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Assessing Forage Species Diversity, Habitat Distributions, Abundance Trends and Ecological Drivers from Local Agro- Pastoralists’ Perspectives in West Africa

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Abstract

Studies have shown that land users’ local ecological knowledge (LEK) on forage resources is of critical importance for their adaptive rangeland management. Notwithstanding, there has been little discussion on how smallholder farmers perceive forage species diversity, habitat distribution, abundance trends and associated ecological drivers in the management of locally available natural forage resources within West Africa. This study, thus, aims to estimate forage species diversity, analyse habitat types of forage resources, investigate abundance trends of available forage resources, identify local ecological drivers and document conservation measures based on the perceptions of local agro-pastoralists. We used a structured questionnaire to carry out ethnobotanical surveys on their understanding of such ecological variables with respect to forage plants in different parts of northern Ghana and southern-central Burkina Faso. Data were analysed via descriptive statistics, bivariate correlation analysis and cognitive salience index calculation to disentangle the dynamics of local responses to the ecological variables considered in this study. Our results indicated that the local agro-pastoralists exhibited extensive knowledge in forage species diversity, habitat types, abundance trends and ecological drivers. It was also established that local agro-pastoralists associated their cited forage plants more with upland topography than lowland and combined landscapes of the two topographic positions. According to them, approximately 82 percent of reported items were considered to be commonly available in local landscapes, while most of them indicated that available forage resources have been experiencing a gradually increasing trend over the past few years. It was also revealed that rainfall variability, tree cutting and drought were the topmost perceived threats causing changes in the trends of forage species abundance. Given our findings, local actions of agro-pastoralists could potentially have practical implications at the global level in favour of biodiversity conservation.

Keywords: Abundance, biodiversity, ecological drivers, forage resources, habitat distribution, rural West Africa