

## ABSTRACT

Invasive plant species may significantly alter plant species community composition and structure thereby negatively impacting on ecosystem services. Their impacts on plant communities may be both direct and indirect. The direct effects may include a reduction in the abundance and diversity of palatable plant species that constitute important forage for livestock, wildlife, and medicines for the local communities. Declines in ecosystem resilience are of the notable indirect effects of invasive species. The aim of this study was to assess the impacts of a plant species, copper leaf (*Acalypha fruticosa*) on floral diversity and abundance at Chemeron, Baringo County in Kenya. The study was guided by three questions: What is the plant composition in terms of grasses, herbs, shrubs, and trees in the study area? Are there any variations in plant abundance between the two sites (sites with and without *Acalypha fruticosa*)? Are there variations in plant species diversity between the two study sites? Two sites (one with *A. fruticosa* and another two without this invasive species) were selected within the Chemeron Research Centre. Two belt transects measuring 100 m × 20 m on each site were laid parallel to each other. Plant samples were collected from five 1 m × 1 m quadrats that were laid at intervals of 20 m. The plant species or specimens were identified to the species level using available taxonomic keys. Various indices including Shannon-Wiener ( $H'$ ), Evenness Index, Richness Index and Simpson's Index of Diversity Index (SDI) were calculated. All the diversity, richness and evenness indices were considerably higher in the site without *A. fruticosa* compared to that where this invasive species was present. Higher  $H'$  (3.14 to 3.21) and SDI (0.93 to 0.94) values were noted in sites without the invasive species compared to  $H'$  (2.11 to 2.20) and SDI (0.77 to 0.85) in sites with *A. fruticosa* present. Out of the 47 plant species identified, 39 and 20 of them occurred in the site without and with *A. fruticosa*, respectively. Further, there were more grasses (*Aristida keniensis*, *Cynodon dactylon*, *Brachiaria lucrantha*, *Eragrostis racemosa*, and *Enteropogon macrostachyus*) in the site without *A. fruticosa* compared to that with the invasive plant. The plants were also more evenly distributed in the site without *A. fruticosa* compared to that where the invasive plant was present. We conclude that *A. fruticosa* has a significant effect on plant species abundance and diversity as well as distribution. Its removal created a favourable environment for the growth of a variety of grasses. We therefore recommend to the agro-pastoralists and rangeland managers that *A. fruticosa* be mechanically removed by uprooting from grazing lands so as to increase forage availability and quality in the rangelands of South-Baringo.

### Keywords

Baringo, Copper Leaf, Diversity Indices, Invasive Species Plant Diversity