Exploration of Digya National Park, Ghana
(January 2005, March 2008, March 2009),
with special reference to birds

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Summary

Digya N.P. is the second largest national park in Ghana, covering 3478 km². The vegetation in the north consists mainly of Sudanian woodland with small patches of dry forest, whereas the more humid south is clearly in the forest/savanna transition zone, with extensive Daniellia transition woodland in the south-west. The wet riparian forests on the Volta and main tributaries were flooded by the Akosombo Dam in the 1960s and the shores of Lake Volta are bordered mostly by herbaceous vegetation. Today remnants of dry semi-evergreen forest are to be found in the south and south-west away from the Lake, in dry situations or on semi-permanent streams or rivers.

From 20-31 January 2005 we carried out surveys of the birds in the north on the lake-shore (Daditokolo, Walando, one night at Dome) and south-west (Hwanyanso, Nsuganyafo); from 1-12 March 2008 we explored the section around Dome and the Sene river on the north-western boundary, and the old Apapasu camp in the west, 10 km east of the boundary; from 12-17 March 2009 we visited the bovals, woodland and riparian forests of the Apesika ridge and Obosum and Sumi rivers in the south. As many as 297 bird species are now known from the park.

The most important find in 2008 and 2009 was the re-discovery of the Black-headed Bee-eater Merops brevirostris, a rare species of the forest/savanna transition zone in West Africa, known from just one previous record in Ghana (1952, on the Afiram river). A few pairs were found breeding in dry riparian forest in the Apapasu region and also on the Sumi river, and overall there is much suitable habitat in the south of the park for this species.

Other species of interest include the African Reed Warbler Acrocephalus scirpaceus baeticatus found nesting on the northern lake-shore, a completely new population and a first for Ghana. Several species from the northern savannas reach their southern limits in Digya, e.g. Red-throated Bee-eater Merops bullocki, Sun Lark Galerida modesta, Rufous Cisticola Cisticola rufus, Swamp Flycatcher Muscicapa aquatic, the rare Emin’s Shrike Lanius gubernator, and Black-headed Weaver Ploceus melanopeplus. Also of note are some of the forest or forest-edge birds in the south-west, such as the Crowned Eagle Stephanoaetus coronatus, a forest raptor probably at its northern limit in Ghana, and the little-known White-crested Tiger Heron Tigrisoma leucolophus and Pale-fronted Negrofinch Nigrita luteifrons. One black phase of the rare Palaearctic Eleonora’s Falcon Falco eleonorae was seen at Daditokolo on 22-23 January 2005 and is a first record for Ghana.

Access to the park is very difficult in the absence of roads; in 2008 we re-opened the old bush track
to Apapasu camp, itself abandoned since the early 1990s. Elephants are still common in the west and southwest, but poaching is a problem. This area in general would be better prospected and protected with the restoration or opening of a few rough tracks, but clearly more staff and financial means ought to be made available.

1. INTRODUCTION

Digya N.P., created in 1971, is the second largest national park in Ghana, after Mole. It covers 3478 km², protecting the western shores of Lake Volta and the intervening country between the Sene and Obosum arms, which form the northern and southern boundaries respectively. Most of the level land is covered with various types of Sudanian savanna, but the south of the park is clearly in the forest/savanna transition zone. The riparian or rain forests which in the past lined the Volta and main tributaries were completely flooded by the Akosombo Dam; the shores of present-day Lake Volta are at most covered by grass and sedges. Today forest remnants are to be found mainly in the south-west, away from the Lake, and along some semi-permanent streams. Other important habitats present include bovals.

Logistically Digya is cut in two. The north is administered from Atebubu, the south from Donkorkrom. The south is particularly cut off from the rest of the country, as reaching Donkorkrom requires a ferry crossing at Adowso, a rather slow process. Reaching Donkorkrom from Atebubu by car requires nearly two days (via Kumasi). The park has no roads, and even reaching the various camps situated on or near the boundary is not easy. The sand tracks in the south-west are very rough as they are mainly used by tractors; only the track to Apesika is open year-round. In the north only two camps (Dome on the Sene, Daditokolo on the Lake in the far east) can be approached by car; a short canoe crossing is still necessary from the end of the roads as these camps are just inside the park, on the northern lake-shore. The other camps are out of reach, except (some) by motorcycle, then again a canoe crossing. A number of small fishing settlements remain in the park, on all shores including those of the Digya arm; there are no longer any villages in the interior.

During our first visit from 20-31 January 2005 we spent just over 4 days in the north (at Daditokolo and Walando), with one night at Dome on the way, and nearly 5 days in the south (at Hwanyanso and Nsugyanafo), see Appendix 1 and 2. Interviews with staff, and especially the mobile anti-poaching team, made us realize the importance of the Apapasu area of the west, so our second visit in March 2008 included the Apapasu region, as well as a few days in the Dome area.

Reaching the west of the park is even more complicated, as the public road to the boundary (at the abandoned Sabuso camp) is very bad, being accessible from Anyinofi only to lorries or tractors, and then only in the dry season (this road is completely cut off from late March to November). From Sabuso camp on the western boundary there used to be a bush track leading 10 km east to Apapasu camp, built in 1971. This track and Apapasu camp were abandoned in the early 1990s. The only way of getting there was in fact with a sturdy lorry, as the track had to be re-opened after about 15 years of neglect. Fortunately the park’s driver, John Bosco, owns a 4 x 4 lorry (dating back to the 1960s, but kept in good condition) and arrangements were made at Atebubu to use this vehicle.

In 2009 we devoted five days to the exploration of the Apesika ridge in the south-east: interesting habitats in this area include bovals and patches of dry forest in hollows or along semi-permanent streams. At Apesika camp the Obosum river is, much like the Sene river at Dome, more a narrow arm of the Lake, but natural stretches of the river (with rich riparian forest) can be visited upstream from Apesika, and also from Bunaso to the west, where the Sumi river (a long affluent of the Bunda and Obosum) can also be reached. Access in this region is facilitated by the existence of old paths going north across woodland towards the Digya arm or the northern lake-shore.

The park had never been explored by ornithologists. The nearest locality for which we have some (old) bird records is Kete Krachi. Of particular interest are old specimens of forest species, i.e. the Great Blue Turaco Corythaëola cristata and Spotted Honeyguide Indicator maculatus (both collected in the 19th century, Grimes 1987, Reichenow 1897). This shows that the riparian forests (now destroyed) on the Volta in the Kete Krachi area would have been extensive and rather humid. There is also an old sight record of a hornbill of primary forest, Yellow-casqued Hornbill Ceratogymna elata (Grimes 1987). There is little doubt that the climate in the Volta drainage has become drier since the creation of the Lake, a phenomenon in reverse of what is observed
in the highlands further east (e.g. Kyabobo).

Weather conditions. In January 2005 there was much Harmattan in the north, which was very dry. The weather changed completely by the time we reached the south, and several storms hit the area on 25, 28 and 29 January. These were very early, and elicited calling in a number of bird species that might otherwise have been missed. March 2008 was hot and humid, with localized storms which, however, did not hit us on any day. There was heavy rainfall on 11 March to the west of Apapasu (near Sabuso). By 12 March 2009, the Apesika ridge had experienced two big rains, and there was a flush of fresh grass and flowers everywhere, although we had little more than drops during our stay.

Timing of our visits. Late January is a suitable time for Palaeartic migrants, at least those species wintering in the area. It is a little early for the local avifauna, as breeding in a number of species would not begin before the start of the rains proper. However, the unusual weather conditions in the south in January 2005 provoked a sharp increase in vocal activity. Several of the cuckoos were calling by the end of the month. The second and third visits in March had all cuckoos calling (although Red-chested was barely starting), and additional Palaeartic migrants passing through, while some intra-African migrants had arrived recently.

Mist-netting. None was carried out in 2008-09. On 24-25 Jan 2005 120 metres of net had been set in tall Hype -略微ria and other grass on the shore of Lake Volta at Walando. This was mainly to identify (and ring) Palaeartic and other warblers that appeared to be numerous in this habitat, as yet unburnt: 54 birds of 6 species were ringed in a day and a half, while large numbers of weavers and some other common African species were released unringed.

2. HABITAT CLASSIFICATION

Digya N.P. was the subject of a habitat survey by K. Schmitt and M. Adu-Nsiah in the 1990s, but this report has been lost and apparently not a single printed copy has survived (M. Adu-Nsiah pers. comm.). A short summary of this report is included in the Management Plan (1995), which we consulted in Atebubu. Four main types are mentioned in this document:

1. the dominant vegetation consists of various types of Sudanian (= Guinea-Sudanian) woodland (called “tall grass savanna” in the report, but wooded grassland or woodland would be a better expression);
2. aquatic vegetation grows on the shores of the Lake, and appears to be most extensive in the north-east, as well as in the Digya arm;
3. bovals and flat rocky outcrops are concentrated in the south and south-east;
4. riparian forest is found mainly along some of the tributaries of the three “arms” of the Lake. The arms themselves (Sene, Digya and Obosum from north to south) do not support any riparian forest. The forests that were flooded by the dam have never regenerated anywhere on the lake-shore.

On the accompanying vegetation map, an important area of forest/savanna mosaic is shown as occurring between the bovals and the Digya arm, on the Apesika ridge.

What is not mentioned in this short summary is the existence of small remnants of dry semi-evergreen (semi-deciduous) forest in the south-west, from the southern boundary (Nsugyanafu) north to the Apapasu region. These patches are mostly along seasonal streams, but sometimes stand away from water. Some important riparian forest also occurs along the semi-permanent Bunda river, part of the Obosum, and along another important tributary, the Sumi. The Sumi retains very large pools of water throughout the year, and the same is true of the Bunda and Obosum upstream of Apesika. The Sumi flows from west to east into the Bunda, and then into the Obosum.
The following habitat details were noted for the sites we visited:

**Aquatic vegetation.** The northern lake-shore is mostly sandy, and the main vegetation consists of a narrow ring of sedges and floating grass (*Vossia*) giving way to a wider belt of drier, tall *Hyparrhenia* grass. Woodland then follows. In sheltered arms and creeks floating grass can be quite extensive (as near Walando peninsula). The Sene river arm at the level of Dome is also mostly sandy, with grass; the riparian forest was clearly flooded when the dam was created (many dead trunks remain) and never regrew. There are a few scattered trees (*Pterocarpus santalinoides*) down-stream.

**Wooded grassland, woodland and transition woodland.** In the surroundings of Daditokolo, the dominant large tree is *Daniellia oliveri*, which reaches 20-22 m in places. Some of the woodland is transitional, with small groves of *Anogeissus leiocarpus* and the grass layer may be replaced by the invasive *Chromolaena odorata*, but only in small pockets. Much of the woodland along the 3-km walk to a fishing hamlet had recently been burnt: the fire was so severe that it had scorched a lot of *Daniellia* right to the tops, thus destroying inflorescences and young pods. Woodland on the Walando peninsula is more humid, with *Daniellia, Ficus ingens* and *F. sur; Khaya senegalensis, Parkia biglobosa, Piliostigma thonningii, Terminalia avicennioides, Vitellaria paradoxa*.

Woodland near Dome and Appasus occurs in patches on ridges. *Daniellia* is dominant, other species including *Afzelia africana, Annona senegalensis, Borassus aethiopum, Crossopteryx febrifuga, Ficus ingens, Gardenia ternifolia, Hymenocardia acida, Khaya senegalensis, Laneea acida, L. barteri, Lophira lanceolata, Sarcocephalus (=Nauclea) latifolius, Parkia biglobosa, Piliostigma thonningii, Pseudocedrela kotschyi, Digya, Ghana*.
Pteleopsis suberosa, Pterocarpus erinaceus, Sterculia setigera, Stereospermum kunthianum, Terminalia cf. laxiflora, Vitellaria paradoxa. Acacia sieberiana occurs locally (Dome) in floodable areas. Near Apapusu about half of the woodland areas has been invaded by Chromolaena odorata. According to the head guard from Sabum (who has known Apapusu since 1989) this phenomenon is relatively recent; Chromolaena acts as a barrier to fires (except the fiercest) and may encourage some species of dry forest to get established, thus the woodland gradually turns into transition woodland or dry forest.

In the south-west the main type of woodland is probably best qualified as transition woodland. Daniellia oliveri is still the dominant tree around the camps of Hwanyanso and Nsugyanafo. These reach a height of 25-30 m. Other species include: Afzelia africana, Anogeissus leiocarpus, Hymenocardia acida, Lophipha lanceolata, Parkia biglobosa, Pterocarpus erinaceus, Sterculia setigera, Terminalia cf. laxiflora, Vitellaria paradoxa. Tall palms (Borassus aethiopum) are quite common. Much of the grassland is replaced by dense Chromolaena odorata and there are other small thickets and liane tangles. We even saw a big Erythrophleum on the boundary line near Hwanyanso, away from any water.

On the Apesika ridge there is a sharper contrast between woodland and patches of dry forest; woodland on the ridges and on the edge of bovals is dominated by Crossopterix frebifuga, Lophipha lanceolata and especially Terminalia cf. laxiflora, with also Daniellia oliveri, Hymenocardia acida, Pilostigma thomningii and Vitellaria paradoxa. Most of this woodland is rather short, around 6-8 m tall, with some taller fragments on better soils or in hollows. Borassus palms are common.

Deciduous forest. Near Daditokolo there are some patches of deciduous forest close to the lake-shore and fishing hamlets. They are to some extent invaded by Neem Azadirachta indica. The closed canopy is dominated by Pterocarpus erinaceus, with several large Adansonia digitata (Baobab) and Ceiba pentandra. Near Dome camp similar patches occur, also invaded by Neem. Anogeissus and Ceiba pentandra dominate; Holarrhena floribunda also occurs, as well as numerous lianes; several trees were still leafless in early March and were not identified; one had long woody pods split into two halves, like a Funtumia. Elsewhere near Dome valley bottoms have extensive open dry forest dominated by Anogeissus, with also Afzelia africana, Bombax buonopozense, Cola gigantea and the odd clump of evergreen trees (with especially Manilkara multinervis), thus somewhat intermediate between deciduous and semi-evergreen forest.

Baobabs are not common further south, but clumps of Baobabs, perhaps planted, grow outside the big Apapusu forest and may be a relic from an old village.

Semi-evergreen and riparian forest. Near the camps of Hwanyanso and Nsugyanafo in the south-west there are some remnants of semi-evergreen rain forest. These have been damaged by fires over the years, and the canopy is rather open. Nevertheless the best one, about 3 km from Nsugyanafo, is several km² in extent despite the absence of streams. The periphery is dry deciduous forest with mainly Anogeissus, Ceiba and thick Chromolaena underneath. Large trees in the small section of wetter forest we visited were Albizia zygia, Antiaris toxicaria, Bombax buonopozense, Celtis wightii, Cola gigantea, Dialium guineense, Milicia excelsa, Ricinodendron heudeletii, Sterculia spp. (oblonga, tragacantha), Tetrapleura tetraptera. Several of these large trees were completely leafless (Bombax, Milicia, Ricinodendron). The understorey is evergreen (with many Microdesmis puberula) and lianes are abundant. Surprisingly some tree species belong to wetter types of forest, such as Afzelia bella (seen in young flowers) and Pteleopsis hylodendron (fruiting). Smaller fragments of forest visited near Hwanyanso had the following (per J. Oppong in the absence of FDL): Afzelia africana, Antiaris, Bombax buonopozense, Ceiba, Celtis wightii, Cola gigantea, Ricinodendron. Strips of semi-evergreen riparian forest are dominated by Cynometra megalophylla; Ficus lutea (vogelii) is a strangler.

Near Apapusu rainfall is probably less and this forest type is more regularly encountered along seasonal streams. Patches vary in extent from a few trees to a few ha. The tall canopy (30 m+) is characterized by Afzelia africana, Albizia ferruginea (flowering in March), Anogeissus, Antiaris toxicaria, Berлина grandiflora, Ceiba, Cola gigantea, Diospyros mespiliformis, Erythrophleum suaveolens, Khaya senegalensis, Manilkara multinervis, Milicia excelsa, Ricinodendron, Vitex doniana. Medium-sized trees along streams include Cynometra megalophylla (dominant), Kigelia africana, and elsewhere Celtis wightii, Cola millenii, Dialium guineense, Malacantha alnifolia, Zanthoxylum zanthoxyloides. A few oil palms Elaeis occur. The commonest small tree
is *Napoleonaea vogelii* (as in similar dry forest in Kalakpa); other small trees include *Aphania senegalensis*, *Baphia nitida* (flowering in March), *Clerodendrum* sp., *Ficus abutilifolia* (on a rock), *Ficus gumosa*, *Rauvolfia vomitoria*, *Rororea* sp., *Rubiaeae* (*Tarenta*?), *Sorindeia* sp. Several patches of one to several hectares were crossed on the path north of Apesika; they occur in hollows or on dry streams and are also dominated by *Berlinia grandiflora*, *Ceiba*, *Cola gigantea*, *C. millenii*, *Diospyros mespiliformis*, *Erythrophleum suaveolens*, *Milicia excelsa*, with also *Afzelia africana*, *Anogeissus*, *Lannea barteri*, some *Elaeis* palms. Riparian forest on the Sumi river has much the same species, with also *Detarium senegalense*, *Dialium guineense*; *Cynometra megalophylla* and *Pterocarpus santalinoides* grow on the water’s edge. Near Apesika camp the Obosum arm of Lake Volta is lined by thickets a few metres high dominated by *Pterocarpus santalinoides*.

In March the main fruiting trees in forest were *Cola millenii* and *Manilkara multinervis*.

3. THE AVIFAUNA

3.1. Totals recorded

Some 240 species were known from the park after our first visit in January 2005. Another 32 were added on the 2008 trip, and 25 in 2009, bringing the overall total to 297. Because these three visits coincide with the dry season or very early rains, we are still missing late rains breeders such as most widows *Vidua* spp. which remain unnoticed (or pose identification problems) in non-breeding dress outside the rains. Several of the species missed in 2005 but considered likely to occur have indeed been found (e.g. several raptors including Western Banded Snake Eagle, Martial Eagle and Bateleur, Grey-headed Kingfisher, Double-toothed Barbet, Fanti Saw-wing, Oriole-Warbler). Some of these are intra-African migrants that must have arrived about February (Grey-headed Kingfisher, Black Cuckoo) or March (Fanti Saw-wing). A few more Palaearctic migrants were noted, passing through in March (European Honey Buzzard, Eurasian Grey Cuckoo, Eurasian Swift, Blue-cheeked Bee-eater, Wood Warbler, Eurasian Golden Oriole). A few more forest-associated birds have been identified, i.e. White-crested Tiger Heron, Great Blue Turaco, Spotted Honeyguide, Simple and Swamp Palm Greenbuls, Black-and-white Flycatcher and Superb Sunbird. The most important discovery is that of Black-headed Bee-eater (see below). Woodland birds discovered in 2009 include Yellow Penduline Tit, Emin’s Shrike and Black-faced Firefinch, all near their southern limits of range.

The potential for the park is clearly well over 300 species.

3.2. Biome-restricted species

**Sudanian.** So far 28 Sudanian endemics have been identified: *Poicephalus senegalus*, *Musophaga violacea*, *Merops bulocki*, *Coracias cyanogaster*, *Lybius dubius*, *Galerida modesta*, *Hirundo leucosoma*, *Cossypha albicapillus*, *Myrmecocichla albibrons*, *Eremomela pusilla*, *Cisticola rufus*, *Hypergerus atriceps*, *Turdoides reinwardtii*, *Anthoscopus parvulus*, *Nectarinia coccingaster*, *Lanius gubemator*, *Corvinella corvina*, *Lamprotornis purpureus*, *L. chalcurus*, *Petronia dentata*, *Plocus heuglini*, *Pytilia hypogrammica*, *Nesocharis capistrata*, *Lagonosticta rufopicta*, *L. rara*, *L. larvata*, *Estrilda troglodytes*, *Vidua togoensis*. Some of these (*Merops bulocki*, *Galerida modesta*, *Myrmecocichla albibrons*, *Cisticola rufus*, *Lanius gubemator*, *Nesocharis capistrata*, *Lagonosticta larvata*) are birds of the northern savannas that reach their southern limits of distribution in Digya. The local status and distribution of several remain very imprecise, as we did not visit the interior of the park.

**Guineo-Congolian.** Twenty-nine species have been recorded, all but one (*Bycanistes fistulator*) in the south and west only: *Tigriornis leucomopa*, *Accipiter erythropus*, *Francolinus ahantensis*, *Tauraco persa*, *Centropus leucogaster*, *Merops brevirostris*, *Euryomus gularis*, *Tropicranus albocristatus*, *Tockus fasciatus*, *Bycanistes fistulator*, *Indicator maculatus*, *Campethera nivosa*, *Baeopogon indicator*, *Chlorocichla simplex*, *Thescelocichla leucopleura*, *Pyrhrhurus scandens*, *Phyllastrephus baumannii*, *P. albiginaris*, *Bleda canicapillus*, *Nicator chloris*, *Cossypha cyanocomptar*, *Sylvietta virens*, *Hyla prasina*, *Terpsiphone rufiventra*, *Illadopsis puveli*, *Phyllanthus atripennis*, *Nectarinia superba*, *Nigrita luteifrons*, *Spermophaga haematina*. The latitude of south Digya does
not represent a northern limit for any of these species, given that rainfall increases again in the east and west of the country. Kyabobo N.P. is very much wetter than Digya, thus all of these species but two (the flycatcher *Terpsiphone rufiventer* and Black-headed Bee-eater *Merops breweri*) and many more occur in the more extensive forests of that area. The Black-headed Bee-eater is typically a species of the forest/savanna transition zone. The above list does not include the Black-shouldered form of Fiery-necked Nightjar *Caprimulgus pectoralis* nor the Fanti Saw-wing *Psalidoprocne obscura* (cf. Fishpool & Evans 2001) as these species are widespread in savanna environments and not restricted to the Guineo-Congolian biome. The turaco *Corythaëola cristata* may be added as a Guineo-Congolian near-endemic.

### 3.3. The biogeographical importance of Digya

Digya is in an interesting biogeographical position, with the south clearly in the forest/savanna transition zone, and the far north more typically Sudanian. Not unexpectedly a number of savanna species reach their southern limits of distribution in Digya. In addition to the Sudanian endemics already listed above, one can mention the Swamp Flycatcher (we consider the records of this species by Moyer 1995 and Helsens 1996 from Kakum and adjacent Pra-Suhien forest as erroneous), the Black-headed and Red-headed Weavers, the Streaky-headed Seed-eater. Verreaux’s Eagle Owl, Golden-tailed and Brown-backed Woodpeckers are unlikely to occur further south or south-west, but they have been found in Kalakpa recently (March 2008) in the south-east. A few Guineo-Congolian forest species are not presently known to occur further north in Ghana west of the Volta, e.g. White-crested Tiger Heron and Blue-shouldered Robin Chat. They are found further north only east of the Volta, at Kyabobo. The large Crowned Eagle, a monkey-eater, is unlikely to occur further north in the country.

The most interesting species discovered in the second survey (2008) is the Black-headed Bee-eater, a localized species of the forest/savanna transition zone, known to breed mainly in Central Africa. In West Africa there are very few records, in just two countries, Ivory Coast and Ghana. The only record in Ghana dates from February 1952, when Horwood (1964) found a pair and one bird (which he collected) in riverine forest on the Afram river. As much of the Afram riparian forest has disappeared under Lake Volta, the continued existence of this species was in doubt. It is conceivable that the bee-eater might still occur on some tributaries of the Afram river today, but none of these is in a protected area. Thus the Digya birds are likely to be the only viable population of this rare bee-eater in Ghana.

### 3.4. Ecological considerations

#### Water-dependent or swamp species

A striking feature of largely artificial water bodies such as Lake Volta is the paucity of waterbirds. The aquatic vegetation is relatively simple, and the water often too deep and impoverished in fish stock to be attractive to many birds. The only numerous waterbird in places is a duck (White-faced Whistling Duck, a grazer) in vegetated creeks close to the shore; herons and egrets, plovers and Palaearctic waders occur in very small numbers on the sandy patches and low sedge marsh. Fish-eating birds (mainly kingfishers and Ospreys) favour the shallow water along the shores: numbers of the Palaearctic Osprey could be quite high overall. A few Palaearctic warblers *Acrocephalus* spp. occur in very high densities in the tall grasses further inland, as long as fires do not destroy the habitat.

#### Bovals (Apesika)

These laterite formations usually have a layer of thin grass and can cover up to several hectares; flat rock slabs with rock pools of rainwater may be present. A handful of species are highly characteristic of this habitat: Senegal Thick-knee, Forbes’s Plover, African Wattled Lapwing (Plover) and Sun Lark. The Thick-knee is also to be found on rocky and sandy banks of streams or the lake-shore, whereas the Wattled Lapwing will colonize any short, moist grassland (including on the lake-shore). The other two species occur exclusively on bovals.

#### Woodland and forest

Most of the woodland we crossed near Daditokolo in the far north had been recently burnt by a fierce fire, destroying foliage and inflorescences up to the tree crowns. The burnt sections were virtually devoid of birds, to be found in high concentrations in small sections of unburnt wooded grassland. The common
Daniellia oliveri flower in the dry season and normally represent a favourite food plant for sunbirds. The paucity in sunbird species in the north (only a few Scarlet-chested Sunbirds were present), is probably related to the unfavourable fire regime.

In the south-west the woodland understorey is more mixed, with many small thickets or shrubs (including the dreaded Chromoena) which hamper the progress of fires: Daniellia is still the most common woodland tree, and as many as eight sunbird species were recorded in the south, at least four of them feeding on Daniellia flowers. Woodland, transition woodland and degraded open forest all intermingle to attract a rich bird assemblage. South Digya is clearly part of the forest/woodland transition zone, characterized by high numbers of owls, rollers, babblers, etc. For instance in an area less than 1 km² near Nsugyanafo, four roller species occurred together: Rufous-crowned, Blue-bellied and both Eurystomus species. Judging by the displays and noisy territorial behaviour, they were all breeding.

The woodland explored on the Apeksika ridge in the south is not transitional; the soil is thinner and the height of the trees somewhat reduced. This short woodland with grassy understorey is ideal for some local species such as Cabanis’s Bunting and especially Emin’s Shrike, a rare and rather discreet bird of the northern woodlands.

The forest avifauna includes a number of Guineo-Congolian endemics, some surviving in rather degraded forest fragments. Dense Chromoena thickets are not devoid of bird life, despite their exotic origin. They are important for several Palaeartic passerines (e.g. Common Nightingale) but also for several forest-associated species, such as Capuchin Babbler.

Riparian forest is best developed in the south, especially along semi-permanent rivers such as the Sumi. In addition to the Black-headed Bee-eater already mentioned, the assemblage of Guineo-Congolian forest birds found here includes some surprises, for instance the White-crested Tiger Heron — which is far more widespread and adaptable than hitherto supposed. Many of the bird species characteristic of the drier forests of the transition zone in eastern Ghana (Kalakpa to Kyabobo) are present here, e.g. African Barred Owlet, Leaflove, Baumann’s Greenbul, Puvel’s Illadopsis and Square-tailed Drongo. Spotted Honeyguide (the most widespread forest honeyguide in eastern Ghana) is also present, but many other species common in eastern Ghana are apparently missing in Digya (e.g. Purple-throated Cuckoo-shrike Campephaga quiscalina, Shrike-Flycatchers Megabyas flammulatus, Red-cheeked Wattle-eyes Dyaphorophyia blissetti and Black-winged Orioles Oriolus nigripennis). The rather small size of forest patches left is certainly responsible for the lack of some species, and also the overall drier conditions; in addition the climatic conditions may have been influenced by the creation of the Volta Dam. To the south of Digya the transition zone suffered a series of droughts in the 1980s in particular that led to the destruction by fires (and later abandonment) of all cocoa farms in the Afram plains.

3.5. Breeding records

January 2005. Not many records, as the main breeding activity is expected to start with the first storms in Feb. Several cuckoos and other species were just beginning to call in late January after some exceptionally early showers.

Yellow-billed Kite: adult sitting on nest (in a large Daniellia), Daditokolo, 21-22 Jan.
Rufous-crowned (Purple) Roller: several pairs displaying in the south-west, and one at least carrying food to nest, 30 Jan (eggs laid Dec or Jan, others Jan).
Blue-bellied and Blue-throated Roller: pairs chasing Harrier Hawk from nesting tree, stage not known (30 Jan).
African Reed Warbler: female nettled 24 Jan (Walando) was in pre-laying condition, weighing 14.4g.
Green Hylia: adult carrying a feather to nest, 31 Jan (laying expected Feb).
Lead-coloured Flycatcher: pair feeding at nest (tree hole in dead trunk), 30 Jan (eggs laid Jan).
Violet-backed Sunbird: pair feeding fledgling in a flowering Daniellia, 27 Jan (eggs laid Dec).

March 2008 and 2009. Two cuckoos, silent in Jan, were singing in Mar, Black quite loudly and Red-cheested still very little, while Levailant’s Cuckoo was widespread and calling. All this suggests that various small passerines (which are parasitized by these cuckoos) were starting, or were about to start, to lay. Hole-nesting king-
fishers were breeding with remarkable synchrony.

Western Banded Snake Eagle: feeding nestling 10 Mar.
African Pygmy Kingfisher: several occupied nests (adult brooding), and a pair mating, 7-11 Mar: laying Feb (3) and Mar (1).
Grey-headed Kingfisher: at least 8 occupied nests, with female brooding, 2-11 Mar, and two pairs feeding nestlings 14-16 Mar (thus 10 laying Feb).
Abyssinian Roller: pair feeding at nest 2-5 Mar (laying probably Jan or Feb).
Red-throated Bee-eater: several nests occupied in a bank of the Obosum, 14 Mar.
Black-headed Bee-eater: three pairs feeding nestlings (7-16 Mar) and one female still incubating 7-12 Mar (laying Feb in at least one case, Jan or Feb in the other three, as nestling period very long).
Grey Woodpecker: male feeding at nest 4 Mar (laying Jan or Feb).
White-shouldered Black Tit: pair feeding at nest 11 Mar (laying Feb).
Emin’s Shrike: pair feeding big nestlings, 16 Mar (laying Feb).
Northern Puffback: breeding underway in Mar as strong territorial disputes noted, at least one nest-building.
Bush Petronia: adult feeding a full-grown fledgling, 2 Mar (laying Jan).

4. ANNOTATED SPECIES LIST

Three species reported by other observers are indicated by an asterisk (*). English names usually follow Borrow & Demey (2001), and scientific nomenclature Dowsett & Forbes-Watson (1993). Abbreviations used: Res. = Resident; AM = intra-African migrant; PM = Palearctic (Eurasian) migrant.

Long-tailed (Reed) Cormorant Phalacrocorax africanus. Res. A few in Lake Volta and Sene river.
White-crested Tiger Heron Tigrionis leucolophus. Res. One flushed three times on the edge of large pools in the shade of riparian forest on the Sumi river, 16 Mar 2009.
Cattle Egret Bubulcus ibis. AM. Common on the lake-shore, north and south, in small flocks. Four near Apapasu camp, 8 Mar.
Green-backed Heron Butorides striata. Res. Rare on the lake-shore, common only where there is riparian vegetation (thickets on the Obosum) and in riparian forest by pools.
Purple Heron Ardea purpurea. PM. Widespread in small numbers in aquatic vegetation on the lake-shore; including Dome and Apesika (Jan and Mar).
Grey Heron Ardea cinerea. PM? Widespread along the N. lake-shore, Jan and Mar.
Hamerkop Scopus umbretta. Res. Several around pools in riparian situations in the south and west.
Woolly-necked Stork Ciconia episcopus. Res. One at Dome (2 Mar) and one near Apapasu forest (10 Mar); likely to breed in the area.

Hadada Ibis Bostrychia hagedash. Res. Very local: several around Walando camp peninsula; in 2008 a few pairs in the Apapasu area, at pools in forest. Known from the Sumi and Bunda rivers (guards).
White-faced Whistling (Tree) Duck Dendrocygna viduata. Res. Very common in shallow water along the N.
lake-shore; in flocks of several dozen up to 200-300 (Walando, 24 Jan). Heard at Apesika (at night).
African Cuckoo Hawk Aviceda cuculoides. Res. Dry forest near Daditokolo (Jan 2005); two including one singing over mosaic of woodland and dry forest on Apesika ridge, 13 Mar 2009.
European Honey Buzzard Pernis apivorus. PM. One in dry forest near Dome, 3 Mar 2008.
Yellow-billed Kite Milvus migrans. AM. Widespread Jan and Mar, especially common around the lake-shore (up to 17 together at Dome, 2 Mar).
Palm-nut Vulture Gypohierax angolensis. Res. Widespread in forest patches, from Dome southwards.
Bateleur Terathopius ecaudatus. Res. One near Apapasu camp; common on the Apesika ridge and also reported by guards from the heart of the park.
African Harrier Hawk (Gymnogene) Polyboroides typus. Res. Widespread, often in riparian forest.
Eurasian Marsh Harrier Circus aeruginosus. PM. Singles (female plumage) hunting along the lake-shore (Dome and Walando), 21-24 Jan 2005. In Mar 2008 several held a territory in grassland near the Sene river, including an adult male.
Montagu’s Harrier Circus pygargus. PM. A male at Dome, 1 Mar 2008.
Dark Chanting Goshawk Melleriax metabates. Res. Rare: one in transition woodland, Hwanyanso.
Gabar Goshawk Mellerias gabor. Res. Singles in (transition) woodland (Hwanyanso, Apesika).
Black Sparrowhawk (Goshawk) Accipiter melanoleucus. Res. Rare: one near Nsugyanafo.
African Goshawk Accipiter tachiro. Res. Several in the south and west (riparian forest, transition woodland). One family with two noisy fledged young in a patch of forest east of Apapasu camp, Mar 2008.
Red-necked Buzzard Buteo auralis. AM. Widespread from Dome to the south.
Wahlberg’s Eagle Aquila wahlbergi. AM. One (pale phase plumage) near Apapasu, 9 Mar 2008; one on 16 Mar 2009 near the Sumi river.
Osprey Pandion haliaetus. PM. A few fishing in the Lake (north), 20-24 Jan 2005. Appears widespread and the area could hold quite an important population (more than 20 birds ringed in Sweden have been recovered in Lake Volta).
Grey Kestrel Falco ardosius. Res. A few north, south and west (woodland or riparian forest).
Eleanora’s Falcon Falco eleonorae. PM. One in black phase was at Daditokolo on 22-23 Jan 2005 (RJD). First record in Ghana of a rare Palaeartic migrant, recently shown by satellite telemetry to cross the continent further west than hitherto supposed (Gschweng et al. 2008).
African Hobby Falco cuvierii. Res. In moist woodland (Walando in the north, Nsugyanafo in the south) or
edge of riparian forest (Obosum).


White-throated Francolin *Francolinus albogularis*. Res. A woodland species, singing on 21 Jan (Dome); quite vocal in the south after early storms (e.g. 29 Jan). Silent and unrecorded in Mar 2008 (when conditions were perhaps drier, except from 11 Mar). First song in 2009 heard on 16 Mar, Apesika ridge.


Ahanta Francolin *Francolinus ahantensis*. Res. Common in farmbush, *Chromolaena* and forest remnants in the south and west (Apapasu). Calls mostly at night or after rain.

Stone Partridge *Ptilocaprus petrosus*. Res. Widespread, woodland and dry forest.

Crested Guineafowl *Guttera pucherani*. Res. This forest species survives in patches of forest in the south-west: distinctive feathers seen near Hwanyanso. Known from Apapasu forest (guards).

Helmeted Guineafowl *Numida meleagris*. Res. North: few in woodland (Daditokolo), flock of 12 at Walando. Not recorded on the SW boundary, but should be less rare in the interior. Small numbers in the Apapasu region, even near Dome. All guards’ camps have the domestic form.


African Finfoot *Podica senegalensis*. Res. Seen along the forested Oboosum river near Apesika, in tangles of *Pterocarpus santalinoides*.


Black-bellied Bustard *Eupodotis melanogaster (*). Res. A rare woodland species, reported by guards, especially from the Apesika ridge.


Collared Pratincole *Glareola pratincola*. Res./AM. One flying along lake-shore near Daditokolo, 23 Jan. Local status unknown (requires undisturbed sand beaches to breed).

Forbes’s Plover *Charadrius forbesi*. Res. A pair alarm-calling in a section of a large boval, Apesika ridge, 13 Mar 2009. A pair on a small boval near the Sumi river, 16 Mar. A plover calling (but not seen) at Daditokolo near the lake-shore on 22 Jan 2005 was almost certainly this species.

African Wattled Lapwing (Plover) *Vanellus senegallus*. Res. Local in the north: a pair on the lake-shore (near Daditokolo). Small numbers at Dome 1-5 Mar 2008. One pair just arrived in fresh green grass near stream, Apapasu forest, 11 Mar (was not there on 10 Mar); common on bovals on the Apesika ridge, 12-16 Mar 2009.


Common Snipe *Gallinago gallinago*. PM. One in sedges, lake-shore at Walando, 24 Jan 2005.

Common Greenshank *Tringa nebularia*. PM. A few on the N. lake-shore, Jan 2005.

Green Sandpiper *Tringa ochropus*. PM. A few on the N. lake-shore, Jan and Mar (including Dome).


Common Sandpiper *Actitis hypoleucos*. PM. The commonest wader on the lake-shore, occasionally resting on logs anywhere in the Lake; Sene and Oboosum rivers.


Vinaceous Dove *Streptopelia vinacea*. Res./AM. Common in the north (woodland), smaller numbers in the south (Mar).


Black-billed Wood Dove *Turtur abyssinicus*. Res. Common in woodland in the north and west (Apapasu); not encountered in the south.

Blue-spotted Wood Dove *Turtur afer*. Res. Local in the north (dry forest near Daditokolo, moist woodland on
Walandu peninsula, dry forest at Dome; common in the south and west (transition woodland and forest).

Tambourine Dove *Turtur tympanistria*. Res. South only: in forest remnant near Nsugyafo.

African Green Pigeon *Treron calvus*. Res. Few in the north (e.g. Walandu, on figs); more common in the south.


Senegal Parrot *Poicephalus senegalus*. Res. Common, throughout. Some feeding on seeds of the forest tree *Pteleopsis hylodendron*.

Red-headed Lovebird *Agapornis pullarius*. Res. One pair in a *Ficus sur* (Dome) and another visiting frequently a fruiting *Lannea acida* at Apaspu camp; one pair feeding on buds of *Anogeissus*, Apesika.

Rose-ringed Parakeet *Psittacula krameri*. Res. Uncommon, few in the region of Dome and Apaspu, woodland or dry forest.

Green Turaco *Tauraco persa*. Res. Not found on the northern lake-shore (Daditokolo to Walandu), but present locally in dry forest near Dome. Common in the south and west (woodland and especially forest).

Violet Turaco *Musophaga violacea*. Res. Local in the north-east (Walandu), common in the north-west (Dome), and west and south where may be competing with Green Turacos. Often (but not strictly) in riparian formations. Near Apaspu seems to be outnumbered by Green Turacos.


Western Grey Plantain-eater *Crinifer piscator*. Res. Common near the lake-shore, or in farmbush and woodland in the south. Rare at Apaspu (mainly near park’s boundary).

Great Spotted Cuckoo *Clamator glandarius*. AM. One individual on the lake-shore at Walandu, 24 Jan 2005.

Levaillant’s (Striped) Cuckoo *Clamator levaillantii*. AM. One singing on 30 Jan (after early rain) at Nsugyanfo is perhaps an early arrival. By early Mar has become widespread, a few singing in the Dome and Apaspu area, sometimes at night. Very active by mid-Mar in the Apesika region.

Thick-billed Cuckoo *Pachycoctys audeberti*. Res. The most conspicuous and noisy cuckoo in the south, Jan-Mar, calling perched or in flight (transition woodland, forest, farmbush). Encountered more locally further north, near Apaspu forest. Found on the Sene river, but extralimitally (Seno).

Red-chested Cuckoo *Cuculus solitarius*. AM. A silent bird at Daditokolo on 22 Jan 2005 is early. In Mar 2008 and 2009 several singing sporadically in riparian forest in the west and south. Also heard extralimitally on the Sene river, and imitated in the song of Snowy-crowned Robin Chat.

Black Cuckoo *Cuculus clamosus*. AM. No records for Jan, but in Mar 2008 a few singing in riparian forest in the Apaspu area (from the 8th) and Apesika; heard extralimitally on the Sene river, and imitated in the song of a Snowy-crowned Robin Chat at Dome itself (and Apaspu).


African (Grey) Cuckoo *Cuculus gularis*. AM. One seen at Daditokolo on 22 Jan; some singing in the south-west from the 29th (after storms). Probably all early arrivals. Very noisy in Mar (Dome, Apaspu, Apesika), throughout woodland.

Klaas’s Cuckoo *Chrysococcyx klaas*. Res. Mainly in riparian forest and other dry forest types. Widespread from Dome south and south-east.


Yellowbill (Green Coucal) *Cethmocharis aereus*. Res. Widespread in the south and west, in riparian and other forest with tangles, even in transition woodland with thickets. More local in the Dome area.

Black-throated Coucal *Centropus leucogaster*. Res. A discreet species, located by its vocalisations: several in the riparian forests of the south and west (Apaspu).

Blue-naped Coucal *Centropus monachus*. Res. Confined to grass marsh on the lake-shore (near Daditokolo), and on the Sene river (Dome).


Barn Owl *Tyto alba*. Res. Heard at Hwanyanso, Dome and Apesika camps; also bovals.
African Scops Owl *Otus senegalensis*. Res. Widespread in the woodlands of the park, although none heard in the north-east in Jan 2005, when the woodland was badly burnt.

White-faced Owl *Otus (Ptilopsis) leucotis*. Res. Several heard in transition woodland in the south, west, and ecotone of dry forest and woodland at Dome; thickets edge of bovals (Apesika).

Spotted (Greyish) Eagle Owl *Bubo africanus cinerascens*. Res. Some heard in the south (including bovals at Apesika) and near Dome.

Verreaux’s (Giant) Eagle Owl *Bubo lacteus*. Res. One pair flushed from dry forest near Daditokolo, and another from similar habitat (Baobab, *Ceiba, Pterocarpus erinaceus*) c. 3 km south-west of Daditokolo. Also known from dry forest near Dome (guards).

Pearl-spotted Owlet *Glaucidium perlatum*. Res. Heard and seen in tall woodland and dry Baobab forest near Daditokolo. Heard by day in dry *Anogeissus* forest near Dome.


Fiery-necked (Black-shouldered) Nightjar *Caprimulgus pectoralis nigriscapularis*. Res. Heard in transition *Daniellia* woodland around both camps in the south, late Jan. Singing commonly at edges of riparian forest in the Apatasu and Apesika area, Mar.

Long-tailed Nightjar *Caprimulgus climalcurus*. Res. Very widespread: several flushed by day from dry forest near Daditokolo in Jan; several heard throughout (woodland, lake-shore, bovals), Jan and Mar.

Standard-winged Nightjar *Macrodipteryx longipennis*. AM. One male on a boval near Apesika, 14 Mar. Also known to guards, including at Dome.

Mottled Spinetail *Telacanthura usscheri*. Res. Highly localized species: one seen in woodland near Hwanyanso. Partial to hollow Baobabs (where it may nest).


Common (Eurasian) Swift *Apus apus*. PM. Some passing through on 3 Mar (near Dome). No Jan records.

Narina’s Trogon *Apaloderma narina*. Res. One seen in tall riparian forest on the Sumi river, 16 Mar 2009. Silent and probably overlooked at this time of year.

Malachite Kingfisher *Alcedo cristata*. Res. Feeds in shallow water on the edge of the Lake, Sene and Obosum rivers; also at pools in stream (south), including inside forest on the Sumi river.

Shining-blue Kingfisher *Alcedo quadridibrachys*. Res. Present along the forested Obosum river upstream of Apesika.

African Pygmy Kingfisher *Ceyx pictus*. AM/Res. In Jan 2005 none in the north but several in thickets and forest in the south, where some may be resident. More widespread in Mar (Dome, Apatasu, Apesika).

Grey-headed Kingfisher *Halcyon leucocephala*. AM. No Jan records, but very common in early and mid-March, when breeding in sandbanks throughout the area visited (e.g. along the Sene river, banks of streams in the west and south). Already at the incubation stage by early Mar, so must have arrived in Feb.

Blue-breasted Kingfisher *Halcyon malimbica*. Res. Common in riparian and other forest in the south, west and Dome area.


Giant Kingfisher *Megaceryle maxima*. Res. Local on the N. lake-shore. Pairs on the Sene (Dome), Obosum (Apesika) and Sumi rivers.

Pied Kingfisher *Ceryle rudis*. Res. Several pairs or small groups along the N. lake-shore all the way to Dome, and on the Obosum.

Black-headed Bee-eater *Merops brevirostris*. Res. A rare bee-eater of the forest/savanna transition zone, discovered breeding in the Apatasu area, 7-12 Mar 2008. One pair on the Kwatyerasuwa stream (west of Apatasu camp), feeding nestlings; another pair on the next stream (east of Apatasu camp), where the female was still brooding; a third pair on the Apapa stream to the north, also feeding nestlings. The two nests seen
closely were dug in dry sand on the sloping bank of dry streams, about 60 cm or 1 m above the level of the streambed. On 16 Mar 2009 a pair was discovered feeding nestlings on a sloping bank of the Sumi river, inside forest (nest diameter 7.5 cm). Although described as mainly silent (Borrow & Demey 2001) birds call fairly frequently in situations of danger (e.g. Red-thighed Sparrowhawk, Cusimanse Mongooses *Crossarchus obscurus*) or to keep in touch with each other. Feed at different levels in riparian forest. The pair located on the Sumi stream collected food at least 900 m away from the nest.

Little Bee-eater *Merops pusillus*. Res. Rare: one in grass by the lake at Walando (Jan); one near Dome in woodland and one near Sabuso camp (Mar).

Swallow-tailed Bee-eater *Merops hirundineus*. Res. Several in tall transition woodland in the south, Jan 2005; one in woodland Mar 2009 just south of Apesika.

Red-throated Bee-eater *Merops bulocki*. Res. A small colony of holes was occupied by several pairs (alarm-calling) in a tall sand cliff c. 20 m long on the Obosum river, close to the confluence with the Bunda, 14 Mar 2009.

White-throated Bee-eater *Merops albicollis*. AM. A dry-season visitor (breeding in the Sahel), at forest edges and farmland in the south, dry forest and transition woodland near Dome and Apapasu; no records from Apesika.


Rufous-crowned (Purple) Roller *Coracias naevius*. Res. Seen mainly in the south, more common than last species there, and evidently breeding in Jan. A pair alarm-calling in woodland, Apapasu, 8 Mar, two pairs on the Apesika ridge.

Blue-bellied Roller *Coracias cyanogaster*. Res. Quite common in any woodland in the north (right next to the lake-shore) and south-west, rarer near Apesika; often coming to bush fires in Jan. Chasing a Harrier Hawk from nesting tree 30 Jan.

Broad-billed Roller *Eurystomus glaucurus*. AM/Res. Local in the north (Walandu, Jan) where possibly more common in the rains, as around Dome in Mar. Common in the west and south, usually associated with riparian forest, but also in transition woodland.

Blue-throated Roller *Eurystomus gularis*. Res. A forest species, found near Nsugyanafu in a patch of degraded, open (partly burnt) forest near the boundary, Jan 2005. Identified from its distinctive voice (screams) as it was chasing a Harrier Hawk, in company with a Blue-bellied Roller!


Black Wood Hoopoe (Scimitarbill) *Rhinopomastus aterrimus*. Res. Local in transition woodland in the south, but more common in ridge woodland near Apesika; in dry forest or transition woodland near Dome and Apapasu.

White-crested Hornbill *Tropicranus albocristatus* (*). Res. A convincing description of this forest species was given by guards for the Sumi stream in the south.

African Pied Hornbill *Tockus fasciatus*. Res. Small numbers in riparian and remnants of rain forest in the south and west (Apapasu).


Piping Hornbill *Bycanistes fistulator*. Res. A few in woodland in the north; more common in the south and west, any habitat.

Abyssinian Ground Hornbill *Bucorvus abyssinicus* (*). Res. Known to guards from the interior.


Yellow-rumped Tinkerbird *Pogoniulus bilineatus*. Res. In riparian and remnants of rain forest in the south; riparian forest in the Apapasu region. Singing very little end of Jan, more regularly in Mar. May visit
fruiting trees (*Lannea acida*) in woodland.

Vieillot’s Barbet *Lybius vieilloti*. Res. Local in the north (dry forest near Daditokolo); common in any woodland and dry forest from Dome south.


Bearded Barbet *Lybius dubius*. Res. Singles or pairs seen at Walando, Dome and Apesika ridge; the pair at Dome on 2 Mar 2008 was only a short distance from the closely-related Double-toothed Barbet.


Lesser Honeyguide *Indicator minor*. Res. In riparian and other forest in the south; one in song on 30 Jan (Nsugyanafo). A few singing in Mar near Dome, Apasapu and Apesika, one as early as 8h30 and another at 8h20 (dawn being at 6h00), 4 Mar. Curiously one seen chasing an African Thrush.

Fine-spotted Woodpecker *Campethera punctuligera*. Res. Local, in tall woodland (north and south).

Golden-tailed Woodpecker *Campethera abingoni*. Res. Very common in dry forest, transition woodland and riparian forest, from Dome (where the commonest woodpecker) to Apasapu and Apesika.

Buff-spotted Woodpecker *Campethera nivosa*. Res. In a patch of rain forest near Nsugyanafo, and in dense understorey of dry forest north of Apesika.

Cardinal Woodpecker *Dendropicos fuscescens*. Res. Overall local: a pair in moist woodland at Walando, a few in dry forest or transition woodland near Dome and Apasapu, and rather common in the Apesika area.

Grey Woodpecker *Mesopicos goertae*. Res. Small numbers in woodland, riparian or dry forest remnants, throughout.


African Broadbill *Smithornis capensis*. Res. This species is easily overlooked in the dry season, as it displays only in the rains. But a nest clearly belonging to an African Broadbill was found in the streambed of the Kwanyeasuwa, just west of Apasapu camp. It was hanging from a branch in a tangle of twigs at a height of 1.8 m and was still in good condition, having been used most probably in the previous rains (2007).

Flappet Lark *Mirafra rufocinnamomea*. Res. In late Jan 2005 heard only near Nsugyanafo (after early storm), and briefly near Dome and Sabuso in Mar. Possibly more widespread, as it displays mainly in the rains.


Fanti Saw-wing *Psalidoprocne obscura*. AM. No records in Jan, but a few (singles or pairs) settling around riparian forest in the Apesika area from 6 Mar. One on the Obosum river 16 Mar 2009.

Common (Eurasian) Sand Martin *Riparia riparia*. PM. Flocks flying over the Lake in the evening, going to roost (Daditokolo), 22 Jan 2005.


Mosque Swallow *Hirundo senegalis*. Res. A group of four perched on dead trees (with holes) in the Lake, west of Daditokolo (Jan 2005), and a group on the Sene at Dome, 2 Mar 2008.

Preuss’s Cliff Swallow *Hirundo preussi*. AM. Flocks flying low over the Lake (with other swallows) in the evening, going to roost (Daditokolo), Jan 2005; dozens flying over the Dome area, 4 Mar, and over Apasapu, 8 Mar 2008.


Pied-winged Swallow *Hirundo leucosoma*. Res. Three came to drink in the Obosum river (west of Apesika), 14 Mar 2009.

Barn (Eurasian) Swallow *Hirundo rustica*. PM. Some very large flocks going to roost along the N. lake-shore, and thousands roosting in tall grass near Walando, Jan 2005. Some passing through Dome, Apasapu and Apesika, Mar.

Yellow Wagtail *Motacilla flava*. PM. A few on moist sand by the Lake (Dome to Daditokolo), Jan 2005.

African Pied Wagtail *Motacilla aguimp*. Res. Highly local: on rocks and rocky lake-shore about half-way...
between Daditokolo and Walando, Jan 2005.

Tree Pipit *Anthus trivialis*. PM. A few in woodland (partial to burnt areas), Jan. Quite common in Mar.


White-bellied Cuckoo-shrike *Coracina pectoralis*. Res. Several in tall woodland (south) and *Anogeissus* forest (Dome).

Little Greenbul *Andropadus virens*. Res. In the south only, mainly in riparian forest, also remnant of rainforest near Nsugyanafo and riparian thickets on the Obosum at Apesika.

Honeyguide Greenbul *Baeopogon indicator*. Res. In the south only, mainly in riparian forest, also remnant of rain forest near Nsugyanafo.


Leaflove *Pyrrhurus scandens*. Res. In the south widespread in rich transition woodland and riparian and other forest patches. In the Apasasu area more strictly confined to forest, but present in every large patch (of 1 ha or more).

Baumann’s Greenbul *Phyllastrephus baumanni*. Res. Found locally in thick *Chromolaena* at forest edge near Nsugyanafo and Hwanyanso. Almost silent in Jan but singing regularly mid-Mar in the Apesika region (Sumi riparian forest, thickets on the Obosum).

White-throated Greenbul *Phyllastrephus albicularis*. Res. Several calling in leafy understorey of forest remnant near Nsugyanafo.

Grey-capped Bristlebill *Bleda canicapillus*. Res. In remnant of rain forest near Nsugyanafo; widespread in riparian forest in the Apasasu and Apesika area.


White-crowned Robin Chat *Cossypha albicapillus*. Res. Several pairs in dry Baobab-*Ceiba-Pterocarpus* forest near Daditokolo; common in dry but dense forest near Dome. Rare in the west (Apasasu) and south (riparian near Nsugyanafo), except in the Apesika region where present in any large patch.

Whinchat *Saxicola rubetra*. PM. Several in grassland on the lake-shore or in burnt woodland (north); uncommon in open woodland (south), Jan 2005. Fairly widespread in open woodland, Dome and Apasasu, Mar 2008, some evidently on passage (11 Mar) as also near Apesika (12-16 Mar).

White-fronted Black Chat *Myrmecocichla albifrons*. Res. One pair in very open woodland on the park’s boundary, near Hwanyanso, and a few pairs in woodland on the Apesika ridge and on the way to the Sumi river.


African Reed Warbler *Acrocephalus scirpaceus baeticatus*. Res. Quite common in rank grass on the lake-shore, but less numerous than European race. Seen side by side. Five ringed at Walando 24-25 Jan 2005 were in fresh plumage, one (female) apparently fattening as if to lay (weighing 14.4 g) had not yet developed a brood patch. The main difference between the two races is in the warmer colour of the smaller *baeticatus*.

Great Reed Warbler *Acrocephalus arundinaceus*. PM. Several in tall *Hyparrhenia* grass on the lake-shore at Walando (two ringed 24-25 Jan, in fresh plumage). Also in rank grass near the Sene river, and in thicket away from water, 2-5 Mar 2008; one calling on the Obosum in thicket 14 Mar 2009.

Western Olivaceous Warbler *Hippolais (pallida) opaca*. PM. One in Mango and palm (*Elaeis*) trees at Walando camp, in song (24-25 Jan 2005).

Melodious Warbler *Hippolais polyglotta*. PM. Common and singing in Jan and Mar, in the canopy of dry forest (e.g. near Daditokolo, Dome), in transition woodland, and also farmbush (in the south) and riparian thicket (Obosum).

Green-backed (Senegal) Eremomela *Eremomela pusilla*. Res. Very common in any woodland, even in very recently burnt woodland in the north (practically the only passerine in this habitat in Jan 2005, Daditokolo).


Willow Warbler *Phylloscopus trochilus*. PM. In Jan 2005 quite common in the north (woodland, dry forest, shrubs on the lake-shore); perhaps more local in the south (Hwanyanso). Ten ringed at Walando, 24-25 Jan 2005, in active wing moult. In Mar 2008 and 2009 common throughout and often in song.

Chiffchaff *Phylloscopus collybita*. PM. In Jan 2005 quite common in the north and south (woodland, dry forest). Only one sighting on 4 Mar 2008, at Dome edge of dry forest, as this species leaves early for Europe.

Wood Warbler *Phylloscopus sibilatrix*. PM. No records in Jan (when it winters in the forest zone), but a few (singing) passing through the Apapasu area, 8-12 Mar 2008, and Apesika ridge 13-16 Mar 2009.

Yellow-bellied *Hyliota flavigaster*. Res. Pairs or family parties in transition woodland (*Anogeissus*) near Nsugyanafo, and *Daniellia* woodland near Apapasu, Apesika and Bunaso.


Green *Hylia prasina*. Res. Found in remnant of rain forest near Nsugyanafo, including one nest-building on 31 Jan 2005, and in forest on the Obosum and Sumi rivers.

Black-backed Cisticola *Cisticola eximius*. Res. Heard singing in sedges and wet grass on the edge of the Lake near Daditokolo (Jan 2005).

Croaking Cisticola *Cisticola natalensis*. Res. In wet grass on the edge of the Sene river at Dome, on both visits.

Rufous Cisticola *Cisticola rufus*. Res. Several in woodland in the north (near Daditokolo), in patches of unburnt grass.

Short-winged Cisticola *Cisticola brachypterus*. Res. Locally common, in open woodland, on the lake-shore, in transition woodland and farmbush in the south.

Whistling Cisticola *Cisticola lateralis*. Res. Common in (transition) woodland and farmbush in the south (singing late Jan after early storm). Also common in the Apapasu area, starting to sing in Mar (from 9th); not yet singing in the Dome area 1-5 Mar, where may be more local.

Red-faced Cisticola *Cisticola erythrops*. Res. Common in tall grass on the lake-shore; also in moist farmbush...
(south), edge of riparian forest, and even transition woodland in the Apapasu area away from streams.

Singing Cisticola *Cisticola cantans*. Res. Local in woodland in the north, locally common near Dome and in the Apapasu and Apesika areas.

Winding Cisticola *Cisticola galactotes*. Res. Several in sedges and moist grass on the lake-shore at Walando. Not singing in Jan and probably widespread in aquatic vegetation.


Red-winged Warbler *Heliolais erythropterus*. Res. Fairly common in tall (unburnt) grass in woodland, including transition woodland in the west and south.

Yellow-breasted Apalis *Apalis flavida*. Res. Common in dry Baobab-Ceiba-Pterocarpus forest near Daditokolo and dry forest near Dome (*Ceiba-Anogeissus*), even where invaded by Neem. Also in moist woodland (and even Mango trees) on the Walando peninsula. Generally very common in riparian forest in the Apapasu and Apesika area, including on the Sumi river. Appears absent from wetter forest around Nsugyanafo.


Oriole-Warbler *Hypergerus atriceps*. Res. Locally common in dry forest near Dome and generally common in riparian forest in the Apapasu and Apesika areas (including the Sumi river), but seems absent from wetter forest around Nsugyanafo.

Pale (Pallid) Flycatcher *Bradornis pallidus*. Res. Local in transition woodland near Nsugyanafo and in woodland near Dome; more common in short woodland on the Apesika ridge.

Northern Black Flycatcher *Melanornis edolioides*. Res. Fairly widespread in riparian or transition woodland, *Anogeissus* forest and other open dry forest (Apapasu, Apesika). One singing in Dome camp frequently imitated the whistles of White-faced Duck in its song, a motif also encountered in birds to the north (on the Daka river near Yendi).

Pied Flycatcher *Ficedula hypoleuca*. PM. A common wintering species, in any woodland or edges of dry forest, Jan and Mar.

Spotted Flycatcher *Muscicapa striata*. PM. Widespread but uncommon wintering species (woodland), Jan and Mar.

Ashy Flycatcher *Muscicapa caeruleascens*. Res. Rare: one in tall transition woodland on the boundary, Hwanyanso.

Swamp Flycatcher *Muscicapa aquaticas*. Res. In thickets (some singing) on the edge of water on the Obosum river up-stream from Apesika, and also near its confluence with the Bunda river, Mar 2009.

Lead-coloured Flycatcher *Myioparus plumbeus*. Res. Quite common in the south and west (including Dome), in transition woodland, riparian forest, *Anogeissus* and other open, dry forest.


Common Wattle-eye *Platysteira cyanea*. Res. Widespread: in riparian woodland (as on the N. lake-shore, even Mango trees in camps), riparian or any forest patches where common.

African Blue Flycatcher *Elminia longicauda*. Res. Local in the north-east (riparian woodland on the Walando peninsula) but common in riparian forest or dry forest in the west (Dome, Apapasu) and south (Apesika), although absent from wetter forest in the south as around Nsugyanafo.

African Paradise Flycatcher *Terpsiphone viridis*. Res./AM. Very widespread, any woodland (with some thickets) and all forest types, Jan and Mar.

Red-bellied Paradise Flycatcher *Terpsiphone rufiventris*. Res. In the south widespread alongside congener in riparian and other forest, also in transition woodland. Certainly competing, and a possible hybrid seen near Hwanyanso (RJD). In the Apapasu area more strictly confined to riparian forest.


Puvel’s Illadopsis *Illadopsis puveli*. Res. Several heard and seen in riparian forest in the Nsugyanafo area (where tape-recorded), and on the Sumi river as well as the Obosum river near Bunaso.

Brown Babbler *Turdoides plebejus*. Res. In the north and west, in woodland with small thickets or *Chromolaena*; in the south only on the Apesika ridge.
Blackcap Babbler *Turdoides reinwardtii*. Res. In the north common in dry Baobab- 
Ceiba-Pterocarpus forest (Daditokolo), also locally in woodland with thickets near the lake. Generally common in dry or riparian forest near Dome, Apasasu and Apesika, more local near Hwanyaso.

Capuchin Babbler *Phyllanthus atripennis*. Res. In the south only: a party in dense thickets in riparian forest (Nsugyanafo); more surprisingly in an extensive area of impenetrable *Chromolaena* in transition woodland on the boundary at Hwanyaso. These birds (at least 5) were heard then called up; the dominant canopy tree there was *Daniellia oliveri*.


Violet-backed Sunbird *Anthreptes longuemarei*. Res. In *Daniellia* woodland at Hwanyaso, pair feeding a fledgling.

Collared Sunbird *Anthreptes collaris*. Res. Widespread in riparian and other forest types in the south and west (Apasasu), also farmbush (southern boundary) and moist riparian thickets near Dome.

Olive Sunbird *Nectarinia olivacea*. Res. South only: in riparian forest in the Nsugyanafo area and on the Sumi river.

Green-headed Sunbird *Nectarinia verticalis*. Res. Widespread in the south and west (including Dome), in riparian forest and also in farmbush on the southern boundary.

Scarlet-chested Sunbird *Nectarinia senegalensis*. AM? In Jan the most widespread sunbird in the park, practically the only one in the north, and common in the south (woodland, farmbush). But no records in Mar 2008, and only a few in dry woodland between the Obosum and Sumi rivers, 16 Mar 2009.

Olive-bellied Sunbird *Nectarinia chloropygia*. Res. Mainly in the south, as in riparian thickets (Obosum and Sumi rivers), forest patches in hollows, or farmbush on the southern boundary; also in riparian thickets near Apasasu.

Copper (Coppery) Sunbird *Nectarinia cuprea*. Res. Widespread in woodland (except in the north-east), and locally the commonest species (Dome).

Splendid Sunbird *Nectarinia coccinigaster*. Res. Widespread in the south (farmbush, forest) and west (transition woodland, forest), including Dome.


Yellow White-eye *Zosterops senegalensis*. Res. Widespread: woodland (including transition woodland), riparian and dry forest, farmbush.


Emin’s Shrike *Lanius gubernator*. Res. One pair in short woodland between the Obosum and Sumi rivers, feeding nestlings on 16 Mar 2009. The nest was situated at a height of 3 m in a spindly, 5-m tall *Terminalia*, against the trunk in a hollow stump and was thus inconspicuous. Although we were standing quite close, the adults fed actively without paying any attention to us, and flew straight past us, coming back with (usually) bush crickets picked from the ground. They fed the chicks independently or, when meeting at the nest, the male passed the food to the female who then fed the chicks. The latter were fairly large and we could see them (at least two) preening.

Yellow-billed Shrike *Corvinella corvina*. Res. Rather local, in open woodland near Dome, Hwanyaso and near Bunaso.

Brubru *Nilaus afer*. Res. Widespread, any woodland, open dry forest (*Afzelia, Anogeissus*).

Northern Puffback *Dryoscopus gambensis*. Res. Widespread, particularly common in forest and thickets.

Marsh Tchagra *Tchagra minutus*. Res. At Dome seen in rank wet grass on the lake-shore but also in moist rank growth in a valley; elsewhere (Apasasu and Apesika) in low riparian thickets, or *Chromolaena* with some shrubs.

Brown-crowned (Brown-headed) Tchagra *Tchagra australis*. Res. Mainly in the south and west (Apasasu) in moist thickets, transition woodland with thick understory (including *Chromolaena*), farmbush (south); local near Dome (valley bottom).

Black-crowned Tchagra *Tchagra senegalus*. Res. Widespread in any woodland, farmbush; more common in the north.
Tropical Boubou *Laniarius aethiopicus*. Res. Widespread and locally common in dry forest in the north and riparian forest or thicket near Apapasu and Apesika; also frequent in transition woodland (even at Walando, with some *Chromolaena*).

Yellow-crowned Gonolek *Laniarius barbarus*. Res. Highly local: some calling in thickets just behind the riparian vegetation on the Obosum arm of the lake, Apesika.

Sulphur-breasted Bush Shrike *Malacanotus sulfureopectus*. Res. In riparian forest or thickets: widespread in the south (even in remnants of rain forest), more common near Dome and Apapasu.

Grey-headed Bush Shrike *Malacanotus blanchoti*. Res. Widespread in rich woodland and open forest in the west (including Dome) and south.

White Helmet Shrike *Prionops plumatus*. Res. Small numbers in woodland, almost throughout, but not recorded in the north-east (woodland too burnt?) in Jan.

Square-tailed Drongo *Dicrurus ludwigii*. Res. Common in tall riparian or dry forest in the Apapasu region (pair present even in an isolated patch of 1 ha) and Apesika ridge, including the Sumi river. More local in the south-west, in remnant of rain forest near Nsugyanafo.

Fork-tailed Drongo *Dicrurus adsimilis*. Res. Widespread (in small numbers), woodland and open forest.

Pied Crow *Corvus albus*. Res. A few on the boundaries, around guards’ camps.

Purple Glossy Starling *Lamprotornis purpureus*. Res. Commonest starling in the savannas of the north (Dome-Daditokolo): several pairs seen daily coming to drink on the lake-shore. Also a few pairs coming to the Obosum river at Apesika.

Bronze-tailed Glossy Starling *Lamprotornis chaleurus*. Res. One pair coming to drink in the Sene river at Dome (Jan 2005); another at Daditokolo.

Long-tailed Glossy Starling *Lamprotornis caudatus*. Res. Seen only at Dome, at the river’s edge (both visits).

Violet-backed (Amethyst) Starling *Cinnyricinclus leucogaster*. AM. Rare in Jan 2005: two pairs seen in a *Daniellia* at Hwanyanso, 27 Jan. Widespread and common in Mar 2008 and 2009, in transition woodland and open dry forest. Fond of fruit of *Lannea acida*, *Ficus ingens* etc.

Northern Grey-headed Sparrow *Passer griseus*. Res. A few in riparian woodland, on the N. lake-shore, or around guards’ camps (south, but not noted Apesika).

Bush Petronia *Petronia dentata*. AM. Small numbers in woodland north and south (Jan 2005). Common in the Dome area early Mar 2008, but rather rare near Apapasu (7-12 Mar), when some may have already moved out (northwards); however small numbers still present on the Apesika ridge 12-17 Mar 2009.

Little Weaver *Ploceus luteolus*. Res. A few in dry Baobab forest near Daditokolo (singing, in non-breeding dress 23 Jan.); two old nests seen in same area.

Black-necked Weaver *Ploceus nigricollis*. Res. A few pairs in the south and west (including Dome), in dry or riparian forest, also farmbush (southern boundary).

Heuglin’s Masked Weaver *Ploceus heuglini*. Res. Widespread in small numbers. One male in breeding dress 5 Mar (Dome), and another building a nest in a *Ceiba* in Apapasu forest, 2 m above an occupied nest of Western Banded Snake Eagle, 10 Mar 2008. One male in breeding dress in woodland north of Bunaso on 16 Mar 2009. Two old nests seen in a *Ceiba* near Hwanyanso in Jan 2005.

Village Weaver *Ploceus cucullatus*. Res. Widespread, including large non-breeding flocks feeding in *Hyparhenia* at Walando Jan 2005. Also in farmbush (south), woodland (Dome).

Black-headed Weaver *Ploceus melanocephalus*. Res. One male in breeding dress seen on the edge of the Obosum river near its confluence with the Bunda, 14 Mar 2009.

Red-headed Weaver *Anaplectes rubriceps*. Res. Widespread insectivorous species, in woodland and dry forest; one building a nest (well advanced) in a tall *Ceiba*, 11 Mar.

Red-headed Quelea *Quelea erythrops*. Res? Some seen in grassland on the edge of the Lake with other seed-eaters (Daditokolo), and two mist-netted at Walando, Jan 2005. Some flocks in the Dome area 2-4 Mar 2008. In non-breeding dress, but males identified by the red flush on the cheeks, and sparrow-like calls differ from those of bishops.


Black-winged Bishop *Euplectes hordeaceus*. Res. Some flocks in tall grass on the Sene river, Dome, both Jan and Mar; also some feeding in rank growth (regrowing after fires) edge of open forest. Small flocks on
the Obosum river, Apesika.


Yellow-mantled Whydah (Widowbird) *Euplectes macroura*. Res. In Jan 2005 a few non-breeding males identified in wet grass on the N. lake-shore, and in farmbush in the south. Widespread in Mar 2008 and 2009 (Dome, Apapasu, Apesika), in small numbers in open woodland, with some males (still in non-breeding dress) starting to sing. But also large flocks in grassland near the Sene river (2-4 Mar).

Grey-crowned Negrofinch *Nigrita canicapillus*. Res. In the south and west only (Apapasu), small numbers in riparian forest and thickets, also farmbush (southern boundary).


Western Bluebill *Spermophaga haematina*. Res. One male came to drink in a pool in dense forest on the Sumi river, 16 Mar 2009.

Bar-breasted Firefinch *Lagonosticta rufopicta*. Res. Several in *Hyparrhenia* grassland on the N. lake-shore (Daditokolo), and common edge of the Sene river (Dome), and Obosum river (Apesika). Few edge of riparian forest near Apapasu.

Black-bellied Firefinch *Lagonosticta rara*. Res. Discreet species, eventually found almost throughout, rank growth and riparian thickets near Dome, Apapasu (the dominant firefinch), Apesika, farmbush near Nsugyanafo. Usually in pairs.

Blue-billed Firefinch *Lagonosticta rubricata*. Res. Widespread: in rank grass on the lake-shore at Walando, few in the west, e.g. in *Chromolaena* (Dome, Apapasu), but the most common firefinch in the southwest (farmbush), more local at Apesika.


Orange-cheeked Waxbill *Estrilda melpoda*. Res. Widespread (grassland).


Bronze Mannikin *Spermestes cucullatus*. Res. Widespread (any grass).

Indigobird *Vidua?cameraunensis*. Res. One in non-breeding dress associating with Blue-billed Firefinch, Nsugyanafo (30 Jan 2005), thus probably the species *cameraunensis* (which parasitizes this firefinch).

Togo Paradise Widow *Vidua togoensis*. Res. Up to six individuals (non-breeding dress) feeding on track near Apesika village, Mar 2009.

Yellow-fronted Canary *Serinus mozambicus*. Res. A few in dry forest (Daditokolo, Dome), farmbush (south), woodland (Apesika) and transition woodland (Apapasu), including on a fruiting *Lannea acida*.

Streaky-headed Seedeater *Serinus gularis*. Res. A group, calling, in *Daniellia* woodland near Apapasu forest, 11 Mar. Easily overlooked when not singing (which it does only in the rains), this species might be more widespread.


5. LARGE MAMMALS

We saw few large mammals, even in the area we visited well inside the park, i.e. Apapasu. Red-flanked Duiker *Cephalophus rufilatus* and Baboons *Papio anubis* were noted at Daditokolo and in the Apapasu region, and tracks of another duiker (Maxwell’s? *C. maxwelli*) in the south-west; one *Cephalophus* sp. was heard in a forest patch north of Apesika. Bushbuck *Tragelaphus scriptus* was seen or heard in several places. A Common or Bush Duiker...
Sylvicapra grimmia was seen near Apapusu. Three Kob *Kobus kob* were flushed on the way to the Sumi river, and two Waterbuck (female and immature) *Kobus ellipsiprymnus* just opposite Apesika camp (inside the park). Reasonably fresh Elephant *Loxodonta africana* tracks were obvious in the south-west, right on the boundary and even a short way outside the park (Hwanyanso); some very fresh ones were seen near Apapusu and older tracks around the Sumi stream. Warthog *Phacochoerus aethiopicus* is said to be common around Apapusu and we saw fresh dung.

Green Monkeys *Cercopithecus aethiops* were seen in forest remnants in the south and south-west, on the Sumi river and at Apapusu; Patas Monkeys *Cercopithecus patas* were encountered near the Obosum river (west of Apesika). Cusimanse *Crossarchus obscurus* were seen near Apapusu and the Obosum river. Large frugivorous bats included *Hypsognathus monstrosus*, a forest species (heard in forest patches in the south-west), and *Epomops franqueti* (north and south). Forest squirrels well seen in riparian forest in Apapusu and the south-west were *Funisciurus pyrropus* and sun squirrel *Heliosciurus rufobrachium*. A Spotted Genet *Genetta tigrina* was very well seen by day in a patch of forest near Apapusu. The small bushbaby *Galago senegalensis* was clearly heard around Apapusu, Apesika and Bunaso.

The following information is based on two interviews with staff (mainly the mobile team) at Daditokolo in 2005 and Dome in 2008:

Large terrestrial mammals (other than those seen by us above) reported by staff include Bush Pig *Potamochoerus porcus*, Buffalo *Syncerus caffer*, Bongo *Tragelaphus euryceros* (south), Maxwell’s, Black and Yellow-backed Duikers *Cephalophus maxwelli*, *C. niger* and *C. sylvicultor*, Oribi *Ourebia ourebi*, Hartebeest *Alcelaphus buselaphus*, Roan Antelope *Hippotragus equinus*, Hyaena *Crocuta crocuta*, Civet *Civettictis civetta*, Serval *Felis serval*, Lion *Panthera leo* (recent records include some heard in 2007), Leopard *Panthera pardus* (based on footprint), Antbear (Aardvark) *Orycteropus afer*, all three pangolins including Giant Pangolin *Smutsia gigantea*, Tree Hyrax *Dendrohyrax dorsalis* (south). There is a puzzling record of Giant Forest Hog *Hylochoerus meinertzhageni* killed by poachers at Dankele (6 miles from Dome) in 1989, and it is now considered extinct.

Of primates Spot-nosed Monkey *Cercopithecus petaurista* is said to be not only common in the Apapusu area (alongside Campbell’s *C. campbelli* and Black-and-White Colobus *Colobus vellerosus*) but also on the Obosum and Sumi in the south. Unfortunately we saw no sign of these monkeys during our visits, which may be worrying. Although the habitat looks suitable for Colobus monkeys throughout the south and west (dry Ceiba-Cola forest), we have doubts about the occurrence of a species like Campbell’s Monkey in such dry forest as Apapusu. Either we did not get to the main forest area, despite claims by the guards that we did, or the exact location of Campbell’s Monkey is elsewhere. One hunter, now working as a guard (Ibrahim Mahomed), is apparently familiar with Mangabey *Cercocebus torquatus* and Olive Colobus *Procolobus verus* — the latter would be found in thickets between the Digya and Obosum arms.

The aquatic vegetation in the north, especially the floating grass *Vossia*, appeared very suitable for Manatee *Trichechus senegalensis*, and indeed this animal had been seen recently by guards at Walando, and occasionally near Daditokolo (it is also known from the Digya arm); one was even brought into Dome camp recently. Hippos *Hippopotamus amphibius* are said to survive mainly in the Digya arm, but one wandered to Daditokolo in 2003.

Unfortunately the report on a zoological survey by Vivian Wilson and Sam K. Moses of the mid-1990s has been lost completely. There remains a preliminary report by Wilson (1994), before his visit to Digya, who had rather wrongly assumed most species of large mammals to have become extinct.

Training of wildlife guards in identification of mammal species is essential to improve knowledge and conservation of the park’s mammals.
6. CONSERVATION ISSUES

One of the main problems in protecting Digya’s habitats is that of late fires. Given the enormous size of the park and the low staff force, there is no way that a policy of early burning can be applied everywhere. Yet it would seem desirable to protect at least the main patches of rain forest in the south from dangerous late fires. The remnant of rain forest we visited near Nsugyanafó had been rather badly scorched on the periphery. Improving the protection of fragile habitats through early burning would require both more guards and also improved access. The complete lack of roads, even the most elementary bush roads, is a serious problem. Even in the north, dry woodland can suffer from very late fires, as was seen on the January visit.

Anti-poaching activities are also restricted by the low staff force, although one of the most useful initiatives is the mobile unit, which visits all areas of the park on foot or by canoe. But some of the local teams seem to lack supervision or encouragement. We are particularly concerned about the Apapasu area, where poachers were heard shooting every day while we were there. The team based at Sabum (in a village too far from the park) and other neighbouring teams no longer visit the area on the pretext that it is too far. The distance is not great, however, but it is evident that the area would be better prospected if guards were based at the old Sabuso camp instead. There is water very close to Sabuso at the village of Agoamu on the park’s boundary. As we have re-opened the track to Apapasu camp thanks to Mr Bosco’s lorry, the park management might look into rehabilitating the Apapasu camp itself, as the buildings there are still in good condition. Water is available in the form of rain water and rock pools in the streams from at least March to November.

Our short visit to Apesika and the section of park just north of the Obosum river also led us across poachers: several people with guns and dried meat were met on a boval 1-2 km north of the river crossing (15 Mar 2009). The meat was recovered by the guards who accompanied us, but the poachers got away.

REFERENCES

APPENDIX 1. ITINERARY AND TIMETABLE

2005.
January 20: arrival at Dome at dusk, camping right on the edge of the Sene river, departing the next morning for Daditokolo;
21: drive to village opposite Daditokolo, crossing the Lake by boat midday to Daditokolo camp;
22-23: exploration of woodland and dry forest, up to c. 3 km south-west along a footpath. Canoe trip along shore in afternoon of 22nd;
23 afternoon: transfer by boat to Walando camp, c. 20 km west of Daditokolo;
24-25: as Walando has no access to interior, mist-netting of birds in tall grass on lake-shore, and canoe trip along shore;
25: mid-morning return to Daditokolo by boat; drive from there to Kumasi;
26: drive to Donkorkrom, with midday ferry crossing at Adowso. Drive on to Hwanyanso camp reached just after dark;
27-29: local observations, along boundary line; on 28th RJD visits patch of dry forest a few km inside;
29 afternoon: drive to Nsugyanafo camp, arriving after dark;
30-31: observations around Nsugyanafo, including best remnant of rain forest left in the area, c. 3 km from camp. Left late morning on 31st.

2008.
March 1: afternoon drive to Dome, crossing the Sene river by boat at dusk;
2-4: exploration of lake-shore (two afternoon boat trips), dry forest and woodland near guards’ camp.
5: leave mid-morning for Atebu. Drive on to Seneso, camping on the Sene river.
6: car has to be left at Anyinofi as road becomes impassable. Carry on with Mr Bosco’s lorry until Sabum village and guards’ camp, and from there to the abandoned Sabuso camp on the park’s boundary. The old track beyond that is often invisible as much of the woodland has been invaded by Chromolaena. It took us all afternoon to reach the old Apapasu camp, only 10 km inside the park. After spending the first night at Apapasu camp, we moved our tent to the edge of riparian forest immediately to the west for 2 nights, then to riparian forest 1 km to the north-east for 3 nights;
7-12: exploration of riparian forest and woodland west and north-east of Apapasu camp, then on to “the big forest” on the Apapa stream on 10 Mar, after the old path had been cleared by two guards. This area is about 2 km to the north-northeast of Apapasu camp. Revisit the area on 11 Mar. Departure at 11h on 12 Mar, reaching Sabum village and camp at 13h.

2009.
March 12: arrival at Apesika camp early afternoon;
13-15: exploration of bovals, woodland and patches of dry forest up to 5.5 km north of the Obosum river; of an arm of the river/lake just east of camp, and of the Obosum river and riparian forest upstream;
March 15: transfer to Bunaso in the afternoon, via Donkorkrom;
March 16: 18-km walk (return) to the Sumi river and riparian forest, via the Obosum river;
March 17: leave Bunaso after a couple of hours near the Obosum river.

APPENDIX 2. GAZETTEER

Apapa stream (forest) .................................................................7°23.5’N, 0°36.6’W
Apapasu camp ...........................................................................7°22.7’N, 0°37.6’W
Apesika camp (Obosum river) ..................................................7°11’N, 0°09’W
Bunaso village ...........................................................................7°11’N, 0°16’W
Daditokolo camp .....................................................................7°42’N, 0°09’W
Dome camp (Sene river) ..........................................................7°34’N, 0°38’W
Hwanyanso camp .....................................................................7°10’N, 0°38’W
Nsugyanafo camp ....................................................................7°08’N, 0°28’W
Obosum/Bunda confluence .......................................................7°12’N, 0°14’W
Sumi river ..................................................................................7°15’N, 0°17’W
Walando camp ..........................................................................7°38’N, 0°20’W