



Realising the opportunities and potential for pastoralist youth in rangelands

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Abstract

As pastoralist communities face a multitude of challenges that threaten their sustainability, engaging with youth in rangeland management is becoming increasingly important. This paper explores the opportunities that rangelands offer young people and the potential benefits of youth involvement in pastoralism. Drawing on existing cases and examples, we examine how youth participation in rangeland management contributes to socioeconomic development and ecological conservation. Pastoralist youth bring innovative approaches to traditional practices and integrate modern technologies with indigenous knowledge. Their adaptability and openness to new ideas can lead to more resilient pastoral systems and better rangeland management.

However, challenges remain in attracting and retaining youth in pastoral livelihoods. Addressing challenges such as land access, conversion and privatisation, and high entry barriers is essential for the viability of pastoral economies. Improving working conditions, strengthening labour rights, and ensuring succession planning and governance transition from elder pastoralists to the younger generation can attract more youth to pastoralism. We discuss potential strategies to overcome these barriers, including education programmes, policy support and economic incentives that recognise the multifunctional value of rangelands. Rangelands provide diverse opportunities for youth beyond herding along the value chain, including agribusiness ventures, eco-tourism and social protection projects. These opportunities present chances for young people to generate income, create jobs and contribute to the local and national economies. The greatest opportunities for change in pastoralist societies lie with the youth, who are often better formally educated and more in touch with emerging technologies and trends. By valuing and recognising the contributions of young pastoralists, we can explore innovative ideas and unlock the potential of rangelands in fostering sustainable development.

Introduction

Pastoralist communities are crucial in sustaining rangelands, encompassing over half of the Earth's terrestrial ecosystems (ILRI et al. 2021). These ecosystems sustain millions of people globally, particularly pastoralist communities, who depend on them for livestock grazing and cultural preservation. The livestock sector, predominantly supported by rangelands, accounts for over 50% of agricultural GDP in many African countries and provides critical sustenance and income for millions (FAO 2018). However, rangelands face significant challenges, including climate change-induced degradation, socioeconomic exclusion, and political and policy marginalisation (Briske et al. 2023). Pastoralist communities are at the heart of sustainable rangeland management, contributing

significantly to local and national economies, and youth within these communities hold the key to their sustainability.

Youth represent a demographic group with the potential to integrate traditional practices with modern innovations and emerging technologies, fostering ecological balance and socioeconomic progress. However, these potential contributions are at risk as youth increasingly move away from pastoralism on account of limited economic opportunities, poor working conditions, and lack of access to education and land rights (Ancy et al. 2020). The disengagement of youth threatens the generational continuity of pastoralism, leading to the potential degradation of these ecosystems due to mismanagement and abandonment. Engaging youth in rangeland management offers a path to address these challenges in rangeland ecosystems by leveraging their adaptability, education and familiarity with emerging technologies. As rangelands play a crucial role in global food security, biodiversity conservation and carbon sequestration, empowering youth to re-engage with and innovate in rangeland management is urgently important (Holechek et al. 2020). This paper argues that addressing these socioeconomic and structural barriers is essential for realising the untapped potential of pastoralist youth to sustain and enhance the value of rangelands.

Methods

This study employed a literature review approach to investigate the role and potential opportunities for pastoralist youth in rangeland management. The review was conducted in several steps to ensure comprehensiveness and replicability. First, relevant sources were identified by searching academic databases, institutional repositories and online libraries. However, the review process revealed a significant scarcity of comprehensive, peer-reviewed studies and reports specifically addressing the role and contributions of pastoralist youth. This limitation necessitated reliance on grey literature, organisational reports and case studies. Specific journals, including *Rangeland Ecology & Management*, *The Rangeland Journal*, and *Rangelands*, were prioritised for their focus on rangeland ecology and pastoralism. Keywords such as “pastoralist youth,” “youth,” “rangeland management,” “sustainable pastoralism,” “youth empowerment,” and “rangeland opportunities” were used during database searches, and only publications from the last two decades that explicitly addressed youth engagement in pastoralism, rangeland management strategies, or socioeconomic and policy dimensions were considered. Global, regional and local case studies and examples of youth engagement were selected. The selected studies were reviewed to extract data related to the research themes. The extracted data were categorised into economic diversification, technological integration and socio-political challenges affecting youth participation. A synthesis approach was applied to integrate findings across disciplines, providing a comprehensive understanding of the topic. Previously established review methodologies were referenced to ensure consistency and rigour, following guidelines outlined in earlier studies on pastoralism and rangeland sustainability (Turner et al. 2019, Scoones et al. 2013). This structured approach ensures that the findings are robust and grounded in diverse, high-quality sources.

Results

Rangelands offer a diverse range of opportunities for pastoralist youth. Beyond traditional herding, young pastoralists are increasingly engaging in agribusinesses, eco-tourism and value-chain activities like animal product processing and marketing. However, the findings indicate that they face significant opportunities and barriers in rangeland management. Key opportunities include diversification into agribusiness, where youth-led ventures such as dairy production, fodder cultivation and meat processing have demonstrated economic viability (FAO 2024). Ecotourism offers another avenue, particularly in biodiversity-rich rangelands. Initiatives such as community-run wildlife conservancies in Namibia have enabled young pastoralists to generate income while contributing to conservation efforts (Naidoo et al. 2016, Schiffer 2004). Youth can integrate ecotourism and biodiversity conservation with pastoral livelihoods by guiding tourists and conducting educational programmes about pastoralist practices, which generate income and foster cultural preservation and environmental awareness.

In Mongolia, young pastoralists are increasingly adopting digital tools to manage livestock and grazing patterns in response to overgrazing and climate change challenges. For example, herders use mobile phones for weather forecasts, livestock market prices and emergency alerts (Baival et al. 2012). Digital platforms such as the AfriScout app provide geospatial data to optimise grazing routes, while mobile banking services facilitate financial inclusion for young herders (SPARC 2013). Young pastoralists have also been instrumental in reviving community-based herding systems, known as *Nukhurlul*, which promote equitable resource sharing and sustainable grazing (Upton 2008). Educational initiatives, such as the Pastoralist Field Schools supported by the FAO, equip youth with skills to manage rangelands sustainably (Khisa et al. 2013). In the arid rangelands of Australia, Aboriginal youth are engaging in land stewardship programmes, and the Ranger Programs employ youth to manage invasive species, conduct controlled burns and monitor biodiversity, demonstrating the effectiveness of blending Indigenous and modern practices (Altman et al. 2012, Department of Climate Change, Energy, the Environment and Water 2021, Young et al. 2008). Thus, indigenous youth can actively participate in sustainable grazing and landscape restoration initiatives while raising awareness about their way of life. In Europe, shepherd and shepherdess schools are important for preserving pastoralism and herding traditions while equipping a new generation of herders with skills for extensive livestock farming (Bindi 2024, Escuela de Pastoras 2024). These institutions provide comprehensive training that integrates traditional herding and contemporary practices, empowering rural communities with extensive livestock farming and providing solutions to climate change as guardians of the ecosystems and managers of landscapes.

Despite these opportunities, systemic challenges persist. Limited access to land and insecure tenure rights disproportionately affect youth, reducing their ability to sustain livelihoods and engage with pastoralism, primarily due to land privatisation and encroachment (Archambault 2014). Additionally, the high costs of land and infrastructure limit entry into pastoralism. Climate variability exacerbates these challenges, increasing vulnerability to droughts and resource scarcity. A lack of reliable data and information on pastoralist youth further exacerbates this issue, making it difficult to design targeted interventions and support mechanisms. Youth engagement in pastoralist activities significantly contributes to the economic sustainability of rangeland-dependent communities. Young pastoralists bring diversification to traditional livelihoods, creating new revenue streams and job opportunities.

Discussion

The role of pastoralist youth is pivotal to the future of rangeland management. Their capacity to merge indigenous knowledge with modern technologies creates opportunities for innovation and resilience. However, enabling this requires targeted interventions, such as securing land rights through legal frameworks and community governance models that can reduce marginalisation. Educational reforms and initiatives that include technical training and indigenous knowledge systems can prepare youth for leadership roles in rangeland management.

Pastoralist youth have a unique ability to innovate within traditional systems, positioning them as drivers of sustainable development in rangelands. By integrating indigenous knowledge with modern technologies, youth can enhance resource-use efficiency and ecological resilience. The role of education and programmes like FAO's Pastoralist Field Schools and Spain's shepherding schools have built the technical and managerial capacity of young herders, enabling them to adopt climate-smart practices and engage in governance (Escuela de Pastoras 2024, FAO 2017, Khisa et al. 2013). Securing land rights through inclusive tenure policies and policy interventions is fundamental to addressing the barriers to youth participation and empowering youth engagement in pastoralism. Economic incentives, such as microcredit schemes and cooperatives tailored for livestock production and animal product price regulation, can lower financial barriers and create market access. Collaborative governance models that include youth in decision-making ensure that their voices shape the future of rangelands.

Enhancing land-tenure security is fundamental to advancing youth participation in pastoralist livelihoods and ensuring sustainable rangeland management. Secure land rights empower youth by providing stable access to

grazing areas, reducing resource-use conflicts, creating space for infrastructure and value chain activities, and lowering entry barriers for new pastoralists. Policies formalising community land ownership, such as the Community Land Act in Kenya, offer a replicable framework for addressing tenure insecurity among pastoralist youth (Government of Kenya 2016). Integrating participatory governance models, where youth take active part in land management decisions, can further enhance tenure security. International organisations like the International Land Coalition advocate for inclusive land-tenure policies that combine customary practices with legal recognition to accommodate the unique needs of pastoralist communities. Financial incentives, such as subsidies for land registration and microcredit programmes for land development, can also reduce economic barriers to land ownership. By prioritising these policies, governments and development partners can unlock the potential of youth to contribute to sustainable rangeland management, ensuring the long-term viability of pastoral systems.

While the role of pastoralist youth is gaining recognition, a significant gap remains in the availability of data and information about their contributions and challenges. This lack of accessible, comprehensive research and online resources has hindered the development of targeted policies and interventions for pastoralist youth. However, efforts such as the International Year of Rangelands and Pastoralists (IYRP) have begun to spotlight these issues, catalysing global attention and dialogue on youth and other emerging issues. Despite this momentum, the scarcity of detailed data on pastoralists including the youth remains frustrating, as it limits the ability of stakeholders to understand and support their transformative potential in rangeland management fully. To bridge this gap, participatory and transdisciplinary research involving pastoralist youth is essential. Such approaches would ensure that the voices and experiences of youth are directly integrated into data collection and analysis, leading to more effective, evidence-based interventions and policies.

The potential for pastoralist youth extends beyond economic contributions. Their involvement in governance, education and technology development can drive systemic change, ensuring that rangelands remain productive and resilient. Communities and policymakers can secure these critical ecosystems' ecological and socioeconomic sustainability by investing in their capacities. The future resilience of rangelands is intrinsically linked to youth engagement. Their innovative spirit and technological fluency can maintain pastoralism as a viable and sustainable livelihood, balancing ecological conservation with economic development.

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