VIABILITY OF A WILDLIFE CORRIDOR: CASE OF MAKUYUNI WILDLIFE CORRIDOR IN TANZANIA

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Abstract

Wildlife corridors play a vital role in maintaining genetic connectivity between distant populations and provide a mix of habitats for various wildlife. Makuyuni wildlife corridor in Arusha, Tanzania, is a critical connection between Tarangire National Park, Lolkisale, Simanjiro Game Controlled Areas, Manyara Ranch, and Essmingor Forest Nature Reserve. The corridor is the main route of the northern sub-population of elephants in Tarangire National Park. Currently, the corridor faces activities such as settlements, livestock keeping, and farmlands. Ground distance sampling and GPS location were used to assess the number of individuals counted, frequency of occurrence (e), and abundance (estimate ± standard error) of large mammal species. Further, classification of satellite images was used to determine land use and land cover change between 2015 and 2021in the Makuyuni study site. Eight herbivores and two carnivore species were observed during our study, with different encounter rates and estimates. The most abundant wildlife species were Thomson gazelles (e=88, 1511±256), elephant (e=12, 783 ±198), zebra (e=14, 694±239), Giraffe (e=10, 185 ±74). We also encountered two livestock species in the study area; shoats (sheep and goat) (e=27, 15854 ±2020) and cattle (e=26, 7479 ±2126). In 2015, the 261 km2 Makuyuni study area was covered by 36.8% farmland, 24.11% woodland, 6.2% shrubland, 15.6% grassland, 17.2% bare land, and 0.1% water. In 2021 farmland increased to 41%, woodland, to 11.28%, shrubland to 9.1%, and 24.2% grassland. However, bare land was reduced to 14.4% and water to 0.03%. Despite the loss of habitat and increased human activities, the corridor remains viable for wildlife movements due to the wildlife distribution pattern connecting Lolkisale-Simanjiro GCAs and Tarangire National Park to Essmingor Forest Nature Reserve. The revealed distribution and connectivity may also pose a plan and piloting the implementation of the corridor regulation of 2018 by setting beacons while controlling human activities

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