The Future Okavango — Policy Brief

Conservation and Management of Natural Ecosystems in Angola

THE FUTURE OKAVANGO

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





Challenges for biodiversity conservation and management

Currently, the landscape and the vegetation in the Angolan part of the Okavango Basin are still mostly intact and close to natural, while larger wildlife is already strongly diminished, some species disappeared completely. Slash-and-burn agriculture, road constructions, agro-industrial intensification, and continued hunting for bush meat drive the conversion, fragmentation, and further degradation of the natural ecosystems.

Key Findings and Recommendations

High biodiversity in the highlands of Southern Angola

The highlands of the Bié Plateau in Angola feature a very high biological diversity, an important number of rare or endemic plant and animal species, and fragile forest, grassland and wetland ecosystems. The species composition on the Bié Plateau differs almost completely from the central and southern part of the basin. This makes the high-lands extremely valuable for global biodiversity conservation, as most of these species are not included in any of the larger conservation areas in or adjacent to the south-central parts of the Okavango Basin.

Establish systematic conservation plans

The vegetation units and their floristic composition are now better known and mapped. As a robust foundation for any science based response to the impacts of environmental changes, the establishment of long-term monitoring plots in the different habitat types is recommended.

The ecological and economic value, the vulnerability, and the uniqueness of the diverse habitat types are different. By combining these parameters and their spatial distribution a systematic conservation planning is now possible and strongly recommended. The scientific team of TFO is prepared to support the responsible Angolan institutions if this is desired.
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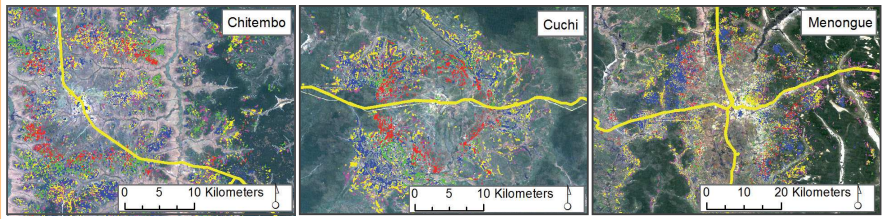
Key Findings and Recommendations

Forests are threatened by expanding agriculture and new infrastructure

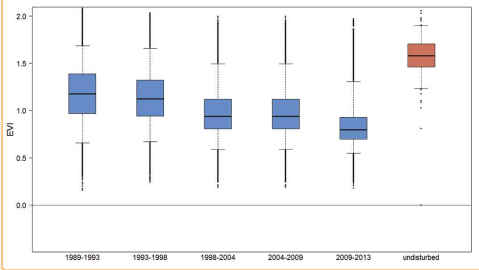
Loss of forests and woodlands threatens the long-term provision of ecosystem services and of functions related to these ecosystems. We mapped major land-use and land-cover changes between 1984 and 2014. These maps show that the exploitation of forests for charcoal production and the (subsequent) conversion of forests to small-scale agriculture are by far the most dominant processes of forest destruction. The change maps were intersected with geospatial information on settlements and infrastructure to address the question of spatial determinants of forest decline. As a result, we can clearly state that the surroundings of roads and settlements are hotspots of forest destruction.

To evaluate the long-term effect of using timber resources, we analyzed regrowth dynamics on fallow fields in the Angolan test area using the Enhanced Vegetation Index , a proxy for biomass. Our results show that even after a fallow period of ~ 20 years the biomass has not returned to its theoretical maximum corresponding to the pre-clearing situation.



Above: Map of field expansion from 1989 – 2013 for the three cities of Chitembo, Cuchi, and Menongue.

Reference: Schneibel, A., Stellmes, M., Röder, A., Finckh, M., Revermann, R., Frantz, D. & Hill, J. (2016): Evaluating the trade-off between food and timber resulting from the conversion of Miombo forests to agricultural land in Angola using multi-temporal Landsat data. Science of the Total Environment 548 – 549 (2016) 390 – 401.



Left: Vegetation index (EVI) distribution for the five time intervals (blue) of woodland clearing and subsequent fallow in comparison to randomly selected EVI values in undisturbed forest areas (red) for the year 2013. The whiskers show the 95 % confidence interval, the outliers are shown as points.

Land use planning concept

An integrated and systematic land use planning concept is urgently needed across the whole basin so as to avoid further fragmentation of intact forest areas.

For South-East Angola wildlife-based tourism is a new and challenging income opportunity. As was shown for Botswana and Namibia, the conservation of unspoiled natural landscapes and the number and diversity of wildlife is a prerequisite for tourism. Enforced hunting regulations and the establishment of contiguous natural and undeveloped corridors for wildlife migrations are necessary for the recolonization by larger wildlife, and thus future income generation from high-end tourism. For further information please contact info@future-okavango.org.

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Different usages of forests goods are increasingly competing with each other

The Miombo forests in the Angolan highlands provide a multitude of different goods to local stakeholders, such as timber, bark, honey, wild fruits, medical plants, and bush meat. Traditionally, those goods were harvested in quantities which corresponded to the domestic demands of the rural households. The shift from local use of goods towards trade and marketization changes the balance between different options for use. Trade and marketization lead to important trade-offs between incompatible options of use like e. g. the ones between charcoal production, timber extraction, and honey production on the other. Clearing the forest for charcoal production and subsequent agricultural use or fallow directly reduces the nectar (and honey) production at the landscape level and impedes future benefits of timber resources.

Support Changes of Stakeholders' Perception of Nature

There is an urgent need to raise stakeholders' awareness on the limitations of forests and woodland resources. Their perception of forests and woodlands as infinite and less valuable area should be changed into regarding them as a limited resource offering future high income opportunities. Destructive use of forests for the commodification of forest goods strongly affects a multitude of other uses which are important for the day-to-day subsistence of the poorer rural households. In the Miombo forests, e. g., charcoal production will probably remain one option for forest use; however, it should be restricted to defined charcoal-production zones with post harvest management. Fire management after exploitation is key for forest regeneration and thus, future use of forest resources. Charcoal trade towards urban centres should be controlled and limited. Alternative sustainable energy sources should be promoted. For more information please contact info@future-okavango.org.

Disclaimer:
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