

Abstract

Riparian forests in tropical drylands support high biodiversity and provide crucial ecosystem services. Yet, fertile soil, water availability and trees as a source of charcoal and timber make them a favourable place for settlements and subsistence agriculture. The present study aimed at evaluating the floristic diversity of riparian forest remnants in semi-arid Kenya as a basis for developing conservation and management strategies. Plant diversity was assessed along the Nzeeu and Kalundu rivers in Kitui County, Eastern Province, where riparian forest patches were intermingled with agricultural and grazing lands and invasive thickets dominated by *Lantana camara*. Diameter at breast height (DBH) and height of woody species (DBH > 5 cm) were recorded in a total of 74 transects (50 m × 10 m) laid out perpendicular to the rivers on both sides at 300 m intervals. In each transect, the distribution of six land cover types was mapped out and the distance of each plant individual from the river bank was noted. Overall, 631 individuals were recorded representing 85 woody species, of which 12 were exotic timber and fruit trees. Human activities mostly reached within 10 m of the river margin; indigenous vegetation covered only 12% of the transect area but had 188 tree individuals and 49 tree species (including 3 exotics), whereas agricultural land had a mean cover of 52%, 168 individuals and 39 species, including 9 exotics. Ordination and multi-level pattern analysis showed that *Euphorbia bicompecta* Bruyns, endemic to Kenya, and *Commiphora samharensis* Schweinf. were characteristic of indigenous vegetation, whereas *Acacia* species dominated in invasive thicket, grazing land and agricultural land. Only two species, *Shirakiopsis elliptica* (Hochst.) Esser and *Rauvolfia caffra* Sond., were clearly associated with the river bank, while the others represented a mix of riparian species with a broader ecological amplitude and typical dryland species. The study highlights that the area still supports viable remnants of indigenous riparian vegetation, whereas tree diversity on agricultural land is strongly shaped by human preferences and shows lack of recruitment. Targeted management interventions could support the maintenance of indigenous tree diversity with positive effects for overall biodiversity, soil protection and livelihood diversification. For instance, it is recommended to facilitate natural tree regeneration and to plant a variety of indigenous tree species, especially on the river banks. Further research is necessary to assess the status of riparian vegetation along similar dryland rivers in Kenya and Africa to adequately manage these important areas for biodiversity and ecosystem services.