

Factors Influencing Succession of Kakamega Forest GrasslandsH. M. Tsingalia¹ and F. N. Kassilly²*Department of Biological Sciences, Masinde Muliro University of Science and Technology,
P.O. Box 190 – 50100, Kakamega, Kenya**E-mail: ¹<mugatsi2005@yahoo.com>, ²<nkasili@yahoo.com>***KEYWORDS** Tropical Forests. Forest Glades. Forest Grasslands. Kakamega Forest. Grassland Dynamics. Species Diversity. Forest Succession

ABSTRACT Forty-seven patches of termite mounds were sampled in Kakamega forest grasslands with a view to assessing forest succession, forest species diversity, tree species-area relationships and species associations of forest and grassland tree species. These grasslands have been subjected to burning and grazing by people for a long period of time. The objective was to assess forest succession of grasslands by determining regeneration strategies of both forest and grassland tree species, and the role of termite mound patches in this process. This would then explain the mechanisms of forest succession in grasslands. A total of 34 tree species occurred in patches whose areas ranged from 0.5m² to 1880m². Sixty-eight per cent of these species were forest tree species while the rest were grassland tree species. There was a varied response of regeneration to increasing termite mound patch size. While grassland tree species showed a strong correlation with increasing termite mound patch size, forest tree species correlated less. There was a significant variation in species richness with termite mound patch age between forest and grassland species. Termite mound patch age correlated positively with forest species richness than did grassland tree species. There was a strong positive association between the presence of forest species and established grassland tree species. This appears to imply that successful establishment of forest tree species depends largely on the presence of a grassland tree species on the termite mound. Understanding mechanisms that maintain grasslands is crucial to understanding forest succession of the Kakamega forest grasslands. This knowledge can be used as a management tool in managing forest expansion into the grasslands without artificial reforestation.