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Site internet: http://malimbus.free.fr/ inclut le texte complet de tous les volumes du *Bulletin of the Nigerian Ornithologists' Society* et de *Malimbus* à l'exception de ceux des cinq dernières années, ainsi que les tables des matières, les résumés, les index consultables d'espèces et d'auteurs, et des listes pays avec, pour chacun des pays d'Afrique de l'Ouest, les références des mentions dans la revue. Webmestre: Peter Browne.

La correspondance doit être adressée comme suit:
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— au Secrétaire du Conseil, pour les demandes des Bourses de Recherches (Wildekamp 32, 6721 JD Bennekom, The Netherlands; <brouwereac@orange.nl>);
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La Société tire son origine de la "Nigerian Ornithologists' Society", fondée en 1964. Son but est de promouvoir l'ornithologie ouest-africaine, principalement au moyen de sa revue *Malimbus* (anciennement *Bulletin of the Nigerian Ornithologists' Society*).

Les demandes d'adhésion sont les bienvenues. Les cotisations annuelles sont de £15 ou de €22 pour les Membres Ordinaires et de £35 (€44) pour les Sociétés (les cotisations peuvent être payées en £ sterling au Trésorier ou en Euro à M. ou Mme N. Robin, 35 rue Bonaparte, 75006 Paris, France; <nils-robin@orange.fr>. Il est recommandé aux adhérents de la Zone Euro, hors France, de procéder par virement bancaire SEPA (gratuit), l'encaissement des chèques émis hors de France étant très coûteux. Un RIB leur sera adressé sur demande. Également, les cotisations peuvent être payées en ligne sur notre site internet <http://malimbus.free.fr/>. Les Membres Ordinaires reçoivent Malimbus par courrier ordinaire et les Sociétés par courrier aérien, gratuitement. Un supplément est exigé des Membres Ordinaires pour le courrier aérien (demander au Trésorier le tarif).

Numéros anciens: Aucun exemplaire original n'est disponible à l'exception de quelques numéros récents. Cependant, un pdf de l'un des numéros (numéro complet) de *Malimbus* ou du *Bull. Nigerian Orn. Soc.* peut être fourni au prix de 50 % du coût de l'abonnement de l'année en cours. Merci d'adresser vos requêtes au Trésorier.

Bourses de Recherches de la S.O.O.A.: Les conditions à remplir pour les candidatures se trouvent dans *Malimbus* 25: 72–75 et sur le site web, ou peuvent être obtenues auprès du Secrétaire du Conseil (adresse ci-dessus).

Editorial

Our 50th Anniversary

The beginnings of W.A.O.S. came when a group of enthusiasts created the Nigerian Ornithologists' Society, in 1964, so this year marks our 50th birthday. In the early days, almost all of the contributions to the new journal, the *Bulletin of the Nigerian Ornithologists' Society*, came from expatriates. It is thus gratifying to note several features of the Society and its journal after 50 years. Above all, we still exist, despite a couple of periods when it looked as if *Malimbus* might die; but the Society maintains its relevance, and its journal has become a prime repository for research on the birds of more than one third of the continent. Secondly, the articles published in the journal have come to include an increasing proportion written by West African authors. This is a measure of success in one of the Society's objectives: to encourage and promote research by West Africans in West Africa.

Several features of the present issue in particular are perfectly appropriate to mark our golden jubilee. The first is that in this issue all the full-length articles are written by West African authors (the first time this has occurred) and, given that the anniversary is of 50 years since our founding as the *Nigerian* Ornithologists' Society, it is doubly appropriate that two of these articles should come from Nigeria. Further, one of them examines the changes in the avifauna of the Ibadan area in the 50 years since our foundation, which happened to coincide with the publication of a key work on the district by John Elgood (one of our founders) and Frank Sibley. The other re-examines aspects of the avifauna of the Yankari Game Reserve, which N.O.S. and W.A.O.S. members have studied since our beginnings. The third article, from francophone West Africa, demonstrates that our move to a bilingual journal, when the Society's geographical coverage expanded to the whole of West Africa, is still valued. And finally, all this is pure coincidence: for anyone inclined to believe in augury, a set of auspicious signs for the future from West Africa's birds.

The continuation of contributions from Nigeria is in part due to the stimulus that is still provided by old-established scholarly institutions there, including the university and the International Institute of Tropical Agriculture at Ibadan, along with the relatively young A.P. Leventis Ornithological Research Institute. We can also recognize with satisfaction that N.O.S. and W.A.O.S. have contributed to this stimulus.

So, despite some worrying periods for the Society and its journal in the past (and still, with submissions this year very low), we have good reason to expect ornithology in Nigeria and West Africa to continue, with its practitioners providing valuable new knowledge and contributing to the conservation of West Africa's birds. Surely enough reason to celebrate.

Alan Tye

50ème anniversaire !

Les débuts de la S.O.O.A. remontent à la création en 1964 de la Nigerian Ornithologists' Society par un groupe d'enthousiastes, et donc cette année marque notre 50ème anniversaire. Au début, la presque totalité des contributions au nouveau journal, le *Bulletin of the Nigerian Ornithologists' Society,* provenait d'expatriés. Il est ainsi gratifiant de relever, après 50 ans, plusieurs faits saillants concernant notre Société et son journal. Avant tout, nous existons encore, malgré deux périodes au cours desquelles *Malimbus* put sembler sur le point de disparaître; mais la société conserve sa raison d'être et son journal est devenu l'une des principales revues scientifiques sur l'avifaune de plus d'un tiers du continent africain. En second lieu, une proportion croissante des articles publiés dans le journal ont été écrits par des auteurs d'Afrique de l'Ouest. C'est l'une des mesures de la réussite de la Société dans l'atteinte de l'un de ses objectifs: encourager et promouvoir la recherche en Afrique de l'Ouest par des Africains de l'Ouest.

Plusieurs aspects de ce numéro sont particulièrement bienvenus pour marquer notre jubilé. Le premier est que dans ce numéro, pour la première fois, tous les articles longs ont été écrits par des auteurs Ouest Africains. D'autre part, s'agissant du 50ème anniversaire depuis notre création en tant que *Nigerian* Ornithologists' Society, il est d'autant plus opportun que deux de ces articles proviennent du Nigeria. De plus, l'un d'eux examine ce qui a changé dans l'avifaune d'Ibadan depuis 50 ans, alors précisément que notre création avait coïncidé avec la publication d'un travail-clé sur le district par John Elgood, l'un de nos fondateurs, et Frank Sibley. L'autre article réexamine des aspects de l'avifaune de la Réserve de faune de Yankari, que des membres de N.O.S. et de la S.O.O.A. avaient étudiés depuis nos débuts. Le troisième article, d'Afrique de l'Ouest francophone, démontre que notre évolution vers un journal bilingue, alors que la couverture géographique de la Société s'était étendue à toute l'Afrique de l'Ouest, conserve toute sa valeur. Et enfin, tout ceci est une pure coïncidence: pour tous ceux enclins à croire aux présages, voilà peut-être un ensemble de signes prometteurs quant à l'avenir des oiseaux d'Afrique de l'Ouest.

Le fait que nous continuions à recevoir des contributions du Nigeria est en partie dû à la stimulation encore exercée par des institutions d'installation ancienne, dont l'Université et l'Institut International d'Agriculture Tropicale d'Ibadan, ainsi que l'Institut de Recherche Ornithologique A.P. Leventis. Nous pouvons également considérer avec satisfaction que la N.O.S. et la S.O.O.A. ont contribué à cette stimulation.

Ainsi, bien que la Société et son journal aient connu des périodes inquiétantes dans le passé (et encore aujourd'hui, avec des soumissions très peu nombreuses cette année), nous avons de bonnes raisons d'avoir confiance dans l'avenir de l'ornithologie au Nigeria et en Afrique de l'Ouest, avec des praticiens produisant de précieuses nouvelles connaissances et contribuant à la conservation des oiseaux en Afrique de l'Ouest. À coup sûr, des raisons suffisantes pour célébrer cet anniversaire.

Alan Tye (traduit: Nils Robin)

Raptors in Yankari Game Reserve and surrounding unprotected area, Nigeria

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Summary

A recent survey to estimate the population of raptors in and around Yankari Game Reserve revealed that the reserve still holds a number of raptor species also found in other reserves in West Africa. In total, 886 raptors of 37 species were recorded in the gallery forest and savanna habitats of the reserve, while 155 individuals in 18 species were encountered outside of the reserve. The number of raptors per km of transect in the unprotected area was lower than in the reserve, despite transect speed being slower and raptor detectability probably higher in the unprotected area. Most of the species encountered during surveys were medium-sized raptors. Juvenile raptors were seen only within the reserve, and adults of large species were rare outside it. Vultures seem to have declined since 2008, with two species having apparently been lost from the area.

Résumé

Les rapaces dans la Réserve Naturelle de Yankari et la zone adjacente non protégée, Nigeria. Une étude récente visant à estimer la population de rapaces dans et autour de la Réserve Naturelle de Yankari a révélé que la réserve contient encore nombre d'espèces de rapaces également présentes dans d'autres réserves d'Afrique de l'Ouest. Au total, 886 rapaces de 37 espèces ont été observés dans les habitats de forêt galerie et de savane, tandis que 155 individus de 14 espèces ont été rencontrés hors de la réserve. Le nombre de rapaces par km de transect dans la zone non protégée était inférieur à celui de la réserve, bien que la vitesse de parcours des transects ait été plus lente et la possibilité de découverte de rapaces probablement plus forte dans la zone non protégée. La plupart des espèces rencontrées au cours des enquêtes

ont été des rapaces de taille moyenne. Des rapaces juvéniles n'ont été vus qu'à l'intérieur de la réserve et les adultes d'espèces de grande taille étaient rares à l'extérieur. Les vautours paraissent être moins nombreux depuis 2008, avec deux espèces ayant apparemment disparu de la zone.

Introduction

Diurnal birds of prey are good indicators of changes in ecosystems and of impacts of human activity, owing to their sensitivity to environmental contamination, persecution and disturbance (Newton 1979). Most species of raptor are conspicuous and they feed on a broad array of invertebrates and vertebrates across all natural and artificial habitats (Thiollay 2006). Today, the dramatic increase in human pressure, deforestation and general decrease in tree cover, overgrazing and erosion, pesticide use, over-hunting and fishing, and sometimes direct persecution of predators, all impact negatively on raptor population (Thiollay 2006). To counter widespread population declines, many attempts have been made in recent years to increase raptor numbers, either by the management of the birds themselves or of their habitat and food sources (Newton 1979). The positive effects on these birds are revealed in nature reserves, where threats to them are minimized. For example in West Africa an estimate of the mean abundance index of raptors between protected and unprotected areas has shown a 30 % decline of raptors in protected areas compared with a 67 % decline in unprotected areas (Thiollay 2006, 2007b). In the savannas of West Africa, 40 breeding raptor species and 19 Palaearctic migrant species have been recorded (Borrow & Demey 2001, Thiollay 2007a). Brown (1970) observed that little is known about the actual numbers of the various species, and without knowing this it is difficult to determine the real effect of conservation effort.

A recent survey in Yankari Game Reserve, Bauchi State, Nigeria, revealed a decline in the population of vultures (Tende & Ottosson 2008). However, data on the population status of other raptor species is lacking. The aim of these surveys was therefore to estimate the abundance, diversity and distribution of raptors in Yankari Game Reserve and surrounding unprotected areas, in a bid to establish a baseline for conservation for this group of birds.

Methods

Study site

The survey was carried out in and around the Yankari Game Reserve (9°50'N, 10°30'E), Bauchi State in the east-central part of Nigeria. The reserve has a total area of 2244 km^2 and is bisected by the River Gaji. It lies within the Sudan Savanna Zone (Geerling 1973) and receives an average rainfall of *c.* 1000 mm per year, between

April and October (Crick & Marshall 1981). The vegetation includes swampy flood plain bordered by patches of forest, gallery forest, riparian forest and woodland savanna (Crick & Marshall 1981, Ezealor 2002). In seasonally flooded "fadamas", *Ficus* spp. and *Mitragyna* sp. are the dominant trees, while tangles of *Mimosa pigra* dominate the shrub stratum. The reserve was established as a Game Preservation Unit (GPU) of the Northern Region of Nigeria in January 1956 (Sikes 1964), and from its inception has been traversed by roads, by which border zone communities reach and utilize renewable natural resources within the reserve. Presently, twelve communities around the reserve have roads leading to its centre at Wikki Camp (9°45′N, 10°30′E. About 337 species of birds have been recorded (Ezealor 2002), of which 130 are resident, 50 are Palaearctic migrants and the rest are intra-African migrants.

The unprotected area outside the reserve is mainly farmland with scattered trees and hedges of *Guerra senegalensis*. Crops grown in these farmlands were mostly groundnut *Arachis hypogaea*, beans *Phaseolus vulgaris*, guinea corn *Sorghum bicolor*, millet *Pennisetum glaucum* and rice *Oryza sativa*.

Survey Design

The survey within the reserve was carried out for eight weeks from 21 April to 28 June 2008. This period coincided with the beginning of the rainy season, with insignificant rainfall during the period of the survey. Twenty line-transects (Bibby *et al.* 2000) of an average length of 10 km were used to count raptors. A total distance of 1636 km was covered during this transect survey. Transects were along game viewing and anti-poaching patrol tracks, and chosen to cover both savanna and gallery forest habitats. The coordinates of the start and end of each transect were recorded. Surveys were carried out in the morning (6h30–13h00) and evening (15h00–18h00). Counts were made by two non-driving observers from a car moving at an average speed between 12 and 25 km/h (Fuller & Mosher 1981). All raptors flying, perched and heard were identified, counted and their locations recorded using a Garmin 760CSx global positioning system (GPS) receiver. For birds seen perched, their perpendicular distances from the transect were recorded using a Canon Laser Range Finder.

In addition, observations were made from five different vantage points with good views of the surroundings (Fig. 1). Each point was visited at least three times and one hour was spent at each point, between 12h00 and 13h00, *i.e.* at a time of day when raptors make use of thermals to soar. Using binoculars and a telescope, the surroundings were scanned for any raptors seen perched or flying. Efforts were made to avoid double counts of birds observed by noting the direction in which the last counted individual disappeared from sight and the flock size.

The unprotected area outside the reserve was surveyed between 23 May and 23 July 2009. A total of 33 transects, each measuring 10 km in length, was laid in the area surrounding the reserve. Counts were made by two non-driving observers from a car moving at an average speed of 10.5 km/h (slower than in the reserve because of the bumpy nature of the roads). All raptors seen perched or flying or heard were

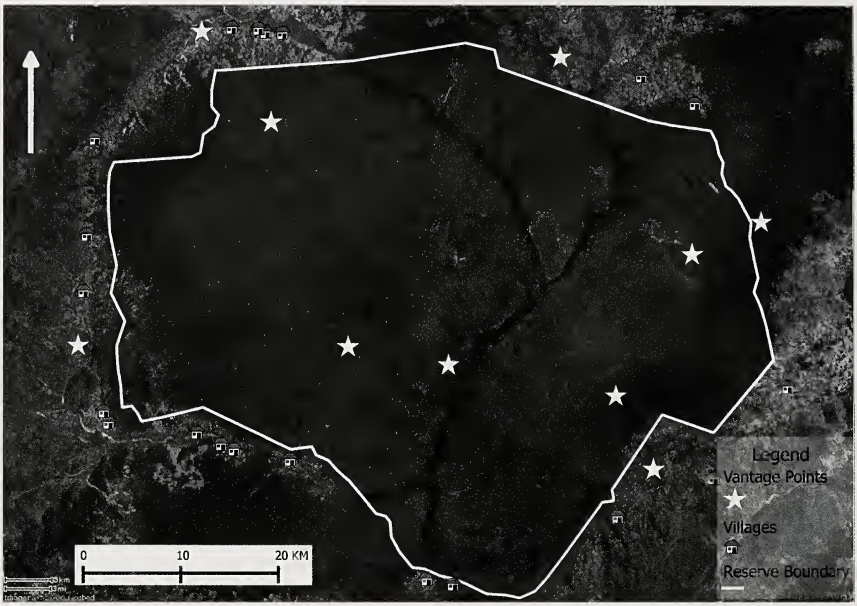

Figure 1. LandSat photograph of Yankari Game Reserve and surrounding unprotected area, showing observation vantage points.

identified and their location recorded. Surveys were carried out between 10h00 and 14h00, and all transects were visited once. The survey covered a total distance of 330 km. Five vantage points outside the reserve were used for observing raptors soaring or perched (Fig. 1).

Data Analysis

The surveys were designed to provide baseline data for each of the two areas and not primarily for comparison between them. Detectability, timing of survey periods and speed of the vehicle were all different in the two habitats. Detectability was probably higher in the unprotected area than in the reserve because of the more open nature of the unprotected area, and transect speed was slower there. This must be borne in mind when using these data for comparison between the two habitats.

Abundance on transects, of all raptors combined and of each raptor species, is expressed as encounter rate, in terms of the number of individuals encountered per 100 km of transect travelled and per h of transect time. Encounter rate during vantage point observations is expressed as number of raptors seen per h of observation. The encounter rates on transects were calculated as total number of individuals encountered over the total distance covered per month during the period of survey.

Results

In the reserve, 886 individual raptors of 37 species were recorded during the transects, combining forest and savanna (Table 1), of which 49 individuals (5.5 %) were classed as juveniles and sub-adults. In April, 170 raptors were seen over a total distance of 301.1 km covered (56 birds per 100 km), May had 418 raptors over 789.1 km (53 per 100 km), while June had 298 raptors over 545.3 km (55 per 100 km): there was no significant difference in encounter rate on transects between months ($\chi^2 = 0.0854$, df = 2, $P = 0.958$). The overall raptor encounter rates during transects in the reserve were 54 birds per 100 km (total 1635.6 km) or 5.5 birds per h (total 160.35 h), with higher overall encounter rate in the forest than in the savanna (Table 1). In the savanna, the Grasshopper Buzzard was the species with the highest encounter rate, with other common species including Dark Chanting-Goshawk, Grey Kestrel and Bateleur, while the Palmnut Vulture had the highest encounter rate for the gallery forest with other commonly encountered species there including Bateleur, African Fish-Eagle, Black Kite, Lizard Buzzard, Grey Kestrel and African Hawk-Eagle (Table 1). Encounter rates at vantage point observations in the reserve were higher than the per h results from transects, but because less time was spent on the former (total 17 h of observation), the results for each species are less informative and are not presented here; 126 raptors were counted during vantage point observations in the reserve, giving an overall encounter rate of 7.4 birds/h. During the ten weeks of fieldwork, the Secretary Bird *Sagittarius serpentarius* was sighted only once, in the reserve but outside the survey period on 21 April.

For the unprotected area, 155 individual raptors, of 18 species, were encountered during the transect survey. In May, 36 raptors were seen and a total distance of 70 km was covered (51 birds per 100 km), June had 105 raptors over 170 km (62 per 100 km), while July had 14 raptors over 90 km (16 per 100 km). There was a significant difference between months in the encounter rates of raptors during the transect survey ($\chi^2 = 26.84$, df = 2, $P < 0.0001$), largely because Grasshopper Buzzard was common in May and June but not recorded in July. The overall raptor encounter rate during transects in the unprotected area was 47 birds per 100 km (*c.* 330 km) and 4.5 birds per h (34.5 h of survey). The species with the highest encounter rate was Black Kite, while Grasshopper Buzzard and Fox Kestrel were also common (Table 1). African Swallow-tailed Kite, Bateleur, Brown Snake Eagle, Eurasian Marsh Harrier, Lanner and Lizard Buzzard were encountered only once each, the Eurasian Marsh Harrier in a rice field on 23 May. During vantage point observations outside the reserve, the encounter rate was 3.5 birds per h (26 birds over 7.5 h of observation).

Discussion

This survey shows that the Yankari Game Reserve still retains a considerable number of raptor species that normally occur in other nature reserves in West Africa (*cf.* Thiollay

Table 1. Transect counts of raptor species in savanna and gallery forest in the Yankari Game Reserve, and in the surrounding unprotected area.

	Savanna		Gallery		Unprotected	
	total count	n/100 km	total count	n/100 km	total count	n/100 km
Pandion haliaetus Osprey	-	-	2	0.34	-	-
Pernis apivorus Western Honey-Buzzard	2	0.19	2	0.34	-	-
Macheiramphus alcinus Bat Hawk	-	-	1	0.17	-	-
Elanus caeruleus Black-shouldered Kite	18	1.73	4	0.67	10	3.03
Chelictinia riocourii Swallow-Tailed Kite	-	-	-	-	1	0.30
Milvus migrans Black Kite	11	1.06	34	5.71	41	12.42
M. parasitus Yellow-billed Kite	2	0.19	2	0.34	-	-
Haliaeetus vocifer African Fish-Eagle	5	0.48	48	8.07	-	-
Gypohierax angolensis Palmnut Vulture	8	0.77	61	10.25	-	-
Necrosyrtes monachus Hooded Vulture	-	-	5	0.84	-	-
Gyps africanus African White-backed Vulture	1	0.10	13	2.35	-	-
Trigonoceps occipitalis White-headed Vulture	8	0.77	4	0.67	-	-
Circaetus gallicus Short-toed Snake-eagle	-	-	1	0.17	-	-
C. cinereus Brown Snake-eagle	7	0.67	8	1.34	1	0.30
C. cinerascens Western Banded Snake-Eagle	1	0.10	1	0.17	-	-
Terathopius ecaudatus Bateleur	36	3.46	49	8.23	1	0.30
Polyboroides typus African Harrier-Hawk	15	1.44	14	2.35	-	-
Circus macrourus Pallid Harrier	3	0.29	-	-	-	-
C. ranivorus African Marsh Harrier	1	0.10	-	-	-	-
C. aeruginosus Eurasian Marsh Harrier	-	-	-	-	1	0.30
Melierax metabates Dark Chanting-Goshawk	56	5.38	3	0.50	11	3.33
Accipiter badius Shikra	13	1.25	16	2.69	6	1.82
A. ovampensis Ovambo Sparrowhawk	-	-	2	0.34	-	-
Butastur rufipennis Grasshopper Buzzard	183	17.59	12	2.02	36	10.91
Kaupifalco monogrammicus Lizzard Buzzard	19	1.83	29	4.87	1	0.30
Buteo auguralis Red-necked Buzzard	7	0.67	1	0.17	11	3.33
Aquila rapax Tawny Eagle	3	0.29	4	0.67	-	-
A. wahlbergi Wahlberg's Eagle	1	0.10	3	0.50	2	0.61
Hieraaetus spilogaster African Hawk-Eagle	15	1.44	22	3.70	2	0.61
Lophaetus occipitalis Long-crested Eagle	1	0.10	3	0.50	4	1.21
Polemaetus bellicosus Martial Eagle	2	0.19	4	0.67	-	-
Falco alopex Fox Kestrel	3	0.29	--	--	18	5.45
F. ardosiaceus Grey Kestrel	40	3.84	25	4.20	5	1.52
F. chicquera Red-necked Falcon	5	0.48	7	1.18	3	0.91
F. vespertinus Red-footed Falcon	11	1.06	-	-	-	-
F. cuvierii African Hobby	4	0.38	7	1.18	-	-
F. biarmicus Lanner Falcon	4	0.38	2	0.34	1	0.30
Glaucidium perlatum Pearl-spotted Owlet	-	-	2	0.34	-	-
Totals	**485**	**46.6**	**391**	**65.9**	**155**	**47.0**

2006). However, only three species of vulture were seen during the survey, in contrast to the five species recorded by Tende & Ottosson (2008), who also found Lappet-faced Vulture *Torgos tracheliotos* and European Griffon *Gyps fulvus*. The population of vultures in the reserve has declined markedly as compared with earlier surveys (Dyer & Gartshore 1975, Crick & Marshall 1981). Similarly, in the Sudan Savanna zone of West Africa, Thiollay (2006) reported a decline of 97 % of the African White-backed Vulture in 30 years. Possible reasons for such declines may be poisoning and persecution, and Thiollay (2007a) suggested that habitat degradation was a major factor. Protected areas remain a haven for raptors and should be maintained as such. However, the decline of vulture populations observed in the reserve may be due to poisoning outside the protected area (Tende & Ottosson 2008).

Other large raptor species such as Martial Eagle, Long-crested Eagle, Tawny Eagle, African Hawk Eagle and Wahlberg's Eagle were recorded in the reserve, including juveniles of Bateleur, Palmnut Vulture, African Hawk-eagle and Martial Eagle, suggesting that it may be an important breeding ground for raptor species. During both vantage point observations and road transects outside the reserve, only adult birds were seen. It may be that the species recorded outside the reserve mostly breed within it and only use the unprotected area for hunting.

The single sighting of Secretary Bird contrasts with the situation in the 1970s, when Demeter (1977) suggested that the bird occurred regularly in the reserve in low numbers. However, this species has declined so much that it is not seen in Nigeria now outside protected areas and only rarely within them.

The species encountered most often outside the reserve were of medium size: Black Kite, Fox Kestrel, Grasshopper Buzzard (in May–June), Dark Chanting-Goshawk and Red-necked Buzzard. The Fox Kestrel was mostly found in an area west of the reserve, probably due to the rocky nature of the habitat there (*cf.* Brown *et al.* 1997). Among the larger raptors recorded in the unprotected area were Bateleur (seen once, soaring) and Long-crested Eagle (seen twice outside and twice soaring over the protected area). Larger raptors may not find the unprotected areas conducive because of inadequate food supply and nest sites due to the degraded nature of the habitat. African Swallow-tailed Kite was recorded once outside the reserve; this species has never been recorded within the reserve, either during this survey or previously. The largest raptor encountered regularly in open plains and farmlands was the Red-necked Buzzard. No vultures were encountered in the unprotected area, perhaps because of the severe persecution that vultures and other raptors have suffered (*e.g.* Rondeau & Thiollay 2004, Thiollay 2006). When seen, vultures were either soaring very high or within the reserve.

There was little difference in the number of birds recorded between months probably because most of the species recorded are residents or have resident populations. In the case of Grasshopper Buzzard, not recorded in July during the survey outside the reserve, nor within it that month (casual observations), it may have migrated northwards to breed then (Brown *et al.* 1997).

The average number of raptors observed in the unprotected area was 0.48 birds/km, lower than in the protected area (0.75), despite the transect speed being slower and raptor detectability probably higher outside the reserve. It is also lower than in other studies (1.63, Thiollay 2006; 0.58, Tende & Ottosson 2008). The lower rate outside the reserve could be partly due to the surveys there having been carried out later than those in the reserve, so that Palaearctic migrants such as Honey-Buzzard, harriers and Red-footed Falcon would have departed by the later part of the unprotected area survey. However, higher encounter rates were found outside the reserve for the migrant Black Kite and, overall, the proportion of species encountered that were Palaearctic migrants was small, so that this factor could not account for the generally lower encounter rate in the unprotected area. Rather, other factors such as pesticide use on farmlands may have reduced the number of insects and rodents in unprotected areas, making them less suitable for raptors as compared with protected areas. Overgrazing and cutting of trees and other vegetation for farming have also resulted in low quality habitat in the unprotected area, and the area is highly disturbed by people. In unprotected areas there may also be direct persecution of raptors. People sometimes kill them for meat or to prevent them from preying on their domestic chickens (Tende & Ottosson 2008). These reasons may be the cause of the decline of raptors, especially the large ones, while the medium-sized species that can survive on small prey like insects, scorpions and rodents are relatively less affected.

Although the reserve's population of vultures and other raptor species has declined, it still has the potential to sustain the populations of raptors left, its habitat heterogeneity making it a good haven for many species of raptors. The reserve also has great potential as an ecotourism destination and a base for biological research. Therefore, it is recommended that efforts should be made to enlighten the surrounding communities on the need to stop the persecution of raptors. A raptor monitoring programme also needs to be put in place to detect changes both within and outside the reserve.

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Birds of the International Institute of Tropical Agriculture campus, a stronghold of avian diversity in the changing Ibadan area (Nigeria) over the last 50 years

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Summary

Data from a survey carried out between 2009 and 2013 of the bird species in the International Institute of Tropical Agriculture (IITA) campus, Ibadan, Nigeria, are compared with records from the area around Ibadan (including IITA) for the last 50 years. The IITA campus is an Important Bird Area (IBA) and includes a secondary dry semi-deciduous forest reserve of *c.* 360 ha, which is fenced and protected. The forested area is now being extended and enhanced by planting indigenous trees on degraded farm plots, and by enrichment planting in degraded areas of forest. In total, 398 bird species from at least 71 families are now recorded for the Ibadan area, of which 322 species have been recorded since 2002. The IBA holds at least 269 of these species (68 %) in 64 families, while the forest reserve holds *c.* 137 species. Seventy-five species were mist-netted in the IBA in our study. Twenty-five species plus 13 vagrants are new to the IBA and the Ibadan area in general, having not been detected prior to 2002. However, a minimum 68 species plus an additional 62 vagrant species reported in the Ibadan area by earlier studies have not been detected recently. We report an additional 29 biome-restricted species present in the Ibadan area (74 had been reported previously), 17 of which occur in the IBA. Diversity of some groups of large birds (*e.g.* Anatidae) has declined whereas many forest edge or generalist species (*e.g.* Double-spurred Francolin *Francolinus bicalcaratus*) have increased in abundance and range. Forest specialists, including many Pycnonotidae and Bucerotidae species, appear to have declined. The IITA campus, with its forest reserve, lakes and farm plots, is now an "island" IBA

of great avifaunal diversity surrounded by a highly modified anthropogenic landscape unwelcoming for many of the birds that formerly inhabited the area.

Résumé

Les oiseaux du campus de l'Institut International d'Agriculture Tropicale, un bastion de la diversité de l'avifaune dans la région d'Ibadan (Nigeria), en évolution rapide au cours des 50 dernières années. Les données d'une étude réalisée entre 2009 et 2013 sur les espèces d'oiseaux dans le campus de l'Institut International d'Agriculture Tropicale (IIAT), Ibadan, Nigeria, sont comparées avec des observations dans les alentours d'Ibadan (incluant l'IIAT) pendant les 50 dernières années. Le campus de l'IIAT est une Zone Importante pour la Conservation des Oiseaux (ZICO) et inclut une réserve de forêt secondaire sèche semi-décidue de *c.* 360 ha, clôturée et protégée. Cette zone de forêt est en cours d'extension et d'amélioration par la plantation d'espèces d'arbres indigènes sur des terrains agricoles dégradés et par des plantations visant à enrichir des zones dégradées de la forêt. Au total, 398 espèces d'oiseaux appartenant à au moins 71 familles sont aujourd'hui recensées pour la zone d'Ibadan, dont 322 espèces ont été observées depuis 2002. La ZICO héberge au moins 269 de ces espèces (68 %) en 64 familles, cependant que la réserve forestière en héberge *c.* 137 espèces. Soixante-quinze espèces ont été capturées au filet dans la ZICO au cours de notre étude. Vingt-cinq espèces plus 13 occasionnelles sont nouvelles pour la ZICO et la zone d'Ibadan en général, n'ayant pas été observées avant 2002. Cependant, au moins 68 espèces plus 62 espèces occasionnelles observées dans la zone d'Ibadan lors d'études antérieures n'ont pas été observées récemment. Nous mentionnons 29 espèces restreintes à un seul biome qui sont nouvelles dans la zone d'Ibadan (74 avaient été précédemment mentionnées), parmi lesquelles 17 sont présentes dans la ZICO. La diversité de quelques groupes de grands oiseaux (p. ex. Anatidae) a décliné alors que de nombreuses espèces péri-forestières ou généralistes (p.ex. Francolin à double éperon *Francolinus bicalcaratus*) a augmenté en abondance et zones de présence. Les espèces forestières, dont de nombreux Pycnonotidae et Bucerotidae, apparaissent en déclin. Le campus de l'IIAT, avec sa réserve forestière, des lacs et des terrains agricoles, est maintenant une "île" ZICO d'une grande diversité avifaunistique au milieu d'un paysage complètement modifié par l'homme et devenu inhospitalier pour de nombreux oiseaux autrefois présents dans la zone.

Introduction

The campus of the International Institute of Tropical Agriculture (IITA) at Ibadan (7°30′N, 3°55′E) occupies *c.*1000 ha (Fig. 1), including a 360 ha relict of secondary dry

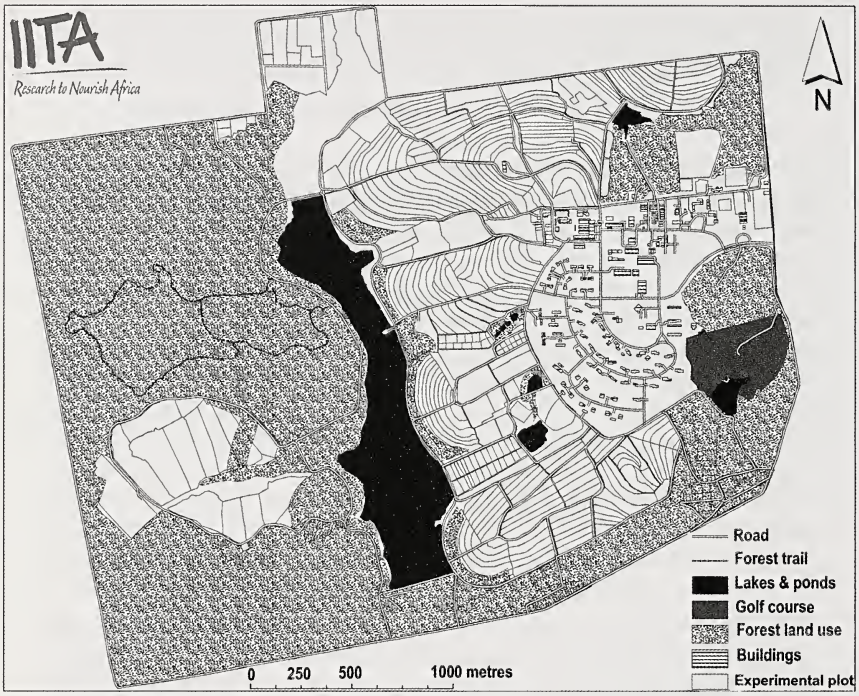

Figure 1. The IITA campus.

semi-deciduous rainforest, the "forest reserve". The rest of the campus, apart from the residential buildings, workshops and offices, consists of lakes, rice paddies, farm plots, marshes and bushes, which provide additional habitats for wildlife. The forest area on the campus is now being extended by reforestation and therefore the term "forest land use" on the map (Fig. 1) includes areas preserved as forest (since 1965) and areas recently reforested (during the last four years). The bird species at IITA include aquatic, savanna and forest species, and the campus has been recognised as an Important Bird Area (IBA: Ezealor 2001, A. Ezealor pers. comm.). This protected ecosystem on the IITA campus has encouraged visitors, research and collaboration; nonetheless it has also encouraged poachers, though hunting is prohibited on the site. However there is no detailed, published and up to date checklist of the avifauna of either the IITA campus as a whole (the IBA) or the forest reserve.

The Ibadan area was described in detail by Elgood & Sibley (1964). It has since grown into a large city where demand for fuel wood, timber for furniture and building, farmland and other uses has degraded the natural habitat of the area. Most areas mentioned by Elgood & Sibley (1964) and others (see Table 1 header) as holding high bird

diversity are now a shadow of their former selves. However in the midst of this changing environment, the IITA campus retains a rich diversity of resident and migratory birds.

Ibadan is located in an area divided between derived savanna and forest ecosystems. The IITA campus possesses areas of both these ecosystems, in the form of degraded farmland and secondary forest respectively. Early studies on the avifauna of the Ibadan area are numerous, though many were carried out prior to the establishment of the IITA headquarters in 1965, and the consequent protection of the site. One of the most complete early studies, which covered the general area in which IITA is now situated, was that on bird species distribution in Ibadan and southwest Nigeria by Elgood & Sibley (1964). This summarised earlier records for the Ibadan area, defined as within a 10-mile (16 km) radius of Mapo Hall at the centre of the city, and with an emphasis on birds found within and adjacent to the extensive grounds of the University of Ibadan (UI). Elgood & Sibley (1964) reported 266 bird species in total, and showed that the terrestrial element in the avifauna was evenly balanced between forest and savanna forms. The IITA and UI are < 7 km apart, separated by villages, though tracts of semi-natural vegetation are present. Nonetheless, some birds are capable of flying between the two sites daily as observed for Cattle Egrets and White-faced Whistling Ducks, which roost at UI and IITA respectively (pers. obs.). Also, the checklist of the birds of Nigeria (Elgood *et al.* 1994) gives numerous early records for Ibadan.

Since the establishment of the IITA campus, there have been only a few published records from within it. The only study specifically on IITA birds was by Ezealor (2001) for IBA designation (74 spp.). A single record for IITA was given by Ash (1990), 17 records by Elgood *et al.* (1994), seven more by Demey *et al.* (2003), and 29 others from a study of the effects of forest fragmentation on the endangered Ibadan Malimbe *M. ibadanensis* (Manu *et al.* 2005). Among earlier and more recent unpublished records within IITA are PH's from casual walks through the area during the last 25 years, and others listed in the header to Table 1. However, there remained a need for a thorough survey of the forest reserve and its environs within the IITA campus, to bring up to date and consolidate our knowledge of the bird species composition of the site. Our study therefore aims to provide an updated checklist of the avifauna at IITA. We also compare recent records from the IITA campus with earlier published and unpublished reports from within it, in order to investigate changes in the avifauna of the campus during the past 25 years. We also compare these records with earlier and more recent records from the surrounding Ibadan area, particularly UI, Eleyele, Ibadan Golf Club and Moor Plantation in order to determine how much of the diversity previously known to occur in Ibadan is being maintained by the protection of the IITA campus since 1965.

Methods

Each month from 2009 to 2012 counts were made along nine transects, each of 1 km, of which three were placed along pre-cut walking trails in each of farmland, forest and

along the shore of the lake (forest and lake-shore transects shown on Fig. 2). In addition, counts were made from vantage points at rice paddies and lakes within IITA. Visits were made once each month of the year, all in the mornings between 6h00 and 12h00 and evenings between 15h00 and 19h00). On each visit, two or three transects were surveyed by TAA, walking at an average speed of *c.*1 km/h (open habitats) or *c.* 0.5–0.7 km/h (forest interior, due to lower detection rates and need to spend more time on bird calls). Birds seen outside the transect times are also included. General abundance of species sighted during our study is classed as: Very Abundant (VA) >100 may be seen or heard in suitable habitat per day; Abundant (A) 11–100 may be seen or heard in suitable habitat per day; Common (C) 1–10 may be seen or heard in suitable habitat per day; Frequent (F) often seen but not every day; Uncommon (U) several records per year; Rare (R) one record per several years (resident species); Vagrant (V) one record per several years (non-residents).

Excluding Vagrants, commoner species which were recorded in the area before 2002 but not seen between 2002 and 2013, including during this study, are regarded as "lost", while those not recorded prior to 2002 are termed "gained", even though some of them might have been present in the respective period but overlooked. Vagrants (as defined above) when lost or gained are represented by a V in either columns, and are not included in the totals of lost or gained. The bracket after the total lost or total gained gives the number of Vagrants excluded from the totals (Table 1).

A combination of wader nets (used for water birds) and mist nets (forest birds) with audio playback was used by TAA, TEA, TCO and GT (TAA was involved in all netting sessions) to trap birds at points shown on Fig. 2. Nets of varying lengths were used, ranging between 100 and 250 m and with height varying between 1.5 and 4 m. Netting sessions took place between 5h30 and 17h00, though sessions were shorter when the weather was not suitable for netting birds (rain or hot weather) or when the frequency of bird captures was low. Between five and 14 netting days were carried out each quarter, with rotation of nets to various habitats. Within each habitat type, nets were set up in in different sites, and were moved after 2–7 days depending on trapping success. Net check interval was 20 min., to minimise heat stress and exhaustion of trapped birds. More netting time was spent in forest because of the greater probability of missing understorey birds during transect walks.

We collate and compare our 2009–13 transect and mist-netting data with earlier records, to reveal the trends in bird species composition over time. Taxonomic treatment follows Borrow & Demey (2001).

Results

The birds recorded at IITA in the present study, and in the Ibadan area by other recent and earlier studies, are summarized in Table 1.

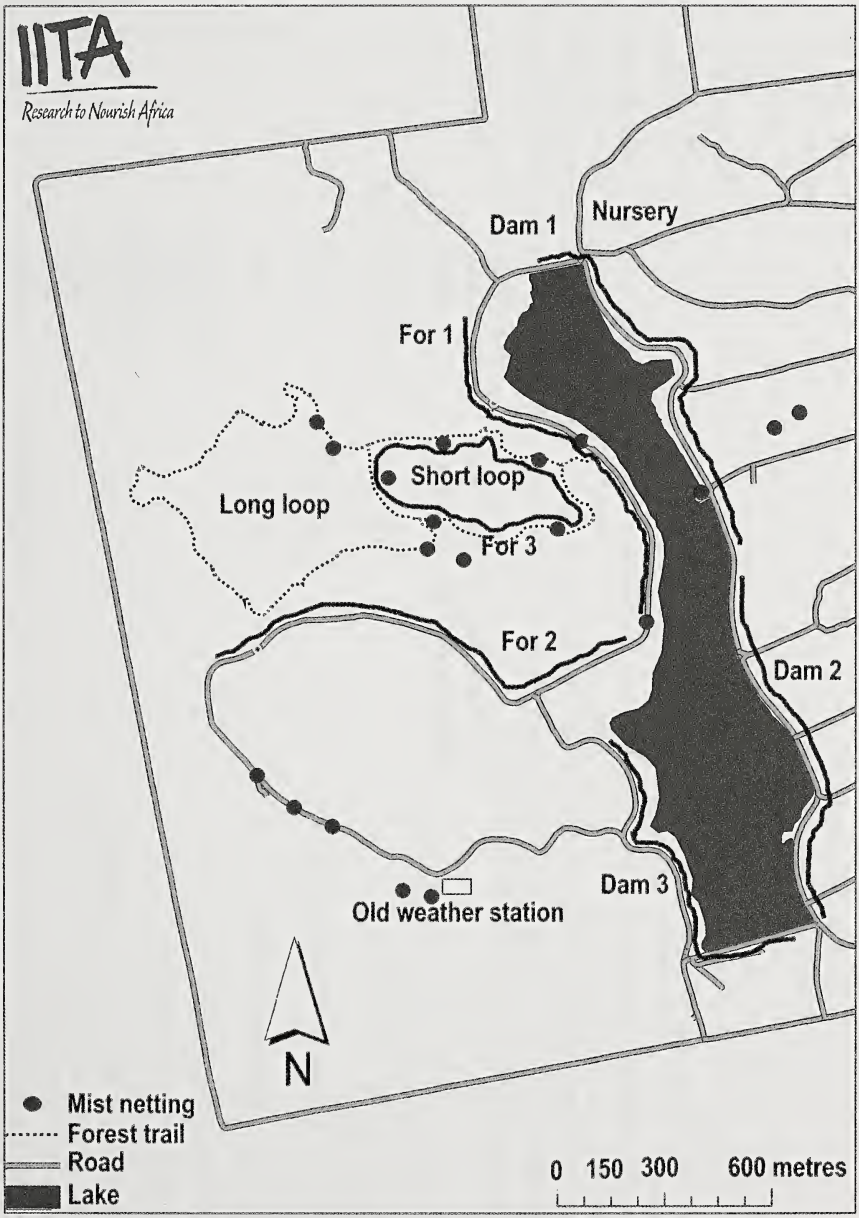

Figure 2. Location of transects (thick black lines labelled Dam 1–3 and For 1–3) and mist-netting points (ovals) within the IITA campus IBA.

Table 1. Birds of the IITA campus IBA recorded in the present study, plus other recent and earlier records from IITA (sources underlined) and from the Ibadan area. Early records: Ban = Bannerman (1930–51); Wil = Willoughby (1949); S = Serle (1950); ES = Elgood & Sibley (1964); EFD = Elgood *et al.* (1973); EE/EE = Elgood *et al.* (1994); JB = Button (1965); DR = Robinson (1966); W = Wells (1966a, 1966b, 1967); B = Bass (1967); RP = Parker (1967, 1968, 1970); AP = Ashford & Parker (1968); P = Pettet (1968a, 1968b, 1975); A = Ashford (1968, 1969); NR = Robinson (1970); BB = Broadbent (1972); JA/JA = Ash (1990); AE = Ezealor (2001). Recent records: D = Demey *et al.* (2003); M = Manu *et al.* (2005); DB = D. Bengtsson (*in* Demey 2006); TEA = Adeyanju & Adeyanju (2012); JP = J. Peacock (pers. comm.); GH = G. Huk (pers. comm.); TH = Thibault *et al.* (2012); TAA = T.A. Adeyanju observations outside IITA. Records from P. Hall (PH) span a long period and each record is classed according to its precise date. "Gained" = species recorded in the Ibadan area since 2002 but not before; "lost" = species recorded before 2002 but not since. * = species restricted to Guinea–Congo Rainforest biome; ** = species restricted to Sudan–Guinea Savanna biome (Ezealor 2001); † = species observed in this study within the forest reserve; [ ] = unconfirmed records.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
Podicepididae						
Tachybaptus ruficollis Little Grebe			GH (2012)	ES (sporadic), B, BB		
Phalacrocoracidae						
Phalacrocorax africanus Long-tailed Cormorant	F[1]			ES		
Anhingidae						
Anhinga rufa African Darter				ES		X
Ardeidae						
Botaurus stellaris Great Bittern				PH (2001), EE		V
Ixobrychus minutus Little Bittern	F	1		ES, BB		
I. sturmii Dwarf Bittern				PH (1998), ES		X
Gorsachius leuconotus White-backed Night Heron				ES (once)		V
Nycticorax nycticorax Black-crowned Night Heron	F[2]			BB		
Ardeola ralloides Squacco Heron	A			ES		
Bubulcus ibis Cattle Egret	A		TAA(2009–14)[3]	ES, B		

Butorides striata Green-backed Heron	C		ES		
Egretta ardesiaca Black Heron			PH[4]		X
E. gularis Western Reef Heron			EE		V
E. garzetta Little Egret	U		ES		
E. intermedia Intermediate Egret	C		ES, EE		
E. alba Great Egret	C		ES		
Ardea purpurea Purple Heron†	C		ES		
A. cinerea Grey Heron	C		ES		
A. melanocephala Black-headed Heron	C		ES		
Scopidae					
Scopus umbretta Hamerkop		PH, JP (2011)	ES, P		
Ciconiidae					
Mycteria ibis Yellow-billed Stork			ES, DR		V
Anastomus lamelligerus African Openbill Stork			ES		V
Ciconia abdimii Abdim's Stork	V		ES		
C. episcopus Woolly-necked Stork	R		RP		
C. ciconia White stork			PH (1998, 2000)		V
Threskiornithidae					
Plegadis falcinellus Glossy Ibis	V[5]			V	
Bostrychia hagedash Hadada Ibis	C[6]			X	
Threskiornis aethiopicus Sacred Ibis			ES		V

[1]1–2 around the main lake, each year.
[2]Included juveniles.
[3]> 600 roost in UI Awba dam environs.
[4]Three occasions 1993–5.
[5]Once in 2010, a group of *c.* 6 birds.
[6]Favour the small lake area beside the golf course.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
Anatidae						
Dendrocygna viduata White-faced Whistling Duck	A[7]			Ban, EE		
Plectropterus gambensis Spur-winged Goose	F[8]			PH, Wil		
Pteronetta hartlaubii Hartlaub's Duck*				PH (1995, a pair), AE		V
Sarkidiornis melanotos Knob-billed Goose				PH (1987, 1993, 1995), Wil		V
Nettapus auritus African Pygmy Goose				PH (until 1995), ES, ASH, EE		X
Anas penelope Eurasian Wigeon				Ban, EE		V
A. crecca Common Teal				PH (Jan 1994, a pair), EE		V
A. acuta Northern Pintail				PH (1989, 1998)		V
A. querquedula Garganey				PH (1993, 1994), Ban, EE		V
Aythya nyroca Ferruginous Duck				P		V
Pandionidae						
Pandion haliaetus Osprey†	U			ES, BB		
Accipitridae						
Aviceda cuculoides African Cuckoo Hawk†	U		PH	ES, EE		
Pernis apivorus European Honey Buzzard†			PH (May 2010)		V	
Macheiramphus alcinus Bat Hawk†	U[9]			ES		
Elanus caeruleus Black-shouldered Kite	F			ES		
Milvus migrans Yellow-billed Kite†	A			ES, W		
Gypohierax angolensis Palm-nut Vulture†	F			ES		
Polyboroides typus African Harrier Hawk†	U			ES		
Circus macrourus Pallid Harrier				Ban		V
C. aeruginosus Eurasian Marsh Harrier†	U			BB		
Micronisus gabar Gabar Goshawk	F				X	
Accipiter tachiro African Goshawk†	C	5		ES, NR		
A. badius Shikra	F			ES, B, NR		

A. erythropus Red-thighed Sparrowhawk*†			PH	AE		
A. minullus Little Sparrowhawk				ES		X
A. melanoleucus Black Sparrowhawk				PH, ES		X
Urotriorchis macrourus Long-tailed Hawk*†			PH, D	AE		
Kaupifalco monogrammicus Lizard Buzzard†	C	1		ES		
Buteo auguralis Red-necked Buzzard†	F			ES		
Aquila rapax Tawny Eagle				EE		V
Hieraaetus spilogaster African Hawk-Eagle†	U		PH (one)		X	
Lophaetus occipitalis Long-crested Eagle†	F		PH	ES, BB		
Falconidae						
Falco tinnunculus Common Kestrel	C			ES, EE		
F. ardosiaceus Grey Kestrel†	F			ES		
F. cuvierii African Hobby†	F			ES, BB, NR		
F. biarmicus Lanner†	U[10]			ES		
Phasianidae						
Coturnix delegorguei Harlequin Quail				JB, EE		V
Ptilopachus petrosus Stone Partridge				ES (rare, Ojo Hills)		X
Francolinus lathami Latham's Francolin*				ES (once)		V
F. squamatus Scaly Francolin				PH[11]		V
F. ahantensis Ahanta Francolin*†	C[12]			AE, Ban		
F. bicalcaratus Double-spurred Francolin†	VA[13]			ES		

[7]Present all year; though numbers previously observed to increase in dry season, large flocks observed in rains of 2011 and 2012.
[8]Bred in 2009 but in 2010 and 2011 only one individual observed. PH observed them in 1995 but breeding not confirmed.
[9]A pair nested within the IBA, 2009–13.
[10]Pairs in the IBA on very tall trees (> 40 m).
[11]Forest on the west bank of the main lake.
[12]Common at forest edges, only frequent in the interior.
[13]Mostly farmland but recently also present close to forest.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
Numididae						
Guttera pucherani Crested Guineafowl				EE		V
Numida meleagris Helmeted Guineafowl	F[14]				X	
Turnicidae						
Turnix sylvatica Little Buttonquail				ES (once)		V
Rallidae						
[*Sarothrura elegans* Buff-spotted Flufftail			DB (Oct 2005)		V]	
Crex egregia African Crake	U			ES, W		
Porzana porzana Spotted Crake				PH (pair, Feb 1996)		V
Aenigmatolimnas marginalis Striped Crake				ES, W		X
Amaurornis flavirostra Black Crake	C	3		ES		
Porphyrio alleni Allen's Gallinule	C	3		ES, EE		
P. porphyrio Purple Swamphen				PH (1999, 2000)		V
Gallinula chloropus Common Moorhen	C	2		Ban		
G. angulata Lesser Moorhen	R	1		ES		
Heliornithidae						
Podica senegalensis African Finfoot			TEA	PH (bred Aug 1999), ES, BB, W		
Otididae						
Lissotis melanogaster Black-bellied Bustard				W, ES		V
Jacanidae						
Actophilornis africanus African Jacana	VA[15]	15		ES		
Rostratulidae						
Rostratula benghalensis Greater Painted-snipe	C[16]	13		ES, EE		
Recurvirostridae						
Himantopus himantopus Black-winged Stilt	F			ES, BB		

Burhinidae						
Burhinus senegalensis Senegal Thick-knee	C[17]			ES		
Glareolidae						
Pluvianus aegyptius Egyptian Plover	V			PH, ES, EE		
Glareola pratincola Collared Pratincole	V (one, Jan 2011)				V	
G. cinerea Grey Pratincole				PH (Sep 1994), ES, EE		V
Charadriidae						
Charadrius dubius Little Ringed Plover				PH[18], ES (frequent)		X
C. hiaticula Common Ringed Plover				PH (one, Sep 1994), ES (rare)		V
C. forbesi Forbes's Plover	F			ES, EE		
Vanellus senegallus African Wattled Lapwing	V				V	
V. albiceps White-headed Lapwing	C			ES		
V. spinosus Spur-winged Lapwing	A	5		EE		
Scolopacidae						
Calidris temminckii Temminck's Stint			D		V	
C. ferruginea Curlew Sandpiper				PH (one, Sep 1994)		V
Philomachus pugnax Ruff				PH (one, Oct 1996), EE (flock, Oct)		V
Lymnocryptes minimus Jack Snipe	U				X	
Gallinago gallinago Common Snipe	U	2		ES, P, BB, EE		
G. media Great Snipe	U				X	
Numenius arquata Eurasian Curlew				ES (once)		V
Tringa erythropus Spotted Redshank			PH	Ban, W		
T. totanus Common Redshank				W		V

[14]Juveniles observed. Not recorded within the forest reserve, but feathers often found around cassava plots in IITA fields.
[15]Juveniles in early rains.
[16]A few resident all year and breeding. ES considered it a migrant, present Mar–Jun.
[17]In mixed flocks of plovers at the IITA main lake.
[18]A few present during the dry season every year 1987–95.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
T. stagnatilis Marsh Sandpiper				PH (two, Oct 1994)		V
T. nebularia Common Greenshank	V			W		
T. ochropus Green Sandpiper			PH	ES		
T. glareola Wood Sandpiper	F			ES		
T. hypoleucos Common Sandpiper	C[19]			ES		
Arenaria interpres Ruddy Turnstone				PH (one, Sep 1991)		V
Laridae						
Larus ridibundus Black-headed Gull			D		V	
Sternidae						
Gelochelidon nilotica Gull-billed Tern				PH (one, Oct 1994)		V
Chlidonias leucopterus White-winged Tern				PH (1988, 1989, 2000), EE		V
Rhynchopidae						
Rynchops flavisrostris African Skimmer				EE (one)		V
Columbidae						
Treron calvus African Green Pigeon†	C			ES		
Turtur brehmeri Blue-headed Wood Dove*†			PH[20]	AE		
T. tympanistria Tambourine Dove†	C	2		ES		
T. afer Blue-spotted Wood Dove†	A			ES, NR		
Columba iriditorques Western Bronze-naped Pigeon*				PH[21]		X
C. guinea Speckled Pigeon	C			EE[22]	X	
Streptopelia semitorquata Red-eyed Dove†	A[23]	1		ES		
S. vinacea Vinaceous Dove	R[24]		PH		X	
S. senegalensis Laughing Dove	C[25]			ES, NR		
Psittacidae						
Poicephalus senegalus Senegal Parrot**†	R		TAA	AE, ES, EE		
Agapornis pullarius Red-headed Lovebird				BB		X

Musophagidae						
Tauraco persa Green Tauraco*†	C		M	AE, ES		
Musophaga violacea Violet Tauraco**				AE, P		V
Crinifer piscator Western Grey Plantain-eater†	C			ES, JA		
Cuculidae						
Oxylophus jacobinus Jacobin Cuckoo†	U				X	
O. levaillantii Levaillant's Cuckoo†	U		M	ES, B		
Clamator glandarius Great Spotted Cuckoo	U			ES, B, P		
Cuculus solitarius Red-chested Cuckoo			PH (few, rains)		X	
C. clamosus Black Cuckoo†	U				X	
C. canorus Common Cuckoo				PH (one, May 1998)		V
C. gularis African Cuckoo†			PH[26]	W, BB		
Chrysococcyx cupreus African Emerald Cuckoo†	U		M	ES		
C. klaas Klaas's Cuckoo†	F			ES, NR		
C. caprius Didric Cuckoo†	F			ES, NR		
Ceuthmochares aereus Yellowbill†	C	1	M	ES		
Centropus leucogaster Black-throated Coucal*	R			AE, ES		
C. grillii Black Coucal†	U				X	
C. senegalensis Senegal Coucal†	A[27]			ES, NR		

[19]Present throughout the year; numbers increase during dry season.
[20]Infrequent on west bank of main lake.
[21]Uncommonly heard during rains in 2000.
[22]First record Ibadan area 1960.
[23]Observed in all habitat types present.
[24]A savanna species, now occasionally sighted in IITA and environs.
[25]Only near residences.
[26]Occasional throughout dry season.
[27]Black variant "*epomidis*" Frequent.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
C. monachus Blue-headed Coucal†	F			ES		
Tytonidae						
Tyto alba Barn Owl	U		PH	ES		
Strigidae						
Otus scops European Scops Owl				ES, W, BB, EE		X
Ptilopsis leucotis Northern White-faced Owl†	C[28]	1		ES		
Bubo africanus Spotted Eagle Owl				ES		X
B. poensis Fraser's Eagle Owl*†	C (2011)			ES, EE		
Glaucidium perlatum Pearl-spotted Owlet			TAA	PH[29], ES		
Strix woodfordii African Wood Owl	C			ES		
Caprimulgidae						
Caprimulgus climacurus Long-tailed Nightjar	C			ES, BB		
C. nigriscapularis Black-shouldered Nightjar*			PH[30]	AE, Ban, ES		
C. inornatus Plain Nightjar			PH (dry season)	ES		
C. europaeus European Nightjar	(once, 2010)			EE		
Macrodipteryx longipennis Standard-winged Nightjar	U			ES, BB		
M. vexillarius Pennant-winged Nightjar				RP		X
Apodidae						
Telacanthura ussheri Mottled Spinetail†	C			P		
Cypsiurus parvus African Palm Swift	C			ES		
Apus pallidus Pallid Swift				P		X
A. apus Common Swift				PH (flock of 10), ES		X
A. caffer White-rumped Swift				PH[31]		X
A. affinis Little Swift	U			ES		
Alcedinidae						
Halcyon leucocephala Grey-headed Kingfisher	R			ES		

H. malimbica Blue-breasted Kingfisher†	C	2		ES, NR	
H. senegalensis Woodland Kingfisher†	A	5		ES, NR	
H. chelicuti Striped Kingfisher				ES	X
Ceyx lecontei African Dwarf Kingfisher	(once)			JA, EE	
C. pictus African Pygmy Kingfisher	R	1		ES, NR	
Alcedo cristata Malachite kingfisher	C	3		ES	
Megaceryle maxima Giant Kingfisher	R			ES	
Ceryle rudis Pied Kingfisher	F			ES	
Meropidae					
Merops pusillus Little Bee-eater				ES	V
M. albicollis White-throated Bee-eater†	C			ES, NR	
M. apiaster European Bee-eater				P, EE	V
M. malimbicus Rosy Bee-eater*†	F		PH	AE, ES, P	
M. nubicus Northern Carmine Bee-eater				ES	V
Coraciidae					
Coracias abyssinicus Abyssinian Roller				ES (once), BB	V
[*C. garrulus* European Roller				ES (rare), P, BB (possible)	V]
Eurystomus gularis Blue-throated Roller*†	R			AE, ES	
E. glaucurus Broad-billed Roller†	F		M	EE	
Phoeniculidae					
Phoeniculus bollei White-headed Wood-hoopoe				ES, EE	X
P. purpureus Green Wood-hoopoe†	F			ES, NR, EE	
Rhinopomastus aterrimus Black Wood-hoopoe				W, EE	X

[28]Three young collected in Jan 2014.
[29]Last observed in IITA in 2000, a pair calling throughout the rains.
[30]Throughout dry season, restricted to area on west bank of main lake.
[31]A pair breeding, Oct 1990.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
Bucerotidae						
Tropicranus albocristatus White-crested Hornbill*†	U		M	AE, ES, S		
Tockus camurus Red-billed Dwarf Hornbill				ES		X
T. fasciatus African Pied Hornbill*†	A			AE, ES		
T. nasutus African Grey Hornbill†	C			ES		
Bycanistes fistulator Piping Hornbill				PH[32], ES		X
Capitonidae						
Gymnobucco peli Bristle-nosed Barbet*				AE		X
G. calvus Naked-faced Barbet*†			M	PH, AE, ES		X[33]
Pogoniulus scolopaceus Speckled Tinkerbird*†	C	3		AE, EE		
P. atroflavus Red-rumped Tinkerbird*†	C			EE		
P. subsulphureus Yellow-throated Tinkerbird*†	C			AE, ES		
P. bilineatus Yellow-rumped Tinkerbird†	C				X	
P. chrysoconus Yellow-fronted Tinkerbird				EE		X
Tricholaema hirsuta Hairy-breasted Barbet*†	F		M	AE, ES, EE		
Lybius vieilloti Vieillot's Barbet†	U			ES, EE		
L. bidentatus Double-toothed Barbet			TAA, TEA	ES, EE		
Trachyphonus purpuratus Yellow-billed Barbet*†	U			AE, ES		
Indicatoridae						
Prodotiscus insignis Cassin's Honeyguide*				ES		X
Melichneutes robustus Lyre-tailed Honeyguide*				AE		X
Indicator maculatus Spotted Honeyguide*†	C	1			X	
I. indicator Greater Honeyguide				ES, EE		X
I. minor Lesser Honeyguide			TAA (2013)	PH[34], ES		
I. exilis Least Honeyguide				ES		X

Picidae						
Campethera punctuligera Fine-spotted Woodpecker				ES, EE		X
C. cailliautii Green-backed Woodpecker				PH (one, May 1998)		V
C. nivosa Buff-spotted Woodpecker*†	F	6		ES (rare), EE		
Dendropicos gabonensis Gabon Woodpecker*				PH[35], AE		V
D. fuscescens Cardinal woodpecker				EE		X
D. pyrrhogaster Fire-bellied Woodpecker*†	F	2	PH	AE, ES, EE		
D. goertae Grey Woodpecker			TAA	PH (1987, 1988), ES		
Eurylaemidae						
Smithornis rufolateralis Rufous-sided Broadbill*†	F	1			X	
Pittidae						
Pitta angolensis African Pitta				W		X
Hirundinidae						
[*Riparia paludicola* Plain Martin				A, EE		V]
R. riparia Common Sand Martin	F		TAA(2013)	PH(Mar 1992, Oct 1994), BB, A, EE		
[*R. cincta* Banded Martin				A (one)		V]
Hirundo semirufa Rufous-chested Swallow	F			ES, NR, A, EFD		
H. sengalensis Mosque Swallow				PH(frequent all year), ES, A, EFD, EE		X
H. abyssinica Lesser Striped Swallow	C			ES, A, EFD		
H. fuligula Rock Martin	F				X	
H. smithii Wire-tailed Swallow				ES		X
H. leucosoma Pied-winged Swallow*				AE, ES, EE		X
H. aethiopica Ethiopian Swallow	C			ES, A		

[32]A few, Jan–Mar 1999 and Oct 2000.

[33]Recorded by ES as frequent and by PH as a common breeder in the 1990s. Although M found it, seems now to have disappeared from the campus.

[34]A pair parasitizing Naked-faced Barbet nests, Feb 1995.

[35]A pair feeding chicks, Aug 1999.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
H. rustica Barn Swallow	F			ES, A		
Delichon urbicum House Martin				ES		X
Motacillidae						
Motacilla flava Yellow Wagtail	F			ES, B, A, NR		
M. aguimp African Pied Wagtail	C			ES, NR		
Anthus leucophrys Plain-backed Pipit	C			ES, EFD		
A. pallidiventris Long-legged Pipit			TH (2012)		V	
A. trivialis Tree Pipit				PH, P, BB		X
A. cervinus Red-throated Pipit				PH, P, BB, A		X
Macronyx croceus Yellow-throated Longclaw	F			ES, EE		
Campephagidae						
Campephaga phoenicea Red-shouldered Cuckoo-shrike†	U		M	ES, B, BB, EFD		
Coracina azurea Blue Cuckoo-shrike*				AE		X
Pycnonotidae						
Andropadus virens Little Greenbul*†	A	57		ES		
A. gracilis Little Grey Greenbul†	U	2	M	ES		
A. curvirostris Cameroon Sombre Greenbul*†	F	15		AE		
A. gracilirostris Slender-billed Greenbul†	C			ES (rare), EE		
A. latirostris Yellow-whiskered Greenbul†	A	109		ES		
Baeopogon indicator Honeyguide Greenbul*†	F	4		AE, ES		
Ixonotus guttatus Spotted Greenbul*				AE, EE		X
Chlorocichla simplex Simple Leaflove*†	C	1		AE, ES		
C. flavicollis Yellow-throated Leaflove†	U[36]			ES		
Thescelocichla leucopleura Swamp-palm Bulbul*†	C			AE, ES		
Pyrrhurus scandens Leaflove*†	C	1		AE, ES		
Phyllastrephus baumanni Baumann's Greenbul*†	U	10		AE, ES		

P. icterinus Icterine Greenbul*				AE		X
P. albigularis White-throated Greenbul*†	F	26		AE, ES		
Bleda syndactylus Red-tailed Bristlebill†				P, EE		X
B. canicapillus Grey-headed Bristlebill*†	C	87		AE, ES		
Criniger barbatus Western Bearded Greenbul*†			M	Ban, AE, EE		
C. calurus Red-tailed Greenbul*	U		M	AE, ES		
C. ndussumensis White-bearded Greenbul*				AE		X
Pycnonotus barbatus Common Bulbul†	A	3	M	ES, NR		
Nicator chloris Western Nicator*†	F	7		ES		
Turdidae						
Stiphrornis erythrothorax Forest Robin*†	C	15		AE, ES (rare), BB		
Luscinia megarhynchos Common Nightingale			PH (occasional)	ES, P, A, EE		
L. svecica Bluethroat				A		V
Cossypha cyanocampter Blue-shouldered Robin Chat*†	F	5		Ban, EE		
C. niveicapilla Snowy-crowned Robin Chat†	C	2		ES, NR, EFD		
Neocossyphus poensis White-tailed Ant Thrush†	F	4			X	
Stizorhina finschi Finsch's Flycatcher Thrush				PH, ES		X
Phoenicurus phoenicurus Common Redstart				ES, A		X
Saxicola rubetra Whinchat	C			ES, A		
Oenanthe oenanthe Northern Wheatear				ES		V
Monticola solitarius Blue Rock Thrush				W		V
Turdus pelios African Thrush†	A	5		ES, NR, EFD		
Sylviidae						
Melocichla mentalis African Moustached Warbler	F			ES		
Acrocephalus schoenobaenus Sedge Warbler				A, BB		X
A. scirpaceus European Reed Warbler				EE		V
A. baeticatus African Reed Warbler				AP, A, BB, EE		X

[36]Savanna species termed common in Ibadan area by ES, now uncommon there; one pair observed in 2011, in farmbush by main lake.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
A. arundinaceus Great Reed Warbler	F	2		ES, AP, A, BB		
Hippolais polyglotta Melodious Warbler			PH	ES, B, A, BB		
H. icterina Icterine Warbler				RP, BB		X
Cisticola erythrops Red-faced Cisticola	A	2		ES, A		
C. lateralis Whistling Cisticola				PH, ES		X
C. anonymus Chattering Cisticola*				AE		X
C. galactotes Winding Cisticola				PH		X
C. brachypterus Short-winged Cisticola	F			ES, A		
C. juncidis Zitting Cisticola				PH		X
Prinia subflava Tawny-flanked Prinia	F			PH, ES		
Heliolais erythropterus Red-winged Warbler				ES		X
Camaroptera brachyura Grey-backed Camaroptera	A	7	D	ES, S		
C. superciliaris Yellow-browed Camaroptera*†	C	2		AE, ES		
C. chloronota Olive-green Camaroptera*†	A	49	D	ES		
Macrosphenus kempi Kemp's Longbill*†	F	5			X	
M. concolor Grey Longbill*†	U	2		ES		
Eremomela pusilla Senegal Eremomela**	U			AE, ES		
Sylvietta brachyura Northern Crombce				EE		V
S. virens Green Crombec*†	C	3		AE, ES		
S. denti Lemon-bellied Crombec*†	F				X	
Phylloscopus trochilus Willow Warbler	F		PH	ES, A, NR		
P. sibilatrix Wood Warbler†	F			ES		
Hypergerus atriceps Oriole Warbler**†	F			AE, ES		
Sylvia borin Garden Warbler	U			ES, A, B, RP		
S. communis Common Whitethroat				BB		V
Hylia prasina Green Hylia*†	C	9		AE, ES		

Muscicapidae						
Fraseria ocreata Fraser's Forest Flycatcher*†			M		X	
Melaenornis edolioides Northern Black Flycatcher†	U (F in 2009)			B		
Muscicapa striata Spotted Flycatcher				PH, ES		X
M. olivascens Olivaceous Flycatcher*†	(once)				X	
M. comitata Dusky-blue Flycatcher*†	U	1		AE, ES, B		
M. tessmanni Tessmann's Flycatcher*				AE		X
Ficedula hypoleuca Pied Flycatcher			PH	ES		
Monarchidae						
Erythrocercus mccallii Chestnut-capped Flycatcher*				PH (several, 1999, 2000), ES		X
Trochocercus nitens Blue-headed Crested Flycatcher*†	F	1		AE, ES		
Terpsiphone viridis African Paradise Flycatcher†			PH, M	ES, EFD		
T. rufiventer Red-bellied Paradise Flycatcher*†	A	41	M	ES, NR		
Platysteiridae						
Megabyas flammulatus Shrike Flycatcher*				ES		X
Bias musicus Black-and-White Flycatcher				PH[37], ES		X
Dyaphorophyia castanea Chestnut Wattle-eye*†	F	1		AE, ES		
D. blissetti Red-cheeked Wattle-eye*†	C	21		AE, ES, BB		
Platysteira cyanea Common Wattle-eye†	F	1		ES, NR		
Batis senegalensis Senegal Batis				ES		X
Timaliidae						
Illadopsis rufipennis Pale-breasted Illadopsis†	U			PH[38]		
I. fulvescens Brown Illadopsis*†	C	14		AE, ES, BB		
I. puveli Puvel's Illadopsis				S, EE		X
Turdoides plebejus Brown Babbler				ES		V

[37]Observed on several occasions in mixed parties.

[38]PH regarded it as common in mixed parties, more often heard than seen, and its call may initially have been confused with that of *I. fulvescens* which is common on the site.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
T. reinwardtii Blackcap Babbler				ES		X
Phyllanthus atripennis Capuchin Babbler*†	F	4		AE, ES		
Remizidae						
Pholidornis rushiae Tit-hylia		PH (several, W bank)			X	
Nectariniidae						
Anthreptes rectirostris Green Sunbird*				Ban		X
Cyanomitra verticalis Green-headed Sunbird	U			ES, NR		
C. cyanolaema Blue-throated Brown Sunbird*	U[39]	1		PH, AE, ES, B		
C. obscura Western Olive Sunbird†	C	75		ES		
Chalcomitra adelberti Buff-throated Sunbird*†	U			AE, ES		
C. senegalensis Scarlet-chested Sunbird	R				X	
Hedydipna collaris Collared Sunbird†	A	32	M	ES		
Cinnyris chloropygius Olive-bellied Sunbird†	F	1		ES, NR		
C. minullus Tiny Sunbird*†	U	5			X	
C. venustus Variable Sunbird	F			ES, NR, EFD		
C. superbus Superb sunbird*				AE, ES		X
C. coccinigastrus Splendid Sunbird*†	C	5		AE, ES, EFD		
C. cupreus Copper Sunbird	C	2		ES, NR		
Zosteropidae						
Zosterops senegalensis Yellow White-eye				PH & ES (common), NR		X
Laniidae						
Lanius senator Woodchat Shrike				PH, ES		X
Corvinella corvina Yellow-billed Shrike*	F			AE, ES, A, EE		
Malaconotidae						
Malaconotus cruentus Fiery-breasted Bush-Shrike*†	(one group)		PH (common),	AE, ES, B, NR		
M. multicolor Many-coloured Bush-Shrike†	U		D	ES, NR, EE		

M. sulfureopectus Sulphur-breasted Bush-shrike†			GH (2013)	ES, EFD		
Antichromus minutus Marsh Tchagra				ES, EE		X
Tchagra senegalus Black-crowned Tchagra				ES, B		X
Dryoscopus sabini Sabine's Puffback*†	U		M	AE, ES		
D. gambensis Northern Puffback			TAA (2013)	ES, NR		
Laniarus aethiopicus Tropical Boubou†	F			EE		
Prionopidae						
Prionops plumatus White Helmet-shrike				ES		X
P. caniceps Red-billed Helmet-shrike*†	U		M	AE, EE		
Oriolidae						
Oriolus nigripennis Black-winged Oriole*†	F		M	AE, ES		
O. brachyrhynchus Western Black-headed Oriole*†	F		M			
O. auratus African Golden Oriole			PH (fairly common)	ES, EFD		
O. oriolus Eurasian Golden Oriole				JA		V
Dicruridae						
Dicrurus ludwigii Square-tailed Drongo†	F	2		ES		
D. atripennis Shining Drongo*†	F				X	
D.adsimilis Fork-tailed Drongo				JA		X
D. modestus Velvet-mantled Drongo†[40]	C	1	M	ES, NR		
Corvidae						
Corvus albus Pied Crow	A			ES, EFD		
Ptilostomus afer Piapiac**			TAA		V	
Sturnidae						
Poeoptera lugubris Narrow-tailed Starling†	F				X	
Onychognathus fulgidus Forest Chestnut-winged Starling*†	F			AE, ES, NR		

[39]PH recorded it as fairly common on west bank of main lake, though seems much less common now; one juvenile trapped.

[40]Many records were originally wrongly referred to the savanna species *D. adsimilis*, whereas the forest records should refer to *D. modestus*.

	Observed this study	Netted this study	Other recent records	Early records	Gained	Lost
Lamprotornis purpureus Purple Glossy Starling				ES		X
L. splendidus Splendid Glossy Starling	C			ES		
L. caudatus Long-tailed Glossy Starling	V (2009)				V	
Cinnyricinclus leucogaster Violet-backed Starling				PH (dry season 1999), ES (once)		V
Passeridae						
Passer griseus Northern Grey-headed Sparrow	C			ES, NR		
Ploecidae						
Plocepasser superciliosus Chestnut-crowned Sparrow-Weaver*				Ban		X
Ploceus nigricollis Black-necked Weaver	C	38		NR		
P. nigerrimus Vieillot's Black Weaver*	U			AE		
P. cucullatus Village Weaver†	VA	50		ES		
P. tricolor Yellow-mantled Weaver*†	C		D, M	AE, ES		
Malimbus nitens Blue-billed Malimbe*†	A	17	M	AE, ES		
M. malimbicus Crested Malimbe*†		PH (frequent), M,TAA (2013)		AE, ES		
M. ibadanensis Ibadan Malimbe*†	R		M	PH, AE, ES, JA		
M. scutatus Red-vented Malimbe*†	C		M	AE, ES, NR		
M. rubricollis Red-headed Malimbe*†	C		M	AE, ES, B		
Quelea erythrops Red-headed Quelea	F	10		ES, BB		
Euplectes hordeaceus Black-winged Bishop				Ban		X
E. franciscanus Northern Red Bishop	R			EE		
E. macroura Yellow-mantled Widowbird	U			ES, EFD, EE		
Amblyospiza albifrons Grosbeak Weaver	R			ES, B, BB		
Estrildidae						
Nigrita canicapillus Grey-crowned Negrofinch†	F		M	ES		
N. luteifrons Pale-fronted Negrofinch*				ES		X
N. bicolor Chestnut-breasted Negrofinch*†	F	1		AE, ES		

N. fusconotus White-breasted Negrofinch*†	F				X	
Pyrenestes ostrinus Black-bellied Seedcracker	U	1		ES, EE		
Spermophaga haematina Western Bluebill*†	C	38		AE, ES, BB		
Mandingoa nitidula Green Twinspot				Ban		X
Lagonosticta rufopicta Bar-breasted Firefinch*†	U			AE, ES		
L. rubricata Blue-billed Firefinch				PH (frequent)		X
Estrilda melpoda Orange-cheeked Waxbill†	A			ES, B, BB, EFD		
Spermestes cucullatus Bronze Mannikin†	C	10		ES		
S. bicolor Black-and-White Mannikin†	F			ES		
Viduidae						
Vidua chalybeata Village Indigobird			PH (frequent)	ES		
V. macroura Pin-tailed Whydah	C			ES		
Fringillidae						
Serinus mozambicus Yellow-fronted Canary			PH (uncommon)	EE		
Emberizidae						
Emberiza cabanisi Cabanis's Bunting				ES		X
Totals: 71 families, 398 species (269 in IITA campus IBA; 138 in forest reserve)	233	75	74	361	25(13)	68(62)

Discussion

A total of 398 bird species from at least 71 families is now recorded for the Ibadan area, of which the IITA campus IBA holds at least 269 species (68 %) from 64 families, of which 75 species have been mist-netted during our study, while the forest reserve holds at least 138 species, of which 36 species were mist-netted there during our study. Twenty-five species plus 13 vagrants are new to the IITA campus IBA, having not been detected on the site prior to 2002. However, 68 species plus an additional 62 vagrant species reported in the Ibadan area or in IITA by earlier studies have not been detected on the site recently. In general, the diversity of some groups of large birds (*e.g.* Anatidae) has declined, although many of these were vagrants, whereas many forest edge or generalist species (*e.g. Francolinus bicalcaratus*) have increased in abundance and range. Forest specialists, including many Pycnonotidae and Bucerotidae, appear to have declined. The use of mist-nets aided the detection of several species previously unknown from the IITA campus, including *Indicator maculatus*, *Campethera nivosa*, *Smithornis rufolateralis*, *Andropadus gracilis*, *Neocossyphus poensis*, *Macrosphenus kempi*, *M. concolor* and *Cinnyris minullus*.

For the IBA, Ezealor (2001) listed 67 species restricted to the Guinea Congo Rainforest (GCR) biome and seven restricted to the Sudan Guinea Savanna (SGS) biome, with "restricted" meaning having 70 % or more of their range within a particular biome (Fishpool & Evans 2001). We report an additional 29 biome-restricted species of which 27 belong to the GCR (17 of which occur in the forest reserve) and two to the SGS, bringing the total GCR species in the Ibadan area to 94 (84 in the IBA plus 10 without), although nine (plus five classed as vagrants) of the biome-restricted species mentioned by Ezealor (2001) as occurring in the IBA have not been sighted recently (*i.e.* the GCR species *Pteronetta hartlaubii*, *Gymnobucco peli*, *G. calvus*, *Melichneutes robustus*, *Dendropicos gabonensis*, *Coracina azurea*, *Ixonotus guttatus*, *Phyllastrephus icterinus*, *Criniger ndussumensis*, *Cisticola anonymus*, *Muscicapa tessmanni* and *Cinnyris superbus*, and the SGS species *Musophaga violacea* and *Hirundo leucosoma*). These changes, if genuine losses, have occurred over little more than a decade. Ten GCR species, observed in Ibadan by earlier studies but not at the IBA by Ezealor (2001), have not been sighted recently in Ibadan either, *i.e. Francolinus lathami*, *Columba iriditorques*, *Prodotiscus insignis*, *Erythrocercus mccallii*, *Megabyas flammulatus*, *Illadopsis puveli*, *Turdoides reinwardtii*, *Anthreptes rectirostris*, *Plocepasser superciliosus* and *Nigrita luteifrons*. Nonetheless, the loss of these species depicts the importance of conserving sites such as IITA where their forest habitat is being preserved and now extended. Many of the forest fragments mentioned by Elgood & Sibley (1964) are now a shadow of their former selves, with some now occupied by plantations of fast-growing exotics such as *Gmelina*, *Tectona* and *Eucalyptus* species.

The 17 new GCR species now occurring at the IBA are *Bubo poensis*, *Pogoniulus atroflavus*, *Indicator maculatus*, *Campethera nivosa*, *Smithornis rufolateralis*, *Andropadus*

gracilis, *Cossypha cyanocampter*, *Neocossyphus poensis*, *Macrosphenus kempi*, *M. concolor*, *Sylvietta denti*, *Fraseria ocreata*, *Muscicapa olicascens*, *Cinnyris minullus*, *Oriolus brachyrhynchus*, *Dicrurus atripennis and Nigrita fusconotus* The two new SGS species are *Eremomela pusilla* and *Ptilostomus afer*. The apparent arrival of these species at the site might be attributed to genuine colonisation or to their having been overlooked in previous surveys. The identification of most of these species was confirmed by mist netting, with ringing data available for verification.

The Ibadan area still holds many bird species, although some 68 species (plus 62 vagrants) recorded prior to 2002 have not been recorded recently and now appear to be missing from the area. Reasons may include the fact that some of these are inconspicuous species of high forest, not usually found outside this habitat. However, many others are conspicuous and would therefore not be easily overlooked. A few others may return as vagrants, while a good number are migrants and therefore recorded seasonally.

The comparison of recent with earlier records reveals significant changes in the avifauna of the IITA campus and the surrounding Ibadan area. Some of these changes might not be directly attributed to changes within the campus but rather to the ongoing destruction of forest patches outside it. The city of Ibadan is expanding and many of the patches of forest around the reserve have now been replaced by housing, and natural corridors are thinning out. On the other hand, the extension of the derived savanna up to the edges of the campus IBA, as a result of farmland degradation and clearance of forest and bush, has permitted colonization by an increasing number of birds formerly unknown to the area when it was forested.

Although the IITA campus IBA is protected by a fence from cattle grazers and loggers, the farming activities of the research institute itself are beginning to encroach into its forest reserve areas. Reasons given for this include low productivity from old farm plots, therefore new sites for farm plots are often taken from areas formerly covered by secondary forest. In support of conservation on the site, reforestation over the last four years has begun increasing the area covered by forest though it has not been made clear whether the forest is primarily managed to improve the productivity of soils for agriculture or to conserve soil and wildlife. A balance between land use and biological diversity needs to be agreed upon. Further studies are needed to monitor changes in avifaunal diversity along land use gradients including outside the IITA campus, and longer-term studies are required to monitor bird populations within the IBA.

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L'avifaune d'un milieu de riziculture et de ses environs dans la zone humide de Grand-Bassam, sud-est Côte d'Ivoire

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Résumé

Une étude de l'avifaune a été menée de juillet à septembre 2009 dans le milieu rizicole inondé de la zone humide d'importance internationale de Grand-Bassam. Au cours de ces trois mois, 121 espèces d'oiseaux de 38 familles ont été observées, y compris 30 espèces nouvelles observées pour ce site, ce qui porte la liste de l'avifaune de cette zone humide à 186 espèces.

Summary

Birds of a rice-field area in the Grand Bassam wetlands, south-east Ivory Coast. We undertook a study of the birds in an area of flooded rice cultivation in the Grand-Bassam Wetland of International Importance from July to September 2009. Over the three months, 121 bird species from 38 families were observed, including 30 species new for the site, bringing the avifauna of the wetland to 186 species.

Introduction

Dans un environnement naturel modifié par l'extension des cultures de riz *Oryza* spp., certaines espèces d'oiseaux qui souffraient d'une forte mortalité naturelle en fin de saison sèche trouvent maintenant de quoi survivre et se multiplier, causant d'importants dégâts (Tréca 1985, Manikowski *et al.* 1991). D'autres sont attirées par les cultures et s'y installent pour toute la saison. Les diverses méthodes de protection des cultures ont pour objectif premier de remettre les déprédateurs à leur place. Encore faut-il déterminer les espèces responsables des dégâts, connaître leur comportement et les moments où elles causent le plus de pertes, afin que des aménagements judicieux, l'emploi de bons procédés culturaux et un calendrier

cultural basé sur les dates de présence et d'absence des oiseaux déprédateurs, suffisent à réduire le niveau des dégâts (Tréca 1985, 1989, Manikowski *et al.* 1991).

La culture du riz est pratiquée de plus en plus en Côte d'Ivoire et depuis quelques années la politique gouvernementale en matière d'autosuffisance alimentaire encourage sa production. À Grand-Bassam, certaines espèces d'oiseaux qui fréquentent l'agro-écosystème de riziculture intensive pourraient provoquer des pertes sur leur productivité. Cependant, aucune donnée scientifique sur la thématique n'est disponible aussi bien pour l'avifaune que pour les pertes occasionnées. La base de toute compréhension de la problématique repose sur la connaissance de la diversité des oiseaux qui fréquentent les différents habitats de ce milieu. Le but de cette étude est de connaître la communauté des oiseaux qui fréquentent aussi bien les champs de riz que les divers autres habitats que renferme ce milieu de riziculture.

Site d'étude et méthodes

La zone humide de Grand-Bassam (5°21′N, 3°46′W) est située dans la partie est du littoral ivoirien (Fig. 1). Elle couvre une superficie de 40 210 ha (Yaokokoré-Béibro *et al.* 2010). Le site d'étude, de coordonnées 5°13′N, 3°42′W et 5°14′N, 3°41′W, est une bande de terre comprise entre la lagune Ebrié et le fleuve Comoé. Le climat, de type tropical humide, est caractérisé par deux saisons pluvieuses (avril à mi-juillet et mi-septembre à novembre) et deux saisons sèches (Brou 1997). La pluviométrie varie de 2000 à 2200 mm avec une moyenne annuelle de 2100 mm. La température varie de 21 à 33°C, avec une moyenne annuelle de 26,5°C. La moyenne annuelle de l'humidité relative avoisine 85% (Société d'Exploitation Aérienne et Météorologique: données non-publiées). Le fleuve Comoé et la lagune Ebrié confluent dans cette zone humide pour former le plus vaste estuaire du littoral ivoirien. La région appartient au secteur littoral du grand domaine phytogéographique guinéen et est caractérisée majoritairement par des prairies (75% de la superficie) et des galeries forestières marécageuses, qui se présentent sous la forme de longues bandes étroites parallèles au rivage lagunaire (Guillaumet & Adjanohoun 1971). A coté de ces formations naturelles, le paysage de Grand-Bassam est aussi caractérisé par les plantations de Cocotiers *Cocos nucifera*, de Palmiers à huile *Elaeis guineensis* et de riz (inondé sans régulation de l'eau) *Oryza glaberrima* et *O. sativa.*

En vue d'identifier un grand nombre d'espèces et de couvrir l'ensemble des habitats, le site d'étude a été scindé en cinq zones, selon leur accessibilité. Dans chaque zone, quatre jours d'inventaires ont été effectués mensuellement de juillet à septembre 2009. Ces inventaires ont eu lieu de 6h30 à 11h00 et de 16h00 à 18h00 (Yaokokoré-Béibro 2001). La méthode de points de comptage a permis d'effectuer des inventaires dans les cinq zones.

Pour la reconnaissance des espèces, Borrow & Demey (2001) et les disques des chants et cris de Chappuis (2000) ont été utilisés. L'ordre, la nomenclature et le statut

biogéographique des espèces suivent Borrow & Demey (2001), leurs habitats préférentiels Yaokokoré-Béibro (2001) et leurs biomes Fishpool & Evans (2001).

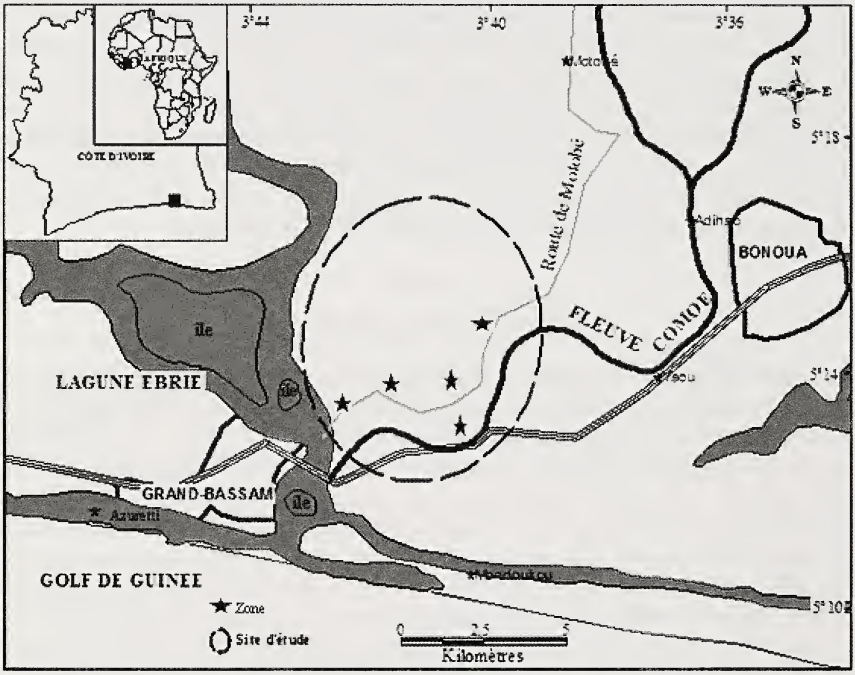

Figure 1. Localisation de la zone d'étude indiquant les parcelles rizicoles dans la zone humide de Grand Bassam.

Résultats

Au total, 121 espèces de 37 familles ont été identifiées au cours de l'étude (Tableau 1). Les non-passeriformes sont représentés par 63 espèces, et les passériformes par 58 espèces. Le statut biogéographique indique que 99 espèces sont typiquement résidentes. Huit espèces sont typiquement migratrices dont cinq migrateurs paléarctiques, deux migrateurs intra-africains et un migrateur mixte (Tableau 1). Quatorze espèces sont à la fois résidentes et migratrices.

Les espèces inféodées aux milieux ouverts sont les plus nombreuses (58 soit 48 % du peuplement). Elles sont suivies par les espèces forestières généralistes (29 soit 24 % du peuplement) et les espèces des zones humides (23 soit 19 % du peuplement). Les espèces sténotypiques de forêt sont les moins nombreuses (11 soit 9 % du peuplement).

Quarante-sept espèces (soit 39 % des espèces observées) ont été inventoriées aussi bien dans les champs de riz que dans les autres habitats. Les autres 74 espèces (61 %) n'ont pas été inventoriées dans les rizières au cours de l'étude.

Tableau 1. Liste des oiseaux observés dans la zone de riziculture de Grand-Bassam. † nouvellement observée dans la zone. Statut biogéographique: R = résident; P = migrateur paléarctique; M = migrateur intra-africain. Habitat principal: E = eaux, zones humides; O = milieux ouverts; F = forêt secondaire; FF = forêt primaire; * observée dans les champs de riz; A04 = restreinte au biome des savanes soudano-guinéenne; A05 = restreinte au biome des forêts guinéo-congolaises.

	Statut	Habitat
Phalacrocoracidae		
Phalacrocorax africanus Cormoran africain	R	E
Ardeidae		
Ixobrychus minutus Blongios nain	RP	E*
Nycticorax nycticorax Bihoreau gris	RP	E*
Ardeola ralloides Crabier chevelu	RP	E*
Bubulcus ibis Héron garde-bœufs	RM	E*
Butorides striata Héron strié	R	E*
Egretta gularis Aigrette à gorge blanche	R	E*
E. intermedia Aigrette intermédiaire	RM	E*
E. alba Grande aigrette	RMP	E*
Anatidae		
Dendrocygna viduata Dendrocygne veuf*	RM	E*
Nettapus auritus Sarcelle à oreillons	R	E*
Accipitridae		
†*Elanus caeruleus* Elanion blanc	R	O*
Milvus migrans Milan noir	MP	O
Haliaetus vocifer Pygargue vocifer	R	E
Gypohierax angolensis Palmiste africain	R	F
Polyboroides typus Gymnogène d'Afrique	R	F
Accipiter badius Epervier shikra	RM	O
Falconidae		
Falco ardosiaceus Faucon ardoisé	R	O
Phasianidae		
Francolinus bicalcaratus Francolin à double éperon	R	O
Rallidae		
†*Crex egregia* Râle des prés	MR	O*
Amaurornis flavirostra Râle à bec jaune	R	E*
†*Porphyrio alleni* Talève d'Allen	MR	E*
†*Gallinula chloropus* Gallinule poule d'eau	R	E*
Jacanidae		
Actophilornis africanus Jacana à poitrine dorée	R	E*

	Statut	Habitat
Rostratulidae		
†*Rostratula benghalensis* Rhynchée peinte	RM	E*
Charadriidae		
Vanellus spinosus Vanneau à éperons	R	E*
Scolopacidae		
†*Gallinago gallinago* Bécassine des marais	P	E*
Numenius phaeopus Courlis corlieu	P	E
†*Tringa glareola* Chevalier sylvain	P	E*
Actitis hypoleucos Chevalier guignette	P	E
Columbidae		
Treron calvus Colombar à front nu	R	F
Turtur tympanistria Tourtelette tambourette	R	F
T. afer Tourtelette améthystine	R	O*
Streptopelia semitorquata Tourterelle à collier	R	O*
S. senegalensis Tourterelle maillée	R	O*
Psittacidae		
Psittacus erithacus Perroquet jaco	R	FF A05
†*Poicephalus senegalus* Perroquet youyou	R	O A04
Psittacula krameri Perruche à collier	R	O
Musophagidae		
Tauraco macrorhynchus Touraco à gros bec	R	FF A05
Crinifer piscator Touraco gris	R	O
Cuculidae		
Chrysococcyx cupreus Coucou foliotocol	R	F
C. klaas Coucou de Klaas	R	O
C. caprius Coucou didric	R	O*
Ceuthmochares aereus Malcoha à bec jaune	R	F
†*Centropus grillii* Coucal de Grill	MR	O
C. senegalensis Coucal du Sénégal	R	O
Apodidae		
Cypsiurus parvus Martinet des palmiers	R	O
Apus affinis Martinet des maisons	R	O
Alcedinidae		
†*Halcyon malimbica* Martin-chasseur à poitrine bleue	R	F
H. senegalensis Martin-chasseur du Sénégal	R	O
Alcedo cristata Martin-pêcheur huppé	R	O*
Ceryle rudis Martin-pêcheur pie	R	E*
Meropidae		
Merops pusillus Guêpier nain	R	O*
Bucerotidae		
Tockus fasciatus Calao longibande	R	F A05
Bycanistes fistulator Calao siffleur	R	FF A05
Capitonidae		
Gymnobucco calvus Barbican chauve	R	F A05

	Statut	Habitat
Pogoniulus scolopaceus Barbion grivelé	R	F A05
†*P. atroflavus* Barbion à croupion rouge	R	FF A05
P. subsulphureus Barbion à gorge jaune	R	FF A05
P. bilineatus Barbion à croupion jaune	R	F
Lybius vieilloti Barbican de Vieillot	R	O
†*L. bidentatus* Barbican bidenté	R	O
Picidae		
Dendropicos pyrrhogaster Pic à ventre de feu	R	F A05
Hirundinidae		
Hirundo semirufa Hirondelle à ventre roux	R	O
H. abyssinica Hirondelle striée	RM	O
H. rustica Hirondelle rustique	P	O
Motacillidae		
Anthus leucophrys Pipit à dos uni	R	O*
Macronyx croceus Sentinelle à gorge jaune	R	O*
Pycnonotidae		
Andropadus virens Bulbul verdâtre	R	F
Chlorocichla simplex Bulbul modeste	R	F A05
Thescelocichla leucopleura Bulbul des raphias	R	F A05
Pycnonotus barbatus Bulbul des jardins	R	O
Turdidae		
Cossypha niveicapilla Cossyphe à calotte neigeuse	R	F
Sylviidae		
†*Cisticola erythrops* Cisticole à face rousse	R	O*
†*C. galactotes* Cisticole roussâtre	R	O*
†*C. natalensis* Cisticole striée	R	O
C. brachypterus Cisticole à ailes courtes	R	O*
†*Prinia subflava* Prinia modeste	R	O*
Camaroptera brachyura Camaroptère à tête grise	R	O
C. superciliaris Camaroptère à sourcils jaunes	R	FF A05
†*C. chloronota* Camaroptère à dos vert	R	FF A05
†*Sylvietta virens* Fauvette Crombec verte	R	F A05
Hylia prasina Hylia verte	R	F A05
Monarchidae		
Terpsiphone rufiventer Tchitrec à ventre roux	R	F A05
Platysteiridae		
Platysteira castanea Pririt châtain	R	FF A05
P. cyanea Pririt à collier	R	O
Remizidae		
†*Pholidornis rushiae* Mésangette rayée	R	O A05
Nectariniidae		
†*Anthreptes rectirostris* Souimanga à bec droit	R	FF A05
Anabathmis reichenbachii Souimanga de Reichenbach	R	O A05
Cyanomitra verticalis Souimanga olive à tête bleue	R	F

	Statut	Habitat
†*Chalcomitra adelberti* Souimanga à gorge rousse	R	FF A05
C. senegalensis Souimanga à poitrine rouge	RM	O
Hedydipna collaris Souimanga à collier	R	F
Cinnyris chloropygius Souimanga à ventre olive	R	F
†*C. coccinigastrus* Souimanga éclatant	R	O A04
C. cupreus Souimanga cuivré	R	O*
Laniidae		
Lanius collaris Pie-grièche fiscale	R	O*
Malaconotidae		
†*Dryoscopus gambensis* Cubla de Gambie	R	F
Corvidae		
Corvus albus Corbeau pie	R	O
Sturnidae		
Lamprotornis splendidus Choucador splendide	R	F
†*Cinnyricinclus leucogaster* Spréo améthyste	M	O
Passeridae		
Passer griseus Moineau gris	R	O*
Ploceidae		
†*Ploceus pelzelni* Tisserin de Pelzeln	R	O
P. nigricollis Tisserin à cou noir	R	O
P. aurantius Tisserin orangé	R	O A05
P. nigerrimus Tisserin noir de Vieillot	R	O* A05
P. cucullatus Tisserin gendarme	R	O*
Malimbus nitens Malimbe à bec bleu	R	F A05
M. scutatus Malimbe à queue rouge	R	FF A05
†*Quelea erythrops* Travailleur à tête rouge	M	O*
†*Euplectes afer* Euplecte vorabé	R	O*
E. macrourus Euplecte à dos d'or	R	O*
Estrildidae		
Nigrita canicapillus Nigrette à calotte grise	R	F
†*N. bicolor* Nigrette à ventre roux	R	FF A05
Pyrenestes ostrinus Pyréneste ponceau	R	F*
†*Spermophaga haematina* Sénégali sanguin	R	F A05
Estrilda melpoda Astrild à joues orange	R	O*
Lonchura cucullata Capucin nonnette	R	O*
L. bicolor Capucin bicolore	R	O*
†*L. fringilloides* Capucin pie	R	O*
Viduidae		
Vidua macroura Veuve dominicaine	R	O*

Quatre espèces méritent des commentaires compte tenu du peu de données dont on dispose sur elles dans cette région. Un individu de *Centropus grillii* a été observé le

10 août 2009 dans la zone 5. La présence de l'espèce est confirmée par les travaux de Gueye (2013). Cette espèce se distingue de la forme *epomidis* de *C. senegalensis*, aussi présente et résidente dans la région, par sa coloration noire (tête, parties inférieures, queue) et ses ailes roussâtres. La forme *epomidis*, assez commune entre les individus typiques de *C. senegalensis* sur le site et bien connu des auteurs, se caractérise par la tête et la gorge noires et par les ailes et les parties inférieures marron. Deux individus de *Lybius bidentatus* ont été régulièrement observés dans les zones 1 et 3, de juillet à septembre 2009. *Lybius bidentatus* est semblable à *L. dubius*, mais s'en distingue par l'absence de bande pectorale noire et la présence d'une barre alaire rouge. Cette espèce a déjà été mentionnée dans le sud-est de la Côte d'Ivoire, dans le parc national des îles Ehotilé (Yaokokoré-Béibro 2010). Un individu de *Chalcomitra senegalensis* a été observé le 19 juillet 2009 dans la zone 1. Cette espèce a également été mentionnée dans cette région par Yaokokoré-Béibro *et al.* (2010). *Pyrenestes ostrinus* a été régulièrement observé dans le site d'étude de juillet à septembre 2009, avec une abondance avoisinant la cinquantaine d'individus. Les mâles adultes de *P. ostrinus* sont semblable à ceux de *P. sanguineus*, que nous n'avons pas enregistré sur le site, par la tête, la poitrine, les flancs, le croupion et la queue rouges ainsi qu'un cercle oculaire blanc; ils sont cependant distincts par le reste de leur coloration qui est noire pour *P. ostrinus* et brun terre pour *P. sanguineus*.

Discussion

La richesse spécifique de la zone prospectée montre que ce milieu de riziculture renferme une grande diversité d'oiseaux. Les travaux antérieurs (Demey & Fishpool, 1991, N'guessan 2007, Lachenaud *et al.* 2008, Yaokokoré-Béibro *et al.* 2010) ont permis d'inventorier 156 espèces pour la zone humide d'importance internationale de Grand Bassam. L'étude a permis d'identifier 30 espèces nouvelles pour la zone. La liste des espèces de la zone humide de Grand-Bassam s'élève ainsi à 186 espèces dont deux, *Sterna balaenarum* et *Bycanistes cylindricus*, sont proches de la menace (NT) dans la liste rouge de l'UICN (BirdLife International 2004). Toutefois, 45 espèces mentionnées dans la région d'étude (Yaokokoré *et al.* 2010), comprenant de nombreux migrateurs, n'ont pas été observées. Ceci serait lié à la période de l'étude qui est très courte (de juillet à septembre 2009) et défavorable à l'observation des migrateurs paléarctiques (seulement huit migrateurs paléarctiques sont présentés dans cette étude). Vu qu'aucune véritable étude de population de l'avifaune n'a été effectuée dans la région, il est probable que le statut de certaines espèces d'oiseau, telles que *Egretta alba* et *Centropus grillii*, ne soit pas clairement défini. Certaines autres, indiquées comme à la fois résidentes et migratrices, pourraient être seulement résidentes dans la région d'étude, et migratrices dans d'autres parties du pays (*Accipiter badius*, *Rostratula benghalensis*, *Hirundo abyssinica*). Pour d'autres, l'existence d'une population résidente est prouvée, mais on soupçonne également celle de migrateurs

africains (*Egretta intermedia*), ou paléarctiques (*Ixobrychus minutus*, *Nycticorax nycticorax*) ou les deux (*Ardeola ralloides*). *Milvus migrans* est un migrateur africain nicheur dans la région, avec la présence possible de migrateurs paléarctiques.

Trois des espèces typiques qui fréquentent la végétation côtière et les mangroves (*Anabathmis reichenbachii*, *Ploceus aurantius* et *P. pelzelni*) ont été observées, 27 des 188 espèces restreintes au biome des forêts guinéo-congolaises et deux des 38 espèces restreintes au biome des savanes soudano-guinéenne (Fishpool & Evans 2001).

Comparé aux autres sites du littoral ivoirien, la liste totale des 186 espèces d'oiseaux du milieu rizicole de Grand Bassam partage 83 % de son peuplement avec la forêt classée de N'ganda N'ganda (Kouadio 2006), 72 % avec le parc national des Iles Ehotilé (Yaokokoré-Béibro 2010) et 55 % avec le parc national d'Azagny (Fishpool & Evans 2001, Demey 2006). La zone humide de Sassandra-Dagbégo, plus au sud-ouest, partage avec le site d'étude 59 % du peuplement (Lachenaud 2006). Ces chiffres montrent que la zone humide Ramsar de Grand-Bassam est bien complémentaire des autres sites du littoral ivoirien et vaut d'être protégée.

Cette liste préliminaire du peuplement d'oiseaux dans la zone de riziculture de la zone humide de Grand-Bassam montre que les espèces qui fréquentent les champs cultivés ne sont pas toutes des déprédatrices du riz. Certaines sont insectivores et contribuent à la régulation naturelle des insectes ravageurs des cultures. D'autres sont des prédateurs d'oiseaux, de rongeurs et de reptiles. La lutte ou la protection des champs contre les oiseaux nécessite donc de connaître les espèces responsables des pertes et leurs caractéristiques écologiques, biologiques et comportementales. Des études complémentaires sur deux cycles annuels sont nécessaires pour compléter ces premières données.

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Short Notes — Notes Courtes

Records of African Pygmy Goose *Nettapus auritus* and a *Halcyon* kingfisher on São Tomé

On 21 July 2011, one of us (AT) observed a female African Pygmy Goose *Nettapus auritus* feeding and resting in a sheltered part of the river Io Grande, Dona Eugénia area (0.13322°N, 6.61979°E), in southeast São Tomé. The bird was observed for at least 20 min. (10h10–10h30) and several photos were taken (Fig. 1). The distinct plumage of the species and the perfect observational circumstances exclude misidentification. The African Pygmy Goose is distributed over large parts of sub-Saharan Africa, where it is largely confined to freshwater lakes, marshes and rivers (Brown *et al.* 1982, Borrow & Demey 2001). It is noted as vagrant to the islands of São Tomé and Príncipe in the Gulf of Guinea on the IUCN Red List (<http://www.iucnredlist.org/>, consulted Feb 2014), but to the best of our knowledge no observations have been formally reported to date. São Tomé is located *c.* 175 km west of the coast of Gabon, and the present record thus demonstrates the species' capability of dispersal over the sea.

The day before this observation, *i.e.* 20 July 2011, we encountered yet another unexpected bird for São Tome: a *Halcyon* kingfisher. This observation was made during a walk along the Io Grande, close to its junction with the river Ana Chaves (0.13738°N, 6.61971°E). The bird perched on a dead branch of a tree located up the almost vertical bank of the river. Unfortunately, it was raining at the time of the observation, which, in combination with the long distance (*c.* 150 m), rendered detailed observations impossible. We observed clearly the typical silhouette of a *Halcyon* kingfisher, with proportionally very long bill and short tail; the belly and underparts appeared light and the back and head dark; a light patch was observed on the right wing of the bird. The Blue-breasted Kingfisher *H. malimbica* is resident on the island of Príncipe, *c.* 145 km northeast of São Tomé) as a local subspecies *H. m. dryas*, which is slightly larger than its mainland counterpart. It occurs in a wider range of habitats on Príncipe than on the mainland (Christy & Clark 1998). Our observation could possibly have been of this subspecies, but we can neither exclude the mainland subspecies nor other *Halcyon* species (in particular the Woodland Kingfisher *H. senegalensis*). Jones & Tye (2006) considered all previous records of *H. m. dryas* for São Tomé as subject to doubt and concluded that there was no good evidence that the species had truly occurred there; although our observation does not change this situation, it indicates a need for vigilant attention to large kingfishers seen on São Tomé.

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Figure 1. Female African Pygmy Goose in a sheltered part of the river Io Grande, southeast São Tomé, 21 July 2011 (photo: A. Thomasson).

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Observations ornithologiques au Sénégal et en Gambie

Pendant un voyage d'ornithologues amateurs parrainé par l'Association des Naturalistes des Yvelines (ANY, France) au Sénégal et en Gambie du 2 au 19 février 2014, les participants ont fait cinq observations particulières.

***Ciconia ciconia* Cigogne blanche.** Nous avons observé environ 1500 Cigognes blanches dans quatre groupes dans la Réserve de Baobolong (13°34′N, 15°47′W) en

Gambie, le 16 fév; des regroupements de centaines ou milliers d'individus de cette espèce ont été signalés pendant les migrations (Géroudet 1994).

***Gorsachius leuconotus* Bihoreau à dos blanc.** Nous avons aussi observé dans la Réserve de Baobolong (13°28'N, 15°48'W), le 14 fév, un adulte et un juvénile du Bihoreau à dos blanc (Fig. 1A). Bien que cette espèce soit déjà connue de cette région, il n'existe que peu d'évidence de sa reproduction.

***Ardea cinerea* Héron cendré.** Un individu de la sous-espèce *monicae* (Héron pâle) observé en compagnie d'autres Ardeidae, dans les arbres bordant la mare de Leba (13°21'N, 13°22'W), près de Badi à l'extérieur du Parc National du Niokolo-Koba, le 11 fév. Les premiers contacts visuels faisaient penser à un Héron cendré leucistique, mais les détails obtenus grâce au télescope ont permis de bien remarquer les taches noires le long du cou, comme illustré dans Borrow & Demey (2011). Cette sous-espèce, considérée par certains comme espèce distincte, ne se trouve normalement qu'aux alentours du Banc d'Arguin en Mauritanie (Borrow & Demey 2011).

***Acrocephalus paludicola* Phragmite aquatique.** Un individu observé sur la mare de Leba, le 11 fév. Deux caractéristiques rendent crédible l'observation de ce phragmite: le dessin bien visible de la tête, avec ses trois bandes claires, nettement détachées, et le milieu dans lequel l'oiseau a été observé, une mare entourée de plantes marécageuses. Lors de l'observation, le phragmite était perché momentanément sur un roseau. Jusqu'ici ce migrateur paléarctique n'a été observé que sur la côte à l'extrême nord du Sénégal (Le Nevé *et al.* 2013).

***Prionops plumatus* Bagadais casqué.** Un groupe d'une dizaine suivaient de très près notre groupe lors d'une promenade à pied dans la bananeraie (13°21'N, 13°21'W) de Wassadou proche du Parc National du Niokolo-Koba, le 3 fév. Les oiseaux étaient agités, volant bas et se posant souvent à quelques mètres des participants (Fig. 1B) tout au long d'un parcours de plus d'une centaine de mètres. Typiquement les Bagadais

Figure 1. A: Bihoreau à dos blanc *Gorsachius leuconotus* (juvénile), 14 fév 2014. B: *Prionops plumatus* Bagadais casqué, 3 fév 2014. (Clichés: J. Rose).

casqués fuient quand ils sont approchés de moins d'une vingtaine de mètres, et les guides du Parc national nous ont dit qu'ils n'avaient jamais auparavant vu ce comportement. Peut-être les oiseaux suivaient-ils un chemin habituel.

Nous remercions Lamin Sanyang, conservateur du Parc National de Niumi, qui nous a accompagnés lors de notre visite en Gambie, et Jean-Louis Faure, membre du Groupe Ornithologique Normand, pour sa contribution à la validation des observations.

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The Parelius bird collection from Ivory Coast at the Field Museum of Natural History, and the first country record of Rufous Cisticola *Cisticola rufus*

Museum collections can play a critical role in unravelling a country's faunistic history. Each specimen creates a scientific, historical record of where and when a bird occurred, from which, among other things, we can learn about changes in land cover and climate, and infer changes in an organism's distribution over time (e.g. Moritz *et al.* 2008). This is especially useful for difficult to identify species.

We report on a collection of birds from Ivory Coast made by D. Parelius between 1964 and 1969, which has been overlooked in previous treatments of the country's avifauna (Thiollay 1985, Dowsett 1993, Dowsett *et al.* 2014). Parelius, the son of American missionaries, lived in Ivory Coast intermittently during this period. After being given a book on preparing bird specimens by Jim Gould, another missionary in

the area, and corresponding with Melvin Traylor, curator of birds at the Field Museum of Natural History (FMNH: Chicago, U.S.A.), he started collecting birds for the museum in 1964. The first part of the collection (339 specimens collected in 1964–5), published by Traylor & Parelius (1967), added 44 species to the country's known avifauna. In total, the Parelius collection comprises 1933 specimens of 297 species, predominantly from the areas around Bouaké, Abidjan and Korhogo. However, while Parelius himself is acknowledged in the first checklist of birds of Ivory Coast (Brunel & Thiollay 1969), his collection was not examined by those authors (J.-M. Thiollay pers. comm.).

We examined the complete list of Parelius specimens as catalogued and compared it to the most recent checklist of the birds of Ivory Coast (Dowsett *et al.* 2014). After accounting for taxonomic discrepancies, we then examined the specimens of the three species in the catalogue that were not included in Dowsett *et al.* (2014): Rufous Cisticola *Cisticola rufus*, Black-bellied Seedcracker *Pyrenestes ostrinus* and Golden-breasted Bunting *Emberiza flaviventris*. We determined that the bunting specimen was actually Cabanis's Bunting *E. cabinisi*, a species already known from Ivory Coast. However, the other two were correctly identified and we include details of those records here.

***Cisticola rufus* Rufous Cisticola.** These specimens represent the only records of the species for Ivory Coast, heretofore unpublished. Distinguishing Rufous Cisticola from the sympatric Short-winged Cisticola *C. brachypterus* is difficult, obscured by variation in the colour of the upperparts. In addition, based on examination of the Parelius specimens and others in the Field Museum's collections, we found the shape of the

Figure 1. Small cisticolas collected in northern Ivory Coast by D. Parelius. The six on the left are *Cisticola rufus*, the only specimens of that species from the country. The five on the right are *C. brachypterus*.

Table 1. FMNH accession numbers and data for the specimens of *Cisticola rufus* collected by D. Parelius in Ivory Coast. The coordinates are modified from the original field notes and from Traylor & Parelius (1969).

Accession number	Locality	Coordinates	Date	Sex
278904	Ferké	9°36′N, 5°12′W	11 Aug 1966	Female
278906	Ferké	9°36′N, 5°12′W	5 Aug 1966	Male
278907	Boundiali	9°32′N, 6°29′W	16 Jul 1966	Male
278908	Ferké	9°36′N, 5°12′W	6 Aug 1966	Female
285844	Boundiali	9°32′N, 6°29′W	12 Aug 1966	Female
285847	Torgokaha	1 km west of Korhogo*	13 Jul 1969	Male

*Coordinates for Korhogo: 9°27′N, 5°39′W

outermost primary, considered diagnostic by Lynes (1930), to be unreliable as an identification criterion. However, Rufous Cisticola is distinguishable by its more rufous upperparts, apparent in side-by-side comparisons, and by the lack of any hint of streaking on the back (Fig. 1). Based on these features, we have identified six specimens, which Parelius collected from three localities in northern Ivory Coast, as Rufous Cisticola (Table 1).

***Pyrenestes ostrinus* Black-bellied Seedcracker.** Four specimens of this widespread estrildid were collected at Port Bouet in March 1967. This taxon is not listed in any checklist of birds of Ivory Coast (*e.g.* Thiollay 1985, Dowsett 1993, Dowsett *et al.* 2014), perhaps stemming from Brunel & Thiollay's (1969) listing only "*Pyrenestes* (*ostrinus*) *sanguineus*", implying that only Crimson Seedcracker *P. sanguineus* was known from the country. This was in spite of an earlier publication by Brunel (1955) stating that he collected nests of both seedcracker species at Bingerville. Regardless, there are several recently published records from the southeast of the country: Grand Bassam (Borrow 2000, Yaokokoré-Béibro *et al.* 2010), Parc National des Iles Ehotilé (Yaokokoré-Béibro 2010) and N'Ganda N'Ganda (Kouadio *et al.* 2014). The Parelius skins may represent the only specimens of this taxon for Ivory Coast.

Not incorporating such distributional data in country checklists can have a residual effect in the literature. For example, Salewski *et al.* (2001) used the range descriptions of Thiollay (1985) as a baseline for detecting latitudinal range shifts in Ivorian birds. However, two of the species listed as potentially having northward range expansions (Blackcap Babbler *Turdoides reinwardtii* and Black-necked Weaver *Ploceus nigricollis*) would have been omitted had Thiollay (1985) incorporated the Parelius collection in his paper. In this case, this is not a serious error: indeed it would have served to strengthen the conclusion of Salewski *et al.* (2001).

This paper is not an exhaustive review of the Parelius collection. Its data are freely availably in online museum collection databases (*e.g.* VertNet, ORNIS). We encourage researchers interested in bird distributions in the Ivory Coast and West Africa in general to incorporate this valuable collection into future studies.

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News & Comment — Nouvelles & Commentaires

Ornithological services of the Niokolo-Koba National Park guides

Niokolo-Koba National Park (NKNP) in southeast Senegal is, with an area of 913,000 ha, the largest nature sanctuary in that country and one of the largest and most important in West Africa. The exceptional diversity of the fauna and flora of the Park were recognized in 1981 with its designation by UNESCO as a Biosphere Reserve and World Heritage site.

NKNP is also a key resource for local sustainable development and environmental action in the area. With the encouragement of the national and local authorities, the 31 eco-guides of the Park have been working tirelessly through their cooperative called GIE NIOKOLO <http://www.niokolo-safari.com> to improve and promote the Park and foster development of the region.

The wealth of bird life in and around NKNP is exceptional, estimated at about 345 species from the distribution maps of Borrow & Demey (2011, *Birds of Senegal and The Gambia*, Christopher Helm, London), without counting isolated or doubtful observations. Since 2012 the French association "COMETE International" <http://www.comete-international.org> has been assisting GIE NIOKOLO to improve its tourist services and to contribute more effectively to the advancement and dissemination of scientific knowledge. The guides have thus been able to organise visits to the Park and its surroundings for international groups of amateur ornithologists in 2013 and 2014 (Diop *et al.* 2014, *Malimbus* 36: 117–119; <http://www.siteany78.org/>), and plan a third in Senegal and Gambia in 2015. GIE NIOKOLO also offers birdwatching treks in areas of interest outside the Park, notably just north of it (near the main entrance) and in the foothills near the Guinean border to the south. Starting in November 2014, the GIE will be systematically collecting and posting data from its ornithological observations on its website, with an emphasis on raptors, water birds and species of particular interest for ornithological tourism.

To participate in sharing information on the birds of NKNP, or for questions concerning the ornithological services of GIE NIOKOLO, readers are invited to contact us.

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

Membership List, 1 February 2014

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

Membership List, 1 February 2014

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Tous les Articles (mais non les Notes Courtes) comporteront un **Résumé**, n'excédant pas 5% de la longueur totale. Le Résumé mentionnera brièvement les principaux résultats et conclusions de l'Article et ne sera pas un simple compte rendu de ce qui a été fait. Les résumés seront publiés à la fois en anglais et en français (ou dans la langue officielle du pays dans lequel le travail a été réalisé) et seront traduits au mieux par la Rédaction.

La **présentation** des tableaux, chiffres, unités métriques, références, *etc.* doit correspondre à celles des numéros récents. A notez, en particulier: Les noms des auteurs doivent être listés en faisant précéder le nom de famille par le prénom ou des initiales (ex. John A. Smith); les dates seront écrites "2 fév 1990" mais les mois seuls pourront être écrits en entier; les heures seront écrites "6h45", "17h00"; les coordonnées "7°46′13″N" (pas de zéros en tête) ou en degrés décimaux jusqu'à cinq décimales (ex. 1.23456°N), mais non en minutes décimales; les nombres jusqu'à dix seront écrits en toutes lettres, excepté devant une unité de mesure (ex. 6 m); les nombres à partir de 11 seront écrits en chiffres sauf au début d'une phrase. Toutes les références citées dans l'article, et aucune autre, doivent figurer dans la bibliographie.

Les **articles sur l'avifaune** doivent comprendre une carte ou un index géographique, incluant tous les endroits cités. Ils doivent comporter quelques brèves indications sur le climat, la topographie, la végétation et les circonstances ou événements inhabituels avant ou pendant l'étude (ex. pluies tardives, *etc.*). Les **listes d'espèces** ne doivent contenir que des données importantes: les listes complètes ne sont justifiées que pour les régions encore non étudiées ou délaissées pendant longtemps. Autrement, ne citer que les espèces sur lesquelles l'étude fournit une information nouvelle sur la répartition, la période de séjour, la reproduction, *etc.* Pour chaque espèce, indiquer l'extension de l'aire de répartition, une estimation d'abondance (*Malimbus* 17: 38) et les données datées sur la reproduction; indiquer le statut migratoire et la période de séjour seulement tels qu'ils ressortent de l'étude. Eventuellement, replacer les données dans le contexte en les comparant brièvement avec une liste régionale de référence. Les longues listes d'espèces peuvent être présentées sous la forme de tableaux (ex. *Malimbus* 25: 4–30, 24: 15–22, 23: 1–22, 1: 22–28, or 1: 49–54) ou sous la forme rédigée des numéros récents. La **séquence taxonomique** et les **noms scientifiques** (et de préférence aussi les **noms vernaculaires**) doivent suivre Borrow & Demey (2001, *Birds of Western Africa*, Christopher Helm, London, avec des noms rectifiés de Borrow & Demey 2004, *Field Guide to the Birds of Western Africa*, Christopher Helm, London), ou *The Birds of Africa* (Brown *et al.* 1982, Urban *et al.* 1986, 1997, Fry *et al.* 1988, Keith *et al.* 1992, Fry & Keith 2000, 2004, Academic Press, London), à moins de donner les raisons de s'écarter de ces auteurs. Un **guide plus complet à l'intention aux auteurs** d'articles sur l'avifaune, comprenant l'échelle d'abondance des espèces conseillée, a été publié dans *Malimbus* 17: 35–39 et une version augmentée et actualisée de celle-ci mise sur le site internet (http://malimbus.free.fr/instmale.htm). La Rédaction se fera un plaisir de donner des conseils pour les études spécifiques.

Pour le dessin des **Figures**, et en particulier la taille des caractères, tenir compte des dimensions de la page de *Malimbus*. On préfère les figures préparées sur logiciel graphique approprié et sauvegardées en haute définition. Les fichiers de basse résolution et les impressions de mauvaise qualité seront refusés. Les auteurs sont encouragés à soumettre des **photographies** qui illustrent des points importants de leurs articles. Les photographies doivent être en couleurs et de haute définition. Les figures et les photographies doivent être envoyées comme fichiers de logiciel graphique (par ex. jpg ou tif), et non pas être incluses dans un fichier de Word. Consulter le Rédacteur pour tout renseignement.

Un fichier pdf des Articles et des Notes Courtes, et une copie du numéro de publication seront envoyés gratis à l'auteur ou à l'auteur principal.

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