

Savannas of Namibia

What is Savanna?

Savannas are areas of grassland with an upper layer of large shrubs and/or trees. Savanna is the dominant biome in Namibia. More specific characteristics of savannas in Namibia are:

- Semi-arid with an annual (summer) rainfall of 200-450 mm.
- Diversity of savanna systems with eight vegetation types.
- Dominated by *Acacia* species such as camelthorn (*Acacia erioloba*), black thorn/*swarthack* (*Acacia melifera*), mopane (*Colophospermum mopane*) in the north and northwest, shepard's tree (*Boscia albitrunca*) and a wide variety of grass species.
- Dominant vegetation is fire-adapted.
- Soils are poor and low in nutrients.

Due to variable climatic events and ephemerality this biome is vulnerable to inappropriate management and over-use.

Why are Savannas Important?

Biodiversity:

- Savannas support a high concentration of various species which are endemic to the southern African semi-arid region. Many species have more than 40% of their world population in Namibia.
- Savannas support large plains game of Africa – herd animals and predators.
- Savannas support unique habitats including wetlands, inselbergs, mountains and caves which in turn, support their own biodiversity.
- Savannas contain the headwaters and catchments of most ephemeral rivers in Namibia, which function as linear corridors providing water, shelter and food for wildlife, livestock and people.
- Savannas support agricultural diversity in locally selected crop and domestic stock breeds as well as indigenous farming knowledge and practices.

Land Uses:

The savanna biome is economically important to Namibia, supporting the following key land uses:

- Rangeland farming – communal and freehold and small- and large-stock.
- Agriculture – ranging from subsistence to commercial cropping and some small scale irrigation.

- Wildlife production – including trophy & sport hunting, harvesting for meat production, live capture and sale on freehold and communal areas.
- Conservation – national parks comprise about 5% of the savanna biome, freehold conservancies 13% and communal conservancies 11%; in total 30% of the biome is under some form of conservation management.
- Tourism & recreation – both in and outside of state protected areas.
- Mining and prospecting for mineral resources.
- Water resources – catchment areas, impoundments, inter-basin transfer systems and abstraction of ground water.
- Harvesting of veld products – food, medicinal plants, building materials and wood.
- Production of charcoal from clearing of bush encroachment.
- Urban development and infrastructure.
- Research, training and education.

Wildlife production, tourism, energy production and land-use diversification will become increasingly important in the future.

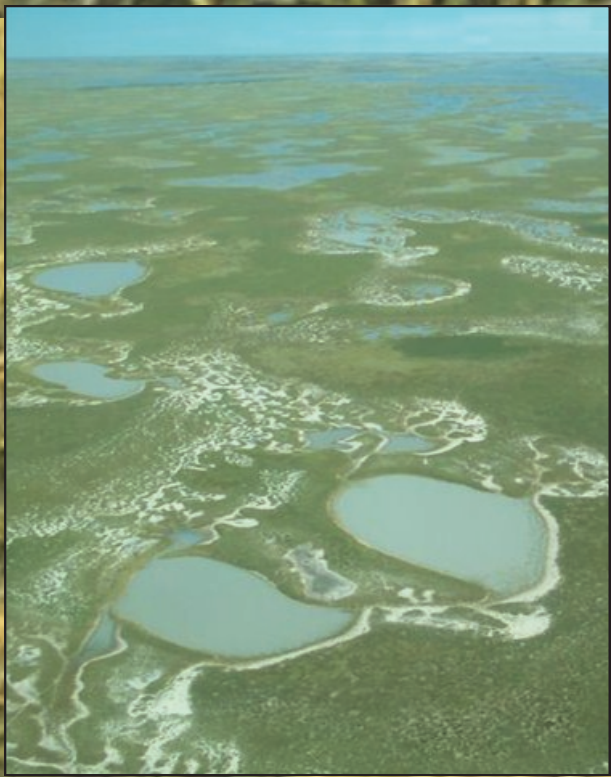
Current land uses and management practices are not sustainable, resulting in deforestation, bush encroachment, overgrazing and other forms of desertification. With the implementation of proper planning, control and management practices, current and future land uses can be more sustainable.



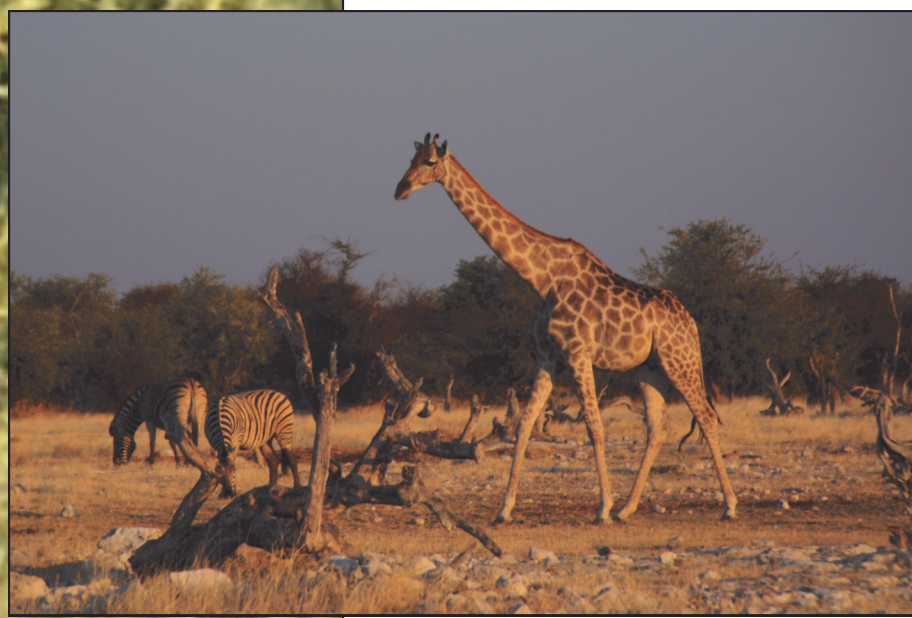
Western Kalahari (N. Odendaal)



Mopane Shrubland (N. Odendaal)



Cuvélai Drainage (A. Scott)



Kartveld (D. Shaw)

Savanna Vegetation Types:

- Central Kalahari – open *Acacia* woodlands
- Cuvélai Drainage – floodplain grasslands or woodlands
- Highland Shrubland – Khomas Hochland Plateau
- Kartveld – mixed woodland
- Mopane Shrubland – *Mopane* shrub and woodlands
- Southern Kalahari – open *Acacia* woodlands
- Thornbush Shrubland – *Acacia* shrublands
- Western Kalahari – broadleaved woodlands
- Western Highlands – grasslands and scattered trees

Vulnerability

Namibia's savannas are particularly vulnerable to the impacts of climate change and to land degradation for various reasons:

Variable and declining rainfall:

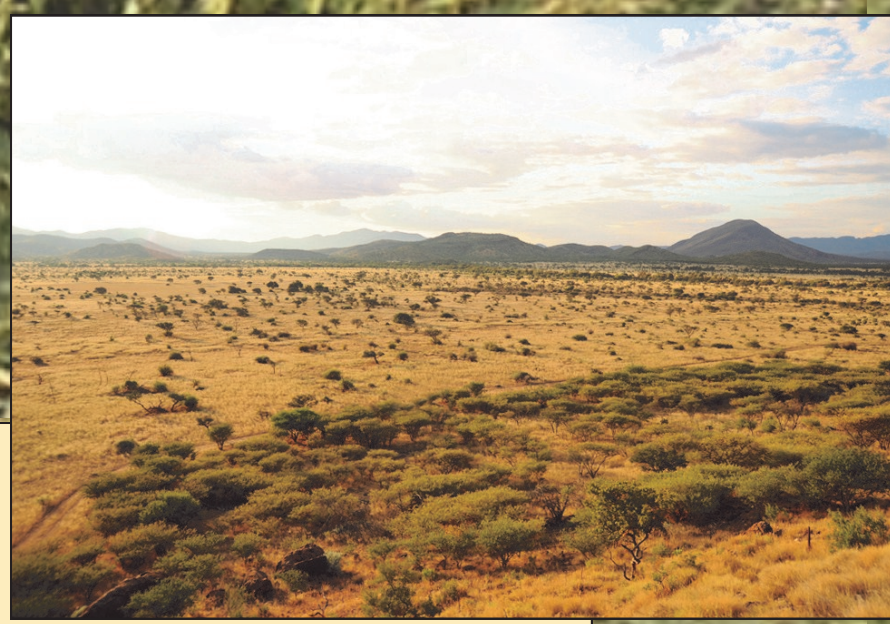
- The central savanna regions of Namibia are predicted to experience the greatest decline in rainfall over the next 40-70 years (declines of 15-20%) as a result of climate change, and possibly an increase in climatic variability.
- Grasses are the main vegetation feature in this biome and variable rainfall (far below average one year, twice the annual amount the next) has a huge impact on productivity.
- Grass growth is highly dependent on rainfall, unlike trees and shrubs which have deeper root systems, moisture storage mechanisms and other adaptations to help them survive dry periods.
- With good rains, grass responds quickly, while in a drought period, grass is decimated first.
- This boom and bust type of response to rainfall makes savannas extremely vulnerable to various types of land degradation. There is more variation in plant production in savannas year to year than in desert or woodland biomes.

Land degradation:

There are several different factors which contribute to land degradation or desertification in the savanna biome. Desertification is the conversion of land from a more productive state to a less productive one. Desertification is a complex process and involves many different factors, including:

- Over-grazing – both selective and continuous grazing, high stocking rates, fences which restrict animal movement and artificial water points can contribute to over-grazing. Animals graze on the vegetation, continually impacting grasses and certain shrubs. If not managed properly, veld conditions cannot recover and the problem is compounded.
- Bush encroachment – as grasses and shrubs are significantly impacted by overgrazing, too much fire or other disturbances, they are not able to reach maturity and seed. In their absence, and in the absence of hot fires at appropriate intervals, competing shrubs grow in their place, eventually changing the landscape. In addition, as the bush becomes thicker, animals are unable to penetrate the cover. Bush encroachment results in decreased carrying capacity and biodiversity, eventually causing economic impacts. In certain areas of Namibia, bush encroachment has decreased grazing capacities by one half. Bush encroachment in this biome is a significant environmental symptom of inappropriate management.
- Deforestation is the unsustainable removal of trees for human consumption without adequate reforestation. Namibians consume the wood of trees and shrubs as construction materials, fuel and woodcarvings and there is increasing concern about the sustainability of these practices. As savannas are cleared of trees or shrubs there is an increase in variation and instability in the system.
- Soil erosion – over-grazing, bush encroachment and deforestation can contribute to the loss of valuable top soil through soil erosion. As soil is lost through erosion, grasses are less able to establish themselves and protect the remaining soil, leading to more soil erosion.

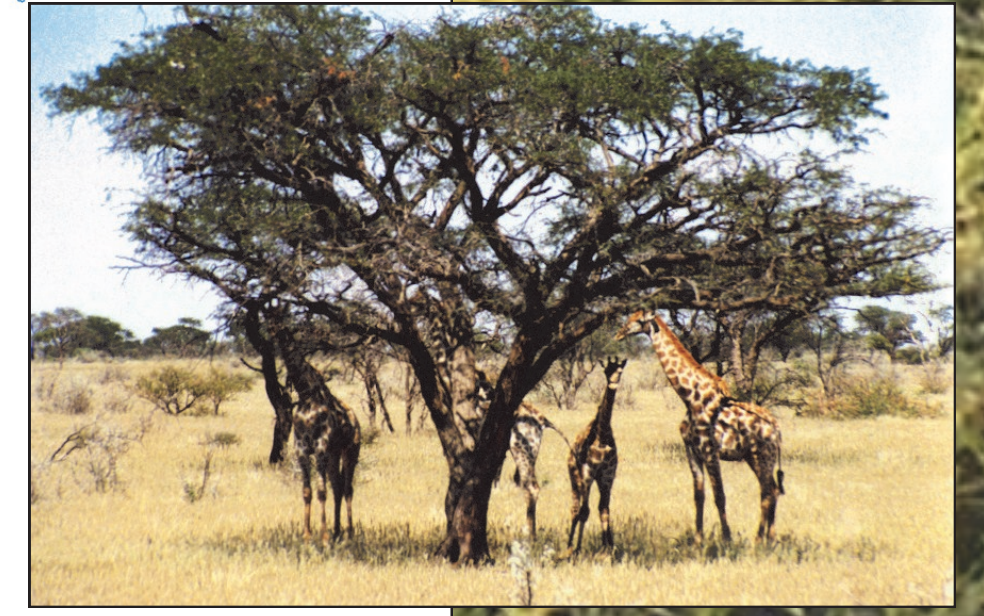
All of these factors greatly increase the vulnerability of savannas and lead to land degradation.



Highland Shrubland (S. Brückner)



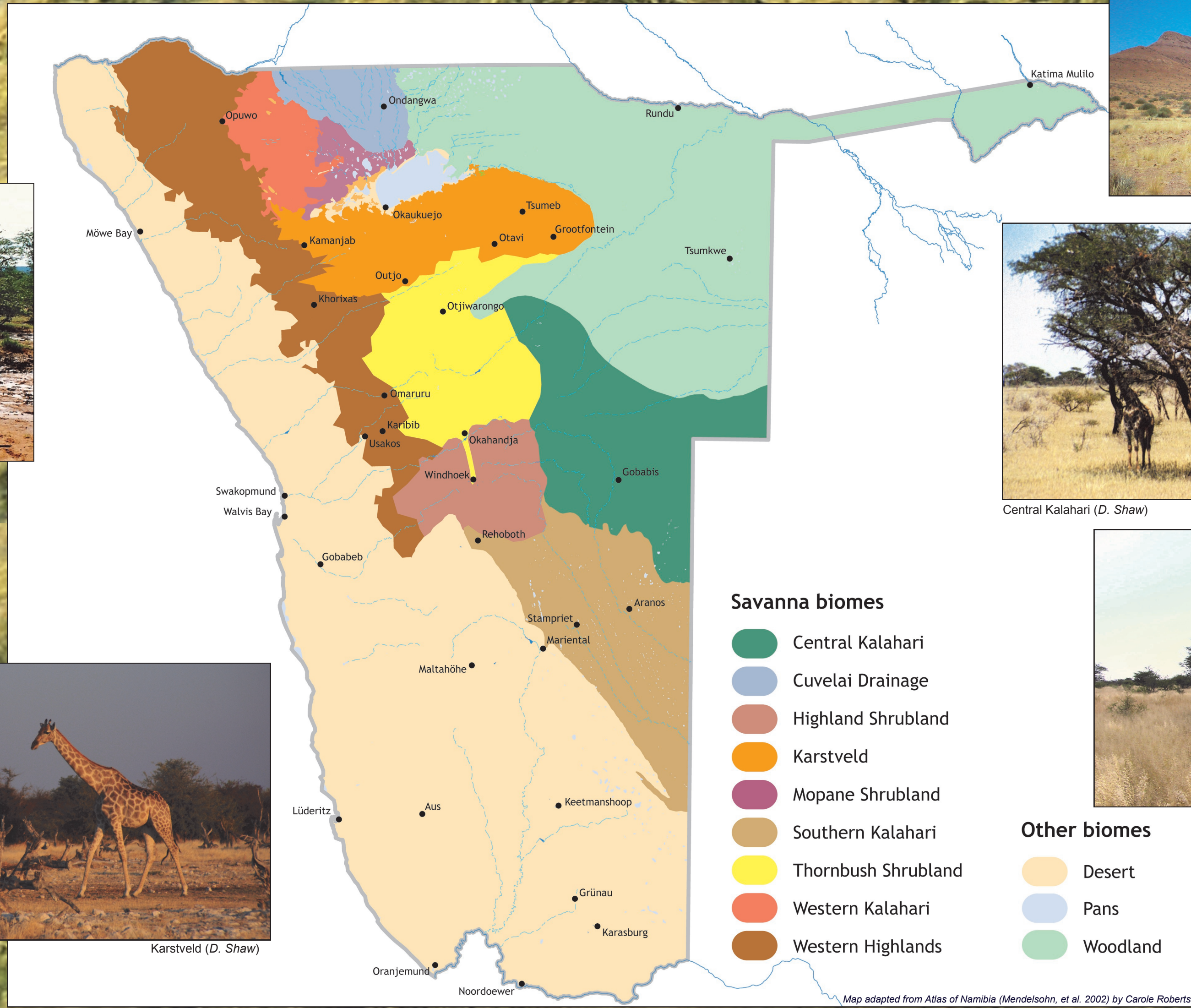
Western Highlands (D. Shaw)



Central Kalahari (D. Shaw)



Thornbush Shrubland (CCF)



What Can We Do?

- Promote collaborative and integrated planning and management at all levels.
- Natural resource management should be integrated into all sectors to ensure the sustainable use of resources.
- Promote collaborative landscape level management across large areas and open areas for wildlife movement by removing fences between areas with similar conservation or tourism land uses.
- Create incentives for better land and natural resource management. By managing the land more effectively, we can ensure it is both productive and protected. The more flexible the management systems, the better they can respond to the variability of climate and savanna productivity. Diversification of land uses can bring about increased economic gain with less impact (e.g. tourism, wildlife production, charcoal production from clearing bush encroachment, freehold and communal conservancies, etc.).
- Develop and implement monitoring systems which can detect change early. Be responsive in order to ensure savanna systems do not collapse, for example by monitoring and managing livestock numbers and changing herding techniques before land degradation takes place.
- Build awareness and capacity at all levels on relevant rangeland management issues. Humans are poor at managing variability in rainfall or climate change, but we can manage our impact on our natural resources derived from savannas.

Sponsors

This poster was commissioned by the Namibia Nature Foundation and compiled and designed by Danica Shaw, Eco-Logic Environmental Management Consulting CC (ecologic@iway.na)