



© Stevie Mann

Communal Management of Rangelands

Community-Based Natural Resources Management in Southern Africa

Rangelands consist of vast natural and semi-natural grasslands, shrublands, woodlands, and deserts which are grazed by either livestock or wildlife or both. Healthy, productive, and resilient rangelands provide a wide range of goods and services that support pastoral livelihoods and grassland communities and provide huge benefits for the society at large. They also regulate critical ecological functions on regional and global scales, including the carbon, nutrient, and water cycles. However, land use change and development pressures (e.g., cropland expansion, grazing management, urbanisation, infrastructure), and the effects of climate change (e.g., rising temperatures, drought, wildfires) pose significant challenges to the protection and restoration of rangelands and their communities worldwide.¹

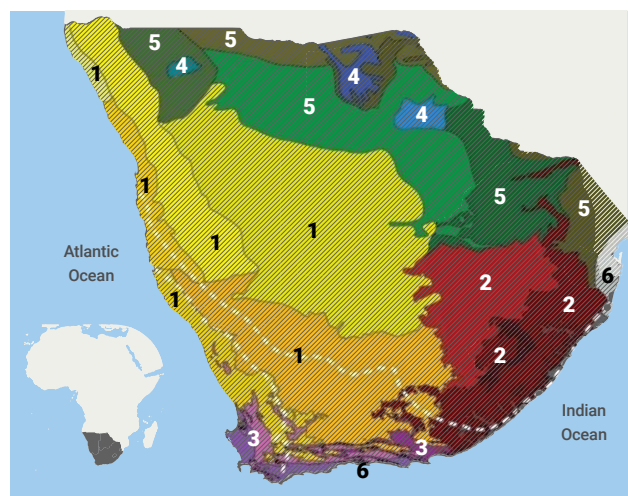
Around 70% of the land surface in Southern Africa is used for grazing livestock.² These rangelands host an exceptionally rich variety of biodiversity spanning a range of biomes, including deserts, grasslands, savannas, fynbos, thickets, and the iconic Nama and Succulent Karoo.³ They support unique endemic flora and fauna, including the world's greatest diversity of ungulates (hoofed animals). Abundant wildlife and charismatic megafauna in these rangelands are major attractions for the ecotourism industry, an important economic sector in many rural areas. These vast landscapes also support livestock production and local economies through the provision of non-livestock rangeland products.⁴

Southern African rangelands often function as 'disequilibrium systems' in which disturbances such as grazing, drought, floods, and wildfires play a key role in shaping their ecological dynamics.⁵ Changes in disturbance regimes can force savannas to transition to new ecological states. For millennia, pastoral and agro-pastoral communities in the region have co-evolved with, and adapted to, these variable conditions.⁶ Their detailed knowledge of water sources, vegetation and weather patterns, and wildlife behaviour continues to inform traditional management and governance practices. Over time, these practices have shaped soil condition and vegetation

features, creating resilient, multifunctional mosaics of land use that are still integral to community livelihoods and the healthy functioning of the rangelands.⁷

Today, many traditional management practices in Southern Africa are under threat from the conversion of rangelands into croplands and other land use changes. These development pressures are often exacerbated by policies that ignore or undermine customary governance and restrict livestock mobility, a key element of flexible communal grazing strategies.⁸ The loss of access to and control of natural resources – along with the large-scale land acquisitions by investors and non-pastoral groups – further disenfranchises many indigenous communities. Socioeconomic pressures, coupled with accelerating land degradation and climate impacts, are seriously undermining the long-standing adaptive management systems that have sustained pastoral livelihoods and the resilience of these vast landscapes for millennia.⁹

Figure 1 Southern African biomes and ecoregions.¹⁰



- 1) Deserts and xeric shrublands
- 2) Montane grasslands and shrublands
- 3) Mediterranean forests, woodlands and scrub
- 4) Flooded grasslands and savannas
- 5) Tropical and subtropical grasslands, savannas and shrublands
- 6) Tropical and subtropical moist broadleaf forests

Governance Challenges in Southern African Rangelands

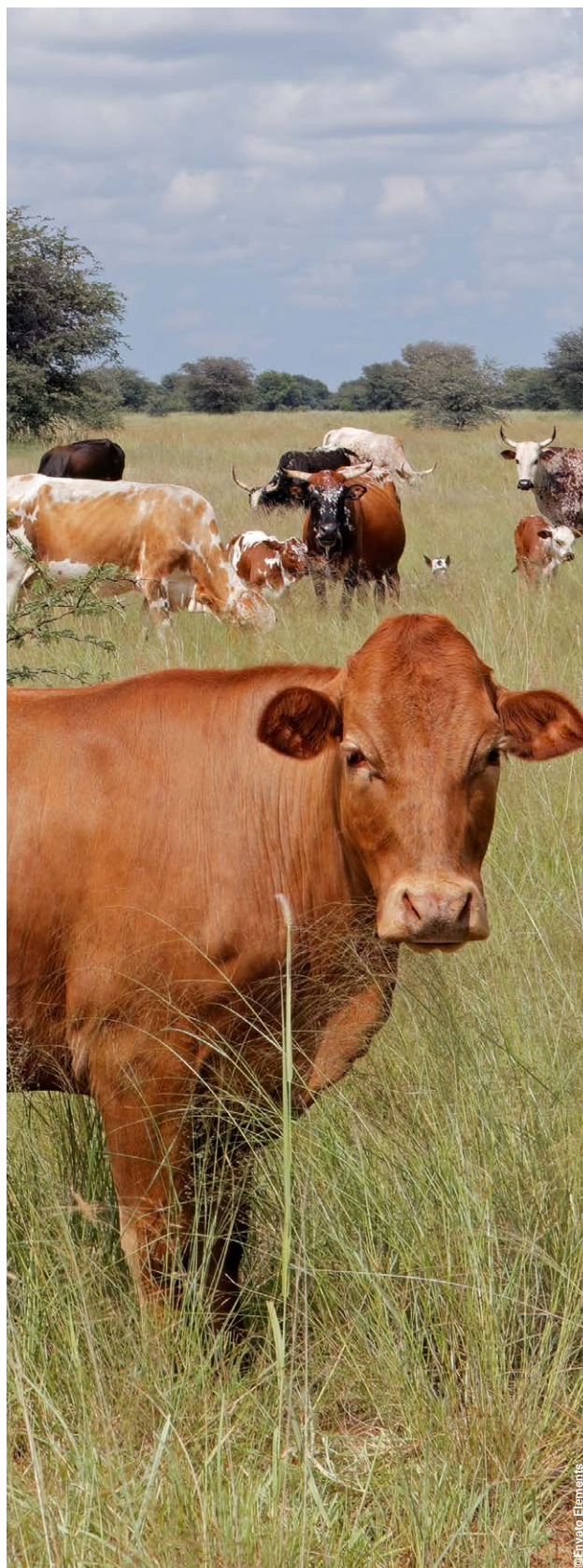
The governance of Southern Africa's rangelands is a complex mix of traditional, statutory, and communal systems, often facing challenges that stem from colonial legacies, land degradation, and climate change.

Colonial policies that prioritised the privatisation of land and the sedentarisation of pastoralists significantly disrupted traditional rangeland management strategies.¹¹

The growing demand for grazing land to support livestock production drove colonial expansion deeper into the interior of Southern Africa. Large areas of productive land were appropriated by white settlers, agricultural enterprises, and mining companies – up to 90% of South African land by 1963 and over 50% of Namibia by 1990.¹² The creation of protected areas to reverse declining wildlife populations further restricted indigenous mobility, land ownership, and access to vital rangeland resources. Colonial property regimes sharply distinguished between communal and commercial farming systems, favouring large settler-owned farms, while local communities were confined to 'native reserves', typically on marginal land with poorer soils and harsher environmental conditions.¹³ A growing population of humans and livestock, constrained by permanent settlements and the need to cultivate crops, further increased land degradation.¹⁴

Sustainable High Impact Grazing in Zimbabwe

In Zimbabwe, Holistic Planned Grazing programmes are challenging some of the conventional assumptions about overgrazing. They use high-density, short duration ("bunched") livestock grazing to mimic the natural movement of wild herbivores, breaking soil crusts and fertilising the ground before the animals are moved on. This approach has produced notable ecological gains, demonstrating long-term improvements in soil health, vegetation cover, and the composition of perennial grasses. Community-led groups collaboratively manage communal herds using holistic grazing principles, and in some areas dry streams and wetland features have reappeared as restored soils capture and retain more rainfall. The Africa Centre for Holistic Management has reached thousands of farmers, demonstrating that properly managed livestock can regenerate degraded rangelands and strengthen rural livelihoods.^{15 16 17}



In the last century, rangelands in Southern Africa have been misunderstood and were considered to be inherently fragile systems on the verge of collapse.

Following major livestock losses due to drought in 1919 and 1920, the South African Drought Commission warned that overstocking would “create a new desert”, further reinforcing the notion that pastoralists were responsible for degrading the rangelands. These narratives promoted intensive ranching operations and widespread fencing as the main way to “restore order to chaos.”¹⁸ These perceptions have shaped decades of state interventions that have fundamentally restructured communal rangeland systems. Governments across the region adopted regulatory measures – such as veterinary cordon fences, stocking limits, mobility restrictions, grazing or stock fees, and fire suppression policies – that disrupted traditional practices. Many of these interventions increased the vulnerability of pastoralists to drought and other environmental stresses. This has weakened traditional governance and reduced access to rangeland resources, further intensifying competition for grazing land and water resources.¹⁹

Following independence, Southern African countries transitioned from centralised governance systems to polycentric institutional arrangements.²⁰

Each country adopted different approaches and timelines when developing their rangeland policies and establishing new institutions to govern communal rangelands. For example, South Africa established Communal Property Associations and Transitional Rural Councils to oversee the transition from apartheid-era tribal authorities, while, at the same time, many communal areas held democratic elections for their municipalities and ward councils. Often, these roles overlapped with those of traditional authorities, resulting in conflict, competing centres of power, and, in some cases, the formation of hybrid institutions to reconcile formal and customary governance.²¹ By contrast, Botswana centralised decision-making under the Land Board system, diminishing the authority of traditional leaders over land allocation and management practices.²² Other countries, such as Zimbabwe, have yet to implement comprehensive rangeland management policies,

despite the continued importance of pastoral livelihoods.²³ Across the region, governments have pursued various land reform and resettlement initiatives, ranging from Zimbabwe’s rapid, conflict-ridden land redistribution scheme to Namibia’s more incremental resettlement programmes.²⁴

Reviving Traditional Pastoral Management Forums in Angola

In southern Angola, pastoral communities traditionally coordinated access to shared grazing lands through management forums led by community leaders and chieftains. These systems collapsed during years of conflict (War of Independence 1961-1974 and Civil War 1975-2002), which weakened communal governance and rangeland stewardship. The RETESA Project, implemented by Angola’s Ministry of Environment with the support of FAO and financing from the GEF, sought to restore these forums to strengthen local livelihoods and address land degradation. After initial attempts to introduce Western approaches failed, the project shifted its focus to reviving traditional systems based on seasonal livestock mobility. Livestock are kept in remote highland pastures during the rainy season and gradually moved to lowlands and floodplains in the dry season. This process is coordinated through six jointly negotiated management plans. The revitalised forums, known as *Jangos*, are still led by traditional authorities but now include local administrations, technicians, NGOs, church leaders, veterinarians, ranchers, and farmers – helping to reduce conflict, improve rangeland rehabilitation, and ensure that shared management plans are respected.²⁵



Pioneering Communal Management Approaches

Sustainable communal rangeland management emerges when traditional practices, local governance, and modern institutions come together to promote mobility and manage biodiversity and ecosystem services for more resilient livelihoods and landscapes.

Three dominant land tenure systems prevail across Southern Africa: commercial land (leasehold or freehold), communal land, and state-owned conservation areas.²⁶

In general, grazing occurs on both private and communal lands, but livestock distribution and stocking rates can vary widely. In South Africa, communal areas accounted for only 17% of agricultural land in 2016, yet supported 72% of the country's goats, 52% of its cattle, and 17% of its sheep. In Botswana, Zimbabwe, and Mozambique, over 85% of cattle were grazed in communal systems.²⁷ Community managed rangelands typically provide a broader range of ecosystem services than privately owned land. These can include wild foods that act as a safety net during droughts, medicinal plants, fuelwood, construction materials for houses and kraals, fibres, fodder, and other goods that can be sold for cash, as well as important spiritual and cultural values. In many savannah regions where alternative energy sources are limited, fuelwood is an essential resource derived from communal rangelands.²⁸

In response to the erosion of traditional management systems and accelerating environmental degradation, many Southern African countries began devolving rights and responsibilities over biodiversity and natural resource management to local communities.

These reforms aimed to create stronger incentives for biodiversity conservation and sustainable natural resources management by creating direct livelihood benefits, as well as fostering long-term community investments. Across the region, this approach was implemented through Community-Based Natural Resource Management (CBNRM) programmes, which were initially pioneered through Zimbabwe's CAMPFIRE model, and then extensively developed in Namibia and Botswana.^{29 30} At its core, the CBNRM model is based on the principle that nature conservation and human livelihoods reinforce each other.

Community-Based Natural Resource Management in Namibia

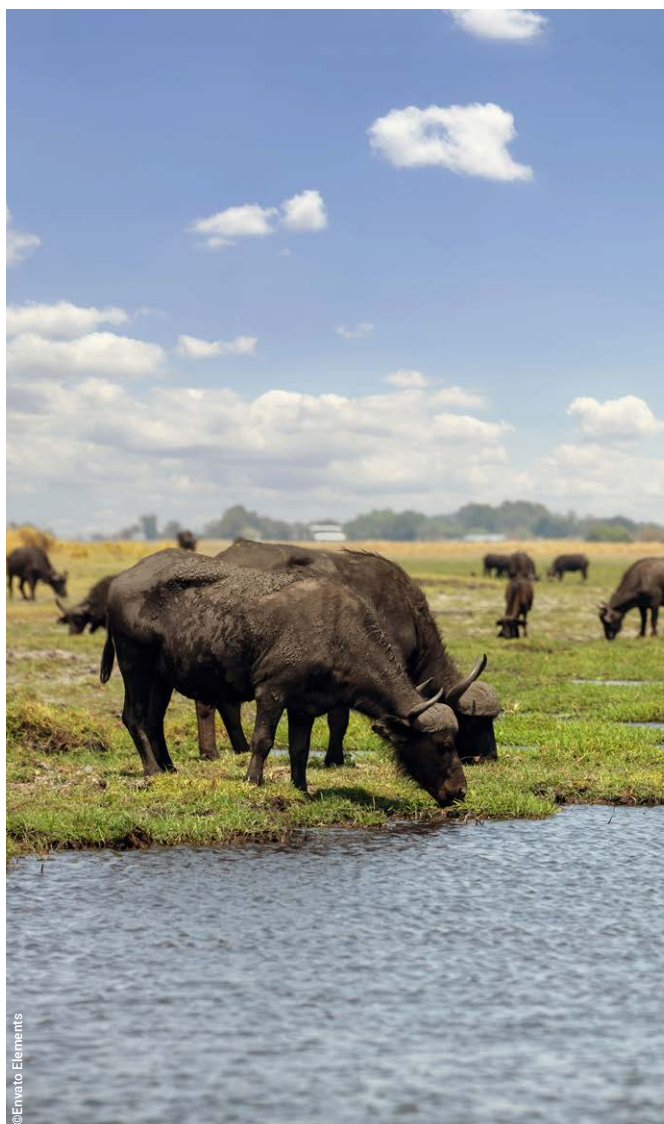
After gaining independence, Namibia adopted a common property approach to tackle the decline of wildlife and vegetation, rural poverty, limited livelihood opportunities, and poor governance of communal lands. Central to this shift was the Community-Based Natural Resource Management (CBNRM) programme, which granted rural communities rights over natural resources. By linking conservation to direct and tangible benefits, the programme created strong incentives for sustainable natural resources management.³¹

The CBNRM programme began with participatory surveys that combined rural community appraisals with ecological assessments. This helped to foster collaboration between the government, NGOs, and communities and served to inform national policies and legal reforms. This cooperative model enables community groups to establish conservancies within defined boundaries, granting them conditional rights over wildlife and tourism revenues. To secure these rights, conservancies must demonstrate inclusive governance, transparent benefit-sharing, registered membership, and cooperation with traditional authorities.³² Over time, the model has been applied to forests and fisheries as well, establishing 47 community forests covering approximately 93,000 km² and 20 community fisheries reserves. These lands often overlap geographically with the 86 registered conservancies helping to support integrated landscape management.³³

At its core, the CBNRM model is based on the principle that nature conservation and human livelihoods reinforce each other. Revenues from tourism, trophy hunting, and natural resource use support jobs, household incomes, and community investments in schools, water infrastructure, and health facilities.³⁴ Since the 1990s, the programme has delivered significant ecological, economic, and social benefits, including the recovery of wildlife populations, strengthened local governance, and greater community participation.^{35 36} Application of the CBNRM model to rangeland management led to significant and sustained improvements in community governance, collective action, and grazing management practices. However, the inability to control grazing by non-participating herders has limited certain environmental and economic benefits.³⁷

Since the 1960s, Southern African rangelands have gradually shifted from intensive cattle farming towards mixed livelihood systems in response to rapidly changing socioeconomic and environmental conditions.³⁸

Biodiversity, above and below ground, is fundamental to rangeland health by supporting critical ecological functions associated with nutrient cycling and vegetation dynamics.^{39 40} Due to the cultural importance of livestock and the abundance of wildlife, coexistence is prevalent in most Southern African rangelands. Even in protected areas, grazing is often permitted in zones designated for multiple use.^{41 42} Evidence from the semi-arid regions of Namibia and South Africa shows that wildlife-based management approaches can deliver higher socioeconomic returns than livestock production alone.⁴³ While this transition has been relatively straightforward for commercial landowners, who can benefit directly from wildlife conservation, it has been more complex in communally managed areas, where wildlife is treated as a shared resource. In these settings, CBNRM programmes can be an effective way of improving rangeland governance and diversifying rural livelihoods.⁴⁴



Herding for Health in Botswana

The Herding for Health (H4H) programme, developed by Conservation International and the Peace Parks Foundation in 2017, builds on indigenous knowledge to support community-led livestock management in and around protected areas.⁴⁵ The H4H approach is structured around four pillars – healthy rangelands, healthy animals, thriving livelihoods, and good governance – with the aim of promoting human-nature coexistence while restoring degraded ecosystems.⁴⁶ The H4H programme now spans more than 865,000 hectares across seven countries.^{47 48}

In Botswana's Okavango Delta – a global biodiversity hotspot within the Kavango–Zambezi Transfrontier Conservation Area – around 75% of land adjacent to protected areas is under communal tenure, and livestock production can account for up to 95% of household income in some districts. However, the establishment of veterinary cordon fences and other exclusionary conservation practices have restricted market access for many pastoralists. Increased human–wildlife conflict and poaching are also significant factors that are undermining livelihoods and wildlife populations in these areas.⁴⁹

In Eretsha, on the Delta's northern edge, pastoralists face annual cattle losses of up to 32%, primarily from lion predation. In response, communities have adopted holistic grazing practices using the H4H framework: 21 farmers formed a collective herd managed by trained herders, who implement grazing plans, *kraal* livestock at night, and use simple deterrents (i.e., noise, light) to protect livestock from predators. This approach has sharply reduced livestock losses to predation, disease, and straying; it has also increased herd sizes and incomes, restored overall rangeland health, and improved conditions for peaceful coexistence between pastoralists and wildlife.⁵⁰

Indigenous Knowledge for Contemporary Governance

Despite the ongoing governance challenges that disregard or undermine indigenous management systems, pastoralists and local communities have retained their deep, place-based knowledge of the rangelands.⁵¹ Studies from South Africa and Botswana demonstrate that pastoralists with an in-depth knowledge of plant (forage) species can precisely classify grazing areas, estimate local carrying capacity, and detect the early signs of rangeland degradation. These long-standing, evidence-based strategies highlight the importance of integrating indigenous knowledge and participation into contemporary governance and collaborative management approaches.⁵²

The lack of robust policy support for communal governance will continue to degrade the health and productivity of the Southern African rangelands, reducing the capacity of communities and ecosystems to adapt to climate change. Concerted efforts are needed to strengthen bottom-up, community-based approaches that reflect local priorities and support institutions that encourage cooperation and collective action to improve management outcomes in communal areas. Secure, flexible, and inclusive land tenure arrangements are essential for enabling coordinated grazing, wildlife movement, transhumance and other forms of mobility, and ensuring healthy, productive, and resilient rangelands in the future.



International Year of Rangelands and Pastoralists 2026

The International Year of Rangelands and Pastoralists (IYRP) 2026 was endorsed by the United Nations General Assembly. In 2024, the sixteenth meeting of the Conference of the Parties (COP16) to the United Nations Convention to Combat Desertification (UNCCD) held in Riyadh, Saudi Arabia adopted the first-ever decision on sustainable rangelands management. In the same year, Mongolia's parliament adopted a Resolution setting out a roadmap for the IYRP and allocating funding for national actions in support of rangelands and pastoralists.

In August 2026, Mongolia will host UNCCD COP17, featuring the launch of the Rangelands Flagship Initiative – a global, multi-partner effort to increase investments in rangelands and pastoralist communities, with the aim of achieving land degradation neutrality and related development goals. The Initiative will support national and regional response measures (i) to increase the extent and integrity of rangelands designated as protected areas (in line with the Kunming-Montreal Global Biodiversity Framework under the Convention on Biological Diversity), (ii) to enhance climate change adaptation through sustainable rangeland management and restoration activities (within the Nationally Determined Contributions and National Adaptation Plans under the United Nations Framework Convention on Climate Change), and (iii) to strengthen drought resilience in rangelands through the Riyadh Global Drought Resilience Partnership announced at UNCCD COP16.

In the lead up to UNCCD COP17 and in support of the IYRP, an epic journey from Riyadh to Ulaanbaatar along the historic Silk Road will bring much-needed attention to these landscapes and their custodians, showcase countries' efforts in sustainable rangeland management and restoration, and advocate for increased political support and investment, culminating in a global call to action at COP17.⁵³

Endnotes

- UNCCD. 2024. Global Land Outlook Thematic Report on Rangelands and Pastoralists. United Nations Convention to Combat Desertification, Bonn. <https://www.unccd.int/resources/global-land-outlook/glo-thematic-report-rangelands-and-pastoralists>
- Kotzé, E., Snyman, H.A. & Du Preez, C.C. 2020. Rangeland management and soil quality in South Africa. In: Lal R, Stewart BA (Eds.) *Soil Degradation and Restoration in Africa*. Boca Raton, London, New York: CRC Press, 145–170. <https://doi.org/10.1201/b22321-8>
- Naidoo, S. Davis, C. & Archer van Garderen, E. 2013. Forests, rangelands and climate change in southern Africa. *Forests and Climate Change Working Paper No. 12*. Rome, Food and Agriculture Organization of the United Nations. <https://openknowledge.fao.org/items/2b57bde3-d654-4584-a988-f65e70d4a5bf>
- Liniger, HP. & Mekdaschi Studer, R. 2019. Sustainable rangeland management in Sub-Saharan Africa – Guidelines to good practice. TerrAfrica; World Bank, Washington D.C.; World Overview of Conservation Approaches and Technologies (WOCAT); World Bank Group (WBG), Washington DC, USA and Centre for Development and Environment (CDE), University of Bern, Switzerland. <https://wocat.net/en/wocat-media-library/sustainable-rangeland-management-in-sub-saharan-africa-guidelines-to-good-practice/>
- Geißler, K. et al. 2024. Biodiversity and Ecosystem Functions in Southern African Savanna Rangelands: Threats, Impacts and Solutions. In: von Maltitz, G.P., et al. Sustainability of Southern African Ecosystems under Global Change. *Ecological Studies*, vol 248. Springer, Cham. https://doi.org/10.1007/978-3-031-10948-5_15
- Catley, A., Lind, J., & Scoones, I. (Eds.). 2013. Pastoralism and Development in Africa: Dynamic Change at the Margins (1st ed.). Routledge. <https://doi.org/10.4324/9780203105979>
- Hempson, G.P., Archibald, S. & Bond, W.J. 2017. The consequences of replacing wildlife with livestock in Africa. *Scientific reports* 7.1 (2017): 17196. <https://doi.org/10.1038/s41598-017-17348-4>
- Awazi, N.P. 2025. Pastoralist Livelihoods in the Face of Climate Change in the Global South: Climate Resilience Frameworks and Prospects. In: Building Resilience. Palgrave Studies in Climate Resilient Societies. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-93791-0_4
- Slayi, M. 2015. Community perspectives and participation in rangeland restoration: challenges and opportunities in the Eastern Cape, South Africa. *Front. Anim. Sci*, Vol. 6. <https://doi.org/10.3389/fanim.2025.1606434>
- Chevalier, M., Cheddadi, R., & Chase, B. M. 2014. CREST (Climate REconstruction Software): a probability density function (PDF)-based quantitative climate reconstruction method. *Clim. Past*, 10, 2081–2098. <https://doi.org/10.5194/cp-10-2081-2014>
- McGahey, D.J. 2011. Livestock mobility and animal health policy in southern Africa: the impact of veterinary cordon fences on pastoralists. *Pastoralism* 1, 14. <https://doi.org/10.1186/2041-7136-1-14>
- Franke, A.C. & Kotzé, E. 2022. High-density grazing in southern Africa: Inspiration by nature leads to conservation? *Outlook on Agriculture*, 51(1), 67-74. <https://doi.org/10.1177/003072702211075060>
- Mani, S., Osborne, C. P. & Cleaver, F. 2021. Land degradation in South Africa: Justice and climate change in tension. *People Nat.* 3 (5), 978–989. <https://doi.org/10.1002/pan3.10260>
- Falayli, M., Gambiza, J. & Schoon, M. 2022. The ghost of environmental history: analysing the evolving governance of communal rangeland resources in Machubeni, South Africa. *People Nat.* 4, 866–878. <https://doi.org/10.1002/pan3.10323>
- World Future Council. 2005. Africa Centre for Holistic Management (ACHM): Factsheet. <https://www.worldfuturecouncil.org/wp-content/uploads/2019/01/Zimbabwe-Africa-Centre-for-Holistic-Management-2005-Factsheet-OPA-2019.pdf>
- Peel, M. & Stalmans, M. 2018. The effect of Holistic Planned Grazing on African rangelands: A case study from Zimbabwe. Savory Institute. https://savory.foundation/science_library/the-effect-of-holistic-planned-grazing-on-african-rangelands-a-case-study-from-zimbabwe/
- Tavirimirwa, B., et al. 2019. Efforts to improve Zimbabwe communal grazing areas: a review. *African Journal of Range & Forage Science*. <https://doi.org/10.2989/10220119.2019.1602566>
- Liniger, HP. & Mekdaschi Studer, R. 2019.
- Gusha, B., et al. 2024. A scoping review of communal rangelands management in southern Africa: towards sustainable management of rangelands. *Pastoralism: Research, Policy and Practice*. 14. <https://www.frontierspartnerships.org/articles/10.3389/past.2024.13373/full>
- Falayli, M., Gambiza, J. & Schoon, M. 2022.
- Bennett, J. E. 2013. Institutions and governance of communal rangelands in South Africa. *Afr. J. Range Forage Sci.* 30 (1–2), 77–83. <https://doi.org/10.2989/10220119.2013.776634>
- Mulale, K., et al. 2014. Formal institutions and their role in promoting sustainable land management in Boteti, Botswana. *Land Degrad. Dev.* 25 (1), 80–91. <https://doi.org/10.1002/ldr.2274>
- Gwate, O. 2014. Presence and functionality of rangeland management institutions: the case of insindi smallholder resettlement in Gwanda, Zimbabwe. *Glob. J. Hum. Soc. Sci. B. Geogr. Geo-sciences, Environ. Disaster Manag.* 14 (8). <https://socialscisearch.org/index.php/GJHSS/article/view/1236>
- Geißler, K. et al. 2024.
- Liniger, HP. & Mekdaschi Studer, R. 2019.
- Geißler, K. et al. 2024.
- Franke, A.C. & Kotzé, E. 2022.
- Geißler, K. et al. 2024.
- Foyet, M. 2024. Community-Based Natural Resource Management (CBNRM) in southern Africa: history, principles, evolution and contemporary challenges. *Namibian Journal of Environment*. 9. 1-15. <https://nje.org.na/index.php/nje/article/view/volume9-foyet>
- Fabricius, C., Koch, E., Turner, S., & Magome, H. (Eds.). 2004. Rights Resources and Rural Development: Community-based Natural Resource Management in Southern Africa (1st ed.). Routledge. <https://doi.org/10.4324/9781849772433>
- Mbidzo, M., Newing, H., & Thorn, J.P.R. 2021. Can Nationally Prescribed Institutional Arrangements Enable Community-Based Conservation? An Analysis of Conservancies and Community Forests in the Zambezi Region of Namibia. *Sustainability*, 13(19), 10663. <https://doi.org/10.3390/su131910663>
- Brown, C.W. & Jones, B.T.B. 1999. Common-property rangelands management in Namibia: the 'conservancy' model in communal areas. Vth International Rangeland Congress Proceedings Vol. 1. <https://the-eis.com/elibrary/sites/default/files/downloads/literature/Common-property%20Rangelands%20management%20in%20Namibia%20Brown%20and%20Jones.pdf>
- MEFT/NACSO. 2024. The state of community conservation in Namibia (Annual Report 2023). MEFT/NACSO, Windhoek. <https://nacso.org.na/state-of-community-conservation/>
- Suich, H. 2013. The effectiveness of economic incentives for sustaining community based natural resource management. *Land Use Policy*, Volume 31, Pages 441-449. <https://doi.org/10.1016/j.landusepol.2012.08.008>
- Naidoo, R., et al. 2011. Effect of biodiversity on economic benefits from communal lands in Namibia. *Journal of Applied Ecology*, 48(2), 310–316. <https://doi.org/10.1111/j.1365-2664.2010.01955.x>
- NACSO. 2020. The State of Community Conservation in Namibia – Annual Report 2019. Namibia Association of CBNRM Support Organisations. <https://www.nacso.org.na>
- Coppock, D.L., et al. 2022. Community-based rangeland management in Namibia improves resource governance but not environmental and economic outcomes. *Commun Earth Environ* 3, 32. <https://doi.org/10.1038/s43247-022-00361-5>
- Chaminuka, P., McCrindle, C.M.E. & Udo, H.M.J. 2012. Cattle farming at the wildlife/livestock interface: assessment of costs and benefits adjacent to Kruger National Park, South Africa. *Soc Nat Resour* 25(3):235–250. <https://doi.org/10.1080/08941920.2011.580417>
- McGranahan, D.A. 2008. Managing private, commercial rangelands for agricultural production and wildlife diversity in Namibia and Zambia. *Biodiversity Conservation* 17(8):1965–1977. <https://doi.org/10.1007/s10531-008-9339-y>
- Simba, L.D., et al. 2024. Wilder rangelands as a natural climate opportunity: Linking climate action to biodiversity conservation and social transformation. *Ambio* 53, 678–696. <https://doi.org/10.1007/s13280-023-01976-4>
- Otieno, J., Muchapondwa, E., & Ntuli, H. 2023. The odds of South African agriculture using wildlife ranching to adapt to climate change. <https://doi.org/10.22004/AG.ECON.339718>
- Thomson, G.R., et al. 2013. Balancing Livestock Production and Wildlife Conservation in and around Southern Africa's Transfrontier Conservation Areas. *Transbound Emerg Dis*, 60: 492-506. <https://doi.org/10.1111/tbed.12175>
- Lindsey, P.A., et al. 2013. Benefits of wildlife-based land uses on private lands in Namibia and limitations affecting their development. *Oryx* 47(01):41–53. <https://doi.org/10.1017/S0030605311001049>
- Geißler, K. et al. 2024.
- Herding for Health. Our History. <https://www.herding4health.net/about/history>
- Herding for Health. The Herding for Health Model. <https://www.herding4health.net/about/h4h-model>
- Quest. 2025. Herding for Health - A unique solution that's working. <https://journals.co.za/doi/pdf/10.10520/ejc-quest-v21-n1-a8>
- See: <https://www.herding4health.net/>
- Heermans, B., et al. 2021. Husbandry and Herding: A Community-Based Approach to Addressing Illegal Wildlife Trade in Northern Botswana. *Frontiers in Conservation Science*, 2, 675493. <https://doi.org/10.3389/fcosc.2021.675493>
- Mudongo, E. I., et al. 2025. Adding economic and ecological value to communal pastoralism: lessons from implementing a Herding for Health model in the Okavango Delta, Botswana. *African Journal of Range & Forage Science*, 1–13. <https://doi.org/10.2989/10220119.2025.2524626>
- Simba, L.D., et al. 2024.
- Gusha, B., et al. 2024.
- See: <https://www.unccd.int/land-and-life/rangelands-and-pastoralists/flagship-initiative>

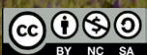


United Nations
Convention to Combat
Desertification

**United Nations Convention to Combat Desertification
(UNCCD)**

Platz der Vereinten Nationen 1
D-53113 Bonn, Germany
Tel: +49 (0) 228 815 2873

www.unccd.int



Some rights reserved. This work is available
under a CC-BY-NC-SA 3.0 IGO licence