

# Habitat and feeding habits of bird's case of Lake Débo / Walado Débo in the Inner Niger Delta

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## Abstract

The different species of birds that inhabit the area are numerous and very varied. Some are residents (which are water and terrestrial birds) and other migrants (also water and terrestrial birds). The study site is the area of lakes Débo and Walado Débo (15 ° N, 4 ° 15'W), which is an integral part of the Inner Niger Delta Ramsar site. The area has diverse ecosystems and great biodiversity. The objective of the study is to observe and follow the diet of the different species of birds found in the area. The birds present in the different environments (bodies of water, crop fields and forests), find there substances that serve them as food. Thus, during the study, using a binocular, the birds are observed either in flight, or on land or in the water in search of food. The diet of these different bird species is very varied. There are granivores, piscivores, insectivores, etc. The very short period during this study (period of floods between July and August), did not allow us to observe all the species of birds present in the environment. Therefore; 47 water birds and 33 land birds were studied. For the diet study, only 25 species were involved.

## Introduction

Birds live in very multifaceted and varied environments. We see them everywhere where food is not lacking. At the edges of the sea, aquatic species rise to a rather great height and in the mountains certain species such as waders rise higher. Birds are found everywhere on dry land, provided they find something to eat.

The birds that inhabit the oceans number in the millions. Mahnken (2001) says that habitat is a genus of particular need for the landscape species, and territory is the space on a given habitat used by birds for food and to rear their young. Also, he finds that it is at the time of love that they gather in innumerable bands on the cliffs, the isolated islands; however, few species form these bands. On land, and in forests mainly, we meet flocks of birds as numerous, and which are represented by the most diverse forms.

Triplet (2012) says that in tropical countries, living conditions are varied, as are differences in the appearance of the soil. The greatest variety of species is not found in virgin forests, but in places where forests and steppes alternate, mountains and valleys, dry lands and swamps. The presence of birds in a locality depends on the ease with which they find sustenance; hunger, the forces to leave this or that country forever or for a while. Triplet (2012) finds that coastal areas constitute essential habitats for the survival of thousands of birds such as Anatidae, shorebirds and some passerines. Habitats must be protected and well managed. Also, Boag, 2006, considers that certain species of birds continuously extend their territory, others do the opposite knowing that they experience alternating periods of expansion and regression.

The Lac Débo and Walado Débo area is home to a wide variety of ecosystems (plains, expanses of water, river, ponds, forests, etc.) which constitute natural

habitats for the life of birds in particular and living beings in general. This is how several studies carried out by the UICM, 1989, made it possible to protect the area due and above all to the sufficient presence of food of all kinds for the animal species that live there. The aim of this article is to know the natural habitats of birds and their eating habits.

### Study environment

The study site was the area of lakes Débo and Walado Débo (15 ° N, 4 ° 15'W), which are an integral part of the Ramsar site of the Inner Niger Delta, located in the rural communes of Deboye (Guidio), Bimbéré –Tama (Dogo) and Youwarou. Its boundaries are defined by natural boundaries such as the Mayo Dembé (one of the arms of the Niger River) to the south-east and the hills of

Gouraou and Soroba to the north-east. It is an area with a high concentration of migratory and non-migratory birds where agriculture, breeding and fishing constitute the main activities of the populations who live there. The Sahelo-Sahelian climate is characterized by a short rainy season (3–4 months per year) and a long dry season (8–9 months). The prevailing winds are harmattan and monsoon. The vegetation is a shrub savannah dominated by the thorny *Acacia seyal*, *A. nilotica*, *Balanites aegyptiaca*, *Ziziphus mauritiana*, with a herbaceous layer dominated by *Panicum laetum*, *Nuphar lutea* and the burgundy *Echinochloa stagnina*. In addition, *Piliostigma reticulatum*, *Mimosa pigra* and *Vetiveria nigriflora* are commonly found. The most widespread food crops are millet, rice and sorghum, which are also the staple foods of the people.

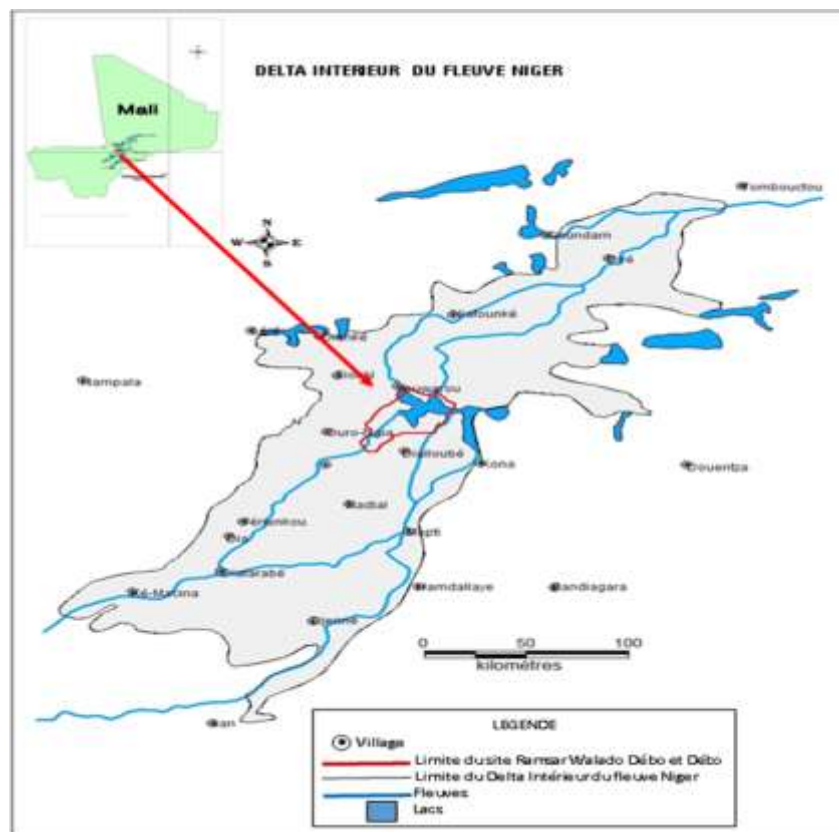


Figure 1: Zone des Lac Débo et Walado Débo

### Method

For the present study, three environments were prospected in the area in 2015 during the flood period between July and August. Bodies of water (lakes, river, ponds and backwaters), forests and fields of food crops (millet, rice, sorghum). Birds are seen mostly during the day when foraging. For species far from observation points, a telescope binocular is used. Thus, the birds identified are followed either on foot or by canoe to better understand their food needs.

For the bird census, standardized and reproducible over time census methods were used. They make it possible to launch multiannual monitoring of avian populations based on objective and precise bases, Frochet, 2010. Of

all the birds observed during the study, only certain species were subject to monitoring of food requirements.

### Results

Among the birds observed, some are water birds (Table 1) and others are land birds (Table 2). The diet is varied from species to species. These are grain-eating birds, carnivores, piscivores, etc., Table 3. Thus, 47 water birds, 33 land birds, or a total of 80 water species have been recorded.

**Table 1:** Water bird species observed at the Lac Débo / Walado Débo Ramsar site

N°	Scientific name	French name	Observation place
1	<i>Pelecanus onocrotalus</i>	Pélican blanc	Debo Lake
2	<i>Bubulcus ibis</i>	Héron garde bœuf	Plains, flooded forests of the Walado Débo complex, rivers
3	<i>Gallimula chropus</i>	Poule d'eau	Flooded plains, Walado Débo complex
4	<i>Ardea cinerea</i>	Héron cendré	Debo Lake and Walado Débo complex, rivers
5	<i>Ardea</i>	Héron mélanocéphale	Debo Lake and Walado Débo complex, rivers
6	<i>Egretta spp</i>	Aigrette ardoisée	Edge of the river and ponds, flooded forests
		Grande aigrette	
		Aigrette gazette	
7	<i>Limosa limosa</i>	Barges à queue noire	Debo Lake
8	<i>Pandion haliaetus</i>	Busard (pêcheur)	Walado / Debo Complex
9	<i>Platalea alba</i>	Spatule d'Afrique	Debo Lake
10	<i>Actaphilornis africana</i>	Jacana à poitrine doré	Aquatic vegetation, ponds
11	<i>Cerylerudis</i>	Martin pêcheur	River banks
12	<i>Anhingarufa</i>	L'anhinganoux	Walado Debo Complex
13	<i>Anas querquedula</i>	Sarcelle d'été	Walado Debo Complex
14	<i>Dendrocygne viduata</i>	Dendrocygne veuf	Walado Debo Complex
15	<i>Plectropterus gambensis</i>	Oie de Gambie	Walado Debo Complex
16	<i>Phalacrocorax africanus</i>	Cormoran africain	Lake Débo / Walado Débo and flooded forests
17	<i>Ardea purpurea</i>	Héron pourpré	Walado Débo complex and flooded forests
18	<i>Tringa erythropus</i>	Chevalier arlequin	Debo Lake and river banks
19	<i>Chlidonias leucopterus</i>	Guifettes leucoptères	River borders, plains
20	<i>Phiomachus pugnax</i>	Combattant varié	Rivers, flooded plains, Lake Débo
21	<i>Sarkidiornis melanota</i>	Canard casqué	Walado Debo Complex
22	<i>Nycticorax nycticorax</i>	Bihoreau gris	Walado Debo Complex
23	<i>Ibis ibis</i>	Tantale ibis	Walado Debo Lake,
24	<i>Tringa glareola</i>	Chevalier sylvain	Debo Lake and river banks
25	<i>Ephippirhynchus sen</i>	Jabiru d'Afrique	Flooded plains
26	<i>Leptoplitos crumeniferus</i>	Marabout d'Afrique	Flooded plains of the Walado / Débo complex
27	<i>Threskiornis aethiopicus</i>	Ibis sacré	Walado and Dentaka Plains (forests)
28	<i>Himantopus himantopus</i>	Echasse blanche	Along the river, the lake and the plains
29	<i>Himantopus</i>	Avocette	Along the river, the lake and the plains
30	<i>Sternacaspia</i>	Sternes	Walado Debo Complex
31	<i>Sterna</i>	Goeland	Walado Debo Complex
32	<i>Laridae</i>	Mouettes	Walado Debo Complex
33	<i>Plegadis falcinellus</i>	Ibis falcinelle	Debo Lake
34	<i>Egretta intermedia</i>	Aigrette intermédiaire	Walado Debo Complex
35	<i>Plectropterus gambensis</i>	Canard armé	Walado Debo Complex
36	<i>Anas sparsa</i>	Canard noir	Walado Debo Complex
37	<i>Gallinago gallinago</i>	Bécassines des marais	Pools, plains
38	<i>Charadrius pecurius</i>	Pluvier	Borders of ponds, sand strips of Lake Débo
39	<i>Charadrius hiaticula et dubius</i>	Petit et grand gravelot	Borders of ponds, sand strips of Lake Débo
40	<i>Charadrius pecurius</i>	Grand gravelot	Borders of ponds, sand strips of Lake Débo
41	<i>Charadrius</i>	Vanneaux	Walado Debo Complex
42	<i>Plectropterus gambensis</i>	Canards armés	Walado Debo Complex
43	<i>Actaphilornis africana</i>	Jacanas	Ponds, rivers and flooded plains
44	<i>Rynchops flavirostris</i>	Bec en ciseaux	Walado Complex / Debo
45	<i>Haliaetus vocifer</i>	Aigles pêcheurs	Borders of the Niger river, forest plains and surrounding villages
46	<i>Scopus umbretta</i>	Ombrettes	Borders of the Niger river, forest plains
47	<i>Glaucolidae</i>	Glaréole à collier roux	Along the banks and around the flooded forests

**Table 2:** Land birds observed in the Lac Débo / Walado Débo site

N°	Scientific name	French name	Observation place
1	<i>Ciconia abdimii</i>	Cigogne d'Abdîn	Forests, villages, plains
2	<i>Quelea-quelea</i>	Travailleurs à bec rouge	Fields, forests, plains
3	<i>Plocepasser superciliosus</i>	Moineaux	Fields and surrounding villages
4	<i>Columba guinea</i>	Pigeons sauvages	Forests, plains
5	<i>Ploceus cuculatus</i>	Tisserins gendarmes	Villages, forests, plains, ponds
6	<i>Lamprotornis candatus</i>	Merle métallique	Forests, fields
7	<i>Psittaculakrameri</i>	Perruche à collier	Fields, plains, forest
8	<i>Poicephalus senegalus</i>	Youyou	Villages, forests
9	<i>Gypohierax angolensis</i>	Vautour	Plains, forest
10	<i>Larus cirrhorephalus</i>	Mouette à tête grise	Forests
11	<i>Upupaepops</i>	Huppe	Forests and Plains
12	<i>Merops</i>	Guêpiers	Fields, forests
13	<i>Asiicapensis</i>	Hiboux	Villages, forests
14	<i>Hiundoniquita</i>	Hirondelle noire	Villages, forests
15	<i>Aquila dryotriorchis</i>	Aigles serpentaires	Forests
16	<i>Accipiter melanoleucus</i>	Eperviers	Forests, riverside, surrounding villages
17	<i>Balearica pavonina</i>	grue couronnée	Forests and plains
18	<i>Streptopelia decipiens</i>	Tourterelle pleureuse	Forests, plains, surrounding villages
19	<i>Oriolus brachychnus</i>	Loriots à tête noire	Forests, plains, surrounding villages
20	<i>Mirafra africana</i>	Alouette	Forests, plains
21	<i>Numida meleagris</i>	Pintades communes	Forests
22	<i>Sylvia communis</i>	Fauvette grisette	Forests, plains
23	<i>Merops bulocki</i>	Guêpier à gorge rouge	Forests, plains
24	<i>Merops pusillus</i>	Guêpier nain	Forests, plains
25	<i>Centropus senegalensis</i>	Coucal du Sénégal	Fields, plains and forests
26	<i>Tyto alba</i>	Effraie africaine	Fields, plains and forests
27	<i>Ploceus velatus</i>	Tisserins à tête rousse	Forests, plains and fields
28	<i>Passer griseus</i>	Moineaux gris	Villages, forests
29	<i>Sylvia communis</i>	Fauvettes grisettes	Fields, plains, forests
30	<i>Streptopelia senegalensis</i>	Tourterelle	Surroundings villages, plains, forests
31	<i>Motocila flava</i>	Bergeronnette printanière	Forests and plains
32	<i>Passer luteus</i>	Moineaux dorés	Fields, forests, plains
33	<i>Quelea erytrops</i>	Travailleur à tête rouge	Fields, forests

**Table 3: Diet**

Species	Diet
<i>Quelea quelea</i>	Granivore
<i>Limosa limosa</i>	Granivore Insectivore
<i>Pelecanus onocrotalus</i>	Piscivore
<i>Phalacrocorax africanus</i>	Piscivore
<i>Passer luteus</i>	Granivore
<i>Bubulcus ibis</i>	Insectivore
<i>Ardea cinerea</i>	Piscivore
<i>Dendrocygna viduata</i>	Omnivore
<i>Tringa totanus</i>	Insectivore
<i>Phiomachus pugnax</i>	Insectivore Granivore Vegetarian
<i>Ardea purpurea</i>	Piscivore Omnivore
<i>Tringa erythropus</i>	Insectivore
<i>Threskiornis aethiopicus</i>	Piscivore
<i>Charadrius hiaticula</i>	Insectivore, Worms, Crustaceans
<i>Plectropterus gambensis</i>	Omnivore
<i>Charadrius pecurius</i>	Insectivore, Worms, Crustaceans
<i>Actaphilornis africana</i>	Omnivore
<i>Egretta</i>	Insectivore Piscivore Worms Mollusc
<i>Cerylerudis</i>	Piscivore
<i>Haliaeetusv ocifer</i>	Piscivore
<i>Gypohierax angolensis</i>	Carnivore
<i>Accipiter melanoleucus</i>	Carnivore
<i>Columba guinea</i>	Granivore
<i>Dendrocygna viduata</i>	Granivore
<i>Spatula querquedula</i>	Granivore

## Discussion

The birds present in the study area inhabit all the ecosystems characterizing the environment. Some live in forests, agricultural fields and others in expanses, flooded forests, plains and around villages. This confirms certain studies carried out by Vié et al. (2008), that birds are everywhere, from the tropics to the poles. Elzen (1983) divides the ornithological regions of the globe into 6 zones, each of which is characterized by a small number of families which are specific to it.

In terms of food, the diet is very varied from one species to another. Manikowski et al. (1991) showed that birds have all kinds of diets. Some are omnivorous, that is to say that they can eat a little of everything, the crow for example. Others are much more specialized and, like the soui-manga, are able to drink the nectar of flowers; the pelican eats only fish, the vultures of carrion. But the diet can also vary over time. Small seed-eating birds usually eat only seeds, but during the breeding season they feed their young with animal prey. The variety of foods sought by birds corresponds to an equal variety of beak shapes. In general, seed eaters have a large conical bill, insectivores have a thin bill.

## Conclusion and recommendation

All the ecosystems in the area are home to different species of birds which serve as environments suitable for good living, reproduction, food, niches and roosting conditions. Of the observed species, 47 water birds and 33 land birds have been identified (a total of 80) among which the diets of 25 species have been known. To better understand the diet of all the birds that live in the area, the study should be extended to a minimum of 6 to 12 months.

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