

AN ECOLOGICAL APPRAISAL OF: THE AQUATIC SYSTEMS OF THE RWENZORI MOUNTAINS, WESTERN UGANDA.

A report on a placement with the Uganda Institute of Ecology, in fulfilment of the requirements of the M.Sc. in Aquatic Resource Management of the University of London
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Abstract

The Rwenzori Mountains of Uganda were formed by an uplift associated with the Great Rift Valley and contains in its centre six ice-capped massifs with extensive glaciers and a number of rocky peaks. The main study investigated the biodiversity of the aquatic habitats in the Rwenzori Mountains National Park and outlying easterly and southern areas, particular attention was paid to altitudinal zonation. The sites studied encompassed a wide and diverse series of riverine and high altitude lake habitats and as such gave a good representative account of the aquatic habitats present. Differences in the physico-chemical nature of water were found to exert a primary control on the distribution and abundance of organisms as agrees with other studies. Conductivity was found to decrease with altitude though two rivers had higher conductivity's indicating two distinct rock types. It was noted that for two of the rivers, the Nyamagasani and Nyamawmba, copper and cobalt pollution may be present. A correlation was found between altitude and water temperature. Waters were found to be well oxygenated right to the edges of Lakes Edward and George. Ten sites were chemically analysed and it was found that at high altitudes phosphate and nitrate levels were low but at lowland sites this was not always the case indicating that at the higher altitudinal sites, the majority of phosphate was derived from the weathering of rocks, whilst at lowland sites phosphate levels could increase dramatically due to the use of washing detergents. Nitrate levels did not rise to the same extent. Nearly all sites had a high degree of vegetation diversity, with a decrease in species diversity as altitude increased. Similar groups of invertebrates were present in the rivers of the RMNP, as those described in Ethiopian mountains and Mount Elgon, Uganda. The dominant groups included Baetidae, Glossosomatidae, Sericostomatidae, Helodidae and Simuliidae. Altitude, i.e. temperature, was found to be the primary determinant of macroinvertebrate populations with physico-chemical parameters, i.e. conductivity and copper/cobalt pollution as secondary determinants. There was a clear correlation between altitude and fish species abundance. With more fish and a higher diversity at the lowland sites. Temperature was the primary determinant of fish penetration with temperature and interspecific competition determining the individual species range within the rivers and factors such as conductivity and food availability determining the diversity of the rivers. No fish were caught above 1750m and only *Varicorhinus ruwenzori* was found above 1300m. Within the rivers themselves, the Nyamagasani was the most diverse in terms of fish populations. Gut dissections agreed with the little published data available. A new fish species of the Cyprinodontidae, may have been found and is described.