

Three areas have accordingly been gazetted as wildlife reserves, near Shambe, Zeraf Island in entirety, and Fanyikang, an island at the tail of the swamps.

5.2. LAKES NO AND AMBADI
by J. GREEN

5.2.a LAKE NO

1. Geography and Morphology

Location: Junction of the Bahr el Ghazal and Bahr el Jebel, South Sudan. Lat. 9°30'N, long. 30°37'E, Altitude 385 m (Fig. 5.3)

Morphometry: The lake is surrounded by extensive papyrus swamps. It is about 10 km long and 2.5 km wide. The maximum depth is about 9 m.

2. Climate: similar to that at Malakal (see fig. 5.2).

3. Hydrology

The normal discharge of the Bahr el Ghazal is between one and two million m³ per day, but rises to about 4 million m³ per day in October, and in exceptional years may rise to 8 million m³ per day. These rates of flow include some spillage from the Bahr el Jebel, and are only about 4% of the flow in the jebel. The hydrology of Lake No is complicated by the flood regime of the Sobat. When the Sobat is in flood the waters back up in Lake No and partway down the Bahr el Jebel.

4. Physico-chemical characteristics of the water

Conductivity: 200-250.10⁻⁶ S.cm⁻¹ (20°C).

pH: 7.1 - 7.8

Secchi disc: 30 - 60 cm

Oxygen (Dec. 1976): 90% saturated at 27.5°C (10 cm depth); 72% saturated at 27.5°C (70 cm depth); 56-65% saturated in Jan. and Dec. 1954 (Talling 1957)

5. Macrophytes

The edge of the lake is surrounded by Cyperus papyrus, and at the base of this marginal vegetation there is a fringe of Eichhornia crassipes. The open water has large patches of Najas pectinata and Nymphaea lotus.

6. Phytoplankton

Major components of the phytoplankton include Lyngbya limnetica, Melosira granulata, and Anabaena flos-aquae. In December - January 1953-54 algal cell numbers were found to range from 1720 to 2880 per ml (Rzoska 1974)

7. Invertebrates

Among the zooplankters the following crustaceans are important: Thermodiaptomus galebi, Thermocyclops neglectus, Diaphanosoma excisum, Daphnia barbata, Moina micrura. Fourteen species of rotifers occur in the plankton, including Brachionus calyciflorus, B. caudatus, B. falcatus, Filinia longiseta and Keratella tropica. Caridina nilotica and C. africana are common among Najas and Eichhornia.

The bottom fauna is dominated by oligochaetes (Limnodrilus) and chironomid larvae, including Cryptochironomus, Stictochironomus and Pelopia spp. Ostracods of the genus Darwinula are also common, and halacarid mites of the genus Limnohalacarus have recently been discovered in Lake No (Green 1984).

Among the Odonata, the bright red Crocothemis erythraea is conspicuous and abundant.

8. Fish

A wide selection of nilotic fish is found in the lake, including Heterotis, Hydrocyon, Distichodus, Citharinus, Lates, Auchenoglanis and Synodontis.

9. Birds

The birds most frequently seen around the lake are ardeids (herons and egrets) and the kingfishers Ceryle rudis and Alcedo cristata. Shoebills Balaeniceps rex occur at the western end of the lake. Two anatids are also fairly common: Nettapus aurita and Dendrocygna viduata. Less usual forms include the white-shouldered plover Hemiparra crassirostris and Alseonax aquatica, a small flycatcher, very active around the bases of papyrus, often taking insects from the water. The activities of fishermen attract black kites Milvus migrans, pied crows Corvus albus and hooded vultures Necrosyrtes monachus.

10. Other vertebrates: Crocodylus niloticus and Hippopotamus amphibius are present.

11. Human activities

In 1914 a German company started to construct a paper pulp factory on the shores of Lake No, and installed some machinery. The remains of these machines can still be found on the shore. Apparently the factory never came into production. Arab fishermen from near Khartoum visit the lake and set up a commercial operation for salting and drying fish for export to Zaire. In 1977 they claim to have exported 71 tons. The main catch in 1976 was large specimens of Heterotis niloticus, together with Citharinus and Lates. Nomadic fishermen from West Africa also visit the lake. They usually occupy a sand bank at the mouth of the Bahr el Jebel. Remains of decorated gourds found in December 1976, when the camp was empty, indicated that the occupants were probably of the Hausa tribe.

5.2.b LAKE AMBADI

1. Geography and Morphology

Location: Bahr el Ghazal, Sudan. Lat. 8°43'N, Long. 29°19'E.

Altitude c. 390 m (Fig. 5.3).

Morphometry: The lake lies in a flat featureless landscape, and is basically a widened river channel about 9 km long and 1-2 km wide. The maximum depth is about 3 m.

2. Climate: See the general summary for this region (Fig. 5.1).

3. Hydrology

The river Jur flows in from the west, and the Bahr el Ghazal flows out in a north-easterly direction. The river Jur at Wau has its maximum flow in September, reaching 35 million m³ per day, with an annual total of 4.5 milliards. By the time the river has passed through Lake Ambadi and reached Lake No the flow is only 0.45 milliards per year.

4. Physico-chemical characteristics of water

Some measurements were made in 1954 (Rzçska 1974) and some in 1976. Conductivity: 40-48.10⁻⁶ S.cm⁻¹ (20°C). pH: 6.4-6.9. Secchi disc: 2.5 m. Oxygen: 64% saturation at 25°C - 10 cm depth; 54% saturation at 25°C - 2 m depth.

5. Macrophytes

The bottom of the lake is covered with a dense carpet of vegetation, including Ceratophyllum, Myriophyllum, Potamogeton, Utricularia and Najas pectinata. Nymphaea lotus is present in some places, and Eichhornia crassipes occurs as a dwarfed form. The marginal vegetation is dominated by Vossia cuspidata.

6. Algae

The lake has a distinctive phytoplankton, with Dinobryon sertularia, Botryococcus braunii and Asterococcus limneticus. The most remarkable aspect of the algal flora is the abundance and diversity of the desmids (Gronblad, Prowse and Scott 1958).

7. Invertebrates

Only the microinvertebrates have been studied. The fauna is sparse, but diverse, with 32 species of testate rhizopods, 26 species of Rotifera, and over 20 species of microcrustacea. Oligochaetes include Pristina longiseta and Aulophorus furcata. Snails are sparse, but Lentorbis junodi has been found. The most common dragonfly is Brachythemis leucostica. Caenid mayflies have been found, but other insects have not been studied.

8. Vertebrates

The fishes of the lake have not been studied, although there is a general account of the fisheries in the Northern Bahr el Ghazal (Stubbs 1949). The following birds were seen at the northern end of the lake in December 1976. Podiceps ruficollis, Phalacrocorax africanus, Anhinga rufa, Ardeola ralloides, Egretta intermedia, Ceryle rudis, Alcedo cristata. The black headed gull Larus ridibundus has spread down to this region during the last decade. Hippopotamus amphibius was seen in the lake.

9. Human activity: Negligible in this area.

5.3. LAKES KEILACK AND KUNDI

by J. GREEN

Climate

Temperature has a diurnal range of about 17°C in July with maxima up to 33°C. In January the diurnal range is 10°C with maxima up to 36°C. Rainfall about 700-800 mm per year, with the wettest months being July and August. January is the driest month, often lacking rain. Winds in January prevail from NNE with an average speed of 14 km/h. In July winds are mainly from the South with average speed about 5 km/h.

5.3.a LAKE KEILACK

1. Geography and Morphology

Location: South Kordofan, Sudan. Lat. 10°50'N, Long. 29°17'E. See Fig. 5.1. Altitude c. 450 m.

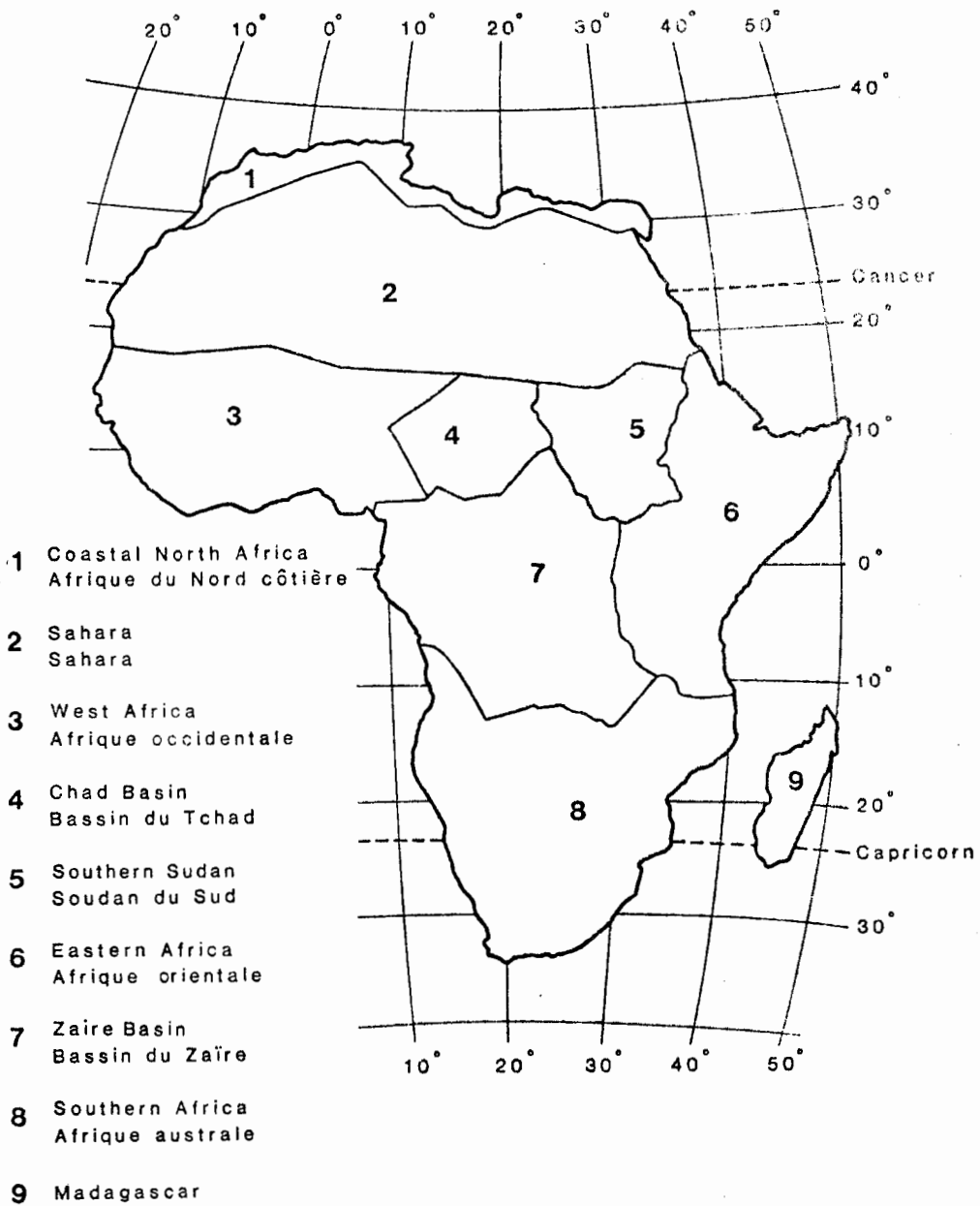
Morphometry: In the dry season the area of the lake is about 5 km² with a depth of about 2 m, but in the wet season the area increases to over 30 km² and the maximum depth is about 4 m.

2. Physico-chemical characteristics of the water

Data based on a single visit in January 1976. Temperature°C: 23.0 (surface); 22.9 (1 m). Conductivity: 550.10⁻⁶ S.cm⁻¹ (20°C). pH: 7.6-8.4. Transparency: Secchi disc 44 cm. Oxygen % saturation: 83 at 10 cm; 86 at 1 m.

3. Macrophytes

The dry season has a rich vegetation with Ceratophyllum demersum, Najas pectinata and Nymphaea lotus as the main species. There are smaller amounts of Nymphaea coerulea and a few small patches of a Polygonum species.



Regions of Africa treated in this Directory
Régions d'Afrique traitées dans le présent répertoire

DIRECTORY
REPERTOIRE



**African wetlands
and shallow water bodies**

**Zones humides
et lacs peu profonds
d'Afrique**

M. J. BURGIS
J. J. SYMOENS



Éditions de l'ORSTOM

INSTITUT FRANÇAIS DE RECHERCHE SCIENTIFIQUE POUR LE DÉVELOPPEMENT EN COOPÉRATION

**African wetlands
and shallow water bodies**

**Zones humides
et lacs peu profonds d'Afrique**

DIRECTORY
REPERTOIRE

Edited by / Publié par les soins de

M. J. BURGIS
J. J. SYMOENS

Éditions de l'ORSTOM

INSTITUT FRANÇAIS DE RECHERCHE SCIENTIFIQUE POUR LE DÉVELOPPEMENT EN COOPÉRATION

Collection **TRAVAUX et DOCUMENTS** n° 211

PARIS 1987

This work was completed with financial assistance of :
Ce travail a pu être réalisé grâce au support financier de :

Council for Scientific and Industrial Research (South Africa)
Fonds de la Recherche Fondamentale Collective (Belgique)
Ministère de l'Environnement (France)
Royal Society (Great Britain)
IUCN and WWF



Funds and facilities for the preparation of camera ready text were made available by IUCN and WWF

L'IUCN et le WWF ont procuré les fonds et les facilités pour la préparation des manuscrits définitifs

L'ORSTOM en a assuré la publication

La loi du 11 mars 1957 n'autorisant, aux termes des alinéas 2 et 3 de l'article 41, d'une part, que les « copies ou reproductions strictement réservées à l'usage privé du copiste et non destinées à une utilisation collective » et, d'autre part, que les analyses et les courtes citations dans un but d'exemple et d'illustration, « toute représentation ou reproduction intégrale, ou partielle, faite sans le consentement de l'auteur ou de ses ayants droit ou ayants cause, est illicite » (alinéa 1^{er} de l'article 40).

Cette représentation ou reproduction, par quelque procédé que ce soit, constituerait donc une contrefaçon sanctionnée par les articles 425 et suivants du Code Pénal.