



Tropentag, September 16-18, 2026, hybrid conference

“Towards multi-functional agro-ecosystems
promoting climate resilient futures”

Rangeland management under pressure – strategies for safeguarding livelihoods and savannah ecosystems in Namibia

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Abstract

Rangeland management in Namibia is under increasing pressure from climate change, economic challenges, policy constraints, and ongoing degradation dynamics. Savannah ecosystems, which have long supported human livelihoods through diverse and interdependent land-use systems, are undergoing significant degradation. This places both ecology and livelihoods at risk. This contribution presents findings from the NamTip project, focusing on a case study in the Waterberg area in Namibia, and examines strategies of freehold farmers to restore ecosystems and maintain livelihoods under changing environmental and socio-economic conditions.

The project adopts a multi-methods approach that integrates social and ecological perspectives, combining conceptual frameworks with empirical data and analytical work. The concepts of social-ecological systems and social-ecological tipping points serves both as the subject of analysis and as an integrative framework linking different disciplinary perspectives.

The findings of this study point to a growing risk of a tipping-point dynamic emerging within the social-ecological rangeland system, particularly in the form of the loss of perennial grasses, the bush encroachment and the resulting decline in carrying capacity. This leads to lower household income and the loss of the socio-economic viability of farming. This development leads to a reduced ability to manage situations of stress caused by droughts or market changes, as well as a reduced capacity for investments.

In view of this, farmers are employing a range of coping strategies that reflect the multifunctional nature of savannah ecosystems. Livestock farming is combined with or replaced by wildlife management – often better adapted to climatic fluctuations and having lower risk of environmental degradation – as well as forms of tourism-related activities. Strategies also include bush thinning and woody biomass use, as well as diversifying into off-farm income.

These coping strategies modify key feedback loops to strengthen resilience in rangeland management. By implementing them, farmers aim to interrupt adverse dynamics and prevent downward spirals that would otherwise constrain their decision-making capacity.

The study concludes that effective coping strategies require strong local knowledge and practical experience, supported by adequate infrastructure and robust institutional and policy frameworks to enhance long-term resilience of the rangeland system.

Keywords: Climate change, coping strategies, farming, Namibia, social-ecological systems, sustainability, tipping points

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