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Patterns of Variation of Herbivore Assemblages at Nairobi National Park, Kenya, 1990-2008

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ABSTRACT

Wildlife, especially mammals populations dynamics in many conservation areas are influenced by ecosystem processes and increasingly by climate change. Generally, cyclic population dynamics is relatively common among small mammals, especially in high latitudes but is not yet established among many African savanna ungulates. Habitat fragmentation and loss propagated by anthropogenic activities are responsible for the decline in populations of many wildlife species leading to the confinement many wildlife species particularly herbivores within parks and reserves as a conservation measure. We assessed the patterns of variation in abundance of eight herbivore species (African Buffalo, Eland, Burchell ' s Zebra, Wildebeest, Giraffe, Grant ' s Gazelle, Thomson ' s Gazelle and Impala) at Kenya ' s Nairobi National Park using population counts data over the period 1990-2008. Overall, the eight herbivores abundances declined within the Park with significant declines in Wildebeest (R^2 = 0.54), Grant ' s Gazelle (R^2 = 0.72) and Impala (R^2 = 0.80). Seasonality had effects on herbivore numbers and assemblages at the Park with the numbers of individual species increasing within the Park during dry seasons compared to wet seasons (t-test, t = 4.45, p = 0.03). Land use changes and urban development, especially in the dispersal areas and the accompanying effects of climate change of reduced rainfall and longer periods of drought had significant negative impacts on herbivore assemblages at the Park. We discuss the significance of the population fluctuations of the eight species at the Park, the potential impacts of the changes on Park ecosystem processes and the expected long-term population dynamics of the species if the conditions remain as witnessed over the past two decades.

KEYWORDS

Nairobi National Park, Herbivores, Habitat Fragmentation, Climate Change

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