

Fire Management for Healthy Rangelands in Sub-Saharan Africa

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Historical and cultural significance of fire

- SSA rangelands have been shaped by grazing and fire.
- Fire has been used as a pasture management tool for millennia.
- Fire is integral to socio-cultural practices, supporting rural livelihoods and socio-economy.
- Herders strategically burn to suppress competing tree/shrub growth.
- Hunters use fire for game habitats and trapping.
- However, in recent years prescribed burning is limited due to policies, rainfall, population, and accidental fires.



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Ecological effects of fire on rangelands

- Fire can lead to ecological renewal , increasing species diversity and biomass.
- Fire regimes shape dominance and extent of savanna grasses, trees, and shrubs.
- Savannas' fire regimes affect grasses vs. trees and shrubs abundance.
- Fire promotes germination, establishment, and reproduction of rangeland plants.
- Herders use fire to replace low-grade vegetation with desirable species.
- Fire impacts biomass and soil through heating, combustion, and evaporation.
- Fire alters soil nutrients and enhances nutrient buildup from ash deposits.
- Biodiversity declines when grazing and fire management are inhibited.



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Strategic planning associated with implementing prescribed burning programs (based on FAO's guidelines)

- Prioritize human health and air quality impacts during planned burns.
- Develop comprehensive plans considering safe work practices, environmental effects, and desired fire behavior.
- Evaluate long-term fire exclusion impacts on resources, vegetation, ecosystem, and human health before burns.
- Monitor and record burn results to revise plans, procedures, and environmental parameters.
- Create a contingency plan addressing fire escape, resource damage, and safety concerns.
- Include safety considerations and training for fire fighters and land users in plans.



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Concluding remarks

By synthesizing existing knowledge, this review:

- Provides valuable insights for policymakers, land managers, and conservation practitioners in SSA
- Emphasis on adaptive management, community engagement, and interdisciplinary collaboration



The take-home message

Collaboration, adaptability, and community involvement are essential for the successful implementation of prescribed burning programs, ensuring sustainable rangeland management in Sub-Saharan Africa

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