

Abstract

The Mau ecosystem post-disturbance recovery process, integrity retention and resilience to future disturbances and sustainability remain unknown. In this paper, the ecosystem floristic composition, richness, diversity and affinities are evaluated. Diameter at breast height (dbh) of mature trees was measured and disturbances recorded in plots, dbh of saplings measured in subplots and seedlings count in microplots. To obtain the floristic composition and richness, we categorized species based on their families, development stages and life forms. Species density and quantity-measured diversity index (H') were used to evaluate the species diversity. Jaccard (JIA) and Sorensen(S) similarity indices were used to calculate the species similarity between survey sites. Trees, Shrubs and climbers recorded belonged to 52 species, 45 genera and 31 families for seedlings; 43 species, 38 genera and 29 families for saplings and 55 species, 48 genera and 31 families for mature stems. The most species-rich family was rutaceae with six species followed by moraceae and flacourtiaceae with five. Anacardiaceae had 4 while rubiaceae and euphorbiaceae had 3 species each. Western Kedowa had the highest species diversity. Eastern Mt. Blackett had the lowest species diversity. Northern and Western Kedowa were the most similar pairs followed by Eastern and Western Mt Blackett and Western Kedowa and Southern Mt. Blackett. Past and present disturbance are the main cause of low number of species per family. We attribute the low diversity observed in Mt Blackett sites to aggressive proliferation of the invasive; *Trichocladus ellipticus*, which has modified natural regeneration patterns resulting close to an individualistic successional pathway. In conclusion, the sites represent different plant formations and thus floristically, they are dissimilar but at varying degrees. The post-disturbance recovery on different sites is following different trajectory successional pathways. There is lack of species co-existence under natural environment due to the presence of invasive species. We recommend that the on-going disturbances should be curtailed to promote regeneration and successful recruitment of non-pioneer species. Rehabilitation efforts should be based on the understanding of post disturbance floristic affinities and species mosaics.