in litt.*).

Batis poensis Bioko Batis. Rare in secondary forest and forest edge in Gola East, North and Tiwai Island.

Dyaphorophya castanea Chestnut Wattle-eye. Common at low or mid-levels in primary and secondary forest throughout Gola and Tiwai.

D. blissetti Red-cheeked Wattle-eye. Rare to uncommon in secondary forest and forest edge in Gola West, East and North.

D. concreta Yellow-bellied Wattle-eye. Uncommon to frequent, confined to the understorey of undisturbed primary forest in Gola East and North.

Timaliidae

Illadopsis fulvescens Brown Illadopsis. Frequent to common in secondary forest and forest edge throughout Gola and Tiwai; uncommon in primary forest.

I. cleaveri Blackcap Illadopsis. Frequent to common in primary and secondary forest throughout Gola and Tiwai.

I. rufipennis Pale-breasted Illadopsis. Frequent to common throughout Gola and Tiwai Island, usually in shaded undergrowth of primary and secondary forest.

I. rufescens Rufous-winged Illadopsis (NT). Common in especially primary but also secondary forest throughout.

I. puveli Puvel's Illadopsis. Records from secondary growth in Gola East, Dec 2006 (J. Hornbuckle *in litt.*) and Gola North (Allport *et al.* 1989). Frequent in farmbush around Gola East (N. Borrow *in litt.*).

Phyllanthus atripennis Capuchin Babbler. Rare and local in forest edge and riverine forest-grassland mosaic in Gola East and Gola North.

Picathartidae

Picathartes gymnocephalus Yellow-headed Picathartes (VU). Local, near rocks and boulders suitable for nesting. All but two of the c. 50 known colonies in the area were in or around Gola North (Wotton *et al.* 2010).

Paridae

Parus funereus Dusky Tit. One record in primary forest, Nov 2006, and one probable record in open-canopy forest, both in Gola North.

Remizidae

Pholidornis rufica Tit-hylia. Uncommon in secondary forest, forest edge and farmbush in Gola West, East and North.

Nectariniidae

²*Anthreptes gabonicus* Brown Sunbird. Frequent along forested banks of large rivers such as the Mahoi, Moro and Moa at Tiwai Island.

A. rectirostris Green Sunbird. Uncommon in secondary forest, forest edge and clearings in Gola West, East and North. Also recorded at Tiwai Island, Feb 2008 (N. Borrow *in litt.*).

A. seimundi Little Green Sunbird. Uncommon in primary and secondary forest and forest edges in Gola East, North and Tiwai Island.

Deleornis fraseri Fraser's Sunbird. Common in understorey and at mid-levels of primary and secondary forest, throughout Gola.

Hedydipna collaris Collared Sunbird. Common in all habitats throughout Gola and Tiwai Island; often at forest edges but also in primary forest.

Cyanomitra obscura Western Olive Sunbird. Common in primary and secondary forest, forest edge and clearings throughout Gola and Tiwai Island. Most common in open-canopy forest, such as on hills and in secondary forest.

C. cyanolaema Blue-throated Brown Sunbird. Frequent to common at mid-levels or in canopy of primary and secondary forest, throughout Gola and Tiwai.

Chalcomitra adelberti Buff-throated Sunbird. Frequent at forest edges in Gola West, East and North; often seen singly or in pairs in the higher branches of trees around villages.

[²*C. venustus* Variable Sunbird. One bird near Pewa, Sep 2005.]

C. minullus Tiny Sunbird. Uncommon to frequent in Gola West, East and North, usually in less open habitats than *C. chloropygius*, including forest edge, clearings inside forest and open-canopy forest.

C. chloropygius Olive-bellied Sunbird. Common in Gola West, East and North, in a variety of open habitats including gardens, farmbush, swamps and forest edge. Recorded at Tiwai Island by Davies (1987).

Cinnyris superbus Superb Sunbird. Uncommon in farmbush areas and forest edge around Gola and on Tiwai Island.

C. johannae Johanna's Sunbird. Common in primary and secondary forest, forest edge and in villages throughout.

Laniidae

[*Lanius collaris* Common Fiscal. Uncommon in farmbush and around human habitation, recorded around Gola West, North and Extension 2.]

Prionopidae

Prionops caniceps Red-billed Helmet-shrike. Frequent in secondary forest, forest edge and around clearings throughout Gola and Tiwai, occasionally in primary forest,.

Malaconotidae

Malaconotus multicolor Many-coloured Bush-shrike. Uncommon to frequent at higher mid-levels or in canopy of primary and secondary forest in Gola East and North. Most common in primary forest in Gola North.

M. lagdeni Lagden's Bush-shrike (NT). Uncommon, only recorded in central and eastern Gola North. Restricted to primary forest, where usually found at mid-strata. One nest-building, late Nov 2006.

M. cruentus Fiery-breasted Bush-shrike. Uncommon in secondary forest in Gola East and North.

Dryoscopus sabini Sabine's Puffback. Uncommon in secondary forest in Gola East; common in primary forest in Gola North. Also on Tiwai Island.

Laniarius leucorhynchus Sooty Boubou. Frequent in swamps, farmbush and clearings throughout; also in open swamp forest with *Raphia* palms in Gola East.

[*Tchagra senegalus* Black-crowned Tchagra. Recorded only from dry farmbush such as the Sileti compound.]

Oriolidae

Oriolus brachyrhynchus Western Black-headed Oriole. Abundant throughout Gola and Tiwai, in all habitats including primary and secondary forest, forest edge, clearings, farmbush and in villages.

[*O. nigripennis* Black-winged Oriole. Uncommon, only in secondary habitats around Gola.]

Dicruridae

Dicrurus modestus Velvet-mantled Drongo. Common in secondary habitats throughout Gola and Tiwai; also in low numbers in the interior of high forest.

D. atripennis Shining Drongo. Common in primary and tall secondary forest throughout. Recorded at Tiwai Island by Davies (1987).

Corvidae

[*Corvus albus* Pied Crow. Frequent near human habitation around Gola and Tiwai.]

Sturnidae

Poeoptera lugubris Narrow-tailed Starling. A few birds found nesting in a dead tree with nest holes of *Gymnobucco* barbets at Konella clearing, late Nov 2006, and a group of six birds seen in northern Gola North, Feb 2007.

Onychognathus fulgidus Forest Chestnut-winged Starling. Uncommon; usually in small groups in canopy of tall trees around clearings and at forest edge. Throughout Gola and Tiwai.

Lamprotornis cupreocauda Copper-tailed Glossy Starling (NT). Mostly frequent in small groups at forest edges, clearings and open-canopy forest. Common in secondary

forest around Sileti and Mahoi Bridge in Gola East, but uncommon in and around Gola North. Also on Tiwai Island.

L. splendidus Splendid Glossy Starling. Two records during the present survey: a pair inspecting a nest hole, in farmbush 2 km south of Sileti, Sep 2005; a pair in farmbush north of Gola North (SW & TM). Several records by Allport *et al.* (1989), including one in central Gola North.

[*Cinnyricinclus leucogaster* Violet-backed Starling. One flying over Waima village, Mar 2007. Recorded by G. Field (Allport *et al.* 1989).]

Passeridae

[²*Passer griseus* Northern Grey-headed Sparrow. Uncommon around human habitation.]

Ploceidae

Ploceus cucullatus Village Weaver. Abundant in villages throughout; breeding colonies found inside secondary forest on Tiwai Island and near Sileti.

P. nigricollis Black-necked Weaver. Uncommon in farmbush, forest edge and villages in and around Gola West, East and North.

P. albinucha Maxwell's Black Weaver. Frequent throughout Gola and Tiwai; usually in large groups at upper levels or in canopy of primary forest, but also in secondary forest and at forest edge.

P. nigerrimus Vieillot's Black Weaver. Uncommon in farmbush and other open habitats, Gola North and Tiwai Island.

P. tricolor Yellow-mantled Weaver. Uncommon to frequent but local throughout Gola and Tiwai; usually in large clearings in primary and secondary forest and at forest edge. Breeding recorded at Pewa.

P. preussi Preuss's Golden-backed Weaver. One in primary forest in Gola North (Allport *et al.* 1989).

Malimbus nitens Blue-billed Malimbe. Common in primary and secondary forest and forest edge throughout Gola and Tiwai.

M. malimbicus Crested Malimbe. Uncommon in Gola West and East, frequent in Gola North, at mid-levels in primary and secondary forest, forest edge and small clearings. Also recorded at Tiwai Island (Davies 1987).

M. scutatus Red-vented Malimbe. Frequent at forest edges, moist farmbush and swampy areas with *Raphia* palms throughout Gola and Tiwai; local in primary forest.

M. rubricollis Red-headed Malimbe. Frequent in primary and secondary forest, at the forest edge or in farmbush throughout Gola and Tiwai.

M. ballmanni Gola Malimbe (EN). Apparently restricted to primary forest in central Gola North. Three pairs located in bird parties, *c.* 1–2 km east of Pandebu junction, Feb 2007; six days later birds were heard in the same area but closer to Konella (Dowsett-Lemaire & Dowsett 2008). A nest attended by two adults was found in this area, Nov 2007. These are the first records in Gola Forest since 1976, following its original discovery in 1971 (Field 1979).

Euplectes hordeaceus Black-winged Bishop. Rare in Gola East in farmbush and in swamp inside secondary forest.

Estrildidae

Parmoptila rubrifrons Red-fronted Antpecker (NT). Uncommon in understorey of primary and secondary forest in Gola East and North, often near water.

Mandingoa nitidula Green Twinspot. Two records in dense secondary undergrowth at forest edges: a male and two females at Ngedola, May 2006; two fully-grown immatures in Gombu clearing. Feb 2007. Also recorded at Tiwai Island (Davies 1987).

Nigrita canicapilla Grey-crowned Negrofinch. Common in all wooded habitats, throughout Gola and Tiwai.

N. bicolor Chestnut-breasted Negrofinch. Frequent in primary and secondary forest and at forest edge throughout; often near streams.

N. fusconota White-breasted Negrofinch. Rare; recorded at forest edge and in clearings in Gola West, East and North.

N. luteifrons Pale-fronted Negrofinch. Two records in secondary forest in Gola North, Nov 2006 (GA & GS), Feb 2007 (Dowsett-Lemaire & Dowsett 2008).

Spermophaga haematina Western Bluebill. Frequent in dense undergrowth in moist farmbush, forest edge and secondary forest in Gola West, East and North.

Pyrenestes sanguineus Crimson Seedcracker. Uncommon in grassy swamps, *Raphia* forest and at forest edge in Gola West and East.

[*Estrilda melpoda* Orange-cheeked Waxbill. Recorded in farmbush, at Lalehun, Nov 2006 (SW, TM, EK) and Pewa, Sep 2005 (JAL).]

[*Lonchura cucullata* Bronze Mannikin. Uncommon in farmbush and villages throughout.]

[*L. fringilloides* Magpie Mannikin. Common in farmbush, rank herbage and forest edge around Gola North and Extension 2.]

[*L. bicolor* Black-and-white Mannikin. Uncommon in farmbush, rank herbage and forest edge in Gola East and North. Recorded at Tiwai Island by Davies (1987).]

Viduidae

[*Vidua macroura* Pin-tailed Whydah. Uncommon in farmbush and other open habitats around Gola North.]

Discussion

The results of this survey show that Gola Forest continues to hold significant populations of most of the species of conservation concern that have previously been recorded from Gola. We found 18 threatened or near-threatened species, some in good numbers. For example, the near-threatened West African endemics Rufous-winged Illadopsis and Yellow-casqued Hornbill were common throughout the forest. Of the Vulnerable species, Yellow-bearded Greenbul and Green-tailed Bristlebill were frequently found, and the forest appears to hold important populations of White-breasted Guineafowl and Yellow-headed Picathartes. The number of current breeding

sites recorded for the latter is the highest known to date. For all these species the conservation of Gola forest can be expected to contribute significantly to their conservation. On the other hand, the Endangered Gola Malimbe was recorded very rarely, but any site where it occurs must be regarded as a high priority for its conservation. Western Wattled Cuckoo-shrike and Nimba Flycatcher were also recorded rarely and it is unclear how significant Gola Forest is for their conservation. Neither species was found commonly by Allport *et al.* (1989), although G.D. Field (pers. comm.) found the cuckoo-shrike quite frequently in the 1970s; it is possible that this species has declined in the last 30 years. Black-headed Rufous Warbler (NT) is the only forest bird of conservation concern in the region that has not been recorded. Although it has been found elsewhere in Sierra Leone (Okoni-Williams *et al.* 2001), it probably does not occur in Gola.

Over 180 species recorded during this survey were found in primary or secondary forest, including 163 species characteristic of the Guinea-Congolian forest biome. Nearly 80 of these species appear to be restricted to forest habitat, although some may occasionally occur at the ecotone of forest and more open habitats. Another *c.* 100 species occur in forest but were also frequently found in other habitats such as forest edges or clearings inside the forest. Nine species were found to be restricted to primary forest: Lemon Dove, Black-collared Lovebird, Shelley's Eagle-owl, Brown-chested Alethe, Nimba Flycatcher, Dusky Crested Flycatcher, Yellow-bellied Wattle-eye, Lagden's Bush-shrike and Gola Malimbe. In addition, Lyre-tailed Honeyguide was nearly restricted to primary forest, with only a few records from tall secondary forest. Most of these species are rare or uncommon; only the honeyguide and the wattle-eye were more common. Evidently the conservation of these species depends entirely on the preservation of large tracts of undisturbed closed-canopy forest, mainly in Gola North (*e.g.* the Mogbai area) and, possibly, the northeastern part of Gola East.

Over 80 species recorded during this survey did not normally occur inside forest, but were restricted to forest edges and farmbrush. However, some species were found in large clearings inside the forest reserves, such as the Sileti compound in Gola East and the clearings at Konella and Gombu in Gola North. A total of 34 species were restricted to riverine habitats, whereas 25 species were frequently found in all habitats. These habitat generalists include *e.g.* African Harrier Hawk, Tambourine Dove and Collared Sunbird.

The bird list for Tiwai is still far from complete, as several common species are not yet recorded. A number of species present in Gola are likely to be absent from Tiwai, such as those species restricted to primary forest or those found only in hilly terrain (*e.g.* Black-capped Apalis). Thirteen species known from Tiwai have so far not been recorded in Gola, excluding Northern Black Flycatcher *Melaenornis edolioides* and Senegal Batis *Batis senegalensis*, which were listed for Tiwai by Davies (1987) but are certainly erroneous. Most of these 13 species are associated with water bodies.

A number of species are known to occur in the forests of Liberia, Ivory Coast or other parts of Sierra Leone have so far not been recorded from Gola Forest. Allport *et*

al. (1989) listed 34 species from Taï Forest in Ivory Coast (Gartshore *et al.* 1995) that could occur in Gola. During the present survey, 11 of these species were found. Some of the remaining 23 are unlikely to occur in Gola because of habitat preferences, but others may have been overlooked. For example, Buff-spotted Flufftail *Sarothrura elegans* (Rallidae) and Sandy Scops Owl *Otus icterorhynchus* (Strigidae) are known to occur on the Liberian side of Gola (Gatter 1997). A puzzling absentee from Gola is Black-and-white-casqued Hornbill *Bycanistes subcylindricus* (Bucerotidae) which is widespread throughout West Africa (Kemp 1995). Given its conspicuous habits it is unlikely to have been missed during this survey. Blue-headed Coucal *Centropus monachus* (Cuculidae) was recorded in herbaceous marshes between Kenema and Gola Forest in 2007 (Dowsett-Lemaire & Dowsett 2008), and its occurrence in suitable habitat inside Gola is likely.

The results of this survey confirm the importance of Gola Forest for bird conservation. Current surveys recorded 294 species bringing the total to 327, which is amongst the highest of the Upper Guinean Forests. Of this total, 27 species are new records for the area and two of them new to Sierra Leone (Brown Nightjar and Black-collared Lovebird). Besides the high species diversity, several threatened species occur in good numbers. It appears that the war in the region has had little impact on the avifauna and this site remains a top priority for conservation.

Acknowledgments

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Errata

Distribution, conservation et réponse à la provocation acoustique de la Chouette-pêcheuse rousse *Scotopelia ussheri* en zone forestière côtière de Côte d'Ivoire

In this article (D.B. Ahon & G. Rondeau 2008, *Malimbus* 30: 134–144) the source of the presence of *Scotopelia ussheri* at Lamto is given as “Demey & Fishpool (2001)”. This is in error for Demey & Fishpool (1991), which was not listed by Ahon & Rondeau and is given below. Authors and Editor thank R.J. Dowsett for spotting this mistake.

Reference

DEMEY, R. & FISHPOOL, L.D.C. (1991) Additions and annotations to the avifauna of Côte d'Ivoire. *Malimbus* 12: 61–86.

New White-necked Picathartes *Picathartes gymnocephalus* nesting areas in Ghana

In this paper (E.H. Owusu & A. Asamoah 2008, *Malimbus* 30: 175–177), reference is made to McArdle (1958), but this reference (given below) was omitted from the bibliography of the paper. Thanks again to R.J. Dowsett for spotting the omission.

Reference

MCARDLE, T.D. (1958) The Bare-headed Rockfowl *Picathartes gymnocephalus*. *Nigerian Field* 23: 19–20.

News & Letters — Nouvelles & Lettres

First Lesser Flamingo *Phoeniconaias minor* equipped with a satellite transmitter in West Africa

There are four main populations of Lesser Flamingo *Phoeniconaias minor*: at coastal sites and in wetlands between Yemen and Bangladesh (Hoyo *et al.* 1992, Mundkur 1997, Parasharya & Tere 2006), on soda lakes in the East African Rift Valley (Brown *et al.* 1982), in southern Africa (Wetlands International 2006, Childress 2005) and in West Africa. The latter (15,000–25,000 birds: Wetlands International 2006), is mainly concentrated in and near the Senegal delta, in Guinea (Trolliet & Fouquet 2001) and at coastal sites in northern Mauritania (Isenmann 2006). Reproduction has rarely been reported in West Africa: a colony of about 800 nests was observed in 1965 in S Mauritania (Naurois 1965), and a failed breeding attempt occurred in the same area in 1988 (Lamarche 1988). Concentrations of juvenile birds and displaying by groups of adults led to speculation about undiscovered breeding sites in West Africa (Dugan 1984, Hamerlynck & Messaoud 2000, Diawara *et al.* 2008) but Lesser Flamingos frequently participate in nuptial displays at wetlands far from their breeding sites. The origin of the West African Lesser Flamingos therefore remains an enigma.

Lesser Flamingos are not regularly migratory but show nomadic, irregular movements, which can cover distances of several hundred kilometres (McCulloch *et al.* 2003, Childress *et al.* 2007). Apparently compensatory fluctuations in the regional populations of Lesser Flamingos suggest that movements between them may occur but the only record of connectivity is of a bird ringed as a chick in Kenya in 1962 which was found dead in Western Sahara in 1997 (Childress & Hughes 2007).

A project to investigate the movements of Lesser Flamingos by satellite telemetry has been initiated by the Max Planck Institute of Ornithology. In 2009, four and 15 birds were equipped with satellite transmitters in Ethiopia and Kenya respectively (Salewski *et al.* in press). Similar studies have revealed data about Lesser Flamingo movements for several years (Childress & Hughes 2007), so this project may reveal migration routes to and from West Africa and movements within the region. It may also help to discover unknown breeding sites. On 11 Feb 2010 a Lesser Flamingo was captured at Lac Khar in the Djoudj National Park in northern Senegal (Fig. 1). This was the first flamingo in West Africa to be equipped with a satellite transmitter. We expect it to provide insights into the movements of this population.

During the first eight days with the transmitter the bird moved frequently between Lac Khar and Grand Lac in Djoudj NP, a distance of about 5 km. However, during the night of 18–19 February it flew *c.* 33 km to the Aftout es Saheli area in SW Mauritania where it stayed until 27 February before returning to Djoudj NP (Fig. 2). This is notable because Aftout es Saheli is the site of the only breeding records in



Figure 1. Lesser Flamingo taking off after being equipped with a satellite transmitter at Lac Khar, Djoudj NP, Senegal (photo: Nina Seifert).

West Africa (Naurois 1965, Lamarche 1988) and about 3000 Lesser Flamingos were observed there on 25 Jan 2010, some of them displaying and building nests (V. Salewski & Z. Elabidine Ould Sidaty pers. obs.). So after only a few days, the transmitter



Figure 2. Satellite-tracked movements of a Lesser Flamingo between 11 Feb and 6 Mar 2010. The dot in circle (lower left) indicates the Biological Station, Djoudj NP (16.3600°N , 16.2756°W) where the tag was first activated. The curving white line is the approximate border between Senegal and Mauritania. Background image: Google Earth.

has provided interesting results and more may be expected in the future, when hopefully more birds can be equipped with satellite transmitters.

We are grateful to I. Diop for the permission to work in Djoudj NP and for all the help he provided. T. Diop and Y. Diop helped with the field work. Z. Elabidine Ould Sidaty kindly allowed us to stay in the Diawling NP, Mauritania, and organized the trip to the Aftout es Saheli.

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Comments on Issiaka & Awaïss (2009) “Avifaune des zones humides du Parc National du W du Niger: importance et répartition dans le temps et dans l’espace.”

A recent paper by Issiaka & Awaïss (2009) did not cover all available knowledge of wetland avifauna in the area, but is a contribution to our knowledge of it. Papers not referenced therein include Crisler *et al.* (2003) and Ambagis *et al.* (2003), which include bibliographies of previous work. These papers contain summaries and analyses similar to those of Issiaka & Awaïss (2009), and it would have been useful had the latter explicitly updated them. Both analyse the numbers of birds observed, their distribution and monthly presence. It could have been instructive if Issiaka & Awaïss had discussed how their different methods might have produced different results. Their analysis and interpretation could also have been extended by consideration of the wider network of wetlands. The seasonal lake Nyafaru (site PWN4) we are told is one of about 30 lakes in Parc W, but we are not told if these other lakes are of comparable size, whether they dry out at similar times, or where the nearest permanent lake at the end of the dry season would be.

In addition to normal variability in the resources used by waterbirds, the Niger River basin is experiencing significant and complex long-term hydrological changes, particularly at the Sahel–Sudanian boundary (Descroix *et al.* 2009). In order to analyse the avian implications of these changes it is vital that waterbird records be comparable between studies and linked to meaningful environmental measurements. Though many of the environmental variables that contribute to waterbird distribution are beyond the capacity of many studies, every effort should nonetheless be made to include those that most directly impact upon waterbird habitats. Stream gauge data are available for the Niger upstream at Diamangou as well as for the Tapoa and Mékrou

rivers, and monthly summaries for the study period would have been useful indicators of the hydrological changes occurring (Descroix *et al.* 2009). Ambagis *et al.* (2003) were also wanting in this regard.

Understanding over what distances and times waterbirds respond to changes in their habitats around Parc W is a considerable challenge and requires study of the ecology of individual species. Ambagis *et al.* (2003) mentioned habitat preferences of some waterbirds, and it would be useful for future studies to look in more detail at the complexities of waterbird habitats in Parc W with a view to identifying habitat-characteristic species and the environmental variables that affect them.

There are a number of differences in the species lists of Issiaka & Awaïss (2009), Crisler *et al.* (2003) and Ambagis *et al.* (2003). The two earlier papers include many waterbird species not mentioned by Issiaka & Awaïss (2009), *e.g.* *Phalacrocorax carbo*, *Anhinga rufa*, *Ixobrychus minutus*, *Plegadis falcinellus*, *Pandion haliaetus*, *Gallinula angulata*, *Glareola pratincola*, *Gallinago gallinago*, *Tringa stagnatilis*, *Gelochelidon nilotica*, *Chlidonias leucopterus*, *Alcedo cristata* and *Ceyx pictus*. However, most of these species were judged relatively uncommon in the earlier papers and so could have been overlooked. On the other hand, Issiaka & Awaïss (2009) list three species as being very abundant, which are assessed as rare or uncommon by the earlier studies: *Ardea goliath*, *Ixobrychus sturmii* and *Gallinula chloropus*. Such different estimates merit closer examination and justification as does the seemingly new species for Niger included by Issiaka & Awaïss (2009): *Vanellus superciliosus*.

We are grateful to Joost Brouwer for helpful comments on a draft of this note.

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Reviews — Revues

Living on the Edge. Wetlands and birds in a changing Sahel, par L. Zwarts, R.G. Bijlsma, J. van der Kamp & E. Wymenga (2009). 564 pp. KNNV, Zeist. ISBN 978-90-5011-280-2, relié, €64,95. <www.knnvpublishing.nl>.

Sur plus de 500 espèces d'oiseaux nichant en Europe, représentant quelque 1300 à 2600 millions de couples, environ un quart migre en Afrique subsaharienne. Elles sont présentes à la période semblant la moins favorable, arrivant pour la plupart lorsque les pluies ont cessé, et repartant avant qu'elles ne recommencent. Durant toute cette période sèche les conditions de vie sont tributaires des précipitations qui sont tombées durant la saison humide, des crues qui ont noyé les zones humides et du reverdissement de la végétation. Ces trois facteurs sont déterminants pour l'évolution des populations d'oiseaux migrateurs paléarctiques (essentiellement des oiseaux d'eau et des passereaux insectivores) qui hivernent dans la région sahélienne. Or un constat édifiant a été réalisé durant la période 1970–2005: tous migrateurs transsahariens réunis, les effectifs de 75 des 127 espèces ont chuté. Les déclinés les plus rapides concernent les oiseaux hivernant dans les savanes et les zones humides sahéliennes. Les quatre auteurs, qui ont séjourné plus ou moins longtemps en Afrique, n'ont pas hésité à faire appel à de nombreux spécialistes pour nous expliquer dans ce remarquable ouvrage la complexité et l'évolution de cette région d'Afrique et les causes du déclin de ces migrateurs.

Ils présentent dans les premiers chapitres les différents éléments permettant d'appréhender le fonctionnement du Sahel (précipitations, crues, végétation), appuyant leurs textes avec maintes photos, cartes et graphiques. Cette présentation, claire et détaillée, permet de bien cerner les changements intervenus au Sahel depuis quasiment un siècle. Un chapitre est consacré à l'impact de plus en plus important de l'homme sur la nature.

Les principales zones humides sahéliennes sont ensuite décrites: delta intérieur du Niger au Mali, delta du Sénégal, plaines d'inondations de Hadejia-Nguru au Nigeria, Bassin du lac Tchad, Sudd au Soudan. Le fonctionnement de ces sites, leur utilisation, l'évolution des populations aviaires, les menaces et les mesures de protection sont détaillés selon les connaissances actuelles. Ainsi le delta intérieur du Niger et le delta du Sénégal sont traités de façon très approfondie: impacts des barrages, suivi des crues, impacts humains et dénombrements des oiseaux réalisés depuis quasiment une quarantaine d'années sont décrits précisément. En ce qui concerne les plaines d'Hadejia-Nguru, l'information disponible est moins riche. L'état hydrologique de cette zone, et un petit aperçu sur la population humaine et l'utilisation du milieu sont présentés; les données disponibles sur les oiseaux ne concernent guère que la dernière décennie du 20^{ème} siècle. La place consacrée au lac Tchad, et autres zones humides

environnantes, ne reflète malheureusement pas l'importance de cette zone pour les oiseaux. Peu de données sont fournies, excepté les résultats de deux décomptes d'oiseaux d'eau réalisés dans la vallée du Logone en 2000 et 2001 et cinq sur le lac Fitri entre 1984 et 2003. Quant au Sudd, les données concernant ces oiseaux sont également parcimonieuses, résultante des conflits ayant sévi ces dernières années dans cette région. Une dizaine de pages sont consacrées aux secteurs rizicoles. L'ensemble de ces chapitres fait l'objet d'une courte synthèse montrant l'intérêt majeur des zones humides sahéliennes pour les oiseaux d'eau.

Une section d'environ 40 pages est ensuite consacrée à l'importance du Sahel pour les espèces eurasiennes, aux variations annuelles des conditions d'hivernage, à la mortalité hivernale et aux relations "oiseaux-acridiens", l'ensemble étant encore fortement agrémenté de nombreux graphiques et cartes.

Les derniers chapitres, qui représentent les deux tiers du livre, sont consacrés à l'étude d'une trentaine d'espèces nichant dans le Paléarctique, mais y passant moins de temps qu'en Afrique. L'état et les tendances de population, la migration, la distribution en Afrique, avec quasi-systématiquement une place de choix laissée aux informations obtenues par le baguage, sont abordés pour un panel d'espèces comprenant ardéidés, canards, rapaces, limicoles et passereaux. Deux chapitres sont consacrés aux effets de la sécheresse au Sahel sur la reproduction des migrateurs, et à l'impact des changements survenus au Sahel sur l'évolution des populations de migrateurs d'Eurasie.

Une bibliographie comprenant près de 1450 références et un index détaillé terminent ce fascinant ouvrage. A l'exception de quelques cartes ou graphiques de petite taille, où l'information devient peu lisible, ce travail rigoureux ne peut être salué autrement que par des éloges. Signalons enfin que l'ensemble est agrémenté de très nombreuses et superbes photographies. Un ouvrage pour rêver à l'Afrique, et une mine de renseignements pour les ornithologues professionnels ou amateurs.

Olivier Girard

Society Notices — Informations de la Société

West African Ornithological Society Société d'Ornithologie de l'Ouest Africain

Revenue Account for the year ended 31 December 2009

Income	£ Sterling	€ Euro	<u>2008 (£)</u>
Subscriptions	1559	780	2799
Interest and donations	<u>8</u>	<u>36</u>	<u>57</u>
	<u>1566</u>	<u>816</u>	<u>2856</u>
Expenditure			
<i>Malimbus</i> production and distribution	2598	0	3349
Office costs	0	25	-
W.A.O.S. Research Grants	<u>0</u>	<u>0</u>	<u>0</u>
	<u>2598</u>	<u>25</u>	<u>3349</u>
Surplus/deficit per account for year	<u>-1031</u>	<u>791</u>	<u>-</u>
Deficit for year (€ 1 = £ 0.8287 on 31 Dec 2009)	-£376	-	<u>-493</u>

Balance Sheet as at 31 December 2009

Bank balances at 1 January	2688	2245	4907
Surplus/deficit per account for year	<u>-1031</u>	<u>791</u>	<u>-493</u>
Bank balances at 31 December	£1657	€3036	£4414
Combined balance in £ (€ 1 = £ 0.8287)	<u>£4173</u>	-	

Notes

Almost all the Society's expenditures are in £ sterling. The combined deficit of £376 for the year 2009 was partly offset by an increase in value of the Euro against the Pound, from £0.7688 on 1 January to £0.8287 on 31 December, leading to a paper profit of £135 on the Euro balance of 1 Jan 2009. Hence the decrease in the combined balance since 31 Dec 2008 is only £241 (£376 – £135).

On behalf of Council I should like to thank Bob Sharland for his management of the accounts for almost half a century, for his assistance during the 2009 handover period, and for checking the present accounts and balances. I also thank Marie-Yvonne Morel for her continued management of the Euro account. As of 1 Jan 2010, all Treasurer duties pass to Tim Dodman, who also checked the 2009 accounts.

J. Brouwer, interim Treasurer 2009

W.A.O.S. membership changes
Changements à la liste d'adhérents de la S.O.O.A.

New members — Nouveaux membres

ISENMANN, P., CEFE/CNRS, 1919 route de Mende, F-34293 Montpellier Cedex 5, **France**
 A&W ECOLOGICAL CONSULTANTS, POB 32, 9269 ZR Feanwâlden, **The Netherlands**
 VOGELBESCHERMING/BIRDLIFE-THE NETHERLANDS, Postbus 925, NL-3700 AX Zeist,
The Netherlands

Reinstatements — Restaurations

MASTERSON, A., 3 Kent Avenue, Avondale, Salisbury, **Zimbabwe**

Resignations, deaths and deletions — Renonciations, décès et enlèvements

LONGLEY, Lt Col. P.

Name and address changes and corrections — Changements et corrections de nom ou adresse

BARLOW, C., 83 Ribblesdale Drive, Grimsargh, Preston, Lancs PR2 5RJ, **U.K.**
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 BUCKINGHAM, D.L., 1 Lion Mews, Bull St., Potton, Beds. SG19 2NR, **U.K.**
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 KLOP, E., M.K. Kingstraat 28, 9728 WJ Groningen, **The Netherlands**
 LAESSER, J. [not Loesser], Erlenstrasse 17, CH 6020 Emmenbrücke, **Switzerland**
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 BIOLOGY LIBRARY, UNIVERSITY OF WISCONSIN, 430 Lincoln Drive, Madison,
 WI 53706, **U.S.A.**
 SAN DIEGO ZOO LIBRARY, 15600 San Pasqual Valley Road, Escondido, CA 92027, **U.S.A.**

J. Brouwer

Instructions to Authors

Malimbus publishes research articles, reviews and news about West African ornithology.

Papers and Short Notes must be original contributions; material published elsewhere, in whole or in part, will not normally be accepted. Short Notes are articles not exceeding 1500 words (including references) or four printed pages in length. Wherever possible, manuscripts should first have been critically scrutinised by at least one other ornithologist or biologist before submission. Manuscripts will be sent for critical review to at least one relevant authority.

Items for **News & Letters** should not exceed 1000 words.

Contributions are accepted in English or French; editorial assistance will be made available to authors whose first language is not one of these. Submission by email (attached file) is preferred. Consult the editor for further details, e.g. acceptable software. For submissions on paper, two copies are required, typed on one side of the paper, with double spacing and wide margins.

All Papers (but not Short Notes) should include a **Summary**, not exceeding 5% of the paper's length. The Summary should include brief reference to major findings of the paper and not simply review what was done. Summaries will be published in both English and French (or in the official language of the country in which the work was done) and will be translated as appropriate by the Editorial Board.

Format of tabular material, numbers, metric units, references, *etc.* should match recent issues. Note particularly: dates are written 2 Feb 1990 but months standing alone may be written in full; times of day are written 6h45, 17h32 and coordinates in the form 7°46'N, 16°4'E (no leading zeros); numbers up to ten are written in full, except when followed by abbreviated units (e.g. 6 m), numbers from 11 upwards are written in figures except at the beginning of a sentence. All references mentioned in the article, and only such, must be listed in the bibliography.

Avifaunal articles must contain a map or gazetteer, including all localities mentioned. They should include brief notes on climate, topography, vegetation, and conditions or unusual events prior to or during the study (e.g. late rains *etc.*). **Species lists** should include only significant information; full lists are justified only for areas previously unstudied or unvisited for many years. Otherwise, include only species for which the study provides new information on range, period of residence, breeding *etc.* For each species, indicate range extensions, an assessment of abundance (see *Malimbus* 17: 36) and dated breeding records; indicate migratory status and period of residence only as shown by the study. Where appropriate, set data in context by brief comparison with an authoritative regional checklist. Lengthy species lists may be in tabular form (e.g. *Malimbus* 25: 4–30, 24: 15–22, 23: 1–22, 1: 22–28, or 1: 49–54) or in the textual format of recent issues. **Taxonomic sequence** and **scientific names** (and preferably also **vernacular names**) should follow Borrow & Demey (2004, *Field Guide to the Birds of Western Africa*, Christopher Helm, London), or *The Birds of Africa* (Brown *et al.* 1982, Urban *et al.* 1986, 1997, Fry *et al.* 1988, Keith *et al.* 1992, Fry & Keith 2000, 2004, Academic Press, London), unless reasons for departure from these authorities are stated. A **more complete guide for authors** of avifaunal papers, including the preferred abundance scale, appeared in *Malimbus* 17: 35–39 and an augmented and updated version of this may be found on the web site (<http://malimbus.free.fr/instmale.htm>); a copy may be obtained from the Editor, who will be happy to advise on the presentation of specific studies.

When designing **Figures**, and particularly font size, pay attention to *Malimbus* page shape and size. Figures prepared in or scanned into an appropriate graphics package and saved at high resolution are preferred. They should be supplied as graphics files, and not pasted into a Word file. Low-resolution files and poor-quality printouts will not be accepted. Authors are encouraged to submit **photographs** that illustrate salient points of their articles. Photographs should be high-contrast and high resolution (at least 600 dpi). They should be supplied in graphics file format (e.g. jpg or tif) and not pasted into a Word file. Consult the Editor for further advice.

A pdf file of Papers and Short Notes, and one copy of the issue in which they appear, will be sent to single or senior authors, *gratis*.



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