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Does variation in plant diversity and abundance influence browsing intensity in black rhinos?

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Abstract

Variations in forage availability, selection and preferences can lead to intense foraging competition and depletion of food consequently lowering diet quality and population performance of black rhino species. This study investigated seasonal variations in rhino diet, foraging, preference and browsing intensity and how this is influenced by plant diversity and availability in Mkomazi National Park (MKONAPA). Fifty-eight square grids were randomly selected in each season, and plots were laid for vegetation assessment during wet and dry seasons in the sanctuary. Browsed species by rhinos were compared with rhino feeding data from fourteen rhino range areas within Africa. More than 85% of species edible in MKONAPA were similar to those in rhino range areas. *Acalypha ornata*, *Grewia similis* and *Commiphora africana* were highly utilised species in both seasons. Diversity and abundance of consumed browses decreased towards the dry season while browsing intensity increased with forage preference in both seasons and was prominent when browse availability was low in dry seasons. Our study established seasonal variation in dietary composition, browsing intensity and preferences for black rhinos. We suggest establishing nutritional composition of preferred forages, assessing density of competitor browsers, translocating excess rhinos or expanding the sanctuary to meet the recommended ecological carrying capacity.