

# Perspectives for adapted fire management in Angola



THE FUTURE OKAVANGO

*The focus of the research project 'The Future Okavango' was on sustainable resource management in the Okavango Basin, comprising the adjacent regions of the Okavango River in Angola, Namibia, and Botswana.*

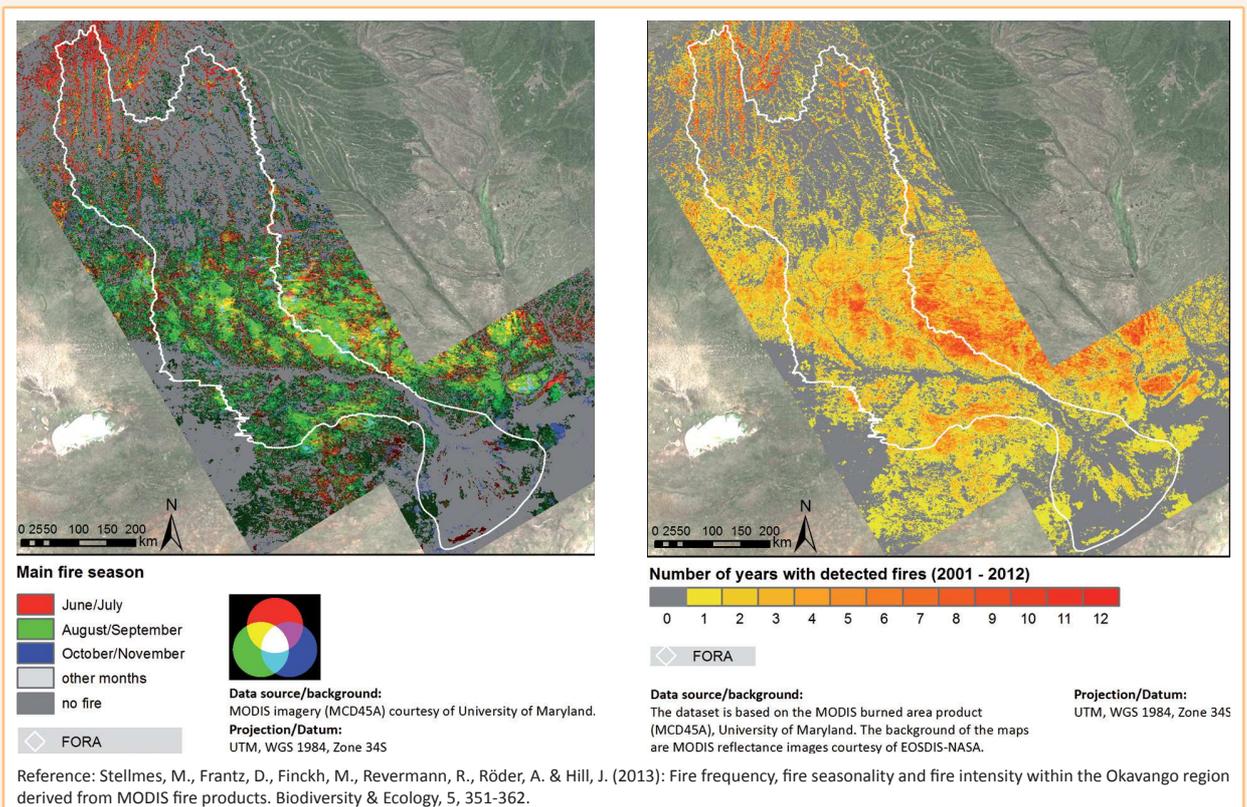
## Current challenge: Wildfires strongly boost land cover changes and obstruct sustainable use of forest resources

Wild fires are extremely widespread and frequent across the Okavango catchment. Almost all fires are man-made and thus depends very much on fire-management practices and inflammability of the vegetation. The fire seasonality corresponds to agricultural practices in the different environments: forest fires mostly ignite in August and September from the burned fields into the surrounding woodlands and fallows. Grassland fires are mainly set earlier in the dry season to facilitate hunting and to improve grazing for domestic animals (see figure below on the left).

### Key Findings

#### The high fire frequency hinders the regeneration of forests and woodlands

There is plenty of evidence that a fire return period of less than five years captures tree regeneration in the sapling stage and thus prevents forest regrowth. Additionally, fires damage standing trees. Based on the MODIS data we mapped the fire for each year between 2000 and 2013 and calculated the fire return period for the Okavango Basin (see figure below on the right). For all areas presented in reddish colours there was no sequence of more than five years without fire during the observation period which would have allowed for the regeneration of trees. In other words, for more than a decade there was almost no regrowth of wood and timber resources in large parts of the central Okavango Basin.





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## Key Findings and Recommendations

### Once the area of fire-resistant landcover types drops below 40 %, fires can spread rapidly through entire landscapes

In its natural state, more than 70 % of the southern slopes of the Bié Plateau are covered by closed forests. Dense natural Miombo forests withstand ignition due to their humid microclimate and relatively low fuel load in the understory. They can be considered to a large extent as fire-resistant.

However, once forests are opened up by slash-and-burn agriculture or charcoal production, tall grasses and shrubby re-growth start to colonize the areas and those shrublands become very vulnerable to ignition. In a case study, we could show that due to the high fire frequency former fields and charcoal plots around the village of Cusseque still are far from complete recovery 20 years after harvest. Without a comprehensive fire management, forest regeneration after exploitation is dramatically compromised in the forests of Bié and Moxico. The interactions between forest use and fires enhance the pressure on the remaining wood and timber resources in the Okavango Basin. Under the current fire regimes, forestry ceases to be sustainable, and instead becomes devastating.



### Specific management concepts for the sustainable use of forests should be developed for the different zones of the basin

As a basis for a comprehensive fire management the TFO project has compiled precise maps that show the high frequency of bush fires in large parts of the basin. Important differences were observed regarding the frequency, duration, and spatial extent of fires in the different parts of the catchment.

The present careless handling of fire kills animals, leads to a loss in nutrients (especially nitrogen) from the soils, and reduces the regeneration of forests and woodlands. A more sustainable land use could be facilitated by fire management concepts comprising the following recommendations<sup>1</sup>:

- Human-induced fires should be prevented as far as possible on fallows and clearcuts in the first five years after harvest and abandonment.
- Grasslands should be burnt early in the dry season when the woody vegetation is still humid and the risk of fires spreading into forests and shrublands is still small. The same is true for the edges of new fields and roads.
- Burning should never be done in hot and windy weather conditions! Burning should start in the late afternoon, when temperatures begin to drop and ambient humidity starts to rise.
- Burn against the wind, burn downslope – it is much easier to control the fire this way.
- A training and awareness campaign regarding environmental effects of fires and skillfull fire handling should be initiated: “fire is a tool – use it wisely!”

<sup>1</sup> The scientific team of TFO is prepared to support the responsible Angolan institutions if this is desired. (contact: [info@future-okavango.org](mailto:info@future-okavango.org))



#### Disclaimer:

This Policy Brief is based on the joint research results obtained in the research project “The Future Okavango” funded by the German Federal Ministry of Education and Research under Grant No. 01 LL 0912. It is summarizing topic-specific key findings and recommendations; the comprehensive report ‘The Future Okavango – Findings, Scenarios, and Recommendations for action’ is available for download on the TFO-website ([www.future-okavango.org](http://www.future-okavango.org)).

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