

Reducing forest degradation by managing bushfires in The Gambia

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Key findings

1. Over 90% of bushfires in The Gambia are aggravated by human activities such as fuelwood and charcoal production, forest and farm clearing activities, pests and disease control, smoking, and increased fuel loads that accelerate fire spread.
2. Bushfires affect half of The Gambia's forests, which are estimated at 423,000 hectares (about 47% of total land area), with 70% of these forests facing one or more forms of degradation.
3. In The Gambia, precipitation patterns are critical predictors of bushfire occurrence. Bushfires are more common during the dry and hot seasons and less common during the rainy/wet seasons.
4. There is a wide human and institutional capacity gap in bushfire management in The Gambia, including an inadequate number of well-trained personnel, inadequate equipment and resources to suppress bushfires, inadequate communications and coordination on wildfire management, and a lack of incentives towards preventing, suppressing and recovering after bushfires.

Summary

Bushfires affect over half of the forests in The Gambia leading to their degradation, loss of biodiversity, loss of lives and livelihoods, and increased greenhouse gas emissions. Most bushfires are caused by human activities, including charcoal burning, smoking activities, pest control, and early burning activities, but are aggravated by the weather conditions and lack of the proper systems needed to manage the fires. World Agroforestry (ICRAF) led the development of the National Bushfire Strategy (GoTG 2024) as an output of the Large-scale Ecosystem-based Adaptation (EbA) project (MECCNAR 2023). The strategy aims to foster the safeguarding of forestry and agricultural resources from bushfires through enhancing adequate preparedness and prevention, effective responses, and well-designed recovery and response strategies. The proposed strategic areas of action include strengthened awareness and communication on bushfires, promotion of regional and local

bushfire monitoring frameworks, management of fuel loads, development of integrated bushfire management practices, promotion of multistakeholder collaboration, and enhanced restoration and recovery after bushfire incidents.

Recommendations

1. There is a need to create and equip a national multistakeholder task force on bushfire management to support related policies and mobilize required resources.
2. A technical bushfire management unit should be created within the Forestry Department to coordinate bushfire management activities.
3. There is a need to enhance both institutional, technical and human capacity for effective bushfire management, including promotion of the Community-Based Fire Management (CBFM) concept.
4. Incentive mechanisms for bushfire management should be enhanced, including insurance schemes and fuel-load management enterprises.



Bushfire incidence in The Gambia

Bushfire occurrences in The Gambia are becoming more frequent with more adverse impacts. The issues of fire seasonality are critical in the country based on the weather patterns, with the dry months experiencing the highest intensities of bushfires as opposed to wetter seasons. The modelled climate projections predict an increase in temperatures and greater variance in rainfall

patterns, which are more likely to increase the intensity and duration of bushfires. Duguma et al. (2020) established that Lower River Region and Central River Region have the highest community-reported fire incidents at 89.8% and 67.25%, respectively. Figure 1 highlights the number of burning events between 2010 and 2022 based on MODIS satellite data. Computation of bushfire incidents using the Visible Infrared Imaging Radiometer Suite (VIIRS) data between 2012 and 2022 demonstrates an increase in bushfire occurrences (Figure 2).

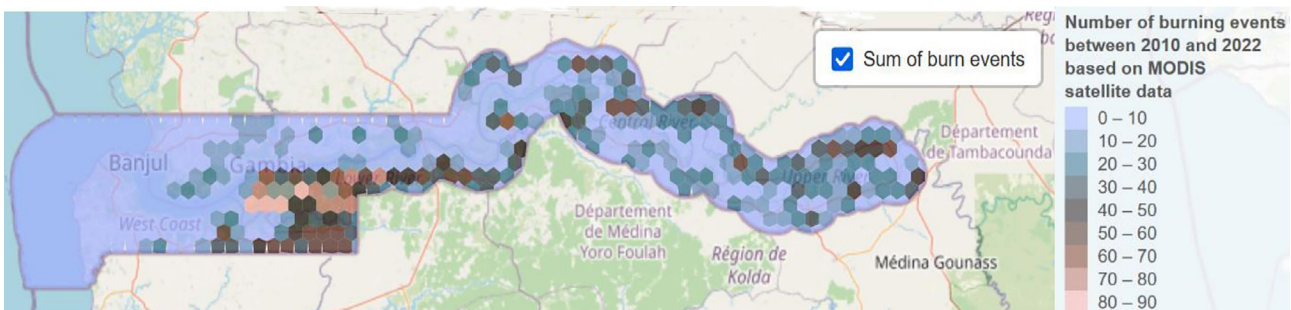


Figure 1. Burning alerts in The Gambia between 2010 and 2022

Source: CIFOR-ICRAF 2024

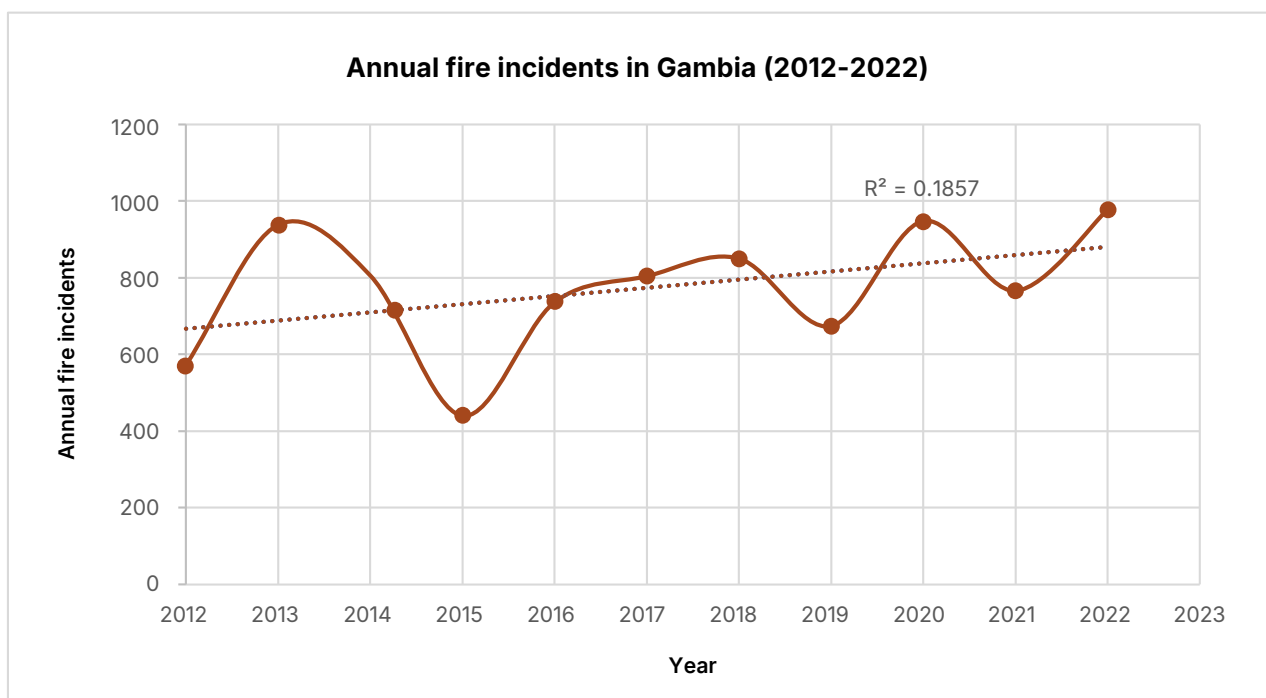


Figure 2. Annual fire incidents in The Gambia (2012–2022)

Source: GoTG 2024

Climate variability as a predictor of bushfire in The Gambia

There is a direct link between bushfire occurrence and climatic conditions in the country. Bushfire frequency and intensity are higher during the dry season (November to June) and lower in the wet/rainy season (June to October). An analysis of the Visible Infrared Imaging Radiometer Suite (VIIRS) monthly fire incidence data between 2012 and 2022 shows a steady pattern of bushfires peaking during the hottest months (February and March) and the lowest number of incidents during the wet months (July to October) (Figure 3). Notably, monthly precipitation variances emerged as a better bushfire predictor in the country compared with the temperature variances.

Challenges of bushfire management in The Gambia

Forests in The Gambia cover about 423,000 hectares (47% of the total land area) including about 300,000 hectares of forests and 123,000 hectares of other woodlands (GoTG 2019). However, GoTG (2023) established that over 70% of the forests face one or more forms of degradation, with over 50% of forested areas being burned annually (Figure 1), resulting in biodiversity loss, loss of food and feeds, forest and soil degradation, and loss of economically desirable tree species. However, the country still faces major bushfire management gaps, including inadequate numbers of staff, equipment, and resources, including vehicles, motorized water tanks, and communication radios and motorbikes for easy access.

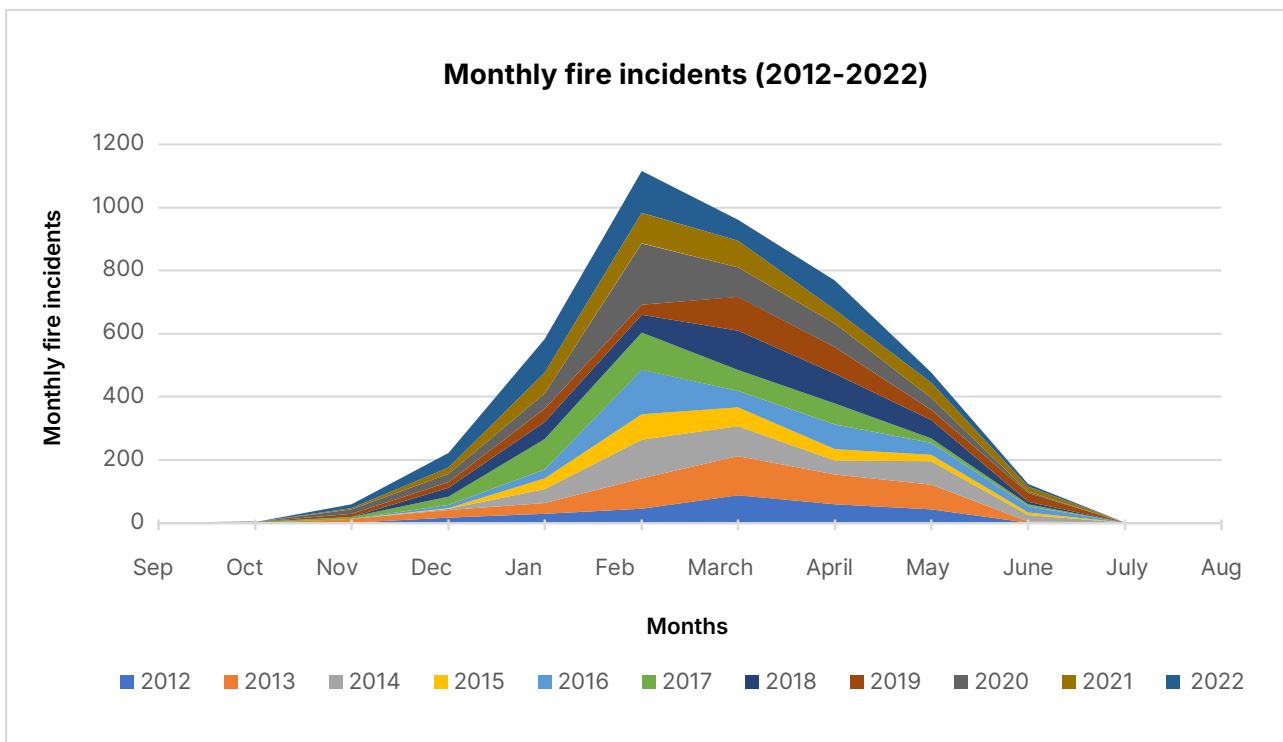


Figure 3. Monthly fire incidents (2012–2022)

Source: GoTG 2024

There also exist institutional and personnel gaps at national, regional, and community levels to manage bushfires (Dampha 2001). At the national level, there is no well-defined management structure that brings together different stakeholders and actors to manage bushfires. As such, there is poor planning and resourcing of bushfire management, as well as inadequate interministerial platforms, noting that bushfire is a cross-cutting challenge. The Forest Department, which oversees and coordinates bushfire management, lacks adequate personnel, capacity, and resources for effective bushfire management. It does not have a well-defined, trained, and resourced Bushfire Management Unit to coordinate bushfire management at the community, regional and national levels. Notably, The Gambia Fire and Rescue Services largely focuses on domestic fires and has inadequate capacity to manage bushfires. In addition, bushfire incidents in The Gambia

remain largely undocumented due to a lack of centralized information and data platforms for recording and disseminating bushfire information.

There are different aggravators of bushfires in The Gambia in both farmlands and forests. In the forests, activities related to wild honey collection, fuelwood and charcoal burning, and smoking activities are associated with bushfires (GoTG 2024). In the farmlands, activities such as crop protection and pest control, early controlled burning and preparation of fire breaks, and transhumance activities aggravate the fires. The country is also facing increased incidence of cross-boundary fires from Senegal, which requires concerted efforts from both countries to manage. Fire spreads very quickly under the country's weather conditions, which are generally dry and windy.



Moving forward

Short- to long-term goals for bushfire management

Addressing bushfires remains a priority in The Gambia owing to its impacts on ecosystems

and livelihoods. The Bushfire Strategy is a key entry point to ensuring that there is a national conversation and streamlined actions towards bushfire management. Some of the critical areas for action in the short to long term are summarized in Table 1.

Table 1. Priority actions towards bushfire management

| | Strategic objectives | Short-to-mid-term goals | Long-term goals |
|---|---|---|---|
| 1 | Effective bushfire management awareness and communication enhanced in The Gambia | Bushfire data from global sources are analysed and disseminated to various stakeholders for decision-making Training and capacity building of different stakeholders and institutions on bushfire management | Development of long-term national infrastructure and systems to collect, process, and disseminate bushfire data for decision-making Continuous training and capacity building of different stakeholders and institutions |
| 2 | Regional- and local-level frameworks for bushfire monitoring and reporting developed and strengthened | Community and regional bushfire management plans validated and rolled out Community and regional bushfire management monitoring systems developed Community and regional bushfire committees established, strengthened, and equipped Bushfire patrols enhanced | Community and regional wildlife management monitoring systems integrated into national monitoring systems National hotspots zoned Community and regional bushfire committees well enshrined into national policies with resource allocation plans |
| 3 | Mechanisms for fuel load management developed and implemented | Bushfire management plans at community and regional levels | Community and regional bushfire management plans mainstreamed into national policies |
| 4 | Integrated fire management approaches developed and rolled out | Bushfire management integrated framework developed at local and regional levels with contextualized approaches Modern bushfire management technologies piloted | National bushfire management framework developed Modern technologies upscaled in different regions |
| 5 | Multistakeholder collaboration on bushfire management promoted | Annual bushfire stakeholders' forum held Policy recommendations and actions validated | National Bushfire Management Policy and Act enacted Annual bushfire congress mainstreamed in the national calendar |
| 6 | Restoration and recovery after fire incidents enhanced | Post-bushfire management protocol developed Protocol piloted in different regions | Carbon reduction projects developed to incentive bushfire management Insurance schemes negotiated Restoration and livelihood restoration plans rolled out |

Recommendations on bushfire management

1. Establishing a multistakeholder task force for bushfire management

There is a need to create and equip a multistakeholder task force on bushfire management. This agency should comprise line ministries, national agencies (such as the National Disaster Management Agency (NDMA), Gambia Radio and Television Services (GRTS), and the Meteorology Department), research and academic institutions (University of The Gambia, Kafuta Forestry School, etc.), and development partners (such as the United Nations Development Programme (UNDP) and the Food and Agriculture Organization of the United Nations (FAO)). The aim of the task force should include support for cross-cutting policies related to bushfire management, resource mobilization, and capacity development. To enhance its efficiency, the task force should be hosted at the Office of the Vice-President to have a cross-cutting interministerial mandate and power to mobilize resources across different agencies.

2. Creation of a forest fire management unit to oversee and coordinate bushfire management

A Technical Forest Fire Management Unit needs to be created and hosted at the Forestry Department. This technical unit should oversee and coordinate bushfire management at the national and regional levels. The unit should be well-equipped with bushfire management vehicles, and regional units should also be well-equipped; the unit should have the right resources to suppress bushfires.

3. Strengthened capacity building and awareness creation on bushfire management

Capacity building in forest fire management should be enhanced through, among others, increased awareness creation, bushfire data collection and dissemination, and promotion of the Community-Based Fire Management concept. This includes the development of fire management programmes; training fire specialists at the Forestry Department

at both national and regional levels; development of a national bushfire platform for effective data and information collection, processing, and dissemination for decision-making; and continuous awareness creation at community levels on bushfire management.

4. Incentivizing bushfire management

Incentive mechanisms such as insurance schemes, fuel load enterprises, carbon financing, and forest co-management are essential in bushfire management. This requires clear legislation and regulations, public-private financing models, and enforcement mechanisms with clear benefit sharing to incentivize fire management, promote restoration, and enhance total benefits.

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Cover photo

Bushfires in the Central River Region of The Gambia. © Kennedy Muthee/CIFOR-ICRAF

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