FACT SHEET

Areas Burned in Southern Africa from 2001 to 2021

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Southern African Science Service Centre for Climate Change and Adaptive Land Management
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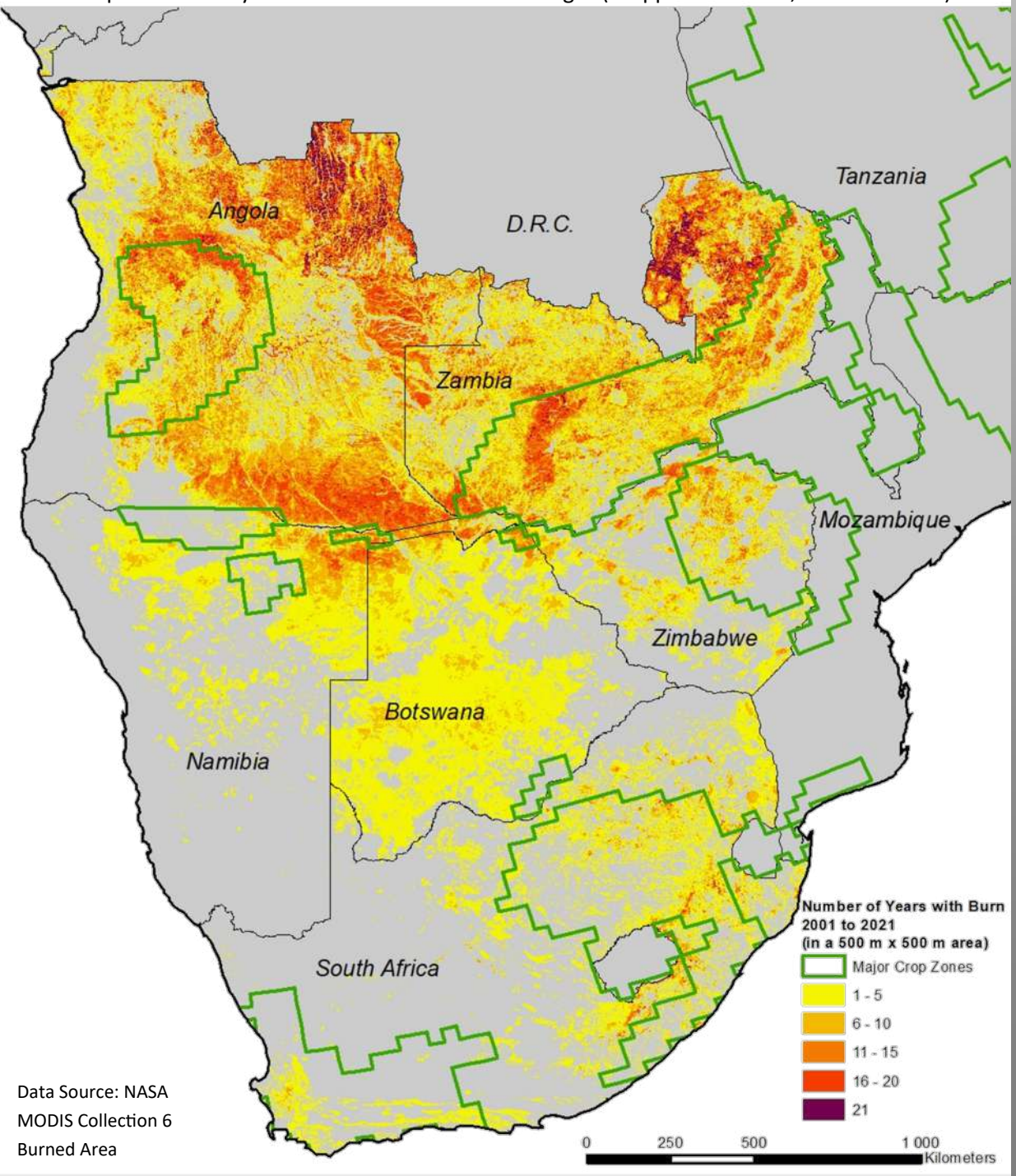
While wild fires are a periodical part of the southern African landscape and are known to have occurred historically, fire seasons in southern Africa tend to coincide with the agricultural burning season. Prior to human intervention, the majority of wild fires were caused during the summer months in the wet season, when lighting caused natural ignitions (Archibald et al 2012, TheConservation 2015). Due to the practice of subsistence farmers of clearing lands for cultivation, often referred to as slash-and-burn, the fire regime in southern Africa has generally shifted to the dry season months' preceding the rainfall season (The Conservation 2015).

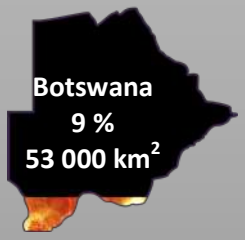
Controlled fire management through early burning avoids out-of-control wild fires at the beginning of the rainy season and protects, as well as increases biodiversity (Humphrey et al 2019). Yet, numerous studies have also suggested detrimental effects of regular annual burns on the landscape biodiversity and these drive landcover changes (Pröpper et al 2015, Kruchem 2014).

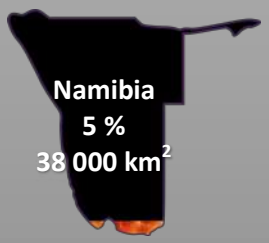


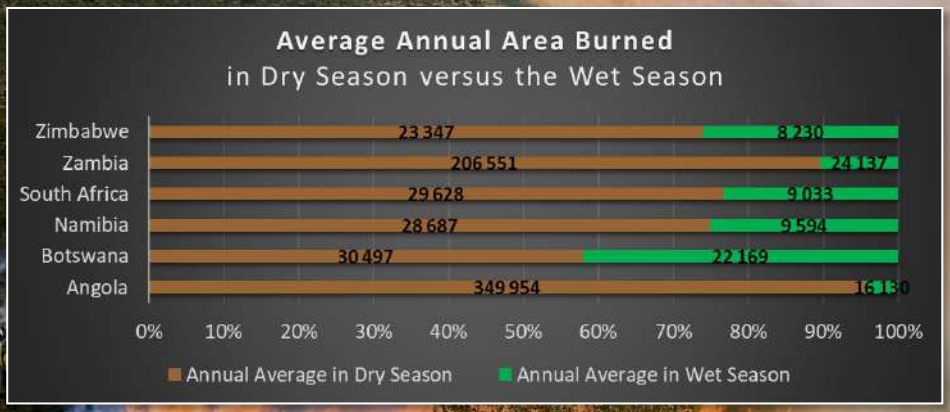
Data Source: NASA MODIS Collection 6 Burned Area

Average Annual Areas Burned (2001 to 2021)

The analysis of burned areas from 2001 to 2021 suggests that Angola has the largest annual average surface area that is burned , while Zambia has the highest percentage to surface area burned.



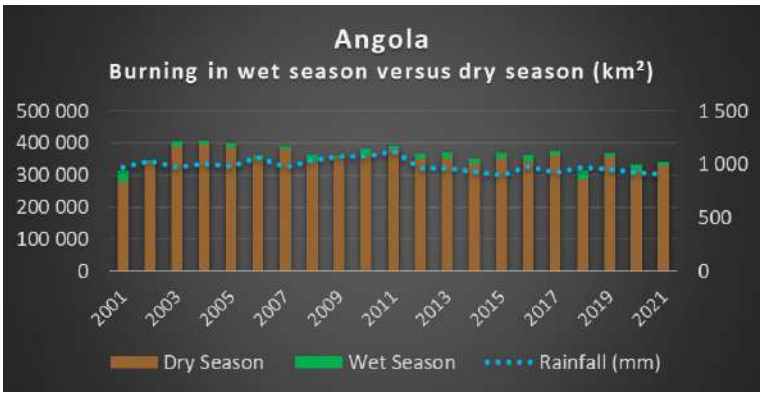


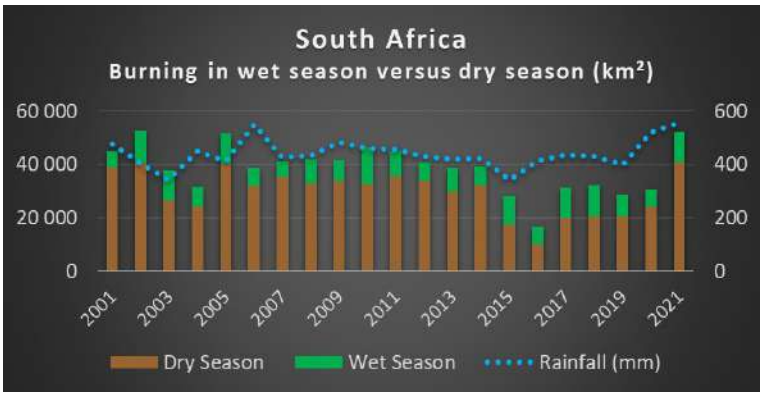


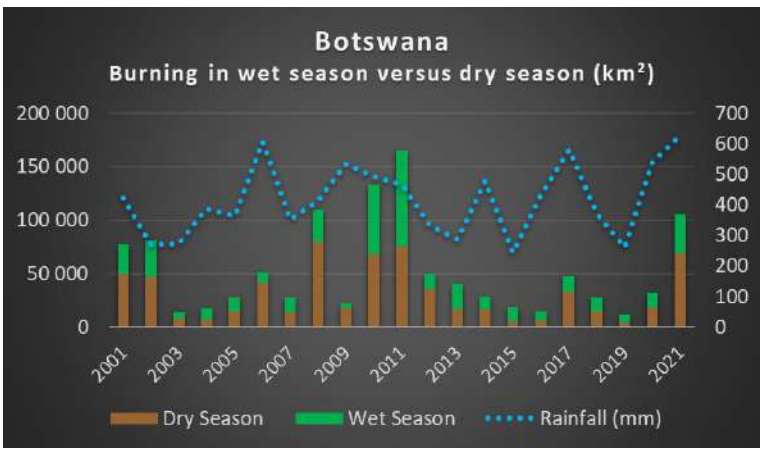
The graphs of areas burned in southern Africa's Angola, Botswana, Namibia, South Africa, Zambia and Zimbabwe from 2001 to 2021 clearly demonstrate that more expansive burning occurs during the drier winter months from May to September than in the rainfall months from October to April.

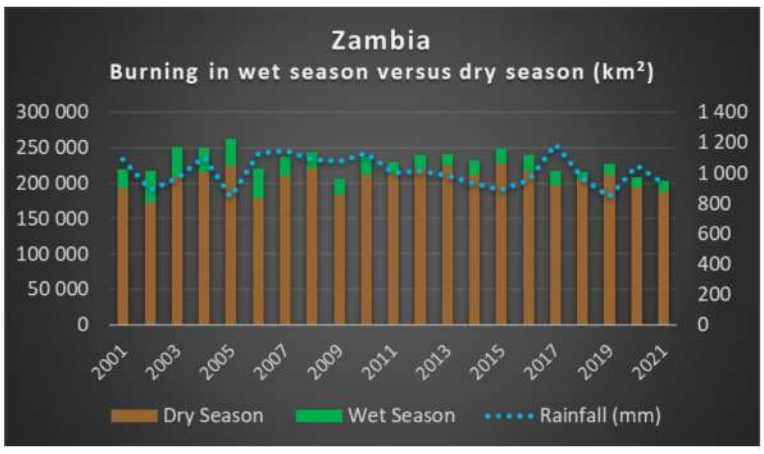
In southern Africa, the most important drivers of wild fires are tree cover, the precipitation in the previous two years and the seasonality of precipitation (Archer *et al* 2009). A good rainfall year will ensure sufficient fuel loads for wild fires to spread.

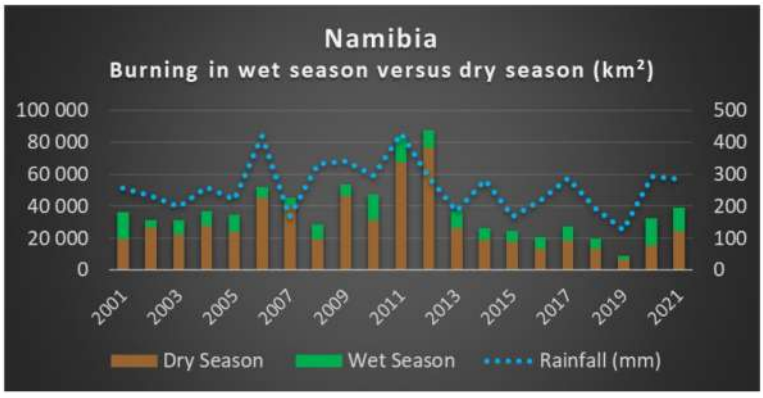
In 2019, more agricultural fires were observed in Angola and the DRC than in the Amazon (AfricaNews 27 August 2019)

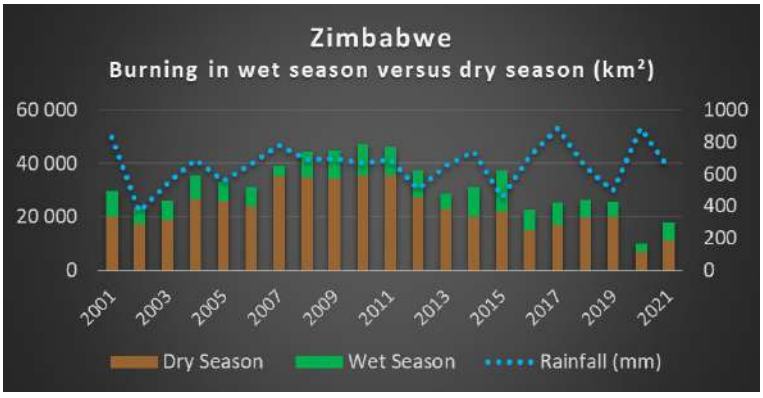




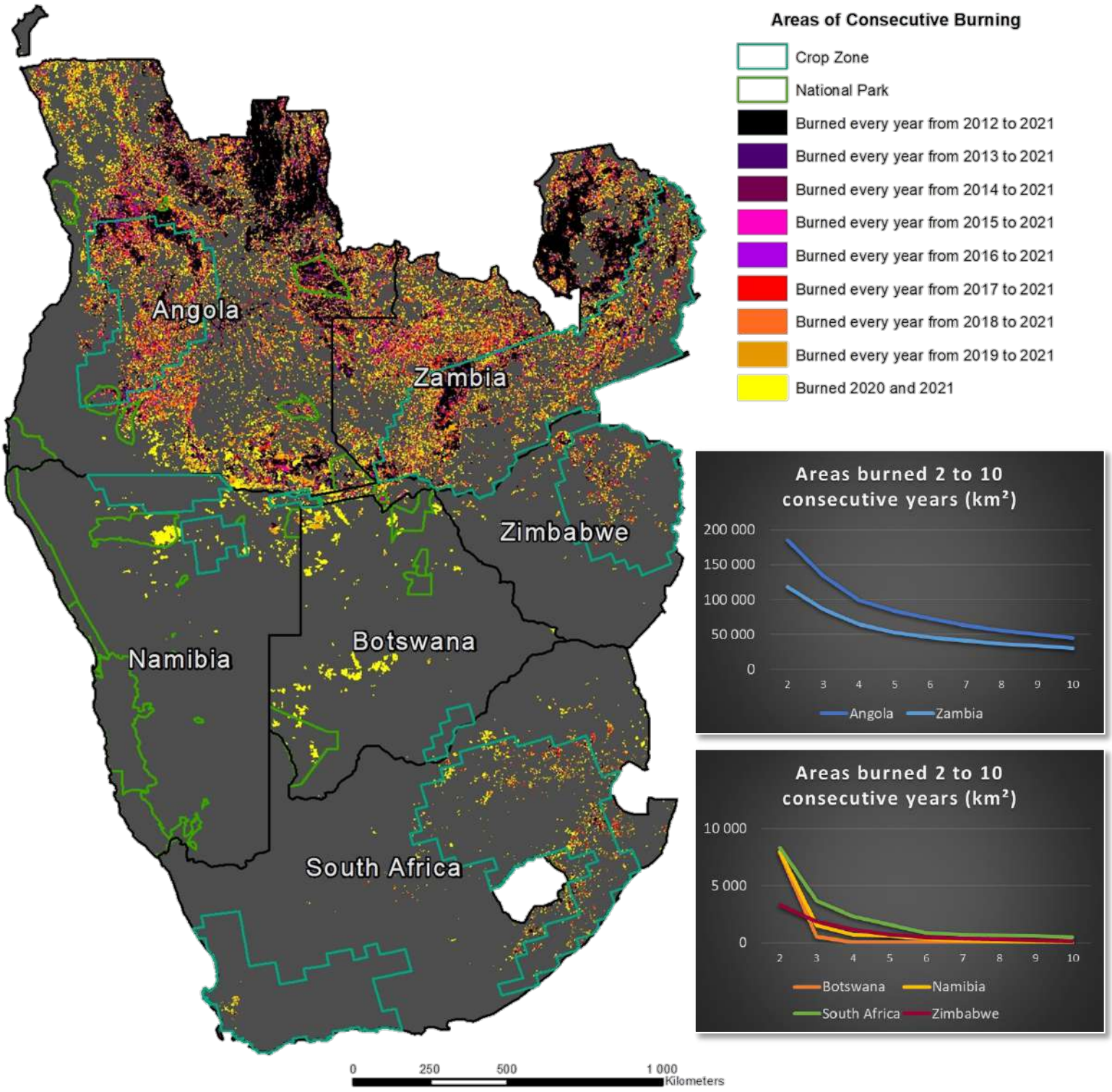








Areas that are being burned annually for many consecutive years do raise concerns for the regeneration of tree and other plant species (Sankaran et al 2004, Bond and Keeley 2005). In particular in Angola and Zambia, large expanses of land are burned annually for more thab five consecutive years: in Angola over 84 000 km^2 have burned every year since 2017, and over 45 000 km^2 have burned every year since 2012. In Zambia, it's been over 53 000 km^2 since 2017, and over 30 000 km^2 that have burned every year since 2012.



References

1. *Archibald S, Staver C, Levin S. 2012. Evolution of human-driven fire regimes in Africa.*
2. *Archibald S, Roy DP, Van Wilgen BW, Scholes RJ. 2009. What limits fire? An examination of drivers of burnt area in Southern Africa.*
3. Bond WJ, Keeley JE. 2005. Fire as a global ‚herbivore': the ecology and evolution of flammable ecosystems. Trends in Ecology & Evolution 20: 387–94.
4. *TheConservation. 2015. The impact of savanna fires on Africa's rainfall patterns.*
5. *De Cauver V, 2016. Patterns of forest composition and their long term environmental drivers in the tropical dry forest transition zone of southern Africa.*
6. *Humphrey G, Gillson L, Ziervogel G. 2019. How changing fire management policies affect fire seasonality and livelihoods.*
7. *Giglio L et al. 2020. Collection 6 MODIS Burned Area Product User's Guide Version 1.3.*
8. *Pröpper M et al .2015. The Future Okavango.*
9. *Sankaran M, Ratnam J, Hanan NP. 2004. Tree-grass coexistence in savannas revisited – Insights from an examination of assumptions and mechanisms invoked in existing models. Ecology Letters 7: 480–490.*
10. *Thomas Kruchem. 204. Development and Cooperation. Fire farming.*
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