608

Fate of yak herding in the highlands of Mustang, Nepal: A case of Namu Bhrapse Rangeland

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Abstract

Rangelands are essential as they offer a range of ecosystem services that supports the livelihood of the people residing in the Himalayas. Yak herding is considered as one of the vital components of the rangeland ecosystem of Nepal. Yak farming tradition together with yak population are now facing an intensified decline mainly due to various reasons. Lack of palatable species, drying of water sources, lack of infrastructures and conflicts between local bodies and the government are some of the issues. While the earlier herders are getting old, it is difficult to entice the younger generations who are attracted towards lucrative business like agro tourism and cordyceps business that provides a great economic returns. As young people lack their interest in herding yaks, people from the neighbouring districts are paid to herd the yaks. Furthermore, climate change has led to worsen the scenario, with altered grazing pattern, lack of snowfall and rainfall and increasing temperature has depleted the vegetation quality and quantity in the rangelands. Unless there is an urgent intervention for sustainable management of rangelands from the government and local level, this culturally, economically, and ecologically important practice may disappear soon, leading to a serious repercussion on the communities and the environment they rely on. This study explains the scenario of rangeland of Mustang district namely Namu Bhrapsa Kharka which is a summer pastures for yak herding.

Introduction

Rangelands are a crucial part of Nepal's Himalayan ecosystem, covering 60% of the landscape and 22.6% of the country's total land area, including the mountains, hills, and Terai (Yi & Sharma, 2009; ICIMOD, 2012). These areas provide essential ecosystem services that support local livelihoods and environmental sustainability (ICIMOD, 2012). Mustang, located in the northern part of Nepal, is a dry region where yak herding, medicinal plant collection, and tourism are key sources of income for rural communities (Dong et al., 2009). Namu Bhrapse rangelands, at 3,700-3,800 meters above sea level, are a vital part of Mustang's landscape, characterized by steep slopes and minimal precipitation (under 200 mm annually, mostly snow) (Pokharel, 2005). Agriculture and animal husbandry are the main economic activities, but productivity is limited by low rainfall, inadequate irrigation, and a short growing season (Chetri & Gurung, 2004). Despite their importance, Mustang's rangelands face anthropogenic pressures such as overgrazing, overexploitation of medicinal plants, and climate change impacts (Miller, 1996). Additionally, conflicts between human use and wildlife further stress the resources (Subedi et al., 2020). Effective rangeland management is crucial to improving livelihoods and income opportunities for herders. This study was conducted to examine the fates of the yak herding in the rangeland of Mustang to explore the socio-political aspects of sustainable rangeland resource management, contributing to the sustainability in Nepal's mountainous regions.

Methods

The study was conducted with five independent key informant interviews (KII) and two focus group discussions (FGDs) where yak herders, owners, *"Mukhiya"* (head of the village), head farmer and the technicians from the Municipality were interviewed to gather data on status of Namu Bhrapse rangeland in Gharapjhong Rural Municipality. Semi-structured questionnaires were used for the KII and FGD. Each FGDs consists of 10 yak herders and all were male. Additional data were collected through structured interviews, desk reviews, annual reports, workshop proceedings, and consultation at concerned municipalities and rangeland experts. Observations of Namu Bharapse rangeland included vegetation, yak herds, housing, and other infrastructure.

Results

During the FGD, eighty percent of the KII mentioned that yaks in Gharpojung Rural Municipality are basically reared for meat; yak meat and *"Sukuti*" (dried meat) is one of the key attractions to internal and external tourists to Mustang. In the past, yaks were used for meat only after their natural death, but now female yaks are culled in October as they age and lose their teeth, making them incapable of grazing or reproducing. Adult yaks are grazed in forests due to insufficient vegetation in the rangelands putting them at risk of snow leopard. Although the government offers 80% insurance for yak death due to accidents, disease, or predators, the protracted process often lead herders to prefer compensation through Annapurna Conservation Area Project (ACAP) said 92% of the herders. Eighty percent of the respondents stated that feeding is challenging in the rangeland because there is little vegetation and no additional supplement. Major grass species found in the Namu Bhrapse rangelands are *Cynanthus incanus, Herminium macrophylum, Bassecoia hookeri, Trogonella gracilis, Potentilla multifidi* etc, which are overgrazed. Recently, herders planted clover and rye grass, but the yaks overgrazed the lush greens, preventing their regrowth. Limited resources for reseeding led to the loss of germplasm. The government has installed some road tracks and water facilities, but they are insufficient for growing yak population. Herders, usually older males hired from other families' herd the yak of 2-4 families, are provided with food and salary for the year. However, the younger generation are lured towards international jobs/business, resulting in a shortage of herders, which is a serious challenge for yak rearing as reported by 95 percent of the respondents.

Discussion

The study gives valuable insights into the challenges of yak rearing in the Namu Bhrapse rangelands where the practice is closely tied to the economical, ecological, and cultural identity of this region but faces sustainability issue (Jing et al 2022). Yak rearing in Mustang is focussed on meat production however there is no legal provision for yak meat to boost tourism and local markets (Carter 2024). Insufficient vegetation and lack of support for provision of supplementary feeding complicate the practice (Kumagai et al. 2016). Grazing in forests exposes yaks to snow leopard predation, emphasizing the need for better predator management (du Chavoux 2020). Efforts to introduce grass species for restoration have failed due to overgrazing, indicating the need for better grazing management plans (Personal communication, 2024). Though the government has built roads and water facilities, they are insufficient for the growing yak population. High grazing taxes and limited rangeland support strain the economic viability of yak rearing. The reliance on older male herders and the younger generation's shift toward urban jobs presents a significant challenge to the practice (Banjade and Paudel 2008). To address these issues, government investment in sustainable systems, predator control, herder incentives, rangeland restoration and research on innovative practices and socio-economic solutions is essential.

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