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Abstract

A study was undertaken in Kenya's southern savanna rangelands to determine the seasonal effect of Balanites glabra canopy cover on aboveground grass biomass, grass species composition, soil organic matter and soil moisture content. The study was conducted during the period June to December 1999 in order to capture both the dry and wet season effects. The grass biomass in the sub-canopy zone (2-4m from tree trunk) was found to be significantly higher than in the mid-canopy (0-2m from tree trunk) and open grassland zones (4-6m from tree trunk) during the dry season. However, the difference between the subcanopy and the open grassland was not significant during the wet season, implying that the role of a tree canopy in enhancing grass biomass is greater during the dry than the wet season. Variations in percent grass species composition from the mid-canopy to the adjacent open grassland were observed, indicating that while B. glabra canopy cover favours certain grass species, other species find the micro-climatic conditions under the canopy unfavourable. Soil organic matter in the mid-canopy zone was significantly higher than in the sub-canopy and adjacent open zones during both dry and wet season. Although the sub-canopy zone exhibited significantly higher soil moisture content than the mid-canopy and open grassland zones during the dry season, the difference between the sub-canopy and the adjacent open grassland during the wet season was not significant, suggesting that the tree canopy influence on soil moisture is more pronounced in the dry than the wet season.