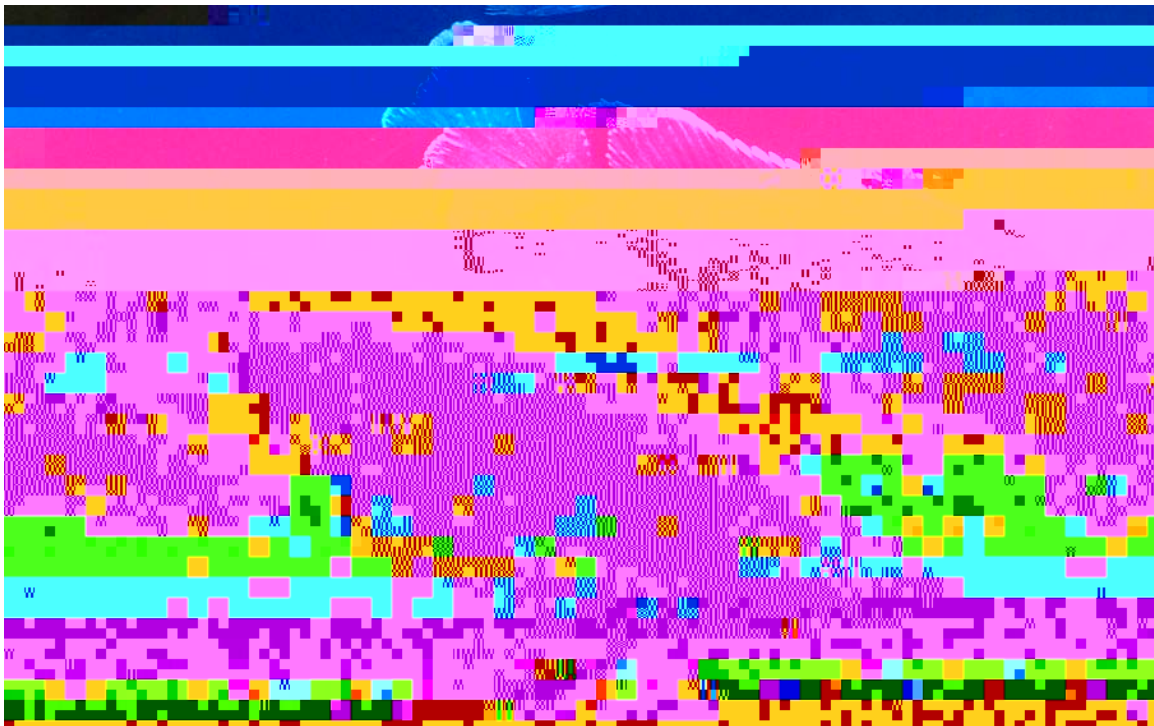# The Status and Distribution of Freshwater Biodiversity in Eastern Africa

Oreochromis karongae. Endangered. © Pr. George F. Turner

Biodiversity within inland water ecosystems in Eastern Africa is both highly diverse and of great regional importance to livelihoods and economies. However, development activities are not always compatible with the conservation of this diversity and it is poorly represented in the development planning process. One of the main reasons for inadequate representation of biodiversity is cited as a lack of readily available information on the status and distribution of inland water taxa. In a response to this need for information, the IUCN/SSC Freshwater Biodiversity Assessment Programme conducted a regional assessment of over 1,600 taxa of freshwater fishes, molluscs, odonates and crabs from Burundi, Kenya, Malawi, Rwanda, Tanzania and Uganda. In the process of the study, which is based on the collation and analysis of existing information, regional experts from five of these countries were trained in biodiversity assessment methods and, where appropriate, in field assessment and taxonomy. Distribution ranges have been mapped for the majority of species so providing an important tool for application to the conservation and development planning process.

Key Findings

Levels of regional endemism are notably high with 82% of fish and 74% of molluscs restricted to the region. Species diversity is also high and the major centres of diversity are the African Great Lakes of Malawi/Nyassa/Niassa, Tanganyika and Victoria, and in the Eastern Arc Mountain Range (for Odonata).

Major threats are identified as loss and degradation of habitat, in particular from sedimentation due to deforestation and eutrophication, and the introduction of alien species. The centres of threatened species are the African Great Lakes and a number of East Coast river drainages. A major concern for the future is the potential impact of water resource developments such as for improved water supply, irrigation and provision of hydroelectric power.

A gaps analysis found that inland waters are poorly protected within the existing Protected Areas network which is largely focused on terrestrial ecosystems. Forest Reserves were, however, observed to provide effective protection of watersheds at the headwaters of some river systems; it is recommended that their legal status be raised to provide a greater incentive for their effective management and for increasing the potential for attracting funds.

Finally, it is most important that the data from this study are made available to the relevant decision makers and stakeholders in a format that can be easily understood and readily integrated within the decision making process. With this in mind, this work has been extended to the rest of Africa and a series of "Good Practice Guidelines" are being developed at four sites, one of which is the Rusizi Delta in Eastern Africa.

Conclusions and Recommendations

This study aimed to eliminate the information bottleneck for effective biodiversity conservation and livelihood protection in the inland waters of Eastern Africa. In the pursuit of this objective a total of 1,661 taxa of fishes, molluscs, odonates and crabs have been assessed for their threatened status, conservation requirements, preferred habitats, and modes of utilisation. Distribution ranges have been mapped for the majority of taxa. Centres of species richness, threatened status and restricted range have been mapped.

The major threats to biodiversity in inland waters are identified as loss and degradation of habitat, predation and competition from introduced non-native species, and, in some cases, unsustainable use such as through fisheries. Potential impacts from the alteration of water courses and over-abstraction of water, as associated with developments for improved access to safe drinking water, sanitation and hydro-electric power, are highlighted. The dataset provided here can be used to help minimise, or mitigate for, the impacts of these developments.

Regional capacity for biodiversity assessment and conservation planning has been raised through training in the IUCN Red Listing process, field taxonomy, data management in the SIS database, and through expansion of the IUCN/SSC expert network of specialists. A number of

national and regional decision makers have been made aware of the study and two follow-up projects have been proposed to help maintain momentum and to develop methodologies for effective integration of biodiversity considerations within the development planning process. The complete dataset and GIS maps will be made widely and freely available throughout the region and beyond providing an important resource for future conservation planning and research throughout the region. A lack of available data can no longer be used as a valid reason for the failure to integrate biodiversity considerations within the development planning process for inland waters throughout Eastern Africa.

Conservation priorities for the region

A number of sites have been identified as regionally important for species richness, species endemism, and threatened species, the main sites being the African Great Lakes, Malawi, Tanganyika and Victoria. The Rufiji, Pangani and Tana River s