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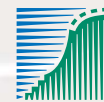
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# Waterbirds around the world

A global overview of the conservation,  
management and research of the  
world's waterbird flyways

*Edited by G.C. Boere, C.A. Galbraith and D.A. Stroud*

*Assisted by L.K. Bridge, I. Colquhoun, D.A. Scott,  
D.B.A. Thompson and L.G. Underhill*



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## Building capacity in waterbird and wetland monitoring in eastern Africa

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### ABSTRACT

The wetlands of eastern Africa support internationally important assemblages of plants and animals, and are a vital source of livelihood and water for many societies. The combined human population of Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda is estimated to be about 200 million. The region has an area of about 5.6 million km<sup>2</sup> of which only 4.5% is open water/wetlands. Wetland conversion to agriculture often provides only short-term benefits and can pose long-term problems. The ever-increasing human population density coupled with the scarce water resources in Africa have put African governments under increasing pressure to allow further exploitation and drainage of wetlands. Lack of sufficient up-to-date information to guide policy and development programmes for the respective Africa governments is considered as one of the causes for the continued loss and degradation of wetlands. To fill this information gap, it was recognized that a standardized system for monitoring wetland biodiversity and making the data and information available to governments and other stakeholders was required. In 2002, a project was implemented to build and maintain capacity in the monitoring of wetland biodiversity in eastern Africa and to provide the necessary information required for wetland conservation. This paper describes the capacity building process leading to: (1) the development of a wetlands database with query tools; (2) the provision of training in the use of the wetland monitoring database; (3) the launch of the Wetland Biodiversity Monitoring Scheme (WBMS) to provide data for use in wetland conservation and development of site management plans; and (4) training in the development of a wetland site management plan in each of the nine partner countries.

### INTRODUCTION

In terms of biodiversity, the wetlands of eastern Africa consist of a broad range of habitat types, from the vast Rift Valley lake systems to the Nile River and floodplains, papyrus and mangrove swamps, flooded forests and shallow coral reefs (Hughes & Hughes 1992). They support internationally important assemblages of plants and animals according to the Ramsar Convention criteria, and are a source of livelihood for many human populations. The combined human population of Burundi, Djibouti, Eritrea, Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania and Uganda is estimated to be about 200 million, on a landmass of about 5.6 million km<sup>2</sup>. This landmass is covered by only about 4.5% of open water, and has a coastline of about 5 361 km (The World Fact Book 2002). The actual area covered by wetlands of all types in eastern Africa (and indeed in the whole of Africa) has yet to be quantified. According to Stevenson & Fraser (1999), a rough estimate of the area covered by wetlands in Africa is about

1.25 million km<sup>2</sup>. More than 1.07 million km<sup>2</sup> are inland wetlands, with about 0.1 million km<sup>2</sup> described as marine/coastal wetlands and a further 0.05 million km<sup>2</sup> described as artificial wetlands (i.e. reservoirs, rice fields and sewage works). The average rate of loss of Africa's wetlands is estimated at 2% per year (OECD 1996). However, rates of loss of 9% to 15% per year have been recorded in specific catchment areas in Africa (Hollis 1993, Taylor *et al.* 1995).

In eastern Africa (and indeed throughout Africa), wetlands have been lost and degraded as a result of human activities. The main destructive activities include drainage, construction, pollution, siltation (due to soil erosion), and the introduction of alien species (Howard & Matindi 2003). Human population increase, rising poverty and, in recent years, extremes in climate have acted as the drivers of these changes and placed increasing pressure on wetlands and other renewable natural resources. Unlike in the developed world, many African government bodies are under growing pressure to allow further exploitation of wetland resources and to allow development and extensive drainage of wetlands, principally for agriculture. Although wetland drainage and cultivation can make a key contribution to food and livelihood security in the short term, in the long term there are concerns over the sustainability of this utilization and the maintenance of wetland benefits (Dixon & Wood 2003). The unregulated use of agrochemicals has also been a source of problems in recent years, and the construction of dams has resulted in new pressures on the biodiversity of many wetland sites. The loss or degradation of wetlands has serious consequences for the plants and animals that occur in wetland habitats. For example, migratory waterbirds depend on a chain of suitable stopover (wetland) sites to rest and feed. The loss of these stopover sites is among the major threats to migratory waterbirds (Nasirwa & Bennun 1999). Regardless, given the social, economic and cultural importance of wetlands for humans, it is in the best interest of all societies that they look after their wetlands and continue to benefit from wetland services and functions. This can best be achieved by incorporating a wetland biodiversity-monitoring programme into the management planning process for wetlands. The monitoring process would provide the necessary information to African governments and stakeholders. This information would guide the process of formulating appropriate policies and aid in the designing of development projects to be in harmony with efforts to conserve and utilize wetlands on a sustainable basis.

### DEVELOPMENT OF WETLAND AND WATERBIRD MONITORING IN EASTERN AFRICA

Biodiversity monitoring encompasses a wide variety of activities and has been defined in many different ways. Here we use the term "monitoring" to describe five key processes in relation to wetland data. They are Collection, Collation, Management,

Analysis and Dissemination. Biodiversity monitoring generates data that can be used both to assess status and underpin management planning. It is therefore a key process in the wise use of wetlands. Experience from many different parts of the world has demonstrated that named, “badged”, and appropriately funded monitoring schemes are an extremely efficient way in which to assess trends in the biodiversity status of sites

Over the years, the eastern Africa region has benefited from considerable investment in training facilities focused on science-based nature/wildlife management. It also has a relatively extensive network of protected sites and a long history of inter-organizational collaboration for conservation. During the 1990s, there were a number of cornerstone meetings that clearly identified the capacity needs of African states in relation to management planning for wetlands, and how regional states might use these to fulfil requirements under international agreements. The IUCN Species Survival Commission also produced a comprehensive analysis of conservation needs in sub-Saharan Africa, as part of the Biodiversity Conservation Strategy Programme. In 1998, Wetlands International held a meeting in Dakar (Senegal) at which a number of requirements were identified for wetland biodiversity conservation in Africa. The inaugural meeting of the African-Eurasian Migratory Waterbird Agreement (AEWA, Bonn Convention) in Cape Town in 1999 also identified specific conservation and research needs as part of the AEWA Action Plan.

The eastern Africa region has a number of training facilities and programmes for training in relation to site management plans. It also has a waterbird monitoring scheme, the African Waterbird Census (AfWC) established in 1990 (Perennou 1991). Since the early 1990s, most countries in eastern Africa have participated in the AfWC and contributed data to it in varying degrees. During the period 1999–2001, seven countries submitted their data to Wetlands International. In this period 152 sites were surveyed and the average total number of waterbirds counted in the month of January was 1.6 million waterbirds of a total of 160 species (Dodman & Diagana 2003). The AfWC collects and disseminates information on waterbird populations, but has also collated basic information about wetland habitats. There have also been many independent initiatives by both governments and NGOs in relation to the collection or collation of biodiversity and land-use data at a variety of spatial and temporal scales.

Despite all these activities, at the end of the 1990s, there was still the need to standardize data collection and to make monitoring data more accessible through a regional database. There was also the need to focus the collection and use of data towards addressing specific regional and national pre-set goals. Immediately prior to the 10th Pan-African Ornithological Congress in 2000, the Wildfowl & Wetlands Trust (WWT) took part in a four-day roundtable discussion with African NGO partners and statutory agencies in Kampala, Uganda, at a development workshop organized by the Wetlands International – Africa Office. The result of the meeting was the submission of a bid to the UK Government’s Darwin Initiative to develop and launch a dedicated wetland biodiversity monitoring scheme. This would both benefit from and enhance the work undertaken under the auspices of the AfWC and other programmes and fulfil the needs listed above. The bid was successful, and May 2002 saw the start of a three-year project involving WWT, Wetlands International and nine eastern Africa partner organizations. The project aimed to: (1) provide training in wetland monitoring and site manage-

ment planning; (2) establish a “badged” wetland biodiversity monitoring scheme; (3) create a regional wetland monitoring database; and (4) make use of monitoring data for conservation.

## PROJECT OUTCOMES

### Training in wetland monitoring and site management planning

In November 2003, the project conducted a training course/workshop at the Kenya Wildlife Service Training Institute (KWSTI) in Naivasha, Kenya. Twenty-one participants took part in the training course/workshop: they were the national focal points and their counterparts (two from each country), as well as representatives from Wetlands International, WWT and KWSTI. The training course/workshop was tailored to set up a framework for monitoring and database management, and strengthen institutional and volunteer network capacity to collect wetland biodiversity data. Other aspects covered by the workshop included how to develop and implement standardized procedures for collecting wetland biodiversity data across the eastern African region. To guide the training course/workshop, the project produced a training manual. In September–October 2003, the project sponsored two trainees (the national focal points for Ethiopia and Sudan) to participate in the East Africa Wetlands Management Course (now renamed the International Course on African Wetland Management – ICAWM) held every year at the KWSTI. Apart from benefiting from the training in wetland management, trainees also developed a draft management plan for a wetland site in their own country as part of the course. Equipped with the skills to train others and a training manual, the national focal points now have tools to train others at national and site level.

### Wetland Biodiversity Monitoring Scheme for eastern Africa launched

On 18 November 2003, the project launched the Wetland Biodiversity Monitoring Scheme for eastern Africa (WBMS) in Nairobi, Kenya. WBMS is a collaboration between organizations in nine eastern Africa countries, to collect, manage, analyse and disseminate information on wetland biodiversity. The scheme has a regional secretariat based in Nairobi, Kenya, and nine national organizers. A network of volunteers is co-ordinated to collect data from a range of wetland sites, and the resultant data are stored and managed on the WBMS database. The scheme provides a framework for standardized monitoring of wetland biodiversity in the eastern Africa region. The aim of WBMS is to generate scientifically robust data to underpin the conservation, wise use and management of wetlands in eastern Africa. WBMS activities are planned and organized within the framework and network of the AfWC, and national focal points of WBMS are currently the National Co-ordinators of the AfWC. The WBMS Steering Group oversees the management of the range of core WBMS tasks, to guide the implementation of new WBMS developments, and to identify WBMS priorities. Members of the WBMS Steering Group are the national focal points from each participating country. Where appropriate, ex-officio members representing other relevant organizations such as Wetlands International and WWT also play a role in the Steering Group. The Steering Group meets at least once every year. So far the Steering Group has met twice during the project period. Most of the work carried out by the Steering Group is via email. A list-server to enhance quick communication between the Steering Group, collaborators and supporters of the project and scheme has been



established. The project has also produced a brochure and developed a web-site to publicize and market the scheme.

### THE DATABASE

The project has provided each national focal point with computer hardware and software to improve storage, analysis and dissemination of wetland biodiversity data for use in wetland management planning and biodiversity conservation. The database is designed to ease data entry, and ensures that wetland biodiversity data are stored in a compatible and consistent format within the region. The hierarchical structure of the database enables storage of data to the level of sections of a site, but also to the level of combined sites, depending on how the data were collected. However, data collection is encouraged primarily at the site-section level to allow more robust use of the data for conservation purposes.

### THE WAY FORWARD

This year (2004/05), the project will sponsor another six candidates for the ICAWM course in October-November 2004. It is anticipated that through this course the project will deliver six more draft management plans. During the course of the year, it is projected that the WBMS database will be fully populated with the backlog of wetland and waterbird data from the AfWC. The next stages will be to encourage the use of these data for research, case work, public awareness and education, development of more site management planning, species management plans, site designation (under Ramsar etc.), and national reporting under conventions. Procedures on how to collect data on other parameters of wetland biodiversity are also among the next steps on the project calendar. The Steering Group is working on the terms of reference of its committee that will guide procedures for running WBMS after the project phase. The project is also developing a strategic work plan for WBMS and working on an exit strategy. The objective of the exit strategy is to establish WBMS as a fully-fledged wetland biodiversity monitoring scheme for eastern Africa.

### DISCUSSION AND CONCLUSIONS

There are differences among eastern African countries in the political and institutional set-up in which waterbird and wetland work is carried out. This presents a challenge in evaluating the level of training and training needs required at the regional level. For this reason, there is need for co-ordination and continuous re-evaluation and updating of the training manual as more information about wetlands is gathered. The establishment of the WBMS, WBMS Secretariat and Steering Group provided the structures needed to oversee the implementation of this work. Meanwhile, the database provides easier ways of handling data and hopefully this will enable focal points to elucidate wetland biodiversity trends in eastern Africa. The data exchange mechanism will allow bilateral and multilateral site or species management plans to be developed. This will enable adjacent countries to address issues affecting cross-border wetland sites.

The structures set up by this project (i.e. to improve communication at regional level and especially the formation of the Steering Group) should boost communication between key players and also work as a forum to discuss wetland issues at a regional level. This will build and strengthen the capacity of wetland biodiversity monitoring in eastern Africa, as well as encourage countries to

participate more regularly in the AfWC and other wetland-related initiatives at international level. The training in wetland management and the production of draft management plans are key to capacity building for wetland management at national level. The establishment of the Steering Group to co-ordinate the scheme secures the implementation of the WBMS Strategic Workplan as well as boosting the activities of the AfWC. These outcomes ensure an increase in wetland monitoring, training activities, implementation of management plans, and national reporting on wetland issues in the eastern Africa region. The challenges of WBMS will be fund-raising, increasing the wetland biodiversity parameters monitored, increasing coverage and ensuring ongoing training, implementation of management plans, and maintaining the database after the project phase. These issues are, however, being addressed by the exit strategy.

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