

Application of market-based savanna burning approaches for incentivising sustainable fire management in fire-prone savannas

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ABSTRACT – Savannas constitute the most fire-prone ecosystem on Earth, contribute 10% of total annual carbon emissions, and are home to 10% of the human population. Despite recent centuries of European colonial fire policy prohibiting customary fire management practices in all fire-prone continental settings, many rural populations living in savanna environments continue to be dependent on a variety of fire practices for their agricultural, livelihood and cultural requirements. Ecologically, in interaction with rainfall and fertility gradients, disturbances (e.g. strong winds, grazing), and accelerating industrial influences (e.g. climate change, atmospheric CO₂ enrichment), savanna fire regimes have major effects on the long-term balance / trajectory of tree and grass cover, regional biodiversity and associated environmental impacts (e.g. soil erosion, water quality), carbon stocks and greenhouse gas emissions. In Australia, building on opportunities created initially through the Kyoto Protocol, since the late 1990s there has been substantial development of accredited landscape-scale ‘savanna burning’ greenhouse gas emissions abatement and carbon sequestration accounting methodologies—essentially commercially incentivizing the undertaking of strategic integrated fire management under conservative early dry season fire-weather conditions in order to reduce the extent and ecological impacts of typically more severe late season fires and resultant emissions. The approach builds essentially on traditional Indigenous (Aboriginal) fire management practice developed over millennia. Currently, formally registered savanna burning projects occur over a quarter of Australia’s 1.2M km² northern savannas with significant employment, cultural and ecological benefits—especially for Indigenous (Aboriginal) communities and land owners. Our presentation addresses: (a) socio-economic, ecological, and greenhouse gas emissions benefits, and ongoing developments, associated with the Australian savanna burning model; (b) current initiatives aimed at extending savanna burning approaches to fire-prone savannas in Botswana; and (c), the potential application of savanna burning methods to fire-prone savannas more generally.

Keywords: Biodiversity; greenhouse emissions; socio-economic benefits; northern Australia; Botswana; southern Africa

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