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CASE STUDY 1: NAMIBIA

THE EPHEMERAL WETLAND SYSTEMS OF CENTRAL NORTHERN NAMIBIA

By Holger Kolberg, Mike Griffin and Rob Simmons, Ministry of Environment and Tourism, Namibia

Major Features of the Wetlands

The ephemeral wetland system of central northern Namibia consists of the Etosha Pan, Lake Oponono and the Cuvelai inland delta/drainage. This is by far the largest wetland system in Namibia, covering some 30,000km².

The area can be subdivided into several distinct habitats, each with its distinguishing biodiversity. The Cuvelai drainage system is characterized by open, grassy drainage channels known as 'oshanas'. These are lined by the palm *Hyphaene ventricosa* and *Colophospermum mopane* trees dominate between the water courses. Adjoining to the south of this are the seasonally flooded grasslands on saline soils. Here the 'oshanas' converge into Lake Oponono via the Omuramba Etaka. Dominant grasses are *Odyssea paucinervis*, *Sporobolus spicata* and *S. salsus*, *Panicum lanipes*, *Monelytrum luederitzianum* and *Eragrostis* spp. To the south of this is the Etosha Pans complex which can be classified as saline desert. In years of above average rainfall, Lake Oponono drains into the Ekuma River which in turn flows into the Etosha Pan. Floodwaters can also reach Etosha via Fischer's Pan to the east, which gets its water from the Omathiya and Owambo Omiramba. The fringes of the pan are lined by sweet grassveld and *Combretum/Terminalia/Acacia* woodland.

Fauna of the Wetlands

The Cuvelai drainage is one of the most important ephemeral wetlands in Namibia, supporting 250-270 species of birds of which over 90 are wetland species. Of these, 42% are included in the Namibian Red Data Book. These threatened species include, for example, White Pelican *Pelecanus onocrotalus*, Black Stork *Ciconia nigra*, Saddlebill *Ephippiorhynchus senegalensis*, Greater and Lesser Flamingos *Phoenicopterus ruber* and *P. minor* and the globally threatened Slaty Egret *Egretta vinaceigula* (IUCN Red List, 1994). Etosha Pan is the only known mass breeding ground for flamingos (mainly Lesser Flamingos) in southern Africa. At least 25 other wetland bird species use the area as breeding grounds.

Large numbers of fish colonize the ephemeral wetlands during floods. The number of species increases from Etosha (5) to Oponono (7) and the Cuvelai (17). These fish are heavily utilized by the local people with estimates of up to 4,000kg of fish caught in a 30km section in one day. The total harvest is unknown.

Most of the large mammals in the area occur in the Etosha National Park. This includes mammal species which are considered rare in Namibia such as the Roan *Hippotragus equinus* and the diminutive Damara Dik-dik *Madoqua kirkii* and the globally threatened Black Rhino *Diceros bicornis* and African Elephant *Loxodonta africana* (IUCN Red List, 1994). Large herds of plains ungulates such as Blue Wildebeest *Connochetes taurinus* and Springbok *Antidorcas marsupialis* inhabit the plains around the pan.

Sixteen out of the 52 amphibian species known or expected to occur in Namibia, are found in the Cuvelai-Etosha system. They include such species as the Large Bullfrog *Pyxicephalus adspersus* and the colourful Banded Rubber Frog *Phrynomantis bifasciatus*. Out of 222 known reptile species a significant number are found in the area including snakes such as the African Python *Python sebae*, the Black Mamba *Dendroaspis polylepis* and Horned Adder *Bitis caudalis*. Lizards include the endemic Etosha Agama *Agama etoshae* and the Flap-neck Chameleon *Chamaeleo dilepis*.

Not much is known about the invertebrates. The largest species diversity is among the Crustacea, particularly the Ostracoda, and the Crustacea form, by far, the greatest biomass. Numerous molluscs are also found.

Threats to the Area

This northern wetland system supports about 45% of the population of Namibia and population density may exceed 100 people per km². The economy of the region is principally based on subsistence farming of millet, on livestock, fishing of the oshanas and migrant labour. Wood is the main construction material and this has led to deforestation problems, especially in the central Cuvelai area. Population growth, as in many other African countries, is the single most important threat to the wetland. Namibia has one of the highest population growth rates in the world and this rapidly expanding population is putting increasing pressure on the northern wetland resources. Rapid urbanization around the two main towns of Oshakati and Ondangwa is also having a negative effect.

Current Status and Future Prospects

The southernmost part of this wetland system is protected in the Etosha National Park, one of the oldest parks in Africa. The park has an area of 2.2 million hectares, about 600,000ha of which comprises the Etosha Pans complex. This area has been listed as one of the first Ramsar sites of Namibia with the option of extending the Ramsar site in future to cover the entire Cuvelai-Etosha system, making it one of the biggest Ramsar sites in the world (3 million hectares).

The Etosha Pan, Lake Oponono and Cuvelai drainage wetland system is biologically one of the richest and most diverse areas in Namibia, eclipsed perhaps only by the Caprivi region. This, coupled to the fact that the area supports almost half the population of Namibia, makes it one of the most important areas in this country. Namibians are fortunate that a considerable proportion of this is included in the Etosha National Park but serious consideration needs to be given to the implementation of conservation measures for the remainder. The Ministry of Environment and Tourism has formulated several policies, under the umbrella of land-use planning, in this regard. Also, Namibia's environmental legislation is currently under review and will include specific sections pertaining to the conservation of wetlands.

With the possible listing in future of the entire system as a Ramsar site, the area has great potential to become one of the showcase Ramsar sites in the world incorporating all the Ramsar principles such as wise use, conservation and training.

Wetlands, Biodiversity and the Ramsar Convention.

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