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Traditional Uses of Weed Flora by Local Communities in Agriculturally used Wetlands of East Africa

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Abstract

The status of biodiversity indicates that most ecosystems in East Africa are losing biodiversity at an alarming rate. This has compromised ecosystems functions and services with a resulting loss of livelihoods among local communities. One of the most impacted ecosystems by such trends are the small wetlands of East Africa. Land shortages and the degradation in most upland areas combined with a high production potential of wetlands is the single most important driver of the growing demand for wetlands resources. Clearing, drainage and cultivation of wetlands have created an ecological shift in species composition that promotes an opportunistic weed flora at the detriment of natural vegetation. We investigated the impact of the weed flora on the livelihoods of local communities within two floodplains, the Ewaso Narok swamp on the Laikipia plateau in Kenya, and the Pangani plain close to Malinda in the Tanga region of Tanzania. Land use gradients were classified as unused, abandoned (fallows) and cultivated areas (croplands). Weed species presence and cover were recorded in 117 plots measuring 100 m² each. Interviews were conducted with plot owners and key informants regarding the uses of the weeds. We used indicator species analysis to group the weeds relative to land use gradients. Some 330 species in 67 families were classified as weeds. Plots under crops had higher weed species richness compared to unused plots ($p < 0.007$). Five key indicator weed species were identified including *Cynodon dactylon* in completely drained and seasonally grazed plots; *Leersia hexandra* in moist hydromorphic plots, *Malva parviflora* in partially drained cultivated plots, *Oxalis corniculata* in drained cultivated plots, and *Typha domingensis* in alkaline flooded wetlands. A list of indicator species and their importance to the local communities has been established. Despite negative impacts of weeds on crop production, local communities use most weeds as traditional leafy vegetable or as medication against various ailments for both humans and livestock. While the conversion of wetlands into crop fields leads to an ecological shift from (semi)natural to weed-dominated plant communities as is viewed by ecologists, rural folks use the weeds as sources of food and medicine. Sustainable use of wetlands is however advocated, for ecological integrity and sustainability of rural livelihoods.

Keywords: Biodiversity, indicator species analysis, livelihoods, opportunistic species, regime shift, traditional medicine