

World Heritage Sites

Protected Areas and World Heritage



LAKE TURKANA NATIONAL PARKS KENYA

Lake Turkana is the largest, most northerly and most saline of Africa's Rift Valley lakes and an outstanding site for the study of plant and animal communities. The parks are a stopover for migrant waterfowl and are major breeding grounds for the Nile crocodile and hippopotamus. The Koobi Fora deposits are rich in pre-human, mammalian, molluscan and other fossil remains and have contributed more to the understanding of Quaternary palaeoenvironments than any other site on the continent

Threats to the site: The Gibe III dam on the Omo River in Ethiopia will have potentially disastrous effects on the lake's inflow, salinity and levels and on the livelihoods of its tribal populations.

COUNTRY

Republic of Kenya

NAME

Lake Turkana National Parks

NATURAL WORLD HERITAGE SERIAL SITE

1997: Inscribed on the World Heritage List under Natural Criteria viii and x (Sibiloi and Central Island).

2001: Extended to South Island National Park, also under Natural Criteria vii, ix & x.

INTERNATIONAL DESIGNATION

1978: Mount Kulal recognised as a Biosphere Reserve under the UNESCO Man and Biosphere Programme (700,000 ha. Includes South Island and the waters of Lake Turkana).

IUCN MANAGEMENT CATEGORY

Sibiloi & Central Island National Parks: II National Parks

South Island National Park: II National Park

BIOGEOGRAPHICAL PROVINCES

Somalian (3.14.07) and Lake Rudolf (3.21.07)

GEOGRAPHICAL LOCATION

Sibiloi National Park is on the eastern shore of Lake Turkana (formerly Lake Rudolf) 720 km north of Nairobi between 3° 39' to 4° 00'N and 36° 11' to 36° 34'E. Central Island is midway down Lake Turkana in Rift Valley Province at 3° 30'N by 36° 02'E. South Island is at the southern end of the lake, at 2° 23'N by 36° 44'E. The Park extends 1 km out from the island's shore.

DATES AND HISTORY OF ESTABLISHMENT

1973: Sibiloi established as a National Park by Legal Notice 160;

1978: Mount Kulal Biosphere Reserve was designated beside southeast Lake Turkana: the Reserve includes the waters of Lake Turkana, also South Island;

1983/5: South and Central Islands gazetted as National Parks by Notices 12 & 18.

LAND TENURE

State, in Marsabit District of the Eastern Province. Administered by the Kenyan Wildlife Service (KWS).

AREA

161,485 ha. Sibilo: 157,085 ha. Central Island: 500 ha. South Island: 3,900 ha.

ALTITUDE

307m to 615m.

PHYSICAL FEATURES

Lake Turkana is the largest desert lake in Africa, its fourth largest lake by volume and the most northerly of Kenya's Rift Valley lakes. It occupies the beds of two grabens at the northern end of the Kenyan Great Rift valley in barren drought-prone country. It measures 249 km by an average width of 30 km but 48 km at its widest; it is 35m deep. It has three volcanic islands, north, central and south: Central Island is a small active volcano with three saline crater lakes; South Island measures 11 x 4.5 km. Both islands have rocky shores. Nearly 90% of the lake's water comes from Ethiopia via the Omo River, the delta of which extends into Ethiopia. Most of the rest comes from two southern tributaries, the Kerio and the Turkwel, which has been dammed. There is no outflow and with reduced inflows and high evaporation the chloro-carbonate alkaline water is subject to marked 3-4 meter seasonal fluctuations in level. Although it is 2.5 times saltier than the maximum normal limit for drinking water, it is still drinkable, but is becoming increasingly saline (Hathaway, 2010). The level dropped 10m between 1975 and 1992. Its striking jade-green color is due to the presence of blue-green algae *Microcystis aeruginosa* in the phytoplankton. The lake shore is mostly rocky or sandy, with mud in Allia Bay in the National Park and little vegetation anywhere (Fitzgerald, 1981). The borders of all the Parks extend one kilometre off shore into the lake. Rich fossiliferous deposits are found for 60 km north from Allia Bay and up to 20 km inland. The plains are flanked by volcanic formations including Mount Sibilo, the site of the remains of a petrified forest estimated to have grown seven million years ago.

CLIMATE

The climate is very hot, arid and very windy. The air temperature ranges between 19.2° and 39.9°C with a mean daily temperature range of 31°C to 33°C. The months of October to January are the warmest and driest, July and August are the coolest. During this period the area is subject to the frequent and strong southerly and south-easterly winds. The total annual rainfall is less than 200mm and is unpredictable though most likely between March and May. It may not rain for years (ILEC, 2002), and the long drought between October 1998 and May 2001 was very destructive, especially where trees taken for fuelwood and charcoal.

VEGETATION

Remoteness has preserved the area as a natural wilderness. On the grassy plains yellow speargrass *Imperata cylindrica*, *Commiphora* sp., *Acacia tortilis*, and other acacia species predominate along with *A. elatior*, desert date *Balanites aegyptiaca* and doum palm *Hyphaene coriacea* in sparse gallery woodlands. Toothbrush bush *Salvadora persica* is found on Central and South Islands. The northeastern shore of the lake is mostly rocky or sandy. The muddy bays of South Island have extensive submerged beds of *Potamogeton pectinatus* which shelter spawning fish. The principal emergent macrophytes in the seasonally exposed shallows are the grasses *Paspalum geminatum* and *Sporobolus spicatus* (Njuguna, 2001).

FAUNA

Despite the low carrying capacity of the area the fauna is relatively diverse, especially in breeding and migrant birds. The island Parks were established to protect the breeding habitats of the Nile crocodile *Crocodylus niloticus*, hippopotamus *Hippopotamus amphibius* (VU), puff-adder *Bitis arietans*, cobra *Naja haje* and Egyptian saw-scaled viper *Echis pyramidum*. The lake is an important flyway for migrant birds. Over 350 species of aquatic and terrestrial birds are known for the region, which is recognised by BirdLife International as an Important Bird Area, and a priority for conservation. On South Island 220,000 waterbirds of 84 species have been recorded, with 34 Palearctic migrants. As recorded in 1992 by Bennin & Njoroge (1999) key species making up 1% or more of the population include the pink-backed pelican *Pelecanus rufescens* (1,060), greater flamingo *Phoenicopterus rubra* (3,000), spur-winged plover *Vanellus spinosus* (6,930), ringed plover *Charadrius hiaticula* (13,600), Caspian plover *C. asiaticus* (500), Kittlitz's plover *C. pecuarius* (8,600) and little stint *Calidris minuta* (113,000). At least 23 bird species are known to breed in the environs of the lake, including the goliath heron *Ardea goliath*. Regionally threatened bird species in the area include ostrich *Struthio camelus*, great egret *Casmerodius albus*, saddle-billed stork *Ephippiorhynchus senegalensis*, banded snake-eagle *Circaetus cinerascens*, African fish eagle *Haliaeetus vocifer*, fox kestrel *Falco alopex*, Heuglin's bustard *Neotis*

heuglinii, Abyssinian ground hornbill *Bucorvus abyssinicus*, African skimmer *Ryncops flavirostris* and Somali sparrow *Passer castanopterus* (Bennun & Njoroge, 2001; Stattersfield *et al*, 1998). The site is also an important staging post for migrating warblers and wagtails (KWS,1992).

Mammals in the area include olive baboon, *Papio anubis*, wild dog *Lycaon pictus* (EN), striped hyaena *Hyaena hyaena*, caracal *Caracal caracal*, lion *Panthera leo* (VU) and cheetah *Acinonyx jubatus* (VU), warthog *Phacocoerus aethiopicus*, hippopotamus (VU), reticulated giraffe *Giraffa camelopardalis reticulata*, plains and Grevy's zebras *Equus quagga* and *E. grevyi* (EN), Grant's gazelle *Gazella granti*, Beisa oryx *Oryx gazella beisa*, lelwel hartebeest *Alcelaphus buselaphus lelwel* (EN), topi *Damaliscus lunatus tiang*, greater kudu *Tragelaphus streptoceros*, lesser kudu *T. imberbis*, gerenuk *Litocranius walleri* and dikdik *Rhyncotragus guntheri*. 60 fish species, seven being endemic, live in the lake. These fish support the world's largest populations of Nile crocodile *Crocodylis niloticus*: approximately 14,000 breed on Central Island (Fitzgerald 1981; KWS 2001).

CULTURAL HERITAGE

At Koobi Fora to the north of Alia Bay, extensive palaeontological finds have been made, starting in 1972 with the discovery of *Homo habilis*. These are evidence of the existence of a relatively intelligent hominid two million years ago and reflect the change in climate from moist forest grasslands when the now petrified forests were growing to the present hot desert. The human and pre-human hominid fossils include the remains of four species, the most important being the 1999 discovery of 3.5-million year old *Kenyanthropus platyops*. Other findings include several ancestors of modern animal species. Over 100 archaeological sites have been discovered so far (KWS,1996). This is the only archaeological conservation area in Kenya gazetted as a National Park.

LOCAL HUMAN POPULATION

No-one lives in Sibiloi and Central Island National Parks, but Gabbra, Rendille and Turkana pastoralists are allowed to bring cattle and goats into the Park during the dry season. The Park on South Island is in the centre of an area inhabited by the diminishing 200-strong El-Molo tribe of fishermen. The total population centred on the lake numbers some 300,000 in six tribal groups, most extremely poor and with high potential for violent conflict over the decreasing resources, including with tribesmen from Ethiopia and Sudan (Hathaway, 2010).

VISITORS AND VISITOR FACILITIES

A unique archaeological site for hominid remains and relics of giant tortoise, crocodile and behemoth mammoth. Very few visitors travel to these National Parks although their tourist potential is quite high. Visitors to Sibiloi and Central Island Park during 1992-1998 ranged from 1,294 in 1996 to 458 in 1998, with more people visiting Sibiloi. There is an airstrip at the Turkwel dam, camping facilities at the Koobi Fora Museum & Research Base and at Roodoni facing Mount Sibiloi, but visitors must bring their own supplies. There are three hotels; Oasis Lodge at Loiyangalani at the southeast end of the lake, provides a base and motor boats for visitors to travel to South Island Park for bird watching and game viewing.

SCIENTIFIC RESEARCH AND FACILITIES

Extensive archaeological work, still ongoing, was done in the area by Richard Leakey and many others in the 1960s and 1970s (KWS,1996). Very important ancestral human fossils have been recorded from the area, including the remains of *Australopithecus robustus*, *Homo habilis*, *Homo erectus* and *Homo sapiens*. Fossils of other African mammals have also been found there: black and white rhinoceros, an extinct giant otter, hippopotamus, pygmy hippopotamus, african elephant and camel. Although there is no formal and systematic monitoring programme for the Lake Turkana sites, KWS, the National Museums of Kenya and the Department of Resource Surveys and Remote Sensing carry out some monitoring in the Parks. Public and private universities provide expertise in research, monitoring and impact assessment. A survey of birds was undertaken in 1992 (Bennin & Njoroge, 1999). The Kenyan Wildlife Service Training Institute, in Naivasha, and the Mweka African College of Wildlife Management in Moshi, Tanzania, are valuable training centres for wardens and rangers of the region.

CONSERVATION VALUE

These remote parks are globally of great value for the conservation of waterbirds, the Important Bird Area of South Island Park especially. Counts in 1992 recorded over 220,000 waterfowl. Protected areas around Lake Turkana, including the adjacent Biosphere Reserve of Mount Kulal extending over the lake, provides an large and valuable laboratory for the study of plant and animal communities. The Park also lies within a WWF Global 200 Eco-region. The Koobi Fora deposits are rich in pre-human,

mammalian, molluscan and other fossil remains and have contributed more to the understanding of palaeoenvironments than any other site on the continent.

CONSERVATION MANAGEMENT

The Kenyan Wildlife Service has agreed memoranda of understanding with the National Museums of Kenya for the conservation of fossil sites, with the Kenyan Fisheries Department for lake fisheries and the Kenya Forestry Department for catchment forests, especially for managing South Island National Park. However, local people are allowed to use areas in Sibiloi and Central Island National Parks during the dry season, November-February. With assistance from the UNESCO World Heritage Fund a five year Integrated Management Plan was developed for Lake Turkana and its parks. Its goals are conservation of the archaeological sites, park habitats and biodiversity and its objectives promotion of environmental awareness, education and ecotourism, scientific research and monitoring, collaboration with stakeholders and alleviation of poverty (Njuguna, 2001).

MANAGEMENT CONSTRAINTS

The area's protection is largely nominal but because of its remoteness, there has been relatively little direct pressure on the environment. However, local people are beginning to become more sedentary, increasing the grazing pressure from livestock which is now becoming a problem particularly along the shores of Lake Turkana. It also causes unauthorised trespassing into the Park and increased soil erosion in the strong winds of the area. The collection and cutting of *Salvadora persica* by local fisherman is also exposing soil to erosion. Pressure on fish populations in the lake is increasing, although attempts to introduce industrial scale fishing projects have so far failed. African skimmers nesting on South Island have been disturbed in recent years by fisherman. The water level of the lake has been dropping steadily for some years: a decline of 10m was recorded between 1975 and 1993, primarily due to reduced inflow from the Omo River in Ethiopia due to irrigation and drought upstream. Long droughts from 1999 to 2000 and from 2007 to 2009 have also led to severe losses of livestock and wildlife, to tribal conflicts and to starvation.

In addition, the Gibe III dam now under construction on the Omo to supply electricity and control flooding will reduce the flow of freshwater even further, increasing the already extremely high salinity of the water, threatening the coastal tribes and the fish they now depend on. According to recent reports (ARWG, 2009; Hathaway, 2010; Angelei & Pottinger, 2010), the dam which is part of the largest hydroelectric project in Africa, could decrease the flow to the lake by 85% and lower the shoreline by up to 12 metres. In addition, its effect on the 200,000 lower Omo tribesmen dependent on the river may cause disastrous hardship and consequent violent conflicts. The ARWG report is a particularly trenchant and detailed comment on the project. However, the dam is considered essential by the government, will also supply power to surrounding countries, including Kenya, and is well financed by the leading Chinese bank among other lenders. Upstream irrigation and a hydropower dam also affect the supply from the Turkwel.

STAFF

The three Lake Turkana Parks are managed by a work force of forty-three: one warden, 22 rangers, and 12 support staff (KWS, 1996; 2001).

BUDGET

Funding for the site comes from central government, donors and from visitor fees. In 1996 funding for the Lake Turkana ecosystems amounted to US\$50,000. The Provisional Integrated Management Plan gave a 5-year tentative budget of US\$335,000 (Njuguna, 2001).

LOCAL ADDRESSES

The Director, Kenya Wildlife Service, P.O. Box 40241, Nairobi, Kenya.

The Warden, Sibiloi, National Park, Box 219, Lodwar, Kenya.

Kenyan Fisheries Department, P.O. Box 58187, Nairobi, Kenya.

National Museums of Kenya, P.O. Box 40658, Nairobi, Kenya.

REFERENCES

The principal sources for the above information were the original nominations for World Heritage status.

Africa Resources Working Group (ARWG) (2009). *A Commentary on the Environmental, Socio-economic and Human Rights Impacts of the Proposed Gibe III Hydrodam in the Lower Omo River Basin of Southwest Ethiopia*. Report for the Government of Ethiopia. www.arwg.gibe.org.

Angelei, I & Pottinger, L. (2010). *Gibe 3 Threatens World Heritage Sites*. International Rivers, Berkeley, CA, U.S.A. / Brisbane, Australia.

Bennun, L. & Fasola, M. (eds.) (1996). Resident and migrant waterbirds at Lake Turkana, February 1992. *Quaderni della Civica Stazione Idrobiologica di Milano*, 21: 7-62.

Bennun, L. & Njoroge, P. (2001). Kenya. pp.411-464 in Fishpool, L. & Evans, M.(eds) (2001). *Important Bird Areas for Africa and Associated Islands. Priority Sites for Conservation*. Pisces Publications and Birdlife International, Newbury and Cambridge, U.K. BLI Conservation Series No.11.

Cunningham Van-Someren, C. (1981). *Lake Turkana Biological Survey: Birds*. Report to the National Museum of Kenya, Nairobi.

Fasola, M., Biddau, L., Borghesio, L., Bacetti, N. & Spina, F. (1993a). Waterbird populations at Lake Turkana, February 1992. *Proc.Pan-Afr.Orn. Cong.* 529-532.

Fasola, M., Biddau, L. & Borghesio, L., (1993b). Habitat preference of resident and Palaeartic waterbirds of Lake Turkana. *Proc.Pan-Afr.Orn. Cong.* 539-545.

Fishpool, L. & Evans, M. (eds) (2001). *Important Bird Areas for Africa and Associated Islands. Priority Sites for Conservation*. Pisces Publications and Birdlife International, Newbury and Cambridge, U.K. BLI Conservation Series No.11.

Fitzgerald, M. (1981). Sibiloi: the remotest park in Kenya. *Africana* 8(4): 22.

Government of Kenya. 1994. *National Environment Action Plan*. Ministry of Environment and Natural Resources, Nairobi, Kenya.

Hathaway, T. (2010). *Fighting for Lake Turkana. Why Kenyan Communities are Resisting Gibe 3 Dam*. International Rivers, Berkeley, CA, U.S.A. / Brisbane, Australia.

Hopson, A. (ed.) (1982). *Lake Turkana: a Report of the Findings of the Lake Turkana Project. 1972-75* Six volumes. London. Overseas Development Administration.

International Lake Environment Committee (ILEC) (2002). *World Lakes Database. Lake Turkana*. www.ilec.or.jp/database/afr/afr-20.html.

Kenyan Fisheries Department (KFD) (n.d.). *Aquatic Ecosystems. Lake Turkana*. www.fishafrica.org/kenya/Aquatic%20system.htm. Kenyan Fisheries Department.

Kenya Wildlife Service (1996). *Nomination Forms for Maasai Mara World Heritage Site, Mount Kenya World Heritage Site and Sibiloi World Heritage Site*. Kenya Wildlife Service, Nairobi, Kenya.

----- (2001). *Nomination Form for The Great Rift Valley Ecosystems Sites. Extension of Lake Turkana: South Island National Park*. Nairobi.

Njuguna, S. (2001). *Provisional Integrated Management Plan 2001-2005*. SPARVS Agency for the Kenya Wildlife Service. 18pp.

Republic of Kenya. (1985). *Turkana District Resources Survey 1982-1984*. Main Report. Republic of Kenya, Ministry of Energy and Regional Development.

Schekkerman, H. & van Wetten, J. (1987) *An Ornithological Winter Survey of Lake Turkana, Kenya*. WIWO Report No.7. Dutch Working Group on International Wader & Waterfowl Research. Zeist, Netherlands.

Stattersfield, A., Crosby, M., Long, A. & Wege D. (1998). *Endemic Bird Areas of the World. Priorities for Biodiversity Conservation*. BirdLife Intern'l, Cambridge, U.K.

Thieme, M., Abell, R., Stiassny, M., Skelton, P. *et al.* (2005). *Freshwater Ecoregions of Africa and Madagascar. A Conservation Assessment*. WWF, Island Press, Washington, U.S.A. 431 pp.

Willcock, C. (1974). *Africa's Rift Valley*. Time-Life Books (Nederland), B.V. Amsterdam. 184pp.

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