

Grasslands and cranes

3 of a 9 part brochure series



Our grassland biome is South Africa's most threatened ecosystem and yet less than 2% of our grasslands are formally conserved. The rest of the remaining grassland is in private ownership.

What is a grassland?

Grasslands are a vegetation type dominated by grasses and herbaceous vegetation. Grasslands cover most of the high central plateau of South Africa and inland areas of KwaZulu-Natal and the Eastern Cape. Grasslands cover 16% of the land area in South Africa. Here the summer rainfall is generally between 600 and 1 000 mm per annum, the summers are mild or warm and the winters are dry and cold, with some frost and snow. Rainfall is the most important factor influencing the density and cover of a grassland. *Cover pic*

Disappearing grasslands

Apart from their vast economic agricultural importance to the country, grasslands are also vitally important for our natural heritage. Although conservationists have long tried to draw attention to their destruction, their pleas have mainly fallen on deaf ears. However, there is a sudden awakening to the plight of this very necessary resource.

Of all biomes in South Africa, grasslands have been affected to the greatest extent – about 50% have been destroyed, and much of the remainder is in poor condition.

Threats to grasslands

A great deal of destructive human activity is concentrated in the grassland biome:

- Maize and wheat production. *Pic 4*
- Most of South Africa's timber production
- South Africa's largest urban and industrial centre, Gauteng
- Major power stations and other industries resulting in high pollution, particularly in Mpumalanga
- The majority of gold and coal mines
- Extensive livestock production

Once destroyed, it is impossible to recreate the structure and mix of species originally found in the grassland.

Cranes and grasslands

The Blue Crane – icon of grasslands

The graceful and beautiful Blue Crane is South Africa's national bird. It can be seen from a great distance, elegantly moving across the open grasslands. However its population is decreasing in grassland areas. They are becoming a pride and joy to landowners who are fortunate enough to have them on their lands.

Blue Cranes need large, open areas to forage and breed. As our grasslands become more fragmented through overgrazing, afforestation, crop production, alien plant invasion and mining, so the suitable habitat for Blue Cranes decreases. *Pic 2 and 3*



2 Grasslands are valuable components of the livestock industry as a source of much needed grazing

Cover Natural grasslands are a unique ecosystem yet receive little formal protection

In contrast, Blue Cranes are still fairly common in the grassy Karoo regions of the Northern and Eastern Cape provinces, while the 'artificial grasslands' of the Overberg and Swartland of the Western Cape are home to the stronghold of the world's population of Blue Cranes.

The Grey Crowned Crane and Wattled Crane forage in grasslands. For this purpose both species need fairly large, continuous grasslands around the wetlands where they breed.

All three crane species prefer shorter, vigorous grasslands. They tend to avoid grasslands that have become moribund due to the absence of burning.

The value of grasslands

Agriculture

Grazing: It is within the grassland biome that the livestock industry of South Africa is extensively practised. African grasses and grazing animals have co-evolved in a way that allows the grazers to sustainably utilise the food provided by grasses. The grasslands in their natural state are not a food source for people, but we use domestic animals to convert the energy trapped in grasslands into something useful, namely meat and wool. The remaining grasslands of Mpumalanga and KwaZulu-Natal alone provide natural grazing to sheep producing more than 8 million kilograms of wool annually with a value exceeding R52 million in 1995. Intact grasslands are arguably our most valuable source of grazing. *Pic 2 and 3*

Crops and pastures: Grasses are the world's most important source of food and have been in cultivation so long that their origins and wild ancestors are obscure. Wheat is one of the most important grain crops worldwide, but other

3 Blue Cranes are known as grassland dependent species, with the decline in their numbers representing the steady loss of grasslands due to overgrazing

important grasses include oats, barley, rye, maize, rice, sugar cane, teff and 'oulandsgas', many of which are grown in the grassland biome.

Biodiversity

There are about 10 000 different species of grasses worldwide – these constitute about 30% of all plants. The grasslands of South Africa have a diversity of about 81 plant species per 1 000 m², with about 3 378 plant species in total. Most of these are in fact not grasses but bulbous plants, herbs and shrubs. *Pic 5*

Grasslands have a very rich diversity of bird, reptile, amphibian and mammal species:

- 33 amphibians
- 104 reptiles
- 417 birds and
- 94 mammals

Of the 34 mammals endemic to South Africa, 15 are found in the grasslands. Of the threatened reptiles and amphibians, 13 of the 93 species live in grasslands, and 11 are endemic to them. There are 40 endemic bird species of which 21 are found in grasslands and 12 of these are endemic to the biome.

Tourism

As travellers worldwide become more informed about nature, and bird watching continues to grow as the biggest sector of the world's ecotourism market, there is great potential to introduce the astute traveller looking for new experiences to our grassland endemics.



4 Large areas of natural grasslands have been transformed into agricultural lands for the production of food and timber

Soil and water conservation

Grasslands play a vital role in the hydrological cycle in that the vegetation cover protects the soil surface from the impact of rain. It slows down rain drops, thereby increasing the amount of water available to infiltrate the soil. If there is no cover, the water will simply run off in gushing torrents, taking soil with it. With grassland cover, however, slow running perennial rivers are created.

Grasslands constitute the vital water catchments of the country, supplying most of the water for domestic use and even for electricity production at the power stations on the Highveld, generating about 70% of the country's electricity.

Crafts and shelter

The use of grassland vegetation for crafts and shelter was common in the past, and is still widespread in rural communities today. Hats, belts, mats, bowls, pots and storage containers are made from grassland plants. Of the approximately 20 million rural people in South Africa, an estimated 5 million still rely on thatching grass for basic shelter.

Medicinal plants

Approximately 27 million people use traditional medicines. Most medicines are derived from indigenous plants harvested from the wild. Nearly 20 000 tons of plants are traded annually at a value of R400 million. 30% of these plants are from the grassland biome, although only about six are grasses.

Grassland management

Grazing

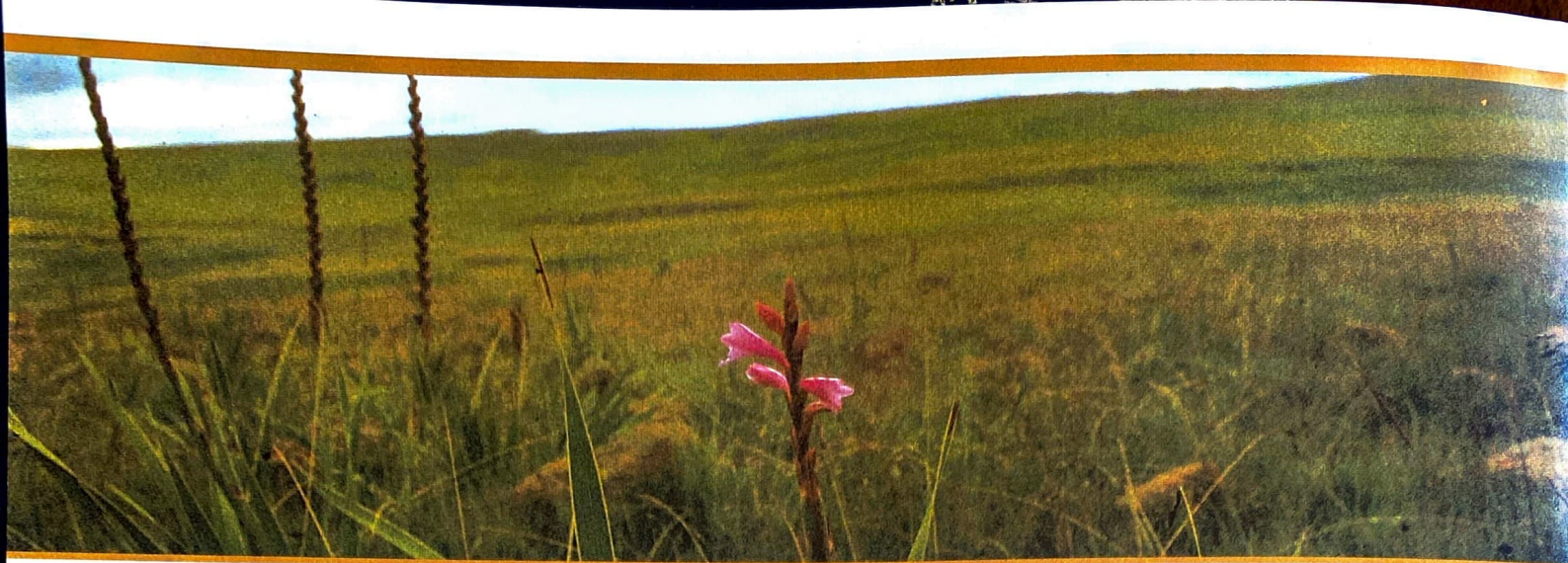
With the increase in the human population, livestock numbers have increased dramatically. This is placing huge pressure on our natural grassland resources. Increased livestock numbers

and stocking rates may have a detrimental effect on grassland species over and above the severe effect it has on the basic grassland structure and future productivity. Extensive overgrazing leads to the dominance of species such as *Aristida junciformis* (ngongoni grass), which is unpalatable.

In degraded grassland the runoff, and hence soil and biodiversity loss, is high. Bush encroachment can also result from overgrazing. The reduced grass load does not burn hot enough to kill emerging trees. In order to ensure that the grasslands remain sustainable for optimal grazing, it is imperative that stocking rates are kept within an environmentally sustainable level. Stocking rates differ from one area to another and varies with rainfall. Stocking rate guidelines are available, but these are not always reliable because of varying local conditions. It is therefore important that each farmer has a monitoring system in place to ensure that the condition of his/her farm is not deteriorating.

Burning

Fire is a natural and integral part of a grassland and regular burning is important to keep the grassland in a good condition. Grasses are well adapted to frequent fires by having their growing points near the ground. Their survival often depends on fires, which also prevents invasion by trees and shrubs. Fire removes old plant material, allowing light to penetrate the growing points of grass. Annual burns result in a tendency for dominance by a few grass species, eg *Themeda triandra* (Red Grass), that are adapted to regular burning. Because these grasses are palatable, overgrazing will occur, which in turn will lead to further loss of biodiversity and erosion control properties. Plant diversity is much lower in grasslands burnt annually than in those burnt every two to three years. However, dry sweet veld areas characteristically



5 Most of the plants in grasslands are in fact not grasses, but bulbs, shrubs and herbs

have vegetation with a slower growth rate and lower fuel load. The grasses also do not lose their nutritive value as they mature, and hence these grasslands do better if the burning regime is less frequent than in sourveld areas. It is best to burn sourveld every two or three years.

Failure to burn a grassland results in a dominance of plant species that are fire-sensitive. The diversity of the grassland will decline and bush encroachment will often occur.

What you can do

- Understand and acknowledge the importance of the grassland biome for our natural heritage, as well as for the significant role it plays in our agricultural economics in the form of high potential grazing
- Understand the importance of these grassland areas for our national bird, the Blue Crane, and the negative effects on these populations by reducing our grassland biome
- Observe the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) and the Environmental Conservation Act, 1989 (Act 73 of 1989)
- Also make sure that:
 - The correct livestock stocking rates are maintained to prevent overgrazing
 - You apply for permits for the cultivation of virgin land
 - The loss of remaining grassland on your property is prevented as much as possible
 - Consideration of environmental impacts of all developments is given, however small

– The spread of alien vegetation is prevented

Cranes need intact, continuous grasslands. For their continued existence landowners should try and limit the fragmentation of grasslands and also implement an ecologically sound burning regime to maintain the vigour and structure of the grassland.

The grassland biome provides us with our staple diet maize and other important food crops such as wheat. We must, however, realise the economic and ecological importance of intact grasslands. Their unique role in the water cycle cannot be replaced by crops or forestry. It is for this reason alone that grasslands need protection.

'We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect'. Aldo Leopold – 'A Sand County Almanac'

Contacts

The National Grassland Initiative
Anthea Stevens
Bioregional Projects Officer
South African National Biodiversity Institute
Tel: (012) 843 5000
Private Bag X101, Pretoria 0001
www.sanbi.org

This brochure series has been developed for farmers and the public to use in conserving the three cranes species and their habitats. For more information about EWT and cranes, call (011) 486 1102 or email crane@ewt.org.za

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