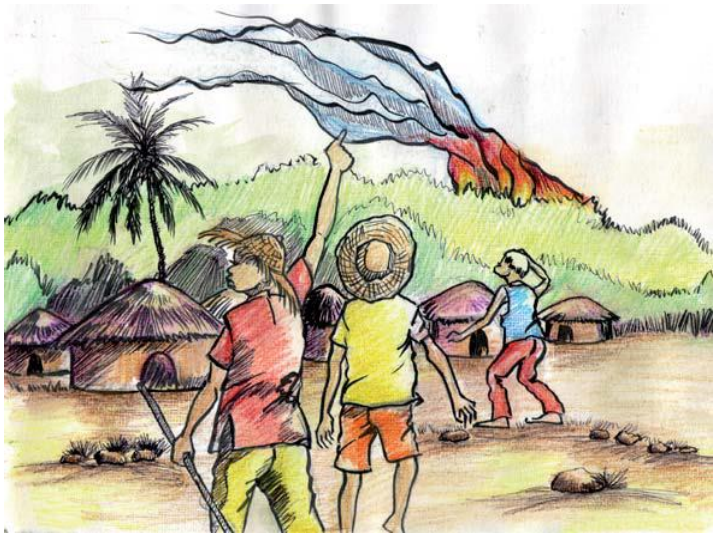
Effective wildfire management: pathway for sustainable livelihoods and biodiversity conservation in Africa

The challenge

While fire is one of the most important tools available to mankind, the lack of its mastery frequently leads to enormous human, environmental and economic damage each year. Wildfires are usually accused of being the most pertinent threat to biodiversity and ecosystem integrity in the drier parts of Africa, where they are set by squatters and livestock graziers with the hope of better pastures, facilitation of hunting, collection of honey and in ceremonial events. The traditional slash and burn farming practice meanwhile, is blamed for causing wildfires in the wet parts of the continent. In addition to devastating biological capital, wildfires are accused of reducing the water retention capacity of vegetation. As they pass over it, the canopy and below-ground sponge-like function of vegetation is destroyed, leading to prevalence of floods in the rainy season and empty riverbeds in the dry season. Despite this gloomy assessment, the ecological importance of wildfires is unequaled; liberating species previously dominated and subjugated to death or extinction by others, breaking the dormancy of recalcitrant seeds, checking prevalence and eliminating pests and diseases of all species including mankind, improving climatic tolerance and resilience of species, enhancing functional ecological processes for several species including attracting new species, and more. Despite these challenges and opportunities, the determination to effectively manage wildfires is still derisory in Africa. Why is this?



Type and extent of wildfire and its management in Africa

African wildfires are usually small and occur frequently, unlike the single large ravaging types in countries of the northern hemisphere. Survey results have revealed that the impact of small frequent fires is usually equal and sometimes greater than that of single large fires. FAO Forestry Study n° 163 (FAO, 2010), reported that between 2003 and 2007, the average annual forest and woodland area burnt by wildfire in Africa was 83,180 km² while that of the whole world was 198,310 km². Africa's small fires were responsible for 42% of the total annual forest and woodland area burnt and reported during the referred period. Rather fortunately, most African wildfires occur in the early dry season and contribute in checking the more damaging late dry season types. The graph on adjacent Figure indicates, with the possibility of the same areas burnt annually, that the cumulative forest area burnt in Africa between 2003 and 2012 was 1,4Mkm² - an area twice the size of France. While specific information i.e. on frequency and dynamic ecology of African wildfires may be scarce, data on Fig 1 helps understand wildfires for the development of management strategies.

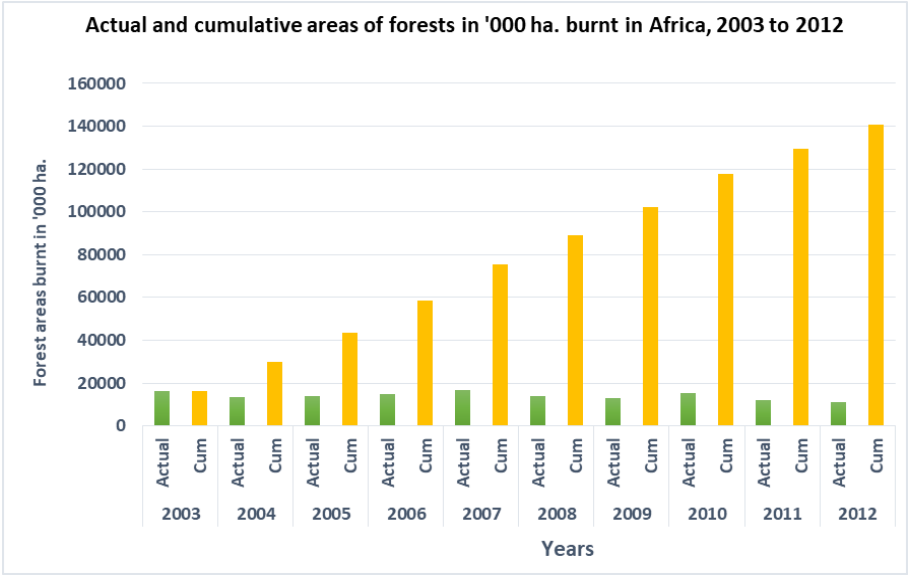


Fig 1. Forest areas in '000 hectares, burnt annually in Africa between 2003 and 2012 (green) and annual cumulative areas computed for same period (orange). Source: Computed from FAO Forest Resources Assessment, 2015.

The ambiguity of wildfire management and key project messages

Several African countries have developed wildfire management strategies for farmlands under the supervision of government ministerial departments responsible for Agriculture. Others have developed forest fire management strategies under the aegis of government departments responsible for forestry, lands and environment. Yet others are implementing wildfire strategies for pastures and rangelands under the leadership of government ministerial departments responsible for livestock, animal industries and pastures. In several countries where a national fire service exists, it is usually attached to the ministry of the interior or national security, rendering its activities skewed towards industrial and domestic fire management. The strictly sectorial set-up of fire institutions and strategies under different government ministerial departments without coordination, coupled with the ambiguity of wildfires, which do not respect boundaries, renders the wildfire phenomenon pertinent for national coordination. Vagueness due to poor coordination can be observed when the damage caused by wildfire to the national economy is simply mentioned, with little or no verifiable data for the loss of revenue, livelihoods, or biodiversity. This is partly due to the rarity of institutions with a comprehensive wildfire coordination role in African countries.

In relation to project messages; wildfire surveys in Gambia (mid-2000s) revealed that pre-funded wildfire projects reduced the incidence of fires in project areas but the fires returned after the projects. Sadly, post-fire restoration was almost always neglected. The surveys also revealed that when communities were awarded legal tenure to manage community forest land, forest fire frequency declined even as such fires persisted in areas where communities did not have legal tenure over forest land. The Gambian government has since learned that secure land tenure combined with effective regulation is the best policy to control wildfires.. In Ghana, similar studies between 2005 and 2010 confirmed that when people had a direct interest in protecting their natural resources, unplanned wildfires also declined. Community residents revealed that they will mobilize themselves and develop bye-laws to control wildfires when sufficiently trained in wildfire management. Such training includes knowledge on roles and responsibilities of different stakeholders in wildfire management. In South Africa, a national policy implemented at Provincial and municipal level makes use of controlled wildfire to address invasive species and biodiversity conservation. South African National Parks has been a leader in this research and management.

Some key actions

Due to the multi-jurisdictional nature of wildfires, a single community or agency may not have the ability to manage all wildfire situations. Communities, other actors and specialized agencies should preferably develop cooperative arrangements to mitigate their trans-sectorial and cross-community impacts.

Possible actions include:

☞ Envisage establishment of a national fire authority representing various fire management jurisdictions, to facilitate allocation of wildfire control inputs through coordinated action and policy implementation.

☞ Make provisions for the development of fire plans including communication strategies prior to the fire season on fire-prone resources, prioritizing trans-sectorial and cross community actions.

☞ Empower communities by facilitating legal land tenure while using local knowledge and experiences to develop appropriate fire policies and by-laws. This may include promoting the establishment of local fire management brigades.

☞ Pursue maintenance or restoration of appropriate fire regimes to enhance the vigour and diversity of populations of species and communities of native flora and fauna in fire-dependent ecosystems.

☞ Promote re-establishment of ecological processes by restoring or rehabilitating native flora that may have been compromised, damaged or eliminated by fire suppression actions or high intensity fires.

Anticipated response

Parliamentary legislation may be necessary in some countries and policy adjustments in others to set up a comprehensive national fire management body. Such a body may be affiliated to the traditional ministerial departments of forestry, agriculture, national security and other government departments or instituted as an independent agency. Meanwhile, wildfire stakeholders i.e. concerned government departments and specialized agencies, municipal authorities, representatives of fire-prone communities, development partners, civil society organizations, the private sector and concerned centres of excellence, may have to coordinate efforts at all levels by apportioning individual and collective roles and responsibilities in wildfire management.

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