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Spatial Rangeland Utilisation by Livestock of Maasai Pastoralists in Northern Tanzania

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Abstract

Pastoral mobility is an important strategy adopted by millions of pastoralists around the globe in arid and semi-arid environments to meet the nutritional demands of their livestock. Mobility promotes rangeland sustainability by distributing the grazing pressure throughout the landscape. Maasai pastoralists of Tanzania traditionally optimise their livestock foraging by moving their herds in response to seasonal rainfall patterns. However, increasing human population and livestock numbers together with climatic changes result in an increasing grazing pressure at local and landscape level. The Enduimet Wildlife Management area (E-WMA) is a community-run conservation area, where wildlife, livestock, and humans coexist. To minimise the negative interactions on the grazing land, it is of great importance to understand the livestock utilisation and movement patterns. Therefore, we equipped seven cattle, five goats and four sheep with GPS-collars in November 2019 in E-WMA over a period of 4 months. Furthermore, we assessed herding strategies and grazing management practices through key-informative interviews with 10 elders (above 60 years of age) and two participatory mapping sessions with each 12 participants. Our preliminary results suggest that there is a higher utilisation of the low-quality grazing areas close to the permanent settlements during the rainy season, with highest densities within 1 km around settlements and water holes. High-quality grazing areas at the village land boundaries are used during the dry season, with low cattle grazing pressure around settlements. In contrast, the utilisation of rangelands by goat and sheep herds is highest within 500 meters around settlements and overall shorter travel distances, regardless of the season. Furthermore, we found a correlation between the age of the herder and distance travelled by the livestock. Our results are of great importance as they then can be used by authorities to develop participatory and demand-driven development approaches and sustainable resource use plans.

Keywords: GPS collars, livestock movements, Maasai, pastoralists, rangeland degradation