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Institutional arrangements and livestock mobility in communal rangelands: Evidence from Kavango East and Omaheke, Namibia

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Abstract

Namibia's communal rangelands support agropastoral livelihoods, but access to grazing and water is shaped not only by ecological variation, but also by crop calendars, local authority, and water infrastructure. This study examines how decisions over grazing and water access are made in communal lands and how those arrangements shape livestock mobility across two contrasting regional settings in Kavango East and Omaheke.

The analysis draws on three complementary methods applied across Muduva Nyangana, George Mukoya, and Eiseb Conservancies: participatory mapping (n=25), net-mapping sessions (n=23) and GPS tracking data from 26 tagged cattle. Net-mapping identified the actors involved in grazing governance and the coordination linkages through which decisions are made. GPS data are analysed using 95 % Minimum Convex Polygon to estimate home-range size, Kernel Density Estimation to identify core use areas, and seasonal movement paths examined in relation to water points, kraals, and mapped grazing areas.

The findings reveal a clear contrast between the two regional settings. In the conservancies Muduva Nyangana, George Mukoya in Kavango East, livestock movement is organised through layered decision-making that links herders' daily route choices to traditional leaders, crop farmers, and conservancy actors. During the crop season, cattle are kept out of cultivated fields, traditional authorities coordinate when unsupervised grazing may resume, and sanctions are applied for violations. After harvest, movement expands as animals access crop residues and wider communal grazing areas.

In the Eiseb conservancy in Omaheke, by contrast, grazing decisions are made mainly at household or family level, with considerably less coordination at village level. Movement is more tightly constrained by borehole access, water infrastructure conditions, and the need to secure agreement to use camps or temporary grazing posts associated with other families.

GPS tracking data add a spatial dimension to this comparison, examining whether these institutional differences are reflected in home-range size, concentration of use around water points and kraals, and seasonal route shifts.

The study shows that livestock mobility in communal rangelands cannot be understood from pasture conditions alone, but must be analysed alongside with the rules, permissions, and decision-making structures that govern access to grazing and water.

Keywords: Agropastoralism, communal rangelands, governance, livestock mobility, Namibia

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