An Overview of African Wetlands

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Introduction

The African region as described in this overview includes the mainland continent and the island states of Cape Verde, Comoros, Madagascar, Mauritius, Sao Tome & Principe, and Seychelles, making up a total of 53 States, 23 of which are Contracting Parties to the Ramsar Convention. Africa's size and diversity of landscape are striking: bordered by the Mediterranean Sea to the north, the Indian and Atlantic oceans to the east and west respectively, and the Antarctic in the south, it covers 70º of latitude, several climatic zones, and a considerable altitudinal range.

Various wetland types characterize the diverse and panoramic African environment, from mountains reaching an altitude of 6,000m through deserts to coastal zones at sea level. Although wetlands constitute only around 1% of Africa's total surface area, (excluding coral reefs and some of the smaller seasonal wetlands), and relatively little scientific investigation has been undertaken in them in comparison to other ecosystems such as forest or to wetlands in other parts of the world, their important role in support of the region's biodiversity and the livelihood of large human populations is becoming increasingly clear from ongoing studies.

General Distribution and Diversity of Wetland Types

The greatest concentration of wetlands occurs roughly between 15°N and 20°S and includes some rather spectacular areas: wetlands of the four major riverine systems (Nile, Niger, Zaire and Zambezi); Lake Chad, and wetlands of the Inner Niger Delta in Mali; the Rift valley lakes (notably Victoria, Tanganyika, Nyasa, Turkana, Mweru and Albert); the Sudd in southern Sudan and Ethiopia; and the Okavango Delta in Botswana, all of which display a richness and uniqueness in biodiversity.

Other important wetland types are found on the saline and brackish coastal and marine areas along the African coastline. They include the mangrove forests of eastern Africa stretching from the coastal cities of Kisimayu in Somalia to Maputo in Mozambique, and in broken but rich stands along the west African coastline from northern Angola to their northern limit north of Tidra Island in Mauritania, covering a total area of approximately 1.7 million hectares. Coral reefs and associated seagrass beds are found along the same limits as mangroves, although principally located along the warm Indian Ocean coastline and rarely in the Atlantic Ocean. Added to the list are coastal pans/lagoons and marshes such as the Ebrié and Tadio lagoon complexes of C'te d'Ivoire.

A few significant wetlands are located outside the 15°N to 20°S area. These include the inland oases, wadis and chotts of northwest Africa, the Oualidia and Sidi Moussa lagoons in Morocco, the Limpopo River floodplain in southern Africa, the Banc d'Arguin of Mauritania, and the St. Lucia wetlands in South Africa which is one of the largest estuarine systems in the African continent.

From the freshwater forests to the saline lakes and massive floodplains, Africa's many wetland types support a great diversity of plants and animals, and their productivity provides the natural resources essential to the survival of a significant part of the African rural population.

Biodiversity in African Wetlands

The biological diversity of wetlands in the continent is unevenly distributed, with some habitats being characterized by a richer range of species than others. In particular, wetlands in areas of high rainfall and warm climates, such as the Congo Basin, display a richer species diversity than those of drier regions north and south of the 15ºN to 20ºS zone. Of course, the importance of any given wetland from a biodiversity perspective is assessed not only by the overall richness in number of species present, but on the uniqueness of the area in terms of the number of localized species, particularly the endemic species. In this regard, most African wetlands display both characteristics, richness in number of species and endemism. There are, for example, over 2,000 known species of indigenous freshwater fishes in Africa. The Zaire River Basin, probably the most diverse area in Africa for its fishes, has over 700 identified species of which 560 are endemic to the basin. There are at least 18 families of endemic freshwater fish fauna many of which are found in the great lakes of east and central Africa.

It is believed by some authorities that wetland areas of highest endemism and of international significance in Africa are the Inner Niger Delta in Mali, the seasonally inundated floodplain of northern Central African Republic and southern Chad, the Sudd region of southern Sudan, Lake Victoria and Kyoga in Uganda, the swamps of western Tanzania and various parts of Zambia, and the Okavango region of northern Botswana.

In southern Africa, the role of wetlands in supporting a wide range of biodiversity is similarly recognized. In the Bangweulu Basin, Zambia, are important populations of the threatened Black Lechwe *Kobus leche smithemani* (IUCN Red List, 1994) and Shoebill Stork *Balaeniceps rex* (the latter also found in Lake George, Uganda, Case Study 5). The St. Lucia System of wetlands of South Africa, described in Case Study 3, exemplifies biodiversity rich estuarine wetlands in Africa and boasts great diversity of plant life in its freshwater reed and papyrus swamps, freshwater swamp forest, tidal swamp forest, grasslands, mangroves and riverine woodlands. This plant diversity helps to support over 350 bird species, more than 180 species of estuarine fish and 38 freshwater fish as well as significant populations of hippopotamus and crocodile.

The Sahel wetlands of western Africa are concentrated mainly in the Senegal River Basin in Senegal and Mauritania, the Niger River Basin in Mali, and Lake Chad and the Logone and Chari rivers in Cameroon, Nigeria and Chad. Because of their abundant food source and attractive habitats, they host numerous endemic and migratory waterfowl. The floodplains of the Senegal, Niger and Chad basins for example, support over a million waterfowl while the Djoudj National Bird Park, Senegal, (Case Study 2), and Diawling National Park, Mauritania, are havens for migratory birds in west Africa, providing habitat for over three million birds belonging to nearly 400 species.

The Sebkhet el Kelbia of Tunisia (Case Study 4) represents the unique shallow depressions in the arid and semi-arid parts of North Africa. These are characterized in wet years by a high primary productivity and a diversity of habitats and natural resources which enables them to support a large number and diversity of migratory, wintering and nesting birds. These wetlands exhibit dramatic seasonal cycles, changing from wet to dry seasons which enables them to support a succession of aquatic flora and fauna.

The Values of African Wetlands

It has been argued that African wetlands include some of the most productive ecosystems in the world and indeed they are an important, and in many cases the exclusive, source of natural resources upon which rural economies depend, providing food and energy, medicine, building material, dry season grazing and transportation for large human populations. In the Inner Delta of the Niger River over 550,000 people with about a million sheep and a million goats use the floodplains for post-flood dry season grazing. There are many more examples of how local communities make use of the diversity and high productivity of wetlands (for example, see Box 4).

Box 4: Examples of the Many Uses of the Biodiversity and Productivity of African Wetlands by Local Communities

- In Uganda people harvest *Cyperus papyrus* to make mats and baskets.
- In Rwanda *Cyperus papyrus* is compressed into fuel briquettes with a high calorific content.
- In the Okavango Delta roots, palm *Hyphae*, *Phragmites*, and palm hearts are harvested for subsistence foods, wine and in southern Africa, the vegetation is rich and diverse, and water lily tubers, bulrush building material.
- In the Inner Niger Delta rice, millet, maize and wheat are cultivated in the highly productive soils of wetland areas.
- Over 600 local people are employed in tourist camps in the Okavango Delta.

It is not only people who benefit from the high plant productivity in wetlands. In the Kafue Flats of Zambia, the local herdsmen graze their cattle on 40% of the highly productive *Vossia/ Echinochloa* vegetation, while the endemic Kafue Lechwe *Kobus leche kafuensis* grazes more than 80% of the *Paspalidium* water meadow. Indirectly, the

heavy dependence of large mammals on wetlands in Africa is of immense economic value to African countries since they are the mainstay of the tourist industry. These animals include elephants, buffaloes, antelopes, crocodiles, hippos, and zebras and the major predators, lions, wild dogs and hyenas. The lives of Africa's large mammals are often inextricably linked to wetlands. For example, the Amboseli swamps in Kenya are the only water source for animals in the surrounding area. Equally, the rich, riverine vegetation of the Masai Mara Game Reserve supports antelope and other mammals during the dry season.

Threats to Wetland Biodiversity and Future Prospects

Africa still has a significant number of pristine wetlands when compared to Europe or parts of North America. However, some wetland areas are experiencing immense pressure from human activities, the most important being drainage for agriculture and settlement, excessive exploitation by local communities and improperly planned development activities. In spite of the noted importance of wetlands to local communities, the human pressure on wetlands is expected to increase as populations grow, unless strategic actions are put in place for the conservation of wetlands.

The case study on Djoudj National Bird Park, for example, records the construction of dikes and dams on the upper parts of the Senegal River for the development of rice cultivation. This has altered the freshwater regime, threatening the survival of some plant species and encouraging the spread of others - essentially altering the characteristics of the ecosystem. Equally, the damming of the Tana and Athi rivers in Kenya has blocked upstream movement of migratory fish species, while poor water management schemes in the north of Cameroon have reduced natural flooding in Waza National Park, thus contributing to the decrease in the populations of two species of antelope, the Korrigum *Damaliscus lunatus korrigum* and Buffon's Kob *Kobus kob kob*.

Other threats to African wetlands include changes in wetland water quality due to the effects of industrial effluent and agricultural pesticides, siltation from highland catchment areas, and introduction of alien species of flora and fauna leading to colonization by single species and loss of endemic species diversity. Perhaps one of the biggest single catastrophes has been the introduction of the Nile Perch *Lates niloticus* and a species of tilapia *Oreochromis niloticus* to Lake Victoria which has led to the extinction of a large number of the 200 or so endemic cichlids of the lake; a tragic loss of biodiversity. Similarly, the introduction to the same lake of alien plant species, the Water Hyacinth, *Eichhornia crassipes* and Water Lettuce *Pistia stratiotes*, threatens the existence of endemic flora.

The threat to African wetlands has global effects on the world's biodiversity. The future of African wetlands lies in a stronger political will to protect them, based on sound wetland policies and encouragement for community participation in their management. Although the goal for protected wetlands should continue to be conservation of

endangered and fragile sites, greater efforts should be focused on wetlands outside protected areas, and new management strategies formulated which incorporate the stakeholders. The Government of Uganda has recently launched such a policy for the conservation of its wetland resources. This is the first of its kind in Africa to have been formulated in accordance with the recommendation from the Ramsar Convention. It encompasses wetlands in protected and non-protected areas and offers the best example in Africa of a strong political will to conserve wetlands and their biodiversity. It is important that African countries put such policies in place, and other management strategies such as Integrated Coastal Zone Planning, an important measure for safeguarding coastal wetlands. Such a plan is being carried out in Guinea Bissau at the present time with the assistance of the World Conservation Union (IUCN).

Following the framework provided by the Ramsar Convention for supporting conservation and wise use of wetlands, more African states are joining the Convention and designating additional sites for inclusion in the List of Wetlands of International Importance. Other non-members are adopting the Convention's approaches to wetland conservation (especially as regards development of wetland policy instruments) and taking the necessary steps leading to membership. The growth of the Convention in Africa is an indication of commitment to the conservation and wise use of wetlands and their biodiversity.

Further Reading

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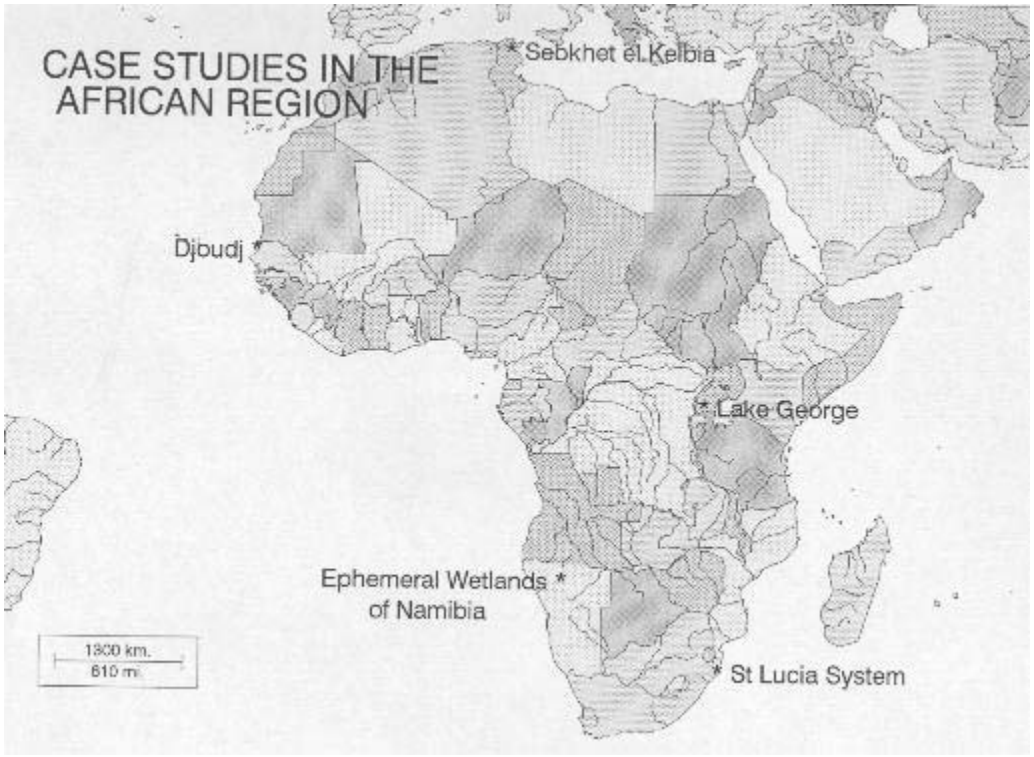
CASE STUDIES IN THE AFRICAN REGION
Sebkhet el Kelbia
Djoudj
Lake George
Ephemeral Wetlands of Namibia
St Lucia System
1300 km.
810 mi.