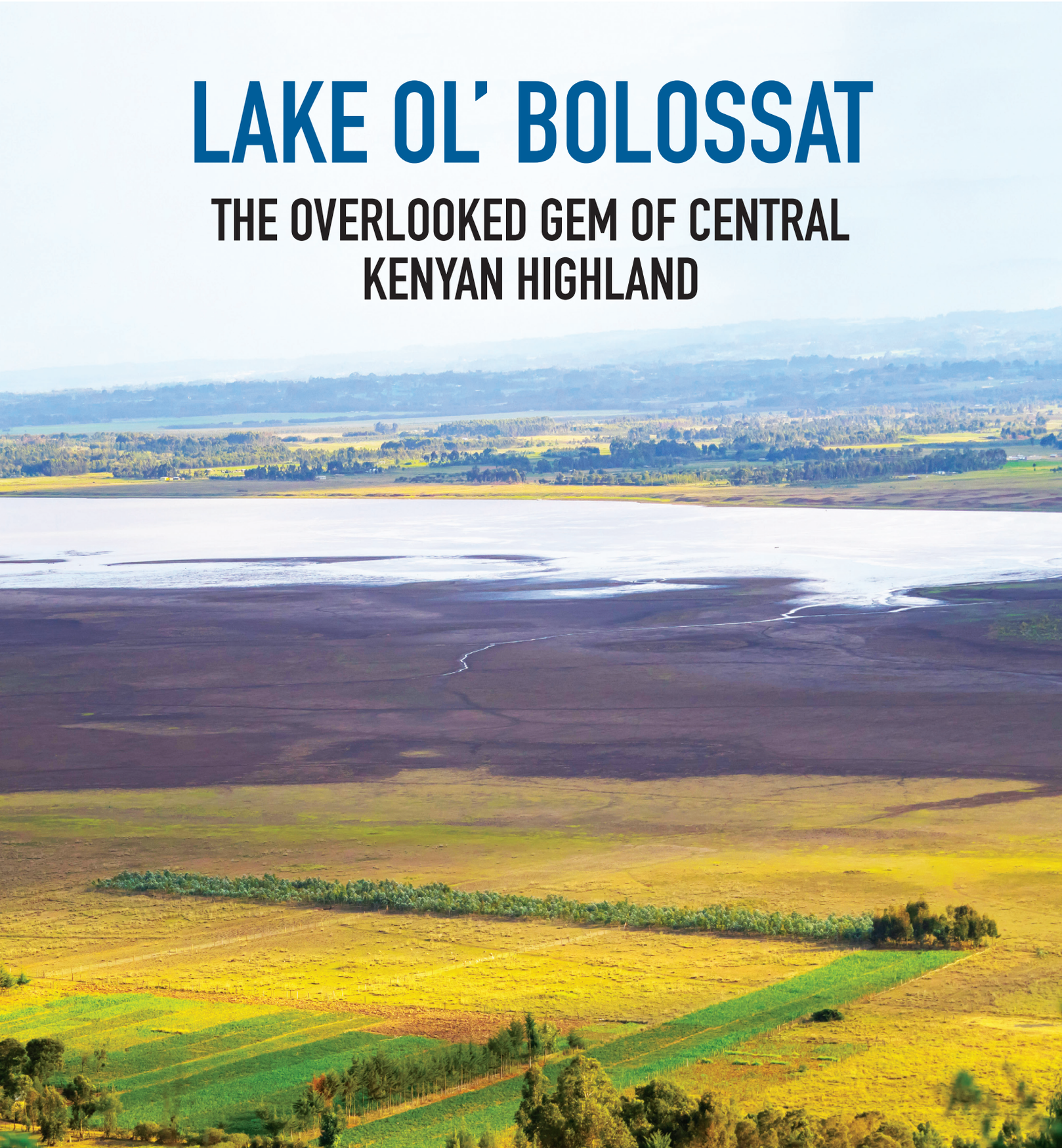
CRITICAL ECOSYSTEM PARTNERSHIP FUND

THE EAST AFRICAN WILD LIFE SOCIETY

LAKE OL' BOLOSSAT

THE OVERLOOKED GEM OF CENTRAL KENYAN HIGHLAND



Geographical Location

Located on a flat plain northwest of the Aberdare Range, Lake Ol Bolossat is the only natural lake in Central Kenya highlands. It is located approximately 195 km north of Nairobi, north of the Kinangop Plateau at the base of the Satima escarpment and is bordered by Ndaragwa, Ol Kalou and Ol Joro Orok divisions. The lake is the highest of its size in East Africa, standing at an average altitude of 2340m above sea level. It located at a latitude of 0° 09' S and longitude 36° 26' E and covers an area of 43.3 sq. Kilometres. The lake is shallow with a reported maximum depth of 4m.

Figure 1: Map showing Lake Ol Bolossat

Climate

The region enjoys favourable climate for most periods of the year. The climate is semi-humid and is strongly influenced by the local topography of the surrounding highlands. The lake is in an Agro Climatic zone receiving an average annual rainfall of between 400 mm and 1,000 mm. Areas near the Aberdare slopes receive sufficient rainfall (< 1,000 mm) while the Ol' Bolossat plateau receives scanty and erratic rainfall (400 – 600 mm). The rainfall regime is

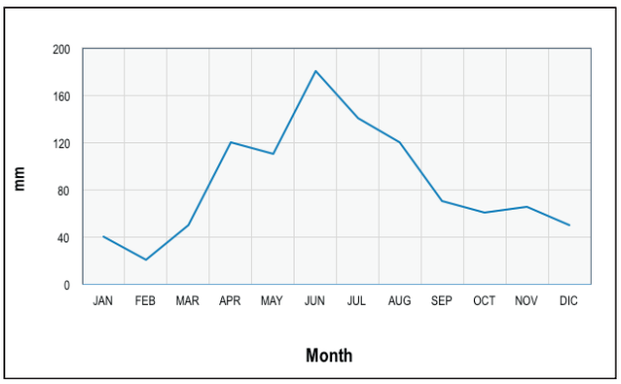


Figure 2: Mean annual rainfall distribution in Ol Bolossat area

bi-modal with peaks in April–June and October–November. Over 60% of the annual rainfall is received in the first wet season. The mean temperature is 23.5° C, with little monthly variations between 10° and 28°C. The highest temperatures are experienced in December and January and the lowest occur in July.

Drainage

Nyandarua range, Satima escarpment, and Ndundori Hills form the main catchment of Lake Ol Bolossat and cover a total area of 4,800 sq. Kilometres. The lake gets its water from the freshwater streams and springs flowing from the Satima escarpment and Ndundori hills which includes Nduthi, Wellmont, Kisawel, Simba, Maji Chemka and others that recharge the lake through sub-surface flow. Water from the lake flows

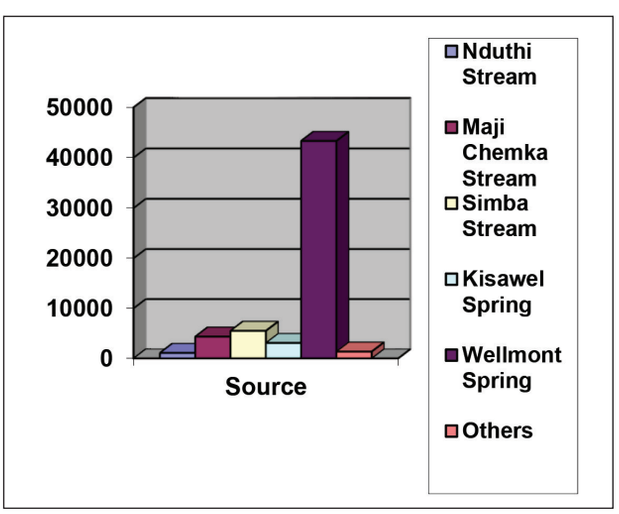


Figure 3: Streams and springs that feed Lake Ol Bolossat

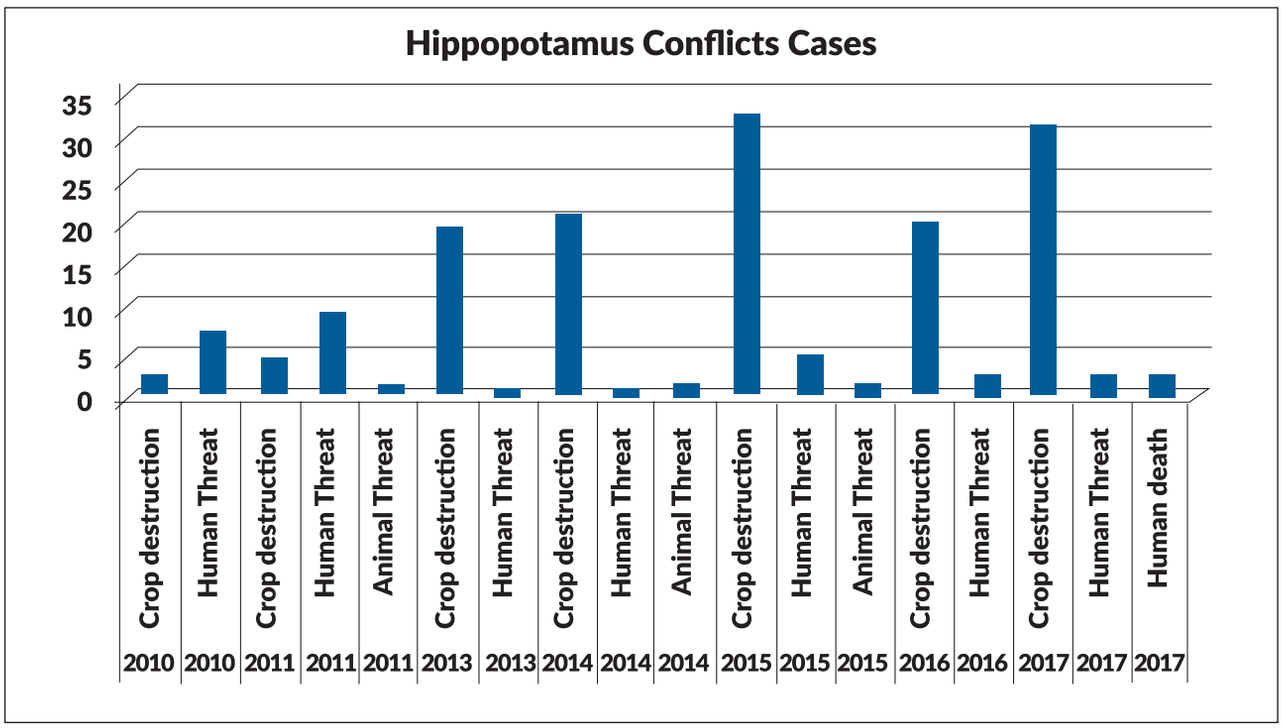


Figure 5: Trends of Human Wildlife Conflict incidences around L. Ol Bolossat

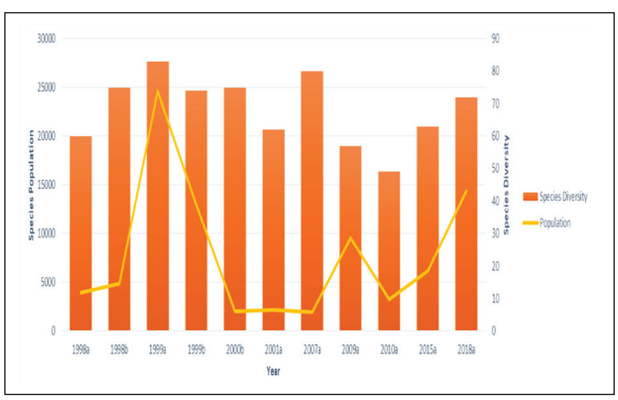


Figure 4: Waterbird Species Diversity and Population Trends

northwards through Thomson's fall into the northern part of Ewaso Nyiro River which drains into Lorian Swamp. The lake's water level is highest during the rains, especially in July. The lake has been reported as both freshwater and saline. The saline nature has been attributed to high rates of evaporation and lake's geology while its freshness is due to the freshwater streams and springs that feed into it.

Conservation Status

Lake Ol Bolossat like many wetlands in Kenya is unprotected. In 2017, the lake was declared an Important Bird Area (IBA) in Danger by Birdlife International. In February 2018, the lake was declared a wetland protected area following consistent advocacy efforts of East African Wild Life Society (EAWLS) and many other stakeholders. However, there is need for more concerted efforts to see the gazettement process to its completion.

Ecological Importance of the Lake

Habitat for wildlife

Lake Ol Bolossat offers a variety of important ecosystems including open waters, floating swamps and marshes, savannah and riverine forests and feeder springs. These make it prime area for the conservation of a wide range of wildlife species including birds (both migratory and residential), hippopotamuses and other wild animals such as otters, fish and occasional leopards. The presence of these diverse species of animals qualifies the site as a Key Biodiversity Area (KBA).

Historically, the lake has been reported

Figure 6: Lake Hippo point

to host the highest numbers of breeding residential hippopotamuses in Kenya. According Kenya Wildlife Service (KWS), it is estimated that the lake has at least 400 individuals. However, hippopotamus numbers have experienced drastic decline and vary during wet and dry seasons due to scarcity of forage materials and human-wildlife conflicts.

Waterbirds are the most conspicuous wildlife in the lake with over 100 species recorded. The lake being close to the Great Rift Valley forms one of Kenya's important migration flyways, thus offering a suitable site for feeding and resting, and probably acts as a wintering ground for the Palearctic migrants. Some of the key bird species recorded in the lake include the globally threatened and Kenyan high-altitude grassland endemic Sharpe's Longclaw, the East African endemic Jackson's Widowbird, the regionally threatened Long-tailed Widowbird, the Grey Crowned Crane (endangered) and the Great Crested Grebe among others. This qualified the designation of the lake as the Kenya's 61st IBA.

A bird survey conducted in 1999 recorded the highest bird species diversity with a total population of 24,652 birds. The most recent census conducted in January 2018 recorded 72 species with a total population of 14,423 individual birds, indicating a significant decline over the years. A partial survey of the Grey Crowned Crane conducted in Kenya in 2017 revealed that Lake Ol Bolossat has the highest population in Kenya, estimated at 286 individuals. Glossy Ibis is the commonest species in the Lake. Birds act as bio-indicators on health of an ecosystem.

The lake and its surrounding wetlands also provide suitable breeding grounds for fish. These include species such as catfish, tilapia and common carp.

Socio-economic benefits

The lake and its resources provide a wide variety of socioeconomic benefits to the local communities living both upstream and downstream thus contributing to their well-being as well as improved local economy.

Provision of water

Figure 7: Grey Crested Crane on the lake's neighbouring farmland

Lake Ol Bolossat is situated in an agriculturally productive zone. Most communities inhabiting the region are for the most part subsistence farmers who also rear livestock. The springs and streams that drain into the lake provide fresh water for domestic use and irrigation.
Ewaso Nyiro River which originates from the lake supply water to the downstream communities living in Laikipia, Samburu and Isiolo Counties, who mainly depend on livestock rearing as their mainstay.

Provision of pasture for livestock

The Lake Ol' Bolossat basin forms an important source of pasture for livestock especially during the dry seasons. The local communities living downstream who are mainly pastoralists graze their livestock along the Ewaso Nyiro River all the way to the lakeshore in search of pasture during dry seasons.

Provision of fish

The lake and its surrounding wetlands including marshes, swamps and dams provide suitable breeding grounds for fish. These include species such as catfish, mudfish and common carp. Fish produced is mainly consumed locally within homesteads and tourism hotels.

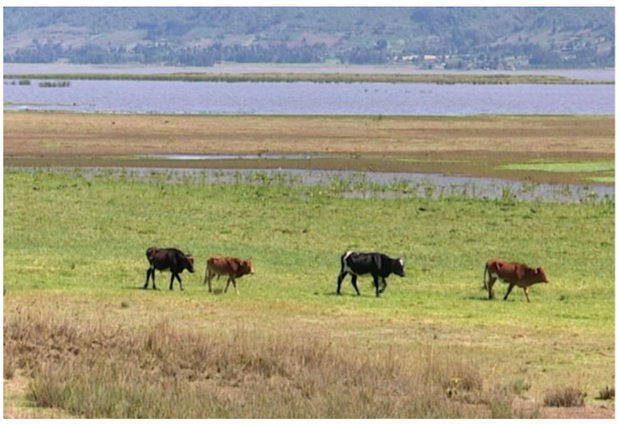


Figure 8: Livestock grazing on the lake

Figure 9: Community fishing from the lake

Figure 10: Boating as tourism activity

Tourism

The lake lies within the circuit of Nyeri-Nakuru, Naivasha-Maralal-Baringo and Nanyuki-Baringo, where there is an attraction to bird and game watching with beautiful landscapes which attract

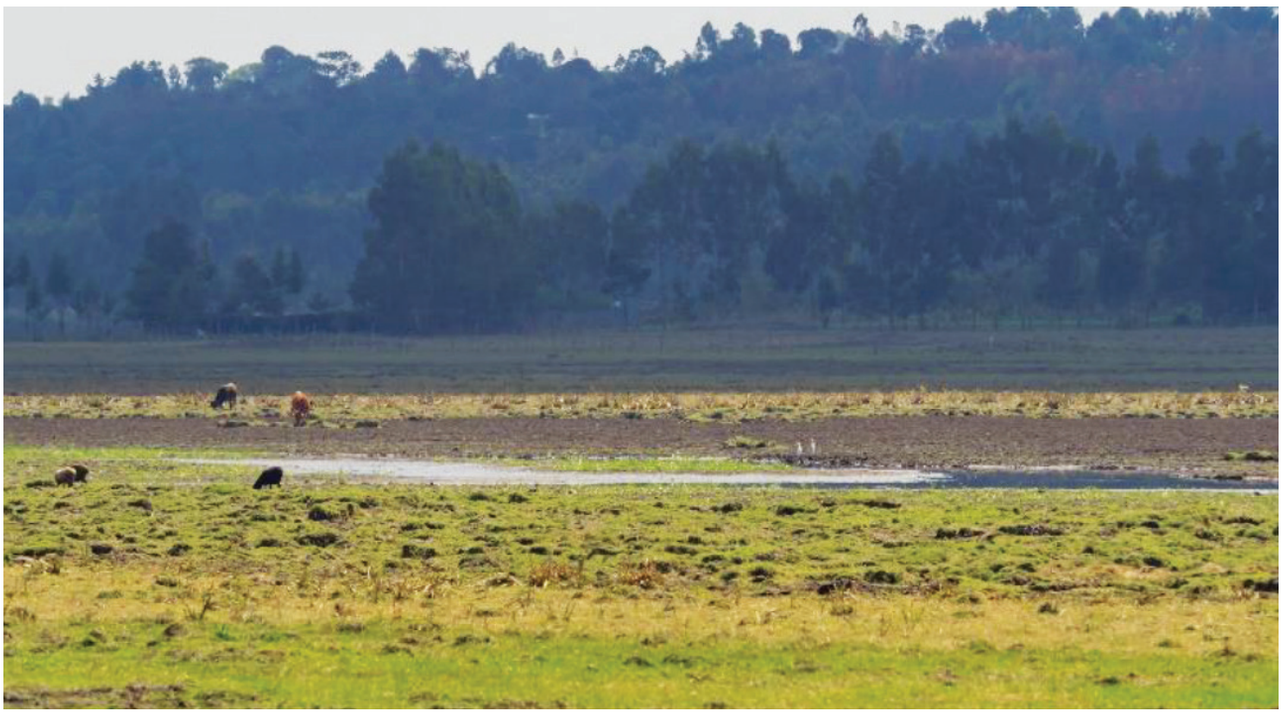


Figure 11: Eucalyptus plantation on the lakeshore

Figure 12: Quarrying activities on the lake shore

many for purposes of leisure or study, amongst others. Tourism in the lake offers employment to local community members who act as tour guides. The lake's tourism potential is yet to be fully exploited.
The lake sustains tourism downstream in both Samburu and Buffalo Springs National Reserves through continuous supply of water that supports the survival of wildlife.

Threats

The lake is a common resource and therefore experiences "the tragedy of the common". This has resulted in continued degradation and uncontrolled utilization of its resources. In addition, the lake faces multiple threats that continue to threaten its ecological integrity and functions.
The rate at which the lake is shrinking is worrying and calls for urgent and targeted conservation efforts if the lake is to survive the next two decades.

1. **Siltation**
   Rock mining, road grading and farming activities on steep slopes around the lake have contributed heavily to its siltation. Loose soils from the quarrying sites, roads and farmlands are carried into the lake through surface run- off when it rains causing siltation. This reduces lake's water holding capacity, water quality, and threatens aqua life.

2. **Introduction of exotic and invasive species**
   There are a lot of Eucalyptus plantations around the lake. Eucalyptus spp are

Figure 13: Water pump and livestock grazing on the lake shores

Figure 14: Livestock grazing on the shore

believed to be heavy consumers of water and could drain wetlands thus contributing to the dwindling water levels in the lake.

3. Pollution

The lake's water is contaminated by agro-chemicals from the surrounding farmlands, and urban effluent. This makes the water unsafe for consumption, causes algal bloom and threatens animals and plants in the lake.

4. Unregulated water abstraction

There are many water pumps installed around the lake and its tributaries used to abstract water for irrigation. The upsurge in the number of water pumps can be attributed to the rise of horticultural farming around the lake. Most of the pumps are unmetered and do not have permits.

5. Overgrazing

The lake surrounding grasslands have been heavily grazed especially during dry seasons. The grazing regime is uncontrolled and uncoordinated. This lead to increasing human-hippo conflicts around the lake, increase siltation of the lake and contaminates water.

6. Human Settlement

Lake Ol Bolossat has overtime reduced significantly in size due to human encroachment. The lake further faces pressure from the growing urban development as it is situated near Nyahururu town.

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