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Conference Abstract

Traditional ecological knowledge of invasive plants: Implications for invasive species management in the Serengeti socio-ecological system

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Abstract

Plant invasions increasingly threaten biodiversity, ecosystem functioning and local livelihoods worldwide. Yet, formal management responses remain based on Western ecological knowledge with limited integration of traditional ecological knowledge and community perspectives. Overlooking local knowledge can limit the efficacy of “formal” management, weakening interventions by conservation organisations and government agencies. This is especially the case in complex systems where people live closely with the environment. Using a socio-ecological approach, we document traditional ecological knowledge, perceived impacts and community willingness to support invasive plant management in the Serengeti socio-ecological system. In a survey of 229 respondents from six villages adjacent to the Serengeti ecosystem in northwestern Tanzania, about 85% reported being aware of invasive plant species, with awareness shaped by respondent’s education, proximity of their residence to protected area boundaries and experience of invasive plant impacts. Over 75% of respondents demonstrated high knowledge of four target invasive plant species (*Chromolaena odorata*, *Lantana camara*,

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Opuntia stricta and *Opuntia ficus-indica*), including their spread and traditional management practices. Despite noting some benefits of invasive plants (e.g. used as fencing, boost honey production, serves as fodder), respondents viewed invasive plants as having negative impacts overall (e.g. reducing palatable pastures, lower crop yields). Reflecting these perceptions, 73% of respondents expressed strong willingness to support formal management efforts. However, translating their willingness and local knowledge into effective action requires coordinated strategies. Strengthening coordination mechanisms among protected area authorities, local institutions and adjacent communities can improve adaptive planning and support the development of effective management frameworks. Our findings emphasize the importance of integrating local knowledge systems and community perspectives into formal management of invasive species for effective management strategies.

Keywords

Invasive species management, plant invasion, protected areas, Serengeti ecosystem, socio-ecological system, traditional ecological knowledge

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Conflicts of interest

The authors have declared that no competing interests exist.