Wildfires, Climate, and Rangeland Livelihoods in Southern Africa: A Tale of Two Hemispheres

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Abstract

Southern Africa's rangelands support millions of smallholder and subsistence farmers whose livelihoods depend on livestock and grazing. These fire-dependent ecosystems are undergoing fundamental transformation due to climate change and human activity. This presentation examines 25 years of satellite data (2001–2025) to analyse how fire regimes are changing across Sub-Saharan Africa, with a focus on Southern Africa, drawing on case studies from Botswana and South Africa. We find that burnt area is declining significantly in both hemispheres, Northern Hemisphere Africa by 22% and Southern Hemisphere Africa by 7%, but fires are fragmenting into smaller patches, increasing human exposure to fire risk. Critically, the climate-fire relationship differs fundamentally between hemispheres: in the Southern Hemisphere, climate drives fire activity, making it more vulnerable to climate change. This vulnerability cascades into devastating livelihood impacts, livestock losses, grazing destruction, food insecurity, and psychological trauma, disproportionately affecting smallholder farmers. Drawing on case studies from Botswana's communal grazing areas and South Africa's Eastern Cape, this presentation explores the policy paradoxes that exacerbate fire risk and highlights community-based fire management as a pathway towards more resilient livelihoods. Bridging physical and social science, this research demonstrates that sustainable solutions require interdisciplinary collaboration.

Keywords:
Wildfires, climate change, rangelands, livelihoods, smallholder farmers, fire-climate feedback, food security