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The lowland raptor community of the Gamba Complex of Protected Areas, Gabon

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Summary

Surveys were conducted in all major lowland habitats of the Gamba Complex of Protected Areas, Gabon, between June 2004 and January 2005, and in July 2006. Details of 23 raptor species are presented, including locally rare *Hieraetus ayresii*, *Kaupifalco monogrammicus*, *Lophaetus occipitalis* and *Falco biarmicus*, information on the breeding cycle of several species, and records of the infrequently recorded Palaearctic migrants *Pernis apivorus*, *Buteo buteo* and *Falco vespertinus*.

Résumé

Les rapaces dans les zones de basse altitude du Complexe d'Aires Protégées de Gamba, Gabon. Tous les habitats principaux de basse altitude dans le Complexe d'Aires Protégées de Gamba, Gabon, ont été explorés entre juin 2004 et janvier 2005, puis en juillet 2006. Une analyse est présentée de 23 espèces de rapaces, y compris les espèces localement rares de *Hieraetus ayresii*, *Kaupifalco monogrammicus*, *Lophaetus occipitalis* et *Falco biarmicus*, ainsi que des informations sur le cycle de reproduction de plusieurs espèces et des observations sur des migrateurs Paléarctiques peu connus dans la région *Pernis apivorus*, *Buteo buteo* et *Falco vespertinus*.

Introduction

Information on raptor abundance and diversity in Central African forests is sparse. The Gamba Complex of Protected Areas covers approximately 10,000 km² on the SW coast of Gabon and is one of seven Important Bird Areas in the country (Christy

2001), although few publications are available on its avifauna (Sargeant 1993, Schepers & Martejijn 1993, Christy 2001, Angehr *et al.* 2005). The Gamba Complex comprises diverse habitats (Christy 2001), suitable for a variety of raptor species. Angehr *et al.* (2006) noted 27 raptor species, based on surveys in 2001–3 and observations by Sargeant (1993). I present further information on the raptor community of the Complex, gathered during extensive surveys covering lagoons, rivers, forests, and coastal and inland savannas between June 2004 and January 2005, and in July 2006.

Study area and methods

A general description of the Gamba Complex (Fig. 1) was provided by Christy (2001). In 2002, the Loango and Moukalaba-Doudou protected areas were made National Parks. The Rabi-Ndogo Protected Area (RNPA) is a site of oil exploration but functions as a wildlife corridor linking the two National Parks (Buij *et al.* 2007). Large fluctuations in annual rainfall occur, from 1476 to 2861 mm between 1989 and 2004 (Shell-Gabon 2005). The 2004 data indicate a dry season from May to September and a wet season from October through April.

Surveys covered all important habitats in the Gamba Complex apart from the upland forest found in Moukalaba-Doudou NP, whose edges were surveyed by boat on the Ndogo River. The lowland areas surveyed were: the surroundings of Gamba town including the area between Gamba and Setté Cama (*c.* 300 km²); the RNPA between the oilfields of Toucan in the north and Koumaga in the south and Ngové and Ndogo Rivers on the W and E borders, respectively (*c.* 3500 km²); Loango NP (*c.* 1500 km²), both the south (Petit Loango) and the north (Iguela area) and river and lagoon systems bordering the Park. Sites are described in more detail in Angehr *et al.* (2005, 2006). Most time was spent in the RNPA, which was more widely and intensively covered than by Angehr *et al.* (2005), who surveyed only the Rabi-Toucan area in the north. The RNPA is characterised by upland forest on hilly terrain up to 150 m elevation, and seasonally inundated floodplain forest (De Bie & Geerling 1989, Prins & Reitsma 1989). Much of the forest in RNPA is mature secondary forest (De Bie & Geerling 1989), often with dense undergrowth. Oil and gas exploration and production concessions have led to increased accessibility, forest clearance for road and oil platform construction, and fragmentation of the habitat, although the human impact on the landscape is generally considered small at present (Thibault & Blaney 2003).

Roads were driven most frequently in the Rabi Oil Field (total *c.* 350 km) and between Rabi and Koumaga (total *c.* 2000 km), but also in other parts inside and just outside the RNPA, in the Gamba to Setté Cama area, and the N section of Loango NP between June 2004 and January 2005. Almost all roads in the RNPA were driven, most of them on multiple occasions. Three surveys on foot were conducted in six sites

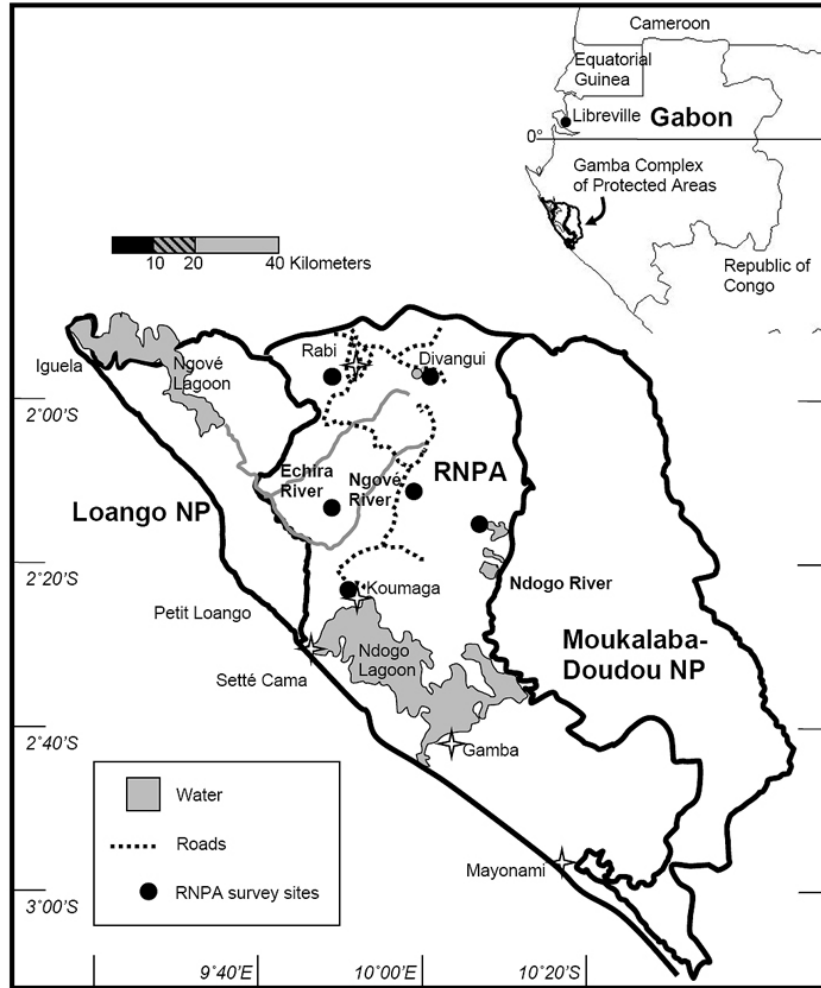


Figure 1. Gamba Complex of Protected Areas, with survey localities.

widely spaced in the RNPA (Fig. 1) between June 2004 and Jan 2005, to cover a large and representative section of the RNPA; an average of 73 km (25–115 km) was walked through the forest per site over a period of 4–7 days. The distance covered on roads in the RNPA was approximately twice the distance covered on foot. The Loango NP was surveyed on foot, by car and by boat on six occasions (Iguela twice,

Petit Loango four times). Surveys on foot were also conducted on trails bordering the Echira and Ngové rivers at the edge of the Loango NP. In July 2006, observations were made from roads in the Rabi area (c. 150 km) and the Gamba area. Survey time at different locations is indicated in Table 1.

Table 1. Total time spent at survey localities between June 2004 and July 2006.

| Location | Days spent | Period |
|-----------------------------------|-------------------|---------------------------------------|
| West RNPA | 17 | Jun, Sep, Dec 2004, Jan 2005 |
| Ndogo River in RNPA | 19 | Jul–Aug, Nov 2004, Jan 2005 |
| Koumaga in RNPA | 25 | Jul–Aug, Oct–Nov 2004, Jan 2005 |
| Central RNPA | 16 | Jun–Aug, Oct–Nov 2004, Jan 2005 |
| Lake Divangui in RNPA | 9 | Aug, Dec 2004, Jan 2005 |
| Rabi in RNPA | 87 | Jun 2004 to Jan 2005, Jul 2006 |
| Ngové River in Loango NP and RNPA | 8 | Aug–Sep 2004 |
| Echira and Ngové Rivers in RNPA | 8 | Aug–Sep 2004 |
| Ndogo Lagoon | 8 | Aug–Sep, Nov 2004 to Jan 2005 |
| Gamba to Setté Cama area | 31 | Aug–Sep, Dec 2004, Jan 2005, Jul 2006 |
| Loango NP (Iguela) | 12 | Sep–Oct 2004 |
| Loango NP (Petit Loango) | 17 | Aug–Sep, Dec 2004, Jan 2005 |

Walks through the forest sometimes followed elephant trails, rivers, or old logging roads, and were mostly determined in advance to arrive at randomly generated GPS locations in each survey locality (Fig. 1). While most surveys in the forest were systematic and repeated, most surveys from roads and boats were opportunistic or to reach the forest survey sites. Frequent counts were made from vantage points outside the forest where possible. Roads were driven slowly (20–40 km/h), primarily in the morning. Observations from boats on the rivers, or by car or on foot in open areas were made in the morning or late afternoon. The coastal savannas were mostly surveyed on foot in the morning and late afternoon. Borrow & Demey (2001), Kemp & Kemp (1998), Chappuis (2000) and Ferguson-Lees & Christie (2001) were used for identification. All raptors observed are presented here.

Results

I recorded 23 raptor species in the Complex. Abundance is indicated as: common, 1–10 seen or heard in suitable habitat each day; frequent, often seen but not every day; uncommon, only a few records during the survey period, or restricted to only one or a few sites in the study area; rare, one or two records during the survey period. Records documented by photographs are indicated (p).

***Pandion haliaetus* Osprey**

Uncommon Palaearctic migrant along rivers, lagoons and the coast. Two above a large lagoon near Gamba and two above the Ngové River, in Aug 2004, were immatures probably spending the northern summer in the area. Between Sep 2004 and Jan 2005, one along the Echira River, two above the Ngové River at the edge of Loango NP, two at Petit Loango over the beach, two over the Ndogo River, three over the beach at Loango NP. [Observed along the coast, in Loango NP, Moukalaba-Doudou NP and Gamba (Schepers & Martejijn 1993, Angehr *et al.* 2005).]

***Aviceda cuculoides* African Cuckoo Hawk**

Uncommon resident in RNPA. A pair carrying branches to a nest 30 m up a tall tree in Rabi, in a quarry area with grassy vegetation and surrounded by forest, 25–30 Oct 2004 (p). Nest building was most active in the early morning. In Nov, the pair was mating and displaying near the nest tree, and catching large insects in it. A pair was seen over a quarry in the north of Rabi, and one bird over the Ngové River. [Observed in Rabi-Toucan and Moukalaba-Doudou NP (Angehr *et al.* 2005), and Gamba (Sargeant 1993).]

***Pernis apivorus* European Honey Buzzard**

Frequent Palaearctic migrant, Nov–Jan. One flying over the coastal savanna in Loango NP, 15 Oct 2004. A total of 15, mostly juveniles, was seen throughout the corridor, 12 of them in the Rabi area, sitting on an oil pipe on the side of a road or on the road itself, or in the forest edge bordering a road or a river. [Gabon is part of the most significant winter quarters for the species (Ferguson-Lees & Christie 2001). Angehr *et al.* (2005) did not observe it in Rabi-Toucan in Feb–Mar 2002 but recorded several along the coast in Oct–Nov.]

***Macheiramphus alcinus* Bat Hawk**

Rare resident. One seen briefly flying low and fast over the forest canopy in the early evening, in the Rabi Oil Field, Oct 2004. [Few records throughout the corridor (Angehr *et al.* 2005).]

***Milvus migrans* Black Kite**

Rare Palaearctic or Afrotropical migrant. An adult over a small savanna area in dense forest in the Rabi area, 30 Oct 2004, is the first for RNPA. It was not identified to subspecies. More commonly seen along the coastline to the north. [Few records in the Gamba area (Sargeant 1993) and Loango NP (Angehr *et al.* 2005).]

***Haliaeetus vocifer* African Fish Eagle**

Uncommon resident. Recorded many times on the Echira River (two adults) and in Rabi (two adults, one juvenile). A total of 2–3 adult pairs on the Ngové and Ndogo Rivers. Single individuals repeatedly seen on the Ndogo Lagoon, and in Loango NP in a variety of habitats, including inland swamps, large rivers, and lagoons [Rare throughout Gamba Complex; uncommon in Rabi-Toucan (Angehr *et al.* 2005).]

***Gypohierax angolensis* Palm-nut Vulture**

Common resident on the Ndogo lagoon (often near raffia palms *Raphia*), along the Loango NP coast and along large rivers; less frequent in closed forest inland. Roosts in a Rabi swamp and near Koumaga had up to nine birds. Five nests observed, three

of them occupied Jun–Sep 2004 (p). Adults preying on African River Martin *Pseudochelidon eurystomina* and Rosy Bee-eater *Merops malimbicus* fledglings in Loango NP, Oct 2004. Several scavenging small fish near a small receding pond close to a Rabi well site, Jul 2006 (p). [Throughout Gamba Complex (Angehr *et al.* 2005).]

***Dryotriorchis spectabilis* Congo Serpent Eagle**

Uncommon resident in RNPA. Seven individuals observed, all singly, and others heard throughout the area, including at the edge of tall forest in the Rabi area (p), and near the Ndogo River. One flying fast through a patch of degraded forest with low secondary growth and human habitation, at the edge of primary forest just north of Loango NP. Calls heard in Echira, Rabi, and west of the Ndogo River. [Throughout the Complex but generally rare (Sargeant 1993, Angehr *et al.* 2005).]

***Polyboroides typus* African Harrier Hawk**

Uncommon resident. Frequent in the Rabi area (p) during the entire period, often near well sites, along roads and over quarries in the forest. Also three in Loango NP (two near African River Martin colonies), several times on the Gamba golf course and in the Gamba area. [Uncommon throughout (Angehr *et al.* 2005).]

***Accipiter tachiro* African Goshawk**

Subspecies *toussenelii* is an uncommon resident in RNPA. A juvenile hunting inside the forest near a bird party consisting mainly of Fire-crested Alethes *Alethe diademata*, in the central RNPA, Jul 2004. An adult flying over a forest road in Koumaga, Sep. One individual in the forest calling loudly and another arriving with a small green lizard in Rabi, Nov, suggests breeding. Display song was not heard. An adult in the same area in Dec. A confiding juvenile was seen perched in the forest edge along a busy road in Rabi (p), 6 m above the ground, Jul 2006. [Recorded in Gamba, Moukalaba-Doudou NP and Loango NP (Angehr *et al.* 2005).]

***A. castanilius* Chestnut-flanked Sparrowhawk**

Uncommon resident in RNPA. Seen in the corridor area 15 times between Jun 2004 and Jan 2005, and twice in Jul 2006, mostly birds flying over roads, typically 1–3 m above the ground (generally lower than *A. tachiro*), to land in dense forest cover at the edge of the road. Also observed perched in the open near roads in the Rabi (p) and central corridor areas, and hunting small birds near Echira, from cover near the forest edge. These observations conform to previous studies suggesting it relies on still-hunting and surprise flights from cover to catch birds (Brosset & Erard 1986). [Recorded in Loango NP, Moukalaba-Doudou NP and Gamba (rare) (Angehr *et al.* 2005).]

***A. erythropus* Red-thighed Sparrowhawk**

Rare resident. One flying over patch of grassy savanna surrounded by dense forest near Koumaga was chased by two Rufous-chested Swallows *Hirundo semirufa*, Sep. One hunting over the Gamba golf course, Jul 2006. [Rarely recorded in the Complex (Angehr *et al.* 2005).]

***A. melanoleucus* Black Sparrowhawk**

Rare resident. An adult seen diving several times at a Hamerkop *Scopus umbretta* in the Ngové River, near Akaka, Aug 2004. Another perched at the edge of the Gamba

golf course and subsequently hunting birds over a small stream. [Rare in the area (Sargeant 1993, Angehr *et al.* 2005).]

***Urotriorchis macrourus* Long-tailed Hawk**

Uncommon resident, widespread in RNPA. Adults heard and seen in the Rabi area eight times, Jul–Sep 2004 and Jul 2006. Most observed in the late afternoon when calling from the forest canopy and flying between perches. One calling near the forest edge in the Koumaga area, Sep 2004; a single bird near or on the road in the central RNPA, Oct, Dec; one flying low over the road near Divangui, Oct; a pair calling in tall primary forest west of Ndogo River, Aug; a juvenile calling in open riverine forest near the Ndogo River, Aug. An adult display-calling and gliding with stiff wingbeats in Echira, Dec, and begging juveniles Jul–Aug, suggest breeding during the second half of the wet season. Frequently hunts from the forest understorey (1–5 m from the ground) near roads. [Recorded in Gamba Sargeant (1993), and in Loango and Moukalaba-Doudou NPs (Angehr *et al.* 2005).]

***Kaupifalco monogrammicus* Lizard Buzzard**

Rare resident. An adult observed several times in a clump of small trees in a large quarry with grassland and scrub in Rabi, Nov 2004 (p). One close to the same site, Jul 2006. [Sargeant (1993) did not record it. Listed for the Gamba Complex IBA prior to 2001 (P. Christy *in litt.* to R.J. Dowsett pers. comm.). Observed once in Loango NP by Angehr *et al.* (2005).]

***Buteo buteo* Common Buzzard**

Rare Palaearctic migrant. One circling above an African River Martin colony in the Loango NP coastal savanna, 15 Oct 2004. [Previously recorded during the northern winter in the Gamba area by Sargeant (1993) and Angehr *et al.* (2005).]

***B. auguralis* Red-necked Buzzard**

Rare resident. An immature seen on several occasions in a forest clearance in Rabi, Jun–Jul 2004 (p). A nest with a pair attending, in a large dead tree close to the forest edge bordering a large open savanna in the Gamba area, Aug 2004. The pair was still present in Jan 2005. [Rare throughout; previously unrecorded in RNPA (Angehr *et al.* 2005).]

***Hieraetus ayresii* Ayres's Hawk Eagle**

Rare, presumed resident. Single birds observed on several occasions in the Rabi area, Jun, Nov 2004, Jul 2006, gaining height above a flare, circling above the forest, or roosting on a dead tree together with Palm-nut Vultures. [Gamba area only (Sargeant 1993).]

***Lophaetus occipitalis* Long-crested Eagle**

Rare resident. One perched in a patch of extensive swampy savanna along the Ngové River, Aug 2004; another flying over a road bordered by banana plantations in secondary forest northeast of Rabi, Jan 2005. [Listed only for the Gamba area (Sargeant 1993).]

***Spizaetus africanus* Cassin's Hawk Eagle**

Rare resident. An adult perched 15 m up a large tree close to a heavily used road in the north of Rabi, Jun 2004 (p). An adult in the same area, Oct 2004. Other adults were seen perched near the Rabi-Divangui road, Oct, Jan, one being mobbed by two Great Blue Turacos *Corythaeola cristata*. Two adults calling and displaying 100 m

above the canopy in the central RNPA, 20 Oct. Display consisted of a series of deep dives on closed wings interspersed with upward swoops on spread wings, accompanied by loud “keeyep” calls, and circling with wings held in a deep V. An adult circling above the riverine forest bordering the Ndogo River, Aug; one flying fast and low over the canopy at the edge of an open savanna close to the Echira River, Oct. Observations suggest at least 4–5 pairs in RNPA, but probably more given its inconspicuousness and the large areas of suitable habitat not investigated. [Recorded in the Gamba area (Sargeant 1993); rare in the Moukalaba-Doudou area (Angehr *et al.* 2005).]

***Stephanoaetus coronatus* Crowned Eagle**

Frequent resident. Two pairs often heard and seen in and near Rabi. Display flights were most common during the start of the rainy season (Oct–Dec), but birds were heard throughout the survey period. Other pairs heard and observed in forest in the central RNPA, near Echira River, at Lake Divangui and in Loango NP. One perched near the forest edge was mobbed by Putty-nosed Monkeys *Cercopithecus nictitans*. Another seen sitting on the Rabi-Koumaga road. A juvenile was calling loudly for an extended period from the forest edge in the central RNPA, Oct (p). [Rare outside Rabi-Toucan (Angehr *et al.* 2005).]

***Falco vespertinus* Red-footed Falcon**

Palaearctic vagrant. A second-year male perched in isolated trees and hovering over the central savanna of Loango NP, 9 Oct 2004. Second record for coastal Gabon and fourth in Gabon (Sargeant 1993, Christy 2001, Borrow & Demey 2001). [Previously recorded by Sargeant (1993) in the Gamba area.]

***F. biarmicus* Lanner Falcon**

Rare resident. An adult and a juvenile together in trees and circling above the S coastline of Loango NP (Petit Loango), 23 Dec 2004. A juvenile, possible the same bird, was seen several km northwest of Setté Cama a few days later. [Absent from the equatorial rainforest zone but found in open areas along Gabon’s coastline (Christy 2001). Recorded in the Gamba area (Sargeant 1993).]

Discussion

The timing and duration of visits, and the habitat covered, are important factors when surveying raptors, and this is particularly true for rainforest habitats (Thiollay 1975). Since these surveys were conducted in habitats with different visibility, it is difficult to draw firm conclusions on the relative abundance of species. Since most time was spent in the forested RNPA, several open area species previously recorded by Sargeant (1993) and Angehr *et al.* (2005) in the Gamba area were missed: Common Kestrel *Falco tinnunculus*, Peregrine Falcon *F. peregrinus*, Black-shouldered Kite *Elanus caeruleus* and Eurasian Marsh Harrier *Circus aeruginosus*. Cassin’s Hawk Eagle, Long-tailed Hawk, African Goshawk, Chestnut-flanked Sparrowhawk, Red-thighed Sparrowhawk, and perhaps Congo Serpent Eagle may be more common than

observations suggest. Even in the Rabi area, which was most intensively surveyed, these forest raptors were only recorded at intervals of several weeks or even months, while they were probably present throughout the survey period.

All forest species were observed hunting, sitting near, or flying over forest roads, some almost exclusively so (*e.g.* Chestnut-flanked Sparrowhawk, Long-tailed Hawk, Cassin's Hawk Eagle). Although raptors are more likely to be detected in open areas, the great difference in observation frequency along roads and in forests might suggest that forest edges function as important hunting grounds for some species. Several raptors observed for the first time in the industrially exploited RNPA, such as Lizard Buzzard, Red-necked Buzzard, Ayres's Hawk Eagle, and Long-crested Eagle, may profit from forest clearance. Other species often cited as forest dependant, notably Congo Serpent Eagle, Cassin's Hawk Eagle, Long-tailed Hawk, and Crowned Eagle, were regularly seen in mature secondary forest but not away from large forest blocks. Congo Serpent Eagle and Cassin's Hawk Eagle were, however, recorded in heavily degraded forest near human habitation. Elsewhere in west-central Africa, Crowned Eagle and Cassin's Hawk Eagle appear to survive in open-canopy forest, while Congo Serpent Eagle and Long-tailed Hawk can be found near forest edge and even in farm-bush (in Sierra Leone, Ghana, Cameroon, Congo: F. Dowsett-Lemaire & R.J. Dowsett pers. comm.). Although it is not known whether such birds represent stable populations or temporary immigrants from forest areas, the frequency and spatial extent of these observations suggest that limited human impact on the forest landscape, such as in the Gamba Complex, may not necessarily affect the raptor community in a negative way and may benefit some species, as has been observed elsewhere (Thiollay 2000), however, further large-scale loss of forest cover in the RNPA is expected to threaten particularly its forest raptors.

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