

Analysis of utilization of food resources by the African wood mouse *Hylomyscus denniae endorobae* (Rodentia: Muridae) from Ihururu Forest, Kenya

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ABSTRACT

Hylomyscus denniae endorobae is a rodent important in ecosystems as predator, prey, seed disperser, plant pollinator, determinant of forest tree growth and structure as well as a contributor to biodiversity which subsequently plays a role in natural livelihood and national development. Fragmentation of tropical rain forest by humans continues to pose a serious threat to wildlife such as rodents, subjecting them to temperature fluctuations, starvation, and exposure to predators. Rapid habitat degradation and loss cause mass extinctions and sudden drops in biodiversity, resulting in the collapse of ecosystems leading to the spread of zoonotic diseases, food, water and wood fuel shortages. With habitat destruction, *H. d. endorobae* will get to human habitat, destroy stored seed crops and transmit diseases. Efficient utilization of food resources and ability to adapt to new food items as original food resources dwindle minimizes dependence of rodents on unpredictable seed crops and leaves of forest trees which are at a risk of extinction due to anthropogenic activities. The purpose of the study was to analyze utilization of food resources by *H. d. endorobae* to provide information for making informed decisions on conservation of the species. Diet comprised wheat, kale and a mixture of wheat, kale and locust (omnivore diet). Thirty male rodents weighing between 35- 50g from Ihururu Forest Nyeri County, Kenya (Appendix 1) dissected them, removed the gut, did morphometric measurements to obtain the average total gut length (TGL) and histological examinations to obtain the number and length of villi in different regions of the gut. I grouped nine other male rodents into three, caged individually and fed them on different diets. After six months, I dissected them, removed the gut and took morphometric measurements to obtain the average TGL. I did histological measurements to obtain the number and length of villi in different regions of the gut. Rodents fed on wheat diet had rugged and more blunted large intestinal and cecal villi compared to those fed on kale and omnivore diets. There was significant increase in the number of villi in the duodenum and caecum of rodents fed on wheat and in the colon of those fed on kale. Also, there was significant decrease ($p < 0.05$) in length of villi in all regions of the gut except in the caecum of rodents fed on omnivore diet. Natural habitats of *Hylomyscus denniae endorobae* should be conserved to prevent changes in gut morphology, which leads to changes in energetics and eventual erosion of the species.

Key words: Diet, gut morphology, *Hylomyscus denniae endorobae*.