Bird community of the damaged Natio-Kobadaradam lake in Korhogo, northern Côte d'Ivoire.

Abstract

The bird community of the Natio-Kobadara dam wasthe subject of an ornithological inventory for the first time from June to August 2022, with the aim of contributingto a better understanding of the impact of wetland degradationon bird communities. To do this, the Point Abundance Index (PAI) method based on listening points wasused. The results obtainedindicate a species richness of 66 species divided into 36 families and 13orders. The order Passeriformes (45.45%) and the families Accipricidaeand Columbidae (7.58%) were the most represented in terms of quality. Resident species (93.94%) and those from open environments (72.73%)were dominant. Only 13 species of water birds visited this site, andone species, *Vanellus tectus*, was observed there for the first timein the northern part of Côte d'Ivoire. Compared to other surrounding dam lakes, the consequences of the site's degradation are evidentin a less rich avifauna, particularly with regard to water birds.Rehabilitation work on the Natio-Kobadara dam lake willmake the site more attractive to birdlife.

Key words: Avifauna, Biodiversity, Degraded wetland, Korhogo, Côte d'Ivoire.

Introduction

Biodiversity loss has now reached an unprecedented level due to human activities (Primack et al., 2012). Wetlands provide various ecosystem services as well as water on which plant and animal organisms depend for their survival. Humans benefit from them through agricultural and pastoral activities (Odoukpé et al., 2014).

Côte d'Ivoire has been a signatory to the Ramsar Convention since 1996. Under this framework, it has designated six Ramsar sites, or wetlands of international importance. These are the Sassandra-Dagbégo complex, Fresco, Grand-Bassam, the Ehotilé-Essouman Islands, the N'GandaN'ganda Protected Forest, and Azagny National Park (Ramsar Convention Secretariat, 2014). These Ramsar sites cover a total area of 127,344 ha and are located in the country's coastal region. Numerous studies conducted at some of these sites reveal a significant interest of birds in wetlands (Lachenaud, 2006; Yaokokoré-Béibro, 2010; Yaokokoré-Béibro et al., 2010; Yaokokoré-Béibro et al., 2015a et b; Kouadio et al., 2014; Odoukpé et al., 2014; Odoukpé and Yaokokoré-Béibro, 2014a; Odoukpé and Yaokokoré-Béibro, 2014b).

The northern part of the country, meanwhile, features a network of artificial dam lacs created in the 1970s to resolve conflicts between farmers and nomadic herders (Cecchi et al., 2007; Le Guen, 2008). Not all of these artificial lakes—estimated at 270—have been subject to ongoing monitoring and maintenance. Several of them have silted up and dried up. The lakes that have withstood the test of time are now recognized for their important socio-economic role, as well as for their function as wetlands harboring a significant portion of biodiversity, particularly avian biodiversity (Niamien et al., 2024; Konan et al., 2025; Ehouman et al., 2025). However, significant efforts are needed to assess the potential of all these reservoirs and their contribution to the conservation of inland waterbirds. In this context, this study focused on the Natio-Kobadaradam lac, which had not previously been the subject of ornithological monitoring. The significance of this dam lac lies in the fact that the site is at risk. Indeed, the dam lac has emptied of water following the deterioration of the retaining dam. Now, only the rivers that once fed it continue to flow into the dried-up basin.

This study aims to determine the impact of the degradation of the Natio-Kobadaradam lac on its ability to support biodiversity. The objectives of this study are to (i) conduct a survey of the bird fauna inhabiting the Natio-Kobadaradam lac wetland and (ii) determine the structure of this population using ecological indices.

1. Study Area

The Natio-Kobadara Dam is a hydro-agricultural project designed for rice production in the municipality of Korhogo. It was constructed in 1972 by Motoragri and is located at 5°37’ west longitude and 9°29’ north latitude, featuring an earthen embankment (Figure 1). It is part of the Bandama basin, with a catchment area of 13.65 km² (Silué and Dago, 2014). In addition, it is also used for watering cattle and fishing. Mango and cashew orchards are found in the vicinity of the site. The site is the location of activities such as hunting and sand extraction. Furthermore, used tires are regularly burned there to extract the metal casings.

The climate of the city of Korhogo is of the Sudano-Guinean tropical type, characterized by two distinct seasons. The dry season is a very hot and dry period from November to March, and the rainy season extends from April to October (Boko-Koiadia et al., 2016).

The vegetation at the Natio-Kobadara Dam consists of aquatic plants and other herbaceous formations that form a meadow on both sides of the riverbed (Figure 2). The vegetation around the dam belongs to the Sudanese sector, dominated by the wooded savanna characteristic of the northern part of the country.

Figure 1: Aerial view of the Natio-Kobadara dam lake (Google Earth, 2025)

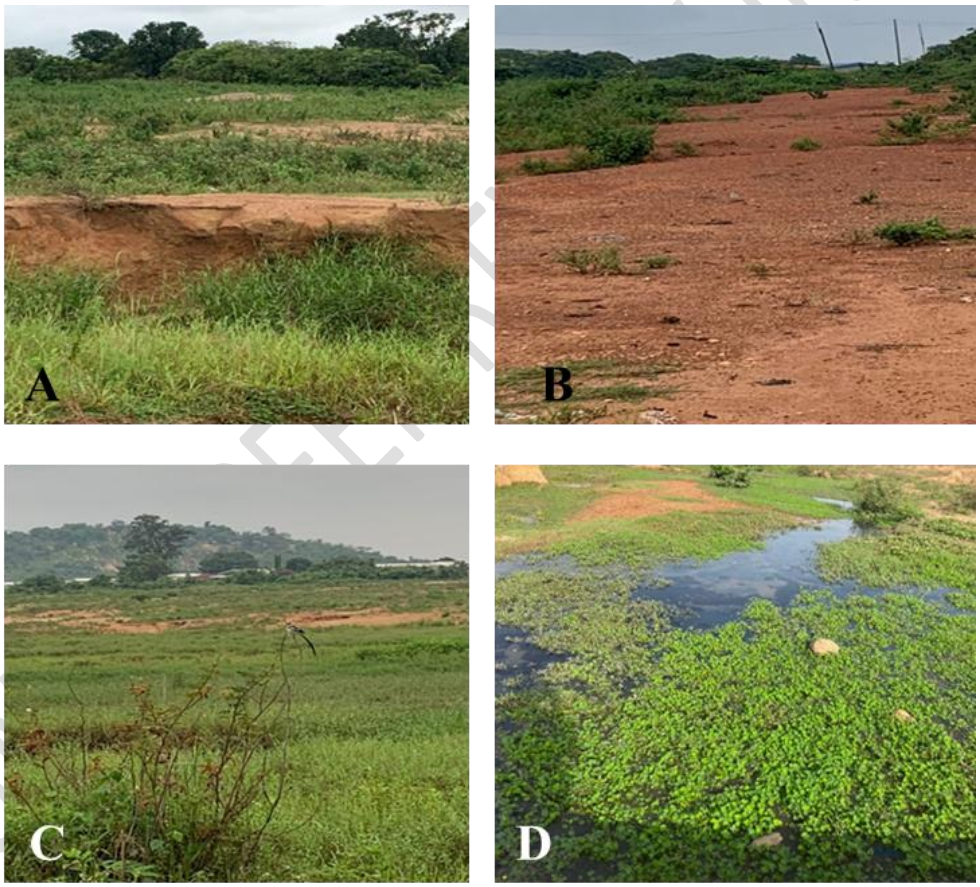

Figure 2: View of the different landforms at the Natio-Kobadara Dam and its surroundings

A: Wooded savanna; B: Dry lake bed; C: Grassland; D: River

2. Material and Methods

Birds in the Natio-Kobadara wetland were monitored for three months, from June to August 2022, during the height of the rainy season. The birds were observed using binoculars

(BRESSER 10x42; 100m/1000m) and photographed, whenever possible, with a digital camera (CANON EOS 2000D + CANON Zoom Lens EF 75-300mm 1:4-5.6 III). A voice recorder (SONY ICD-PX470) was used to record the calls of unidentified birds. Bird identification was performed using the Field Guide to the Birds of West Africa (Borrow and Demey, 2008) as well as the Repertoire of African Bird Songs and Calls (Chappuis, 2000) for vocal recognition.

For the bird survey at the Natio-Kobadara Dam, the Point Abundance Index (PAI) method based on observation points was used (Blondel et al., 1970). Four observation points were identified, each 300 meters apart. The Natio-Kobadarawetland was visited once a week. During each visit, each observation point was surveyed for 20 minutes. Surveys were conducted in the mornings, between 6:00 a.m. and 11:00 a.m. (Yaokokoré-Béibro, 2001).

The data were expressed in terms of species richness ($S = \Sigma$ Species), the Shannon diversity index ($H' = -\Sigma (ni/N) \times \ln (ni/N)$), and evenness ($J = H'/\ln S$) (Barbault, 1992). The biogeographic status of birds was determined according to Borrow and Demey (2001). This allowed for the identification of resident species, Palearctic species, and Afro-tropical migrants. The preferred natural habitats of birds are based on Yaokokoré-Béibro (2001), who defines three habitat types (E: wetland species; f: open-habitat species; F: forest species). The conservation status of the birds was determined based on the IUCN Red List (2026). The occurrence of bird species was determined according to Djakou and Thanon (1988) using the formula $FO = (Si/St \times 100)$, where Si = number of surveys in which species i was present and St = total number of surveys. The frequency of occurrence allows for the distinction of the following five classes ($80\% \leq FO \leq 100\%$: very common species; $60 \leq FO < 80\%$: common species; $40 \leq FO < 60\%$: fairly common species; $20 \leq FO < 40\%$: occasional species; $FO < 20\%$: accidental species).

The relative abundance frequency, denoted by Fr ($Fr = (ni/N) \times 100$), where ni is the number of individuals of species i and N is the total number of individuals in the sample. The relative frequency determines the abundance index, which, according to Thiollay (1986), allows species to be classified into four categories: Dominant Species (D), if $Fr \geq 5\%$; Regular Species (Re), if $1\% \leq Fr < 5\%$; Rare Species (Ra), if $0.2\% \leq Fr < 1\%$; Accidental Species (Ac), if $Fr < 0.2\%$.

Finally, a principal component analysis and the generalized linear model were realized using the Past 1.0 software. These analyses allowed us to test the effect of months on bird distribution.

3. Results

3.1. Species richness and overall abundance of birds at the Natio-Kobadara Dam

A total of 66 bird species, grouped into 36 families and classified into 13 orders, were identified at the site (Table I), with a total of 548 birds recorded. The site's Shannon diversity index is 3.478 with an evenness index of 0.83. Passeriformes are the most numerous with 30

species (45.45%). The order Charadriiformes follows with seven species (10.61%). The other most significant orders are the Columbiformes, Pelecaniformes, and Accipitriformes, each with five species (7.58%). The Accipitridae and Columbidae, with five species each (7.58%), as well as the Ardeidae and Estrildidae, with four species each (6.06%), are the most well-represented bird families.

The order Passeriformes, with 393 individuals (71.71%), is the most abundant. It is followed by the Charadriiformes, with 38 individuals (6.93%), and the Columbiformes, with 29 individuals (5.29%). The most abundant families in the population, in descending order of importance, are the Estrildidae (87 individuals; 15.87%), the Ploceidae (81 individuals; 14.78%), and the Corvidae (70 individuals; 12.77%).

Table I: Qualitative assessment of bird species observed at the Natio-Kobadara Dam from June to August 2022.

BS: biogeographic status; R: resident; M: intra-African migrant; P: Palearctic migrant; PH: preferred habitat; E: wetlands; F: forests and wooded areas; IUCN: threat level; LC: Least Concern; FO (%): frequency of occurrence; R/P: resident and Palearctic migrant; R/M: resident and intra-African migrant; f: open habitat; D: Dominant; Re: Regular; Ra: Rare; Ac: Accidental; PAI: point abundance index; AI: abundance index ; Co : Common ; VCo : Very common ; FCo : Fairly common ; Oc : Occasional

Orders/Families/Species	BS	PH	IUCN	FO(%)	FO(%)	PAI	FR	AI
MUSOPHAGIFORMES								
Musophagidae								
Tauraco violaceus (Isert, 1788)	R	f.	LC	8,33	Ac	1	0,18	Ac
Crinifer piscator (Boddaert, 1783)	R	f.	LC	8,33	Ac	5	0,91	Ra
CUCULIFORMES								
Cuculidae								
Clamatorlevaillantii(Swainson, 1829)	R/M	f.	LC	8,33	Ac	1	0,18	Ac
Chrysococcyxklaas (Stephens, 1815)	R	f.	LC	8,33	Ac	1	0,18	Ac
Centropus senegalensis (Linné, 1766)	R	f.	LC	75	Co	4	0,73	Ra
COLUMBIFORMES								
Columbidae								
Turturafer (Linné, 1766)	R	f.	LC	8,33	Ac	1	0,18	Ac
Turturabyssinicus (Sharpe, 1902)	R	f.	LC	8,33	Ac	1	0,18	Ac
Streptopelia semitorquata (Ruppell, 1837)	R	f.	LC	50	FCo	4	0,73	Ra
Streptopelia vinacea (Gmelin, 1789)	R	f.	LC	41,66	FCo	7	1,28	Re
Spilopelia senegalensis (Linné, 1766)	R	f.	LC	83,33	VCo	16	2,92	Re
GRUIFORMES								
Rallidae								
Gallinula chloropus (Linné, 1758)	R	E	LC	33,33	Oc	3	0,55	Ra
CHARADRIIFORMES								
Burhinidae								
Burhinus senegalensis (Swainson, 1837)	R	E	LC	8,33	Ac	2	0,36	Ac
Charadriidae								
Vanellus senegallus (Linné, 1766)	R	E	LC	100	VCo	18	3,28	Re
Vanellus tectus (Boddaert, 1783)	R	E	LC	16,66	Ac	5	0,91	Ra
Vanellus spinosus (Linné, 1758)	R	E	LC	16,66	Ac	2	0,36	Ac
Rostratulidae								
Rostratula benghalensis (Linné, 1758)	R	E	LC	8,33	Ac	1	0,18	Ac
Jacanidae								
Actophilornis africanus (J. F. Gmelin, 1789)	R	E	LC	91,66	VCo	9	1,64	Re
Scolopacidae								
*Actitis hypoleucos*Linné, 1758	P	E	LC	100	VCo	1	0,18	Ra

Orders/Families/Species	BS	PH	IUCN	FO(%)	FO(%)	PAI	FR	AI
PELECANIFORMES								
Scopidae								
Scopus umbretta J. F. Gmeclin, 1789	R	E	LC	83,33	VCo	3	0,55	Ra
Ardeidae								
Butorides striata (Linné, 1758)	R	E	LC	100	VCo	14	2,55	Re
Nycticoraxnycticorax(Linné, 1758)	R	E	LC	25	Oc	3	0,55	Ra
Ardea brachyrhyncha (A. E. Brehm, 1854)	R	E	LC	8,33	Ac	2	0,36	Ac
Ardea purpurea Linné, 1766	R/P	E	LC	8,33	Ac	1	0,18	Ac
APODIFORMES								
Apodidae								
Cypsiurus parvus (Lichtenstein, 1823)	R	f.	LC	91,66	VCo	13	2,37	Re
ACPITRIFORMES								
Acpitridae								
Elanus caeruleus (Desfontaines, 1789)	R	f.	LC	8,33	Ac	1	0,18	Ac
Milvus aegyptius (J. F. Gmelin, 1788)	R	f.	LC	25	Oc	14	2,55	Re
Micronisusgabar(Daudin, 1800)	R	f.	LC	8,33	Ac	1	0,18	Ac
*Melieraxmetabates*Heuglin, 1861	R	f.	LC	8,33	Ac	1	0,18	Ac
Kaupifalcomonogrammicus (Temminck, 1824)	R	f.	LC	16,66	Ac	2	0,36	Ac
BUCEROTIFORMES								
Bucerotidae								
Lophocerossemifasciatus (Hartlaub, 1855)	R	F	LC	8,33	Ac	1	0,18	Ac
Lophoceros nasutus (Linné, 1766)	R	f.	LC	41,66	FCo	4	0,73	Ra
CORACIIFORMES								
Alcedinidae								
Ispidina picta (Boddaert, 1783)	R	f.	LC	16,66	Ac	3	0,55	Ac
Corythornis cristatus (Pallas, 1764)	R	f.	LC	50	FCo	1	0,18	Ra
Meropidae								
Merops bulocki Vieillot, 1817	R	F	LC	16,66	Ac	6	1,09	Re
PICIFORMES								
Lybiidae								
Pogonornis dubius (Gmelin, 1788)	R	f.	LC	8,33	Ac	1	0,18	Ac
FALCONIFORMES								
Falconidae								
Falco ardosiaceus Vieillot, 1823	R	f.	LC	25	Oc	2	0,36	Ac
PASSERIFORMES								
Malaconotidae								
Tchagrasenegala (Linné, 1766)	R	f.	LC	8,33	Ac	3	0,55	Ra
Laniariusbarbarus (Linné, 1766)	R	f.	LC	58,33	FCo	5	0,91	Ra
Vangidae								
Prionopsplumatus (Shaw, 1809)	R	f.	LC	16,66	Ac	11	2,01	Re
Dicruridae								
Dicrurusadsimilis (Bechstein, 1794)	R	F	LC	25	Oc	3	0,55	Ra
Laniidae								
Corvinella corvina (Shaw, 1809)	R	f.	LC	50	FCo	11	2,01	Re
Corvidae								
Corvus albus Muller, 1776	R	f.	LC	83,33	VCo	10	1,82	Re
Ptilostomusafer (Linné, 1766)	R	f.	LC	100	VCo	60	10,95	D
Alaudidae								
Galerida modesta Heuglin, 1864	R	f.	LC	8,33	Ac	1	0,18	Ac
Cisticolidae								
Cisticola cantans (Heuglin, 1869)	R	f.	LC	100	VCo	5	0,91	Re
Camaroptera brachyura (Vieillot, 1820)	R	f.	LC	50	FCo	2	0,36	Ra
Hirundinidae								
Hirundo lucida Hartlaub, 1858	R	f.	LC	8,33	Ac	8	1,46	Re
Pycnonotidae								
Atimastillasflavicollis (Swainson, 1837)	R	F	LC	41,66	FCo	10	1,82	Re
Pycnonotus barbatus (Desfontaines, 1789)	R	f.	LC	100	VCo	24	4,38	Re
Sturnidae								
Lamprotornis purpureus (Muller, 1776)	R	f.	LC	8,33	Ac	1	0,18	Ac

Orders/Families/Species	BS	PH	IUCN	FO(%)	FO(%)	PAI	FR	AI
Lamprotornischalcurus Nordmann, 1835	R	f.	LC	41,66	FCo	8	1,46	Re
Turdidae								
Turdus pelios Bonaparte, 1850	R	f.	LC	66,66	Co	4	0,73	Ra
Muscicapidae								
Melaenornisedolioides (Swainson, 1837)	R	f.	LC	16,66	Ac	2	0,36	Ra
Nectariniidae								
Cinnyris venustus (Shaw, 1799)	R	f.	LC	16,66	Ac	7	1,28	Re
Chalcomitra senegalensis (Linné, 1766)	R	f.	LC	66,66	Co	3	0,55	Ra
Hedydipnaplatura (Vieillot, 1819)	M	F	LC	8,33	Ac	2	0,36	Ac
Ploceidae								
Ploceus cucullatus (Muller, 1776)	R	f.	LC	58,33	FCo	11	2,01	Re
Euplectesafer (J. F. Gmelin, 1789)	R	f.	LC	8,33	Ac	1	0,18	Ac
Euplectesfranciscanus (Isert, 1789)	R	f.	LC	100	VCo	69	12,59	D
Viduidae								
Vidua macroura (Pallas, 1764)	R	f.	LC	83,33	VCo	6	1,09	Re
Estrildidae								
Lagonostictasenegala (Linné, 1766)	R	f.	LC	100	VCo	24	4,38	Re
Estrildamelpoda (Vieillot, 1817)	R	f.	LC	75	Co	8	1,46	Re
Uraeginthusbengalus (Linné, 1766)	R	f.	LC	100	VCo	12	2,19	Re
Lonchura cucullata (Swainson, 1837)	R	f.	LC	91,66	VCo	43	7,85	D
Passeridae								
Passer griseus (Vieillot, 1817)	R	f.	LC	41,66	FCo	3	0,55	Ra
Motacillidae								
Anthusleucophrys Vieillot, 1818	R	f.	LC	100	VCo	36	6,57	D

3.2. Bird Community Composition Based on Abundance Index

The bird community is dominated by four species, which together account for 208 individuals, or 37.96%. These species are *Ptilostomusafer* (10.95%), *Euplectesfranciscanus* (12.59%), *Lonchura cucullata* (7.85%), and *Anthusleucophrys* (6.57%). The remainder of the population consists of 21 regular species totaling 247 individuals, or 45.07% of the observed birds; 24 rare species totaling 76 birds; and 17 accidental species comprising only 17 individuals (Figure 3).

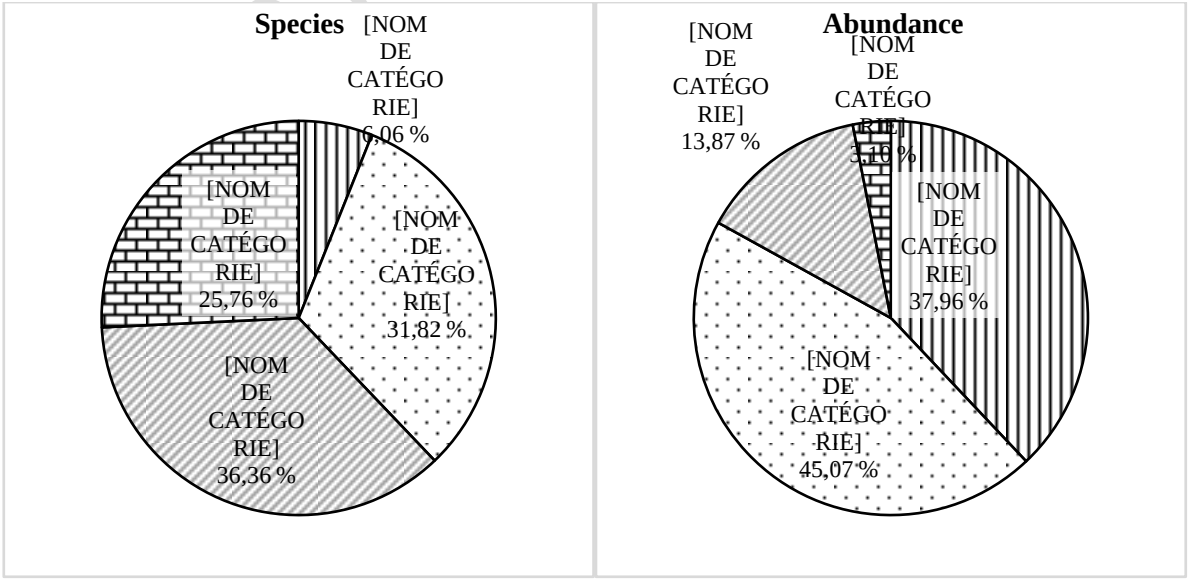

Figure 3: Number of bird species and abundance by abundance index

3.3. Bird Community Composition Based on Biogeographic Status

The bird community at the dam consists primarily of resident species, comprising 62 species (93.94%) and 543 individual birds (99.09%). A few rare migratory or mixed-origin species have been observed at the site. Strict migrants are represented by *Actitis hypoleucos* (Paleartic migrant) and *Hedydipnaplatura* (Afrotropical migrant). These two species account for only 0.55% of the population. Species of mixed origin include Clamatorlevaillantii (Afrotropical migrant and resident) and Ardea purpurea (Paleartic migrant and resident). Together, these account for 0.36% of the population (Figure 4).

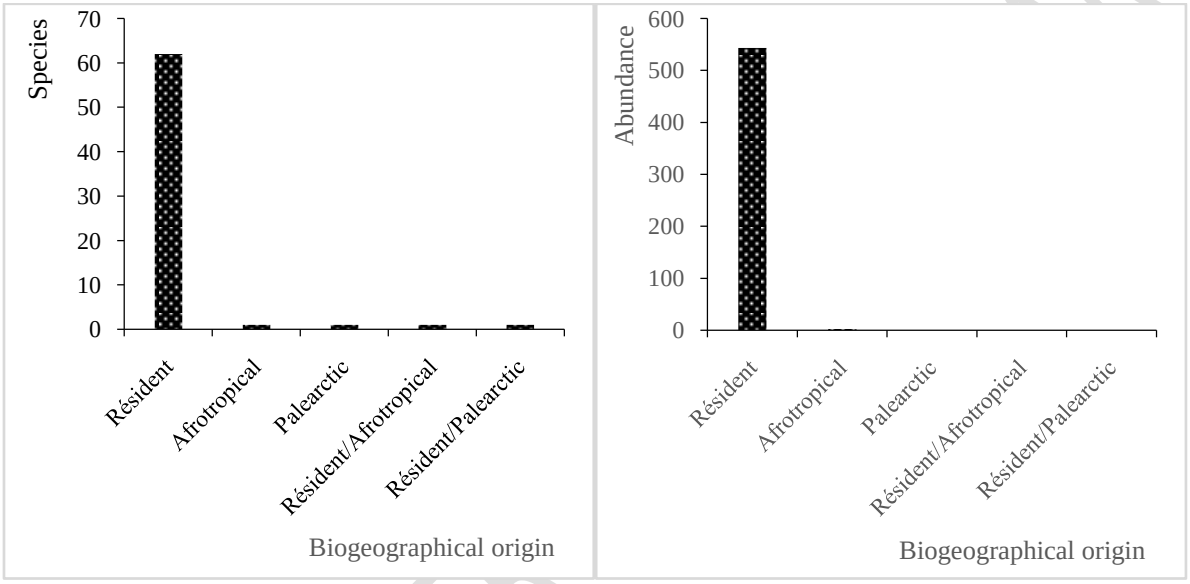

Figure 4: Variation in species richness and abundance according to the biogeographic origins of the birds

3.4. Bird Community Composition Based on Preferred Habitat

Based on the birds' known natural habitats, the species present prefer three types of habitats (Table I). The bird community is dominated by 48 species (72.73%) that prefer open areas, accounting for a total of 462 individual birds (84.31%). Birds dependent on wetlands (waterbirds) number 13 species (19.70%) and 64 individuals (11.68%). These include *Gallinulachloropus*, *Burhinus senegalensis*, *Vanellus senegallus*, *Vanellus tectus*, *Vanellus spinosus*, *Rostratula benghalensis*, *Actophilornis africanus*, *Actitis hypoleucos*, *Scopus umbretta*, *Butorides striata*, *Nycticoraxnycticorax*, *Ardea brachyrhyncha*, and *Ardea purpurea*. Finally, birds that prefer forest or heavily wooded habitats are represented by five species (7.58%) and 22 individuals (4.01%) (Figure 5).

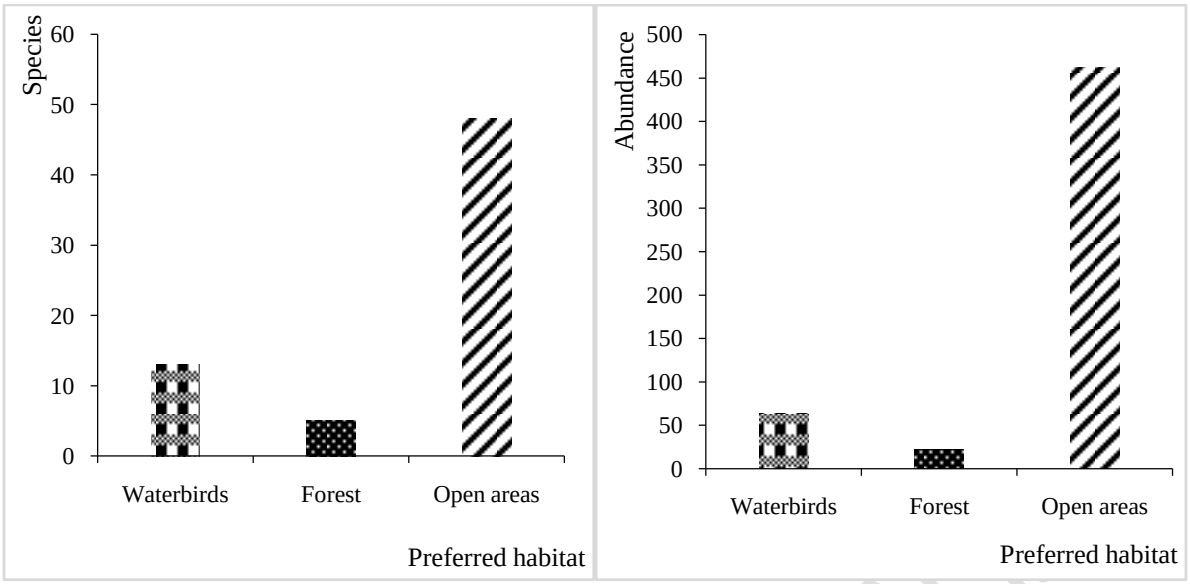

Figure 5: Classification of birds based on their habitat preferences

3.5. Bird occurrences on Lake Natio-Kobabdara

The bird community at the dam is divided into various groups based on frequency of occurrence. Seventeen species (25.76%) are very common, accounting for a total of 363 individuals (66.24%). In this category, there are only five species of waterbirds: *Vanellus senegallus*, *Actophilornis africanus*, *Actitis hypoleucos*, *Scopus umbretta*, and *Butorides striata*. The four common species (6.06%) comprise only 19 individuals (3.47%). There are also 11 fairly common species (16.67%), five occasional species (7.58%), and 29 accidental species (43.94%), with 66, 25, and 75 individuals, respectively. Figure 6 shows some of the bird species observed at the Natio-Kobadara Dam.

Figure 6: Photographs of some of the birds observed at the Natio-Kobadara Dam

A :Black-headed Lapwing*Vanellus tectus*
B :Red-throated Bee-eater/ *Merops bulocki*
C :Senegal Thick-knee/ *Burhinus senegalensis*
D :Malachite Kingfisher/ *Corythornis cristatus*
E :Hamerkop/ *Scopus umbretta*
F :Gabar Goshawk/ *Micronisusgabar*

4. Discussion

The Natio-Kobadara Dam is a damaged dam located on the outskirts of the city of Korhogo. The damage affects the retaining embankment, which, due to its failure, can no longer hold

back the water in the reservoir. As a result, this wetland consists solely of two rivers that converge upstream of the reservoir and flow through it, forming a single channel. During the rainy season, this water source is supplemented by numerous temporary pools formed by runoff water that pools in the many excavations scattered throughout the dam's empty basin—a consequence of intense sand extraction activity at the site. The bird diversity at this site can be considered significant given the site's condition, but also in light of available data for other nearby reservoir lakes. For example, the Koko Dam Lake located in the heart of the city of Korhogo recorded 77 bird species (Niamien et al., 2024), while the Nindjo Dam Lake, situated in a rural area 6 km from the city of Korhogo, recorded 73 bird species (Konan et al., 2025).

These two sites have avifauna whose diversity is comparable to that of the Natio-Kobadara Dam. However, these sites have been monitored for a longer period: 12 months for the Koko Dam and five months for the Nindjo Dam. This convergence in species richness among these three environments, despite the differing monitoring periods, suggests a homogeneity in the birdlife of urban and peri-urban sites, which appear to be relatively undiversified (Godet, 2017). This is further confirmed by the fact that the Sologo Dam Lake, located about fifteen kilometers from the city of Korhogo, recorded a total of 120 bird species over a one-year monitoring period (Ehouman et al., 2023); that is, nearly double what was observed at the Natio-Kobadara Dam. Furthermore, two bird species observed at this site were recorded for the first time in the city of Korhogo and its surroundings.These are the Black-headed Lapwing (*Vanellus tectus*) and the Red-throated Bee-eater (*Merops bulocki*).

The impact of the deterioration of the Natio-Kobadara Dam becomes even more apparent when analyzing the waterbird population. In fact, only 13 species of waterbirds have been recorded. This number is significantly lower than those observed at other nearby sites such as the Koko Dam, the Nindjo Dam, and the Sologo Dam, which recorded 22, 26, and 26 species of waterbirds, respectively. This low number of waterbirds—paradoxical in the midst of the rainy season and the migratory period for Palearctic birds—suggests a profound alteration of the site. Indeed, the site lacks mudflats, which limits access to food resources for shorebirds. Furthermore, the site's current bathymetry does not support a water column deep enough for swimming birds such as Anatidae and other swimming species.

In addition to these factors, human-induced disturbances are believed to contribute to the decline in waterbird populations or to disrupt their activities (Tamisier et al., 2003). Such disturbances, such as sand extraction, not only destroy the substrate but also generate noise pollution that disturbs the birds' peace and quiet. Stray livestock also contributes to driving waterbirds away by damaging aquatic vegetation and causing the birds to take flight regularly.

Despite its state of degradation, the site continues to play an important ecological role for many other birds that prefer open habitats. This is particularly true for the Black-headed Lapwing, for which this study represents the first and only record in the region. The explanation appears to be that the drying up of the dam has created dry, vegetation-free areas with a lateritic appearance, providing an ideal habitat for this species (BirdLife International, 2024).

The site's importance is also reflected in the high number of very common species that visit it. The four most abundant species in the stand are also all very common. These include gregarious seed-eating species (*Euplectesfranciscanus* and *Lonchura cucullata*) that come to feed on the grasses that abound on the site; species associated with livestock, such as *Ptilostomusafer*, which often accompanies livestock; and *Anthusleucophrys*, which is generally associated with habitats devoid of vegetation.

CONCLUSION

This study, conducted in northern Côte d'Ivoire, is the first of its kind. It has helped to highlight the ecological consequences of a degraded wetland on bird diversity in general, and on waterbirds in particular. The results show that the site's bird community is significantly smaller than those of other nearby dam lakes. Waders and swimming waterbirds are notably absent. However, despite this negative aspect, the site continues to host a number of birds. It is also the only site in the region to host the black-headed plover. This means that even when degraded, a wetland continues to play an important ecological role for many bird species. Furthermore, it is essential to rehabilitate this site in order to restore all ecological functions and ecosystem services for birds and local communities.

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