

Information Sheet on Ramsar Wetlands

1. Date this sheet was completed/updated: 27 March 2001

2. Country: Chad

3. Name of wetland: Lake Chad (that part in Chad)

4. Geographical coordinates:

13° 10' and 15° 30' North latitude
12° 45' and 14° 30' East longitude

5. Altitude: between 275.8 and 280.1 metres

6. Area: 1,648,168 hectares

7. Overview:

This wetland is a large expanse of water bordered on the north-west by a string of dunes, to the north-east and east by a winding erg and on the south by a low flat region with vaguely defined edges. This area includes a large variety of wetlands: open water, small islands and banks, polders and temporary or permanent ponds natron.

8. Wetland type: O, Sp, Ss, Y

Types of wetlands by decreasing order of importance: O, Y, Ss, Sp

9. Ramsar criteria: 1, 2, 3, 5, 7, 8

Criteria that best characterize the site:

10. Map of site included? Please tick yes -or- no

11. Name and address of the compiler of this form:

Direction de la Protection de la Faune et des Parcs Nationaux
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12. Justification of the criteria selected under point 9, on previous page:

Lake Chad is the only body of water of such importance in the Sahara region.

This is the only region in Chad where the “*boeuf Kouri*” is found. It is a rare bovine breed, whose racial purity is endangered because of breeding with other breeds.

Lake Chad is located in the Sahara region, maintaining a balanced ecosystem with an important biodiversity (see paragraphs 17 and 18).

Surveys of waterfowl carried out by the Bureau International de Recherche sur les Oiseaux d’Eau and other organizations, especially that in January 1987 by Francis Roux and Guy Jarry, confirm that the Chadian part of Lake Chad is the site of abundant bird life, which gives it the status of a wetland of international importance.

In Lake Chad, almost all the species of fish found in the Chadian basin have been recorded, namely 149 species (Fish base, 1999).

These areas are seasonally flooded forming breeding and growth areas for several species of fish. The natron ponds in the area are the only places where natural spirulina is harvested.

13. General location:

In the semi-desertic part of Chad, in the prefectures of Lac and Kanem, which is the closest city and is located at the site.

14. Physical features:

The current Lake Chad is the remnant of the former Chadian hydrographical basin. It is an endorheic lake fed mainly by streams (Chari, Komadougou Yobé and El-Béid). This area is bordered on the northwest by poorly stabilized sand dunes with slightly hilly topography. Rainfall is characterized by heavy rains of about 200 millimetres in the north and 400 millimetres in the south, marked by alternating seasons: a long dry season of more than seven months and a shorter wet season of barely four months.

15. Hydrological values:

This is a feeding area for migratory birds. It also plays a regulatory role for annual variation, is a good indicator of climatic trends for the subregion and purifies the air. The wetland provides water for recharging underground water and acts as an element for flood control and retention of sediments.

16. Ecological features:

The following ecological characteristics are found here:

In the terrestrial environments, the following forest communities are found:
steppes of thorny mimosa bushes, wooded acacia steppe, mixed acacia woodland and Doum palm groves.

Grass vegetation based on *Cenchrus*

Aquatic floating formations (grasses and *Pistia*) and fixed formations (Cyperaceae, *Sesbania* sp. and *Aechinomenes*)

Temporary ponds with ephemeral herbaceous vegetation

Small islands covered with reeds (papyrus, *Phragmites* and *Typha*)

Archipelagos

Aquatic seasonally flooded grasslands of *Leersia* or *Echinochloa*;
Emergent grasslands of *Panicum repens* and *Sporobolus spicatus*;
Groves of Doum palms (*Hyphaene*) in emergent parts above the high water line;

Ponds

Islands of *Phragmites* with *Panicum repens* on the shores;
Dry sand with *Sporobolus spicatus*;
Aquatic communities of *Phragmites*;
Communities of *Cyperus laevigatus*, *Panicum repens* and *Sporobolus spicatus*

17. Noteworthy flora:

Spirulina, an algae produced only in the natron ponds of Lake Kanem.

Exotic vegetation (*Prosopis juliflora*) and local vegetation (*Acacia* sp.) including *Acacia nilotica*, *A. senegal*, *Aeschynomene* sp., *Balanites aegyptiaca*, *Calotropis procera*, *Cyperus papyrus*, *Echinochloa* sp., *Hyphaene tebeca*, *Leersia* sp., *Nymphaea* sp., *Panicum* sp., *Phragmites* sp., *Salvidora persica*, *Sesbania* sp., *Sporobolus speculatus* and *Vossia* sp.

18. Outstanding fauna

There are a large number of waterfowl:

Ciconiiformes: *Anastomus lamelligenus*, *Ardea cinerea*, *A. melacephala*, *A. purpurea*, *A. ralloies*, *Bostrychia hagedash*, *Bubulcus ibis*, *Butorides stratus*, *Ciconia ciconia*, *C. epuscopus*, *C. nigra*, *Egretta alba*, *E. ardesiaca*, *E. garzetta*, *E. intremedia*, *Ephippiorhynchus senegalensis*, *Leptoptilos crumeniferus*, *Mycteria ibis*, *Nycticorax nycticorax*, *Plagadis falcinellus*, *Platalea alba*, *Scobus umbretta* and *Threskiornis aethiopica*.

Anatidae: *Alopochen aegyptiacus*, *Anas acuta*, *A. clypeata*, *A. querquedula*, *Aythya nyroca*, *Dendrocygna bicolor*, *D. viduata*, *Nettapus auratus*, *Plectropterus gambensis* and *Sarkidiornis melanotos*.

Limicoles: *Calidris minuta*, *Charadrius dubius*, *C. pecuarius*, *Gallinago gallinago*, *Himantopus himantopus*, *Limosa limosa*, *Numenius arquata*, *Philomachus pugnax*, *Pluvianus aegyptius*, *Tringa erythropus*, *T. glareola*, *T. hypoleucos*, *T. nebularia*, *T. ochropus*, *T. stagnatilis*, *Vanellus senegallus*, *V. spinosus* and *V. tectus*.

Other species: *Actophilomis africana*, *Ahninga rufa*, *Balearica pavonina*, *Burhinus senegalensis*, *Chlidonias leucoptera*, *Circus aeruginosus*, *Gallinula chloropus*, *Glareola pratincola*, *Haliaetus vocifer*, *Larus cirrocephalus*, *Pandion haliaetus*, *Pelicanus onocrotallus*, *Phalacro corax africanus*, *Rynchops flavirostris* *Sterna hirundo* and *Tachybaptus ruficollis*.

This information is based on a survey carried out in December 1998 and January 1999 by Bertrand Trolliet and Jean Thal.

Mammals: The following species are found at the site: African elephant (*Loxodonta africana*), which migrates seasonally to the northern and southern parts of the area. The marshbuck (*Tragelaps spekii*), the African clawless otter (*Aonyx capensis*), speckle-throated otter (*Lutra maculicollis*), golden jackal (*Canis aureus*), gazelle à front roux (*Gazella rufifrons*) and hippopotamus (*Hippopotamus amphibius*).

The *boeuf Kouri* is a bovine species endemic to Lac Chad.

Reptilia: The outstanding species are the African crocodile (*Crocodylus niloticus*), water turtle (*Emis orbicularis*), African python (*Python sebae*) and African small-grain lizard (*Varanus niloticus*)

Freshwater fish: Lake Chad has almost all the species of fish found in the Chadian basin, of which the most common are *Alestes dentex*, *Bagrus docmak*, *Brycinus macrolepidotus*, *Citharinus citharinus*, *Clarias anguillars*, *Gymnachus niloticus*, *Heterotis niloticus*, *Hydrocynus forskali*, *Hyperopisus bebe chariensis*, *Labeo senegalensis*, *Lates niloticus*, *Malapterurus electricus*, *Marcusenuis (Gnathonemus) niger*, *Mormyrus hasselquisti*, *Oreochromis niloticus*, *Petrocephalus simus*, *Polypterus bechir*, *Protopterus annectens*, *Schilbe mystus*, *Synodontis nigrita* and *Tilapia zillii*.

19. Social and cultural values:

In Chad, there are 300,000 fishermen more than half of which live at Lake Chad. In addition to fishing, there is production of spirulina and natron, as well as grazing. It is an area of highly potential resources.

20. Land tenure/ownership of:

At the site, the public lake domain belongs to the government and local communities (*cantonna*);

In the surrounding area: The land belongs to local communities (*cantonna*) and private interests.

21. Current land use:

Activities at the site: Small-scale fishing, hunting, market gardening (maize, wheat, vegetables), extensive grazing of sheep and camels; gathering of spirulina and natron.

Activities in the surrounding area: Regulated hunting on the Douguia reserve and the growing of irrigated rice.

Land use: On the flattened dunes, millet and maize are grown and after harvesting the fields are used for grazing. In the dry wadis, with light deposits natrone or not, millet and maize are grown. The saline wadis (with natrone) are propitious environments for the extraction of natron and also sources for the production of spiruline (blue algae). Their edges are often exploited for growing date palms. The polders are exploited for growing wheat, maize, sugarcane and vegetables. Fruit trees have recently been introduced (mangoes, guavas and lemons). The open water is exploited by fishermen who supply the cities of N'Djamena and Maïdougouri with fish.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:

At the site, there are engineering works by the Société de Développement du Lac (SODELAC). Work on creating polders from the lake has been assigned to SODELAC since 1970. An area of 1,150 hectares is being exploited. Current projects cover an area of 1,660 hectares. There is encroachment by the sand and the filling-in of parts near the shore.

In the area surrounding the site, there is irrigation on the Logone River by the Société d'Exploitation et de Modernisation de Riz de Yagoua (SEMRY) in Cameroon and at Casier B at Bongor.

Environmental impact on the lake: Exploitation of the polders dries them up and leads to a change in ecosystems in the wetland, which are no longer permanently flooded. This has resulted in a loss of biological diversity. Pollution has become a problem through the use of insecticides, and invasive species have appeared. Protection dykes have been built against flooding owing to rapid runoff of river water downstream, thus limiting replenishment of underground water. Shifting sands pose a direct threat of filling in the polders and the lake, leading to a loss of biodiversity. The extraction upstream of water from the Logone for irrigation of rice fields by SEMRY and Casier B can unfavourably affect the level of flooding of the lake.

23. Conservation measures taken:

Law 14/PR/98 of 17 August 1998 spelling out general principles for protection of the environment including Lake Chad;

Law 016/PR/99 of 18 August 1999 establishing the water code, which sets regulations for managing surface and underground water and water from the engineering works;

The laws regarding the Commission du Bassin du Lac Tchad (CBLT) define management principles for the lake's basin through cooperation among countries.

24. Conservation measures proposed but not yet implemented:

Draft law on forest exploitation, fauna and fishing;

Draft decree regulating the wetlands in Chad;

Regulations of the CBLT;

Within the activities of the CBLT, a management project with support of the World Bank, the Global Environment Facility and the United Nations Development Programme is under way.

25. Current scientific research and facilities:

Production of experimental seeds by SODELAC, potatoes, maize, wheat, sugar cane (on a small scale) and other garden crops;

Trials with spiruline for improving its exploitation (production and harvesting now take place using traditional methods);

Genetic studies on the *boeuf de Kouri* are being carried out by the Laboratoire de Farcha. This research is attempting to select pure animals in order to reconstruct the species, which is threatened with extinction.

26. Current conservation education:

General education is very limited because few children are enrolled in schools, and there is a high rate of school leaving. About 43 per cent of children attend school, and there are 4,500 secondary school students.

27. Current recreation and tourism:

Given the inaccessibility of the area, tourism is little known. However, tourism could expand if the area were made accessible, especially towards N'Djamena like in the case of the Douguia tourist site located just south of the site.

28. Jurisdiction:

Ministry for the Environment and Water responsible for environmental and water policy;

Ministry for Agriculture is responsible for promoting agrarian policy and food security;

Ministry for Livestock is responsible for policy regarding grazing, which is one of the engines of the Chadian economy.

29. Management authority:

The Ministry for the Environment and Water is responsible for the management of wetlands through the Direction for the Protection of Fauna and National Parks, which is the technical agency.

CBLT and SODELAC

30. References: