

The influence of geographic and morphometric factors on the distribution of water bird species in small high altitude tropical man made reservoirs, Central Rift Valley, Kenya

Abstract:

Variability in waterfowl characteristics among eight high altitude (2040–2640 m) small shallow (0.065–0.249 km²; 0.9–3.1 m) reservoirs in the escarpment zone along the central rift valley in Kenya between Naivasha and Nakuru towns were studied between 1998 and 2000. The aim of the study was to establish whether the geographic status of small reservoirs in terms of altitude and surface gradient can affect the characteristics of their birdlife in terms of bird counts and species numbers. The study also aimed at establishing whether reservoir bird counts and species number can be predicted by reservoir morphometric factors especially water depth, surface area, length of shoreline and area-shoreline ratio. The other aim was to determine the influence of local environment especially distance from the nearest natural lakes, and house density on the birdlife. The findings showed that geographic location of the reservoirs in terms of altitude and landscape had a strong influence on birdlife whereby reservoirs in higher altitude and flat plateau landscape were found to support higher bird species and counts. Larger and deeper reservoirs were richer in water bird species but small and shallow reservoirs were superior in terms of both bird species and counts. Reservoirs with more coarse, irregular and highly erratic shorelines had higher species number than those with smooth and well-rounded shorelines. The reservoir birdlife was found to be influenced by the number of farm houses near the waterbodies and also the distance from the nearby rift valley lakes. The results showed that both geographic and morphometric considerations are necessary in the establishment of new reservoirs especially for utilization in birdlife conservation and ecotourism.