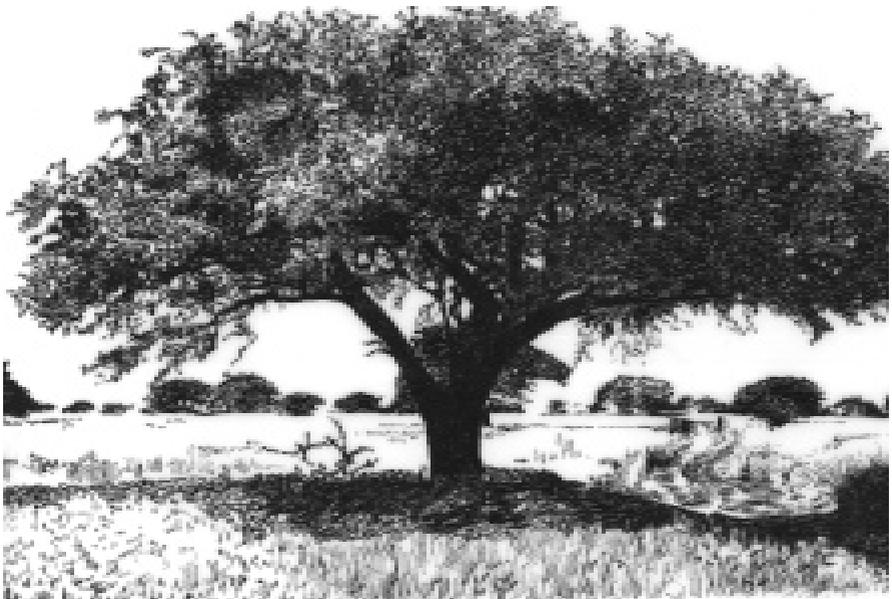


A BEGINNER'S GUIDE TO THE PLANTS OF KIMBERLEY AND SURROUNDS

With special reference to
Magersfontein Battlefield



Acknowledgements

I am very grateful to Suzanne Erasmus and Mark Anderson for proof reading the text and to Anette Knight, Allison Kelly and Jim Taylor for valuable suggestions for improvement.

Thank you to our sponsors ABSA Bank and Share-Net for making the production of this booklet possible.

Layout: Annette Coetzee

Compiled and edited by: Tania Anderson

Text by: Tania Anderson

Illustrated by: Tania Anderson
Cover by Helicia Delport

First edition: 2001

Printed by: Share-Net

Obtainable from:

- * McGregor Museum, P.O. Box 316, Kimberley, 8300.
Tel.053-8420099, Fax.053-8421433
E-mail: kmgbot@museumsnc.co.za (Botanist)

Copyright: McGregor Museum, Kimberley

Other booklets available:

- * A beginner's guide to the animals of Kimberley and surrounds, with special reference to Magersfontein (Part 2).
- * Magersfontein species lists.
- * Magersfontein 11 December 1899, by Colonel Duxbury.

Contents

	Page
Introduction	2
Tree and shrub descriptions	5
Grass descriptions	27
Centre: Picture reference sheets	17 -26
Glossary	37
Things to think about	41
Further reading	42



INTRODUCTION

This booklet has been designed to help you learn more about the plants of Kimberley, its surrounds and Magersfontein. Magersfontein Battlefield Museum is one of the McGregor Museum's field museums. It was established to preserve the Anglo Boer War battlefields and some of the beautiful koppie veld surrounding Kimberley. This guide goes hand in hand with the Beginner's Guide to the Animals of Kimberley and surrounds, with special reference to Magersfontein (Part 2).

Climate

The semi-arid savanna surrounding Kimberley is known for its hot and often dry summers followed by cold winters. The temperature varies from a minimum of -8°C in winter to a maximum of 41°C during the summer months, with an average of 19°C . The unpredictable rainfall mostly occurs in the form of short downpours or thunderstorms. On average about 400 mm of rain falls annually and long droughts are common. Most of the rain usually falls during October to November and February to March.

Geology

The basic geology of the area consists mostly of red sands overlaying a calcrete bank. These sands were deposited by wind action. An interesting feature of these coarse sands is their ability to rapidly absorb the rainfall, which moves deeper into the lower sand layers. This does not occur in other finer soil types. Less moisture is then lost through evaporation, and there is therefore soil water available during the dry winter months. Other interesting geological features of the landscape include rocks known as Dwyka tillite, which are deposits from glaciers that moved over this area millions of years ago. These can be seen at Nooitgedacht near Barkly West. The extremely hard rock type known as dolerite, forms the capping of the koppies around Kimberley. These were formed by outpourings of lava during ancient times.

Vegetation

The vegetation surrounding Kimberley is classified as Kimberley thorn bushveld, and is an open savanna of mostly trees and grasses. The vegetation can be further subdivided into three basic veld types: the Kimberley thorn bushveld of the flat sandy plains, the koppie veld on the dolerite koppies and the panveld associated with the calcareous pans. The sandy plains support mainly trees and grasses, whilst shrubs are more abundant on the koppies and in the ecotone between the koppies and the plains. Calcareous pans support smaller, Karoo-like shrubs and a number of specialised and scarce plants. A fascinating diversity of animals, well adapted to survive in this semi-arid climate, are dependent on the drought-resistant vegetation. This diversity includes the abundant armoured Ground Crickets, the spritely Springbok and the Whitebacked Vulture circling overhead. More detail about the animal life is given in the Beginner's Guide on animals mentioned above.

The natural environment of Magersfontein is a good example of an unique ecosystem that is only found around Kimberley and Windsorton. In this ecosystem, some plant species are only associated with the dolerite koppies occurring in these arid parts, and these can be found at Magersfontein.

This field guide only illustrates the most common species as an introduction to the area's plant life.

People and their environment

The ecology of this area reflects the relationship between people and their environment. During earlier times people had less impact on the ecology; mostly because there were fewer people then. More recently the number of humans has drastically increased and cities and towns have been built and expanded. Farming has increased to provide food for the growing population. All these developments change the landscape and the delicate ecological balance of the natural environment.

Taking a closer look at Kimberley's surrounds, the effects of mining (mine dumps and pits) and farming (farm dams, bare patches of veld, soil erosion) are easily noticed. Game and cattle farming on farms surrounding Kimberley have had an effect on the species of grasses and shrubs present on these properties. Some species have increased in numbers and forced other species to become less abundant or die out. In some cases new species have claimed these areas. Bare patches of ground occur around water holes and farm dams because of continuous trampling by game or cattle. Fences have restricted the movement of animals and as a result many areas have become overgrazed, and now have a much sparser vegetation cover.

In certain disturbed (and overgrazed) areas such as farmland along the road from Kimberley to Magersfontein and at the mine dumps, a number of invasive plants have established themselves and are influencing the natural (indigenous) vegetation. The main culprit and largest threat to our natural vegetation is the mesquite tree (*Prosopis glandulosa*).

At Magersfontein Battlefield Museum, recent historical events have changed part of the natural environment. One of South Africa's most famous battles was fought here in 1899, as part of the Anglo Boer War of 1899 - 1902. Trenches dug then are still visible, and these defences together with British shellfire and the Boer forces who occupied the area for four months, all affected the vegetation. There are more small shrubs and thorn trees surrounding the trenches and other defences today. Magersfontein was also a stock farm for many years and certain areas were overgrazed, which resulted in an increase in a number of undesirable shrubs. The most common of these is the January bush. The slight increase in the number of umbrella thorn and black thorn trees is also due to stock farming in the past. Since 1971, when Magersfontein was established as a museum, only a few game species have been utilising the veld, and it has now recovered and is in a good condition.

Once you have found a plant you want to identify, turn to the reference sheets on the centre pages. Try and find the sketch that is the most similar to the subject and then turn to the page listed below the sketch for further details and information.

There are tree name plates on the common trees at Magersfontein and in the McGregor Museum gardens, and these will help with tree identification. On Magersfontein the trees are marked at the picnic sites, at the cafeteria parking area, along the trail to the lookout post and around the museum building. At the McGregor Museum a tree trail starts at the McGregor Shop, on the eastern side of the museum, and leads over the lawns and into the Alex Hall Garden. The name plates were kindly sponsored by the Wildlife & Environment Society, Northern Cape Region.

Please remember that according to the Nature Conservation Ordinance 12 it is against the law to pick plants without a permit. Removing or destroying plants can have an effect on the ecology of the area by changing plant numbers and the number of seeds produced.

Resemble not the slimy snails,
That with their filth record
their trails.
Let it be told where you have been
You leave the face of nature
clean.

Litter causes injuries to, or the death of, many animals, so place your litter in a refuse bin or keep it in your bag until you can safely discard it in a bin when you get back from your trip.

Suggested further reading material is listed on the last page.

For further information contact the McGregor Museum at Tel. 053-84200.

Common trees and shrubs



CAMEL THORN

Kameeldoring, mokala (Tree no. 168)

(*Acacia erioloba*)



DESCRIPTION: The Camel Thorn is the most beautiful of the acacias, and one of the largest Kalahari trees. The name ‘camel thorn’ is a direct translation of the Afrikaans name Kameeldoring meaning “giraffe thorn”. It is believed that it was called this because of observations of giraffe feeding on this tree, which is a favourite food for these tall animals. Its specific name *erioloba* refers to the pods which are shaped like ear lobes. It has compound leaves, a characteristic of all Acacias.

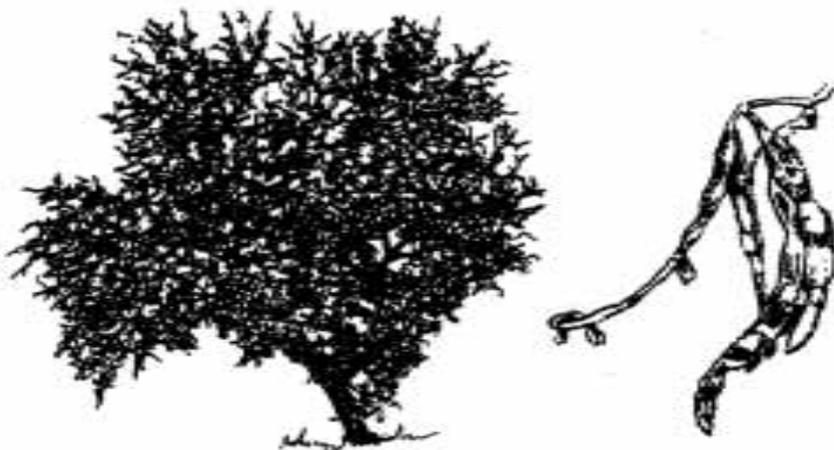
INTERESTING FACTS: The seed pods and seeds are very nutritious and are eaten by many herbivores. This tree is a haven for smaller animals and especially insects which make their homes in the pods and swollen thorns. Sociable Weavers often construct their huge nests on its sturdy branches. The bark of this tree is deeply furrowed and the perfect micro-habitat for geckos, scorpions and numerous insects.

DID YOU KNOW? The Kori Bustard’s Afrikaans name “gompou” is derived from the bird’s liking for the gum that seeps from the stem of this tree.

SWEET THORN

Soetdoring, mooka (Tree no. 172)

(Acacia karroo)



DESCRIPTION: This common tree occurs throughout South Africa, especially along river courses. It is easily distinguished by its large, white paired thorns. From October to February it may be covered in sweet-smelling yellow flowers which produce large quantities of pollen and nectar and attract many bees.

INTERESTING FACTS: Its pods, leaves and flowers are excellent fodder for many browsing animals. The bark is used for tanning as it dyes the leather red, and the inner bark to make rope. This tree is suitable for furniture making and can be used for fence posts and as fuel wood. The gum, bark and leaf have been used as an ointment and medicine for colds, diarrhoea, colic, bleeding and dysentery. The roots have been used for body pains, convulsions and to kill parasites in fowl runs.

DID YOU KNOW? It produces a clear golden or red gum that is chewed by children as a sweet, and can be used in confectionery or as an adhesive.

KAREE

Karee, mosilabêlê (Tree no. 386)
(*Rhus lancea*)



DESCRIPTION: This beautiful shade tree is often found near water, and is easily identified by its willow-like, drooping form. It has a leaf that is divided into three, lance-shaped leaflets, with the centre leaflet being longer than the other two (hence the less known common names “hen’s foot karee” or “hoender-spookkaree”). Clusters of tiny, yellow flowers bloom in winter to spring.

INTERESTING FACTS: The bark of this tree was used for tanning, and it was once used a great deal for fence poles. Supple branchlets were used by Khoisan to make bows, which were strung with fibres made of certain muscles of the springbok, and twisted into a cord.

DID YOU KNOW? It makes a wonderful garden tree.

SOUR KAREE
Kleinsuurkaree
(*Rhus ciliata*)



DESCRIPTION: The Sour Karee is a medium-sized shrub which grows in dense clumps. It has a similar leaf to the karee (*Rhus lancea*), but the three leaflets of this shrub’s leaf are much narrower and shorter, and grow on short, spiny branchlets. The bark is spotted with characteristic red dots. It produces small, sour berries and is browsed by game.

INTERESTING FACTS: The root of this species was once used for tanning. Not much is known about its medicinal properties or other uses.

DID YOU KNOW? It is often a “nurse” plant as it provides a suitable micro-habitat for other plant species such as carrion flowers and *Asparagus* shrubs which grow within the shade of its protective stems and branches.

KAROO RHIGOZUM

Geelberggranaat, mokuburwane (Tree no. 675)
(*Rhigozum obovatum*)



DESCRIPTION: A stiff, upright and twiggy shrub, the Karoo Rhigozum has small, egg-shaped leaves to which the species name *obovatum* refers. Its hard, spiny branches grow out in all directions. It produces masses of the brightest yellow flowers soon after good rains from spring until autumn, decorating Karoo koppies and koppies on Magersfontein.

INTERESTING FACTS: It is a very drought-resistant shrub, and enjoyed by small stock.

DID YOU KNOW? It has slender, brown pod-like capsules that hold the seeds which can often be heard rattling in the wind.

PUZZLE BUSH

Deurmekaarbos, morôbê (Tree no. 657)

(*Ehretia rigida*)



DESCRIPTION: This large, many-stemmed shrub can be identified by the way it grows. It has stiff, intertwined branches (untidy looking), which arch downwards. The edges of its small leaves are armed with very tiny rough hairs that can be felt easily, and aid in identification. It flowers in spring with dense, clusters of lilac flowers giving off a sweet scent.

INTERESTING FACTS: Its small blue-black berries are eaten by people and birds. The long, flexible stems are used to make fishing baskets, and assegaai handles and wooden stampers are made from the wood. It has a variety of medicinal and magical uses.

DID YOU KNOW? It is a powerful hunting charm, and is used in rain-making ceremonies; the cloud of smoke from burning green twigs being symbolic of rain clouds.

CAMPHOR BUSH

Vaalbos, mohatlha (Tree no. 733)
(*Tarchonanthus camphoratus*)



DESCRIPTION: This large shrub, or small tree, is recognised by its grey-green, strongly camphor-scented leaves which are almost white underneath. This has led to the Afrikaans name which means “pale bush”. It produces masses of white woolly flowers (like cottonwool) on the tips of its branches.

INTERESTING FACTS: It has many medicinal uses; the green branches are burnt and the smoke inhaled for headaches, the leaves are used for asthma and chest troubles, and it is used to relieve toothache and stomach troubles. The leaves were used by women in the past to perfume their hair. Literature states that Khoisan smoked the dried leaves like tobacco.

DID YOU KNOW? The soft woolly flowers are used by birds to line their nests.

BUFFALO-THORN

Blinkblaar-wag-'n-bietjie, mokgalo (Tree no. 447)
(*Ziziphus mucronata* subsp *mucronata*)



DESCRIPTION: The shiny leaves of this tree are a distinguishing characteristic, as well as the viciously paired straight and hooked thorns, hence the Afrikaans name.

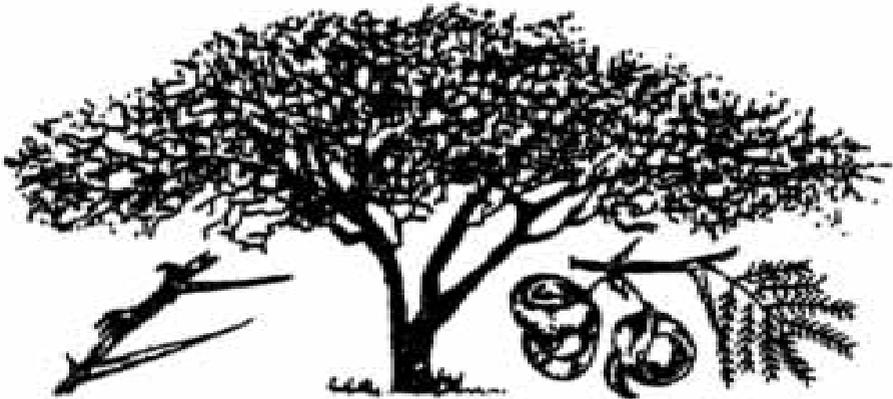
INTERESTING FACTS: Its fruits and leaves are very nutritious, and beer can be made from its fermented fruit. It is well known for its medicinal value. Various parts of the tree can be used to cure ailments such as chest complaints, to kill pain, for boils, carbuncles and swollen glands and to cure dysentery.

DID YOU KNOW? An interesting beetle, the long-horn beetle, lives in this tree. The female bores into the wood where she lays eggs. The larvae are cannibalistic, and devour each other. Only those that are too far apart to reach one another survive.

UMBRELLA THORN

Haak-en-steek, mosu (Tree no. 188)

(*Acacia tortilis* subspecies *heteracantha*)



DESCRIPTION: This tree is easily recognised by its white thorns and spirally curled pods, hence the species name of *tortilis*. The tree crown usually takes on the shape of an umbrella, with the topmost branches standing upright like fingers. It has two pairs of thorns, one pair of long white thorns (that stick) and another pair of smaller hooked thorns (that grab), and this is the reason for its Afrikaans name.

INTERESTING FACTS: It provides nesting sites for many species of birds, such as the Sociable Weaver. Whitebrowed Sparrowweavers usually construct their untidy nests on the western side of this tree. Its pods are highly nutritious and are eaten by the larger antelope and domestic stock.

DID YOU KNOW? Its gum is edible and nutritious, and, according to literature, the Khoisan obtain a liquid from the roots to quench their thirst.

BLACK THORN

Swarthaak, mongana (Tree no. 176)
(*Acacia mellifera* subspecies *detinens*)



DESCRIPTION: This very thorny tree has two small, hooked spines below each node. They are very effective and entrap any creature which comes too close. It produces small, ball-shaped, fluffy flowers which are creamy to white in colour, although some plants have pink flowers.

INTERESTING FACTS: This tree can become a problem and grow into very dense thickets where the veld has been disturbed or overgrazed by domestic stock. The pods, leaves and flowers are highly nutritious and eagerly eaten by many species of game.

DID YOU KNOW? This tree is a favoured food of the Black Rhino.

SHEPHERD'S TREE

Witgat, motlôpi (Tree no. 122)
(*Boscia albitrunca*)



DESCRIPTION: This beautiful tree usually has a white stem, to which the Afrikaans name refers. It is a preferred food of game and domestic stock, and as a result it often grows into strange shapes or becomes dwarf-like.

INTERESTING FACTS: A large shepherd's tree provides excellent shade, and shepherds seek out this tree to rest under, hence its name. The fruit, despite its bitter taste, is eagerly eaten by birds, monkeys and baboons, which are often seen along the road from Kimberley to Barkly West.

DID YOU KNOW? During the Anglo-Boer War the root of this tree was extensively used to make coffee, which was known as "kommetjie gat". In the past it was customary for a Tswana tribesman to climb to the top of this tree in order to sing the praises of his chief.

BLUE BUSH

Bloubos, motlhajê (Tree no. 605)
(*Diospyros lycioides* subsp *lycioides*)



DESCRIPTION: This large shrub has many stems and is covered in dull, blue-green leaves. Small cream-coloured flowers are borne in clusters. These form small red berries, which later turn brown.

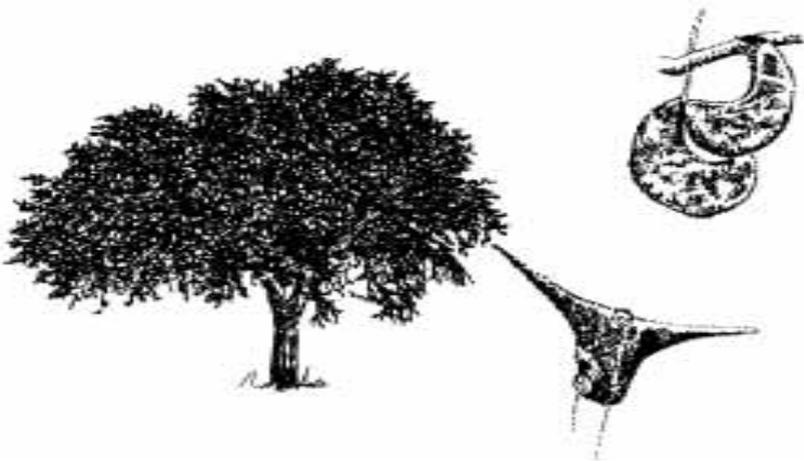
INTERESTING FACTS: The berries are edible, and were once a favourite food of the Khoisan living along the Orange River. The wood is sometimes used to make spoons, in hut-building and for fuel. The roots are used in many ways for eye troubles and as purgatives (to clean out the stomach). It has numerous magical uses.

DID YOU KNOW? The roots of this shrub are chewed after a meal, and their frayed ends are used as toothbrushes; worthwhile remembering when stuck in the veld without a toothbrush!

COMMON TREES AND SHRUBS REFERENCE SHEET



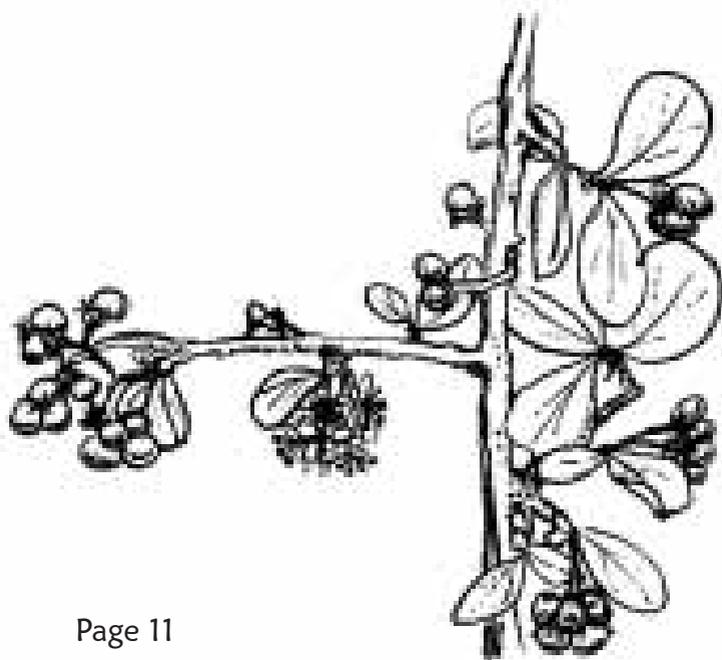
Page 14



Page 6



Page 17



Page 11

COMMON TREES AND SHRUBS REFERENCE SHEET



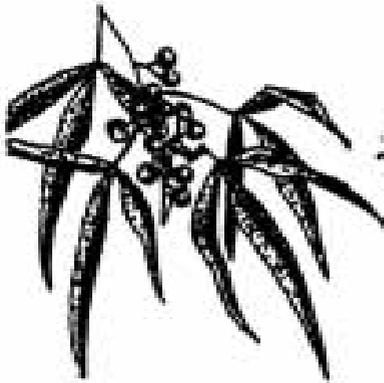
Page 7



Page 9



Page 13

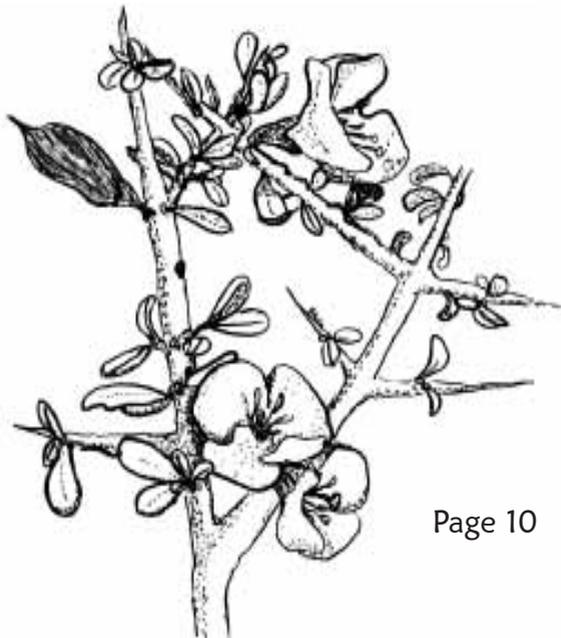


Page 8

COMMON TREES AND SHRUBS REFERENCE SHEET



Page 12



Page 10

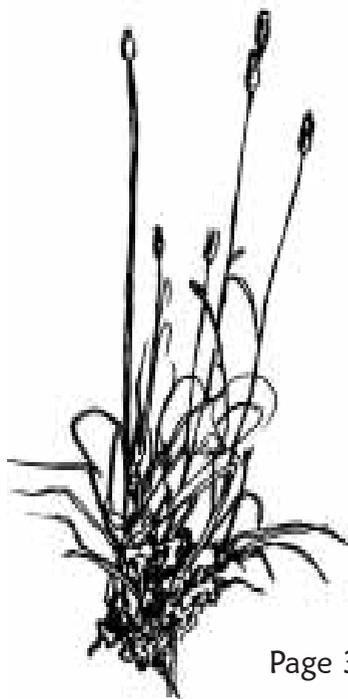


Page 15



Page 16

COMMON GRASSES REFERENCE SHEET



Page 32



Page 36



Page 37

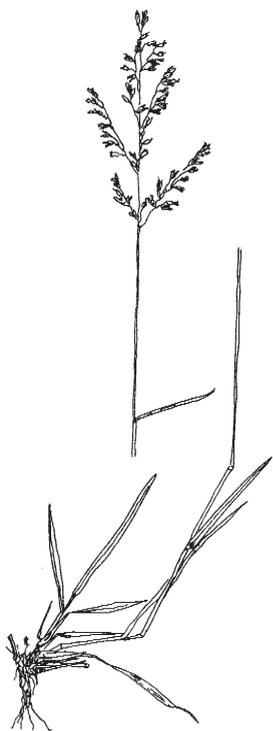


COMMON GRASSES REFERENCE SHEET

Page 29



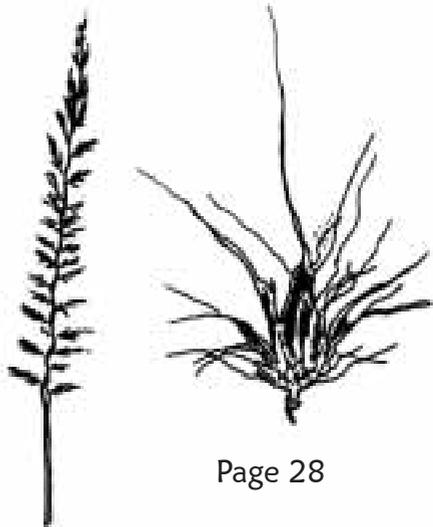
Page 30



Page 34



Page 35

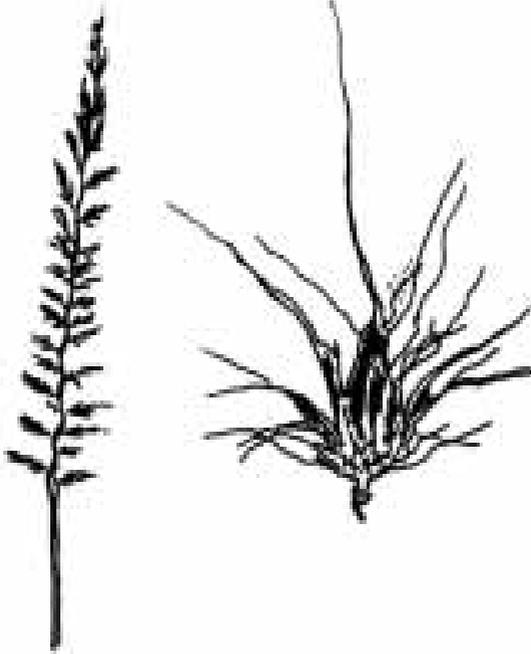


Page 28



BUFFALO GRASS

Bloubuffelsgras, tekangwêtsi
(*Cenchrus ciliaris*)



DESCRIPTION: The leaves of this grass are usually a bright-green to blue-green colour, and form a dense tuft. It has a long seed head, densely packed with seeds covered in numerous bristles. It often lines gravel roads and depressions where there is more moisture present.

INTERESTING FACTS: This grass grows on all types of soils, with a preference for sandy, stony or lime-rich soils. It is a climax grass (grass of the final stage of succession) and highly palatable for stock.

DID YOU KNOW? It is often found on sites of archaeological importance and in old kraals or living areas.

WHITE STICK GRASS/TASSLE THREE AWN
Witsteekgras, seloka
(*Aristida congesta* subsp. *congesta*)



DESCRIPTION: Easily recognised by its bristly seed head (inflorescence) and awns which stick fast in your clothes and socks. Each spikelet has three awns, a characteristic of all the stick grasses.

INTERESTING FACTS: This grass species is a pioneer, and is usually the first to grow in bare or disturbed areas around Kimberley. It grows on all soil types, from sand to clay soils. It is a good indicator of the veld condition, and where it is abundant the veld has been overgrazed or badly managed. It has a low grazing value, and is of low palatability. This grass is used for making brooms.

DID YOU KNOW? The sharp awns can cause problems with sheep and angora goats, as they stick into their wool and hair, and lower the quality.

GREY SOUR GRASS
Vaalsuurgras
(*Enneapogon cenchroides*)



DESCRIPTION: The characteristic feature of this grass is its soft, woolly seed head (inflorescence), which is light to dark grey in colour. The spikelets are covered in fine hairs. It is often encountered growing next to the road and in disturbed areas and overgrazed veld.

INTERESTING FACTS: It covers a large area approximately 100 m along the road from the entrance gate to Magersfontein. It has a low nutritional value, and is therefore not readily grazed. This is a pioneer grass.

DID YOU KNOW? It often grows in pure stands, covering the ground well, and is therefore good for preventing soil erosion.

FINGER GRASS

Vingergras, mosêka
(*Digitaria eriantha*)

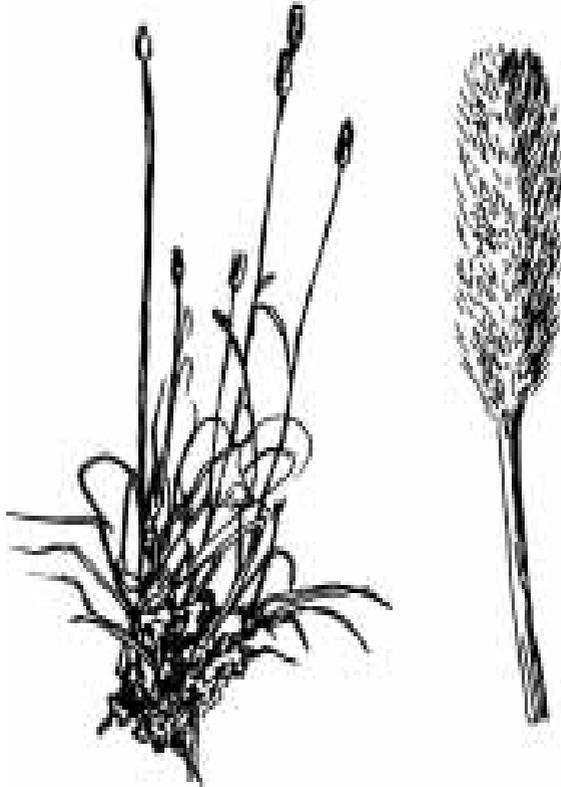


DESCRIPTION: This grass can be easily identified by its seed head which resembles a hand with fingers. These “fingers” are usually a light grey colour and turn yellow when old. It grows to waist height on shallow sandy soils, and in stony areas, especially on koppies.

INTERESTING FACTS: It occurs throughout the Kalahari, and is particularly abundant on the koppies around Kimberley and on Magersfontein.

DID YOU KNOW? This is a climax grass that makes very good forage, and if growing abundantly indicates that the veld condition is good.

THIMBLE GRASS
Vingerhoedgras
(*Fingerhuthia africana*)



DESCRIPTION: Thimble Grass can be seen growing along the dirt road to the Magersfontein Field Museum, and at the foot of many of the koppies around Kimberley. It can be recognised by its small, compact and somewhat bristly seed head, shaped like a finger or thimble, hence its common name.

INTERESTING FACTS: This species prefers to grow on shallow gravel soils. It plays an important ecological role in holding the soil in place and preventing erosion.

DID YOU KNOW? It is apparently not a very good forage grass for livestock.

LEHMANN'S LOVE GRASS

Knietjiesgras

(*Eragrostis lehmanniana* subsp. *lehmanniana*)



DESCRIPTION: An easy and reliable characteristic for identifying this grass is by looking at the nodes (stem joints). The grass stalks are bent (knee-like) at the nodes, often also branching at the nodes. The Afrikaans name refers to the bent nodes.

INTERESTING FACTS: This grass is of medium palatability, and especially well eaten when green and young. It is one of the most widely adapted grasses, and grows on most soil types, especially on Kalahari sands.

DID YOU KNOW? It was used by people as a remedy for colic, diarrhoea and typhoid fever.

NATAL REDTOP

Natal rooipluim, sanyane

(*Melinis repens* subsp. *repens*)



DESCRIPTION: This beautiful grass grows up to roughly knee height, and looks silky and soft from a distance. The fluffy hairs on the inflorescence are usually various shades of pink, and this contributes to its soft, silky appearance. These silky hairs cover the seeds, and eventually turn white.

INTERESTING FACTS: It is an annual grass as well as a pioneer that grows in disturbed areas, and may be seen growing next to roads. Keep an eye open for it along the roadsides around Kimberley.

DID YOU KNOW? It is not a very palatable grass, but its roots play an important role in binding the soil and therefore preventing soil erosion.

SPEAR GRASS
Assegaaigras
(*Heteropogon contortus*)



DESCRIPTION: Spear Grass usually grows up to waist height, and is red brown in colour. The seeds have long awns which are spiralled and twisted around each other, with a sharply pointed tip, hence the common names.

INTERESTING FACTS: The seed awns get entangled into a thick cluster. This often gets stuck in the wool of sheep, and irritates the skin of animals. When wet by raindrops, the awns absorb moisture and start to unwind, driving the seed into the ground.

DID YOU KNOW? This grass was used with the dubbeltjie (*Tribulus terrestris*) for treating rheumatism of the hands.

RED GRASS

Rooigras, maragô-magolo
(Themeda triandra)



DESCRIPTION: This beautiful grass is a blue-green colour when young and a red colour when older, hence the common name. The leaf tips are finely pointed and the seeds have a long awn that gives the seed head a spiky appearance.

INTERESTING FACTS: It is found mostly in the higher rainfall areas of South Africa, and on the rocky hills in the Northern Cape.

A very valuable forage species for animals, this climax grass indicates that the veld is productive and in a good condition. It is used as a thatching grass.

DID YOU KNOW? The long awn on the seed twists when it is wet and when it dries. This twisting motion pushes the seed into the soil or a crack so that it can grow.

SILKY BUSHMAN GRASS
Blinkaarboesmangras, tshikitshane
(*Stipagrostis uniplumis*)



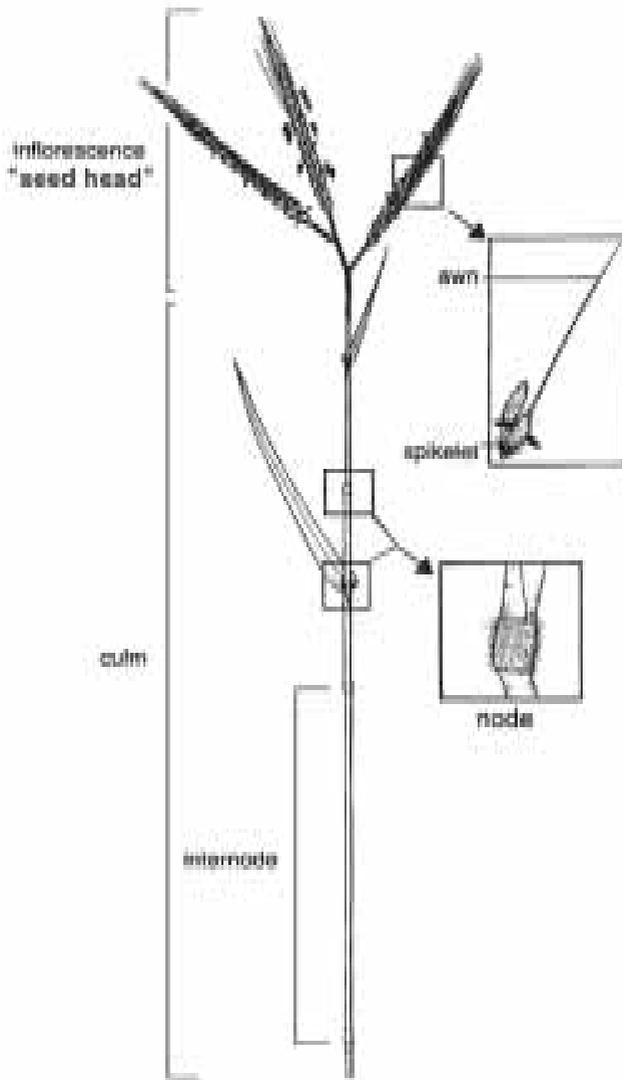
DESCRIPTION: Silky Bushman Grass is a perennial grass which forms large tufts and grows up to 1 m tall. It has a soft, silky appearance, especially at sunset. Its soft look can be attributed to the fine silky hairs on the awns of the seeds. Each seed has three awns with only the centre awn covered in fine hairs.

INTERESTING FACTS: The roots of this grass are especially adapted to absorb even the smallest amounts of moisture from the topsoil. They spread out horizontally just underneath the soil surface. This grass is abundant throughout the Kalahari on deep red sands, and is also common in the Karoo. It is well grazed by animals especially when it is young and green.

DID YOU KNOW? The seed of this grass is used to make a porridge during times of famine.

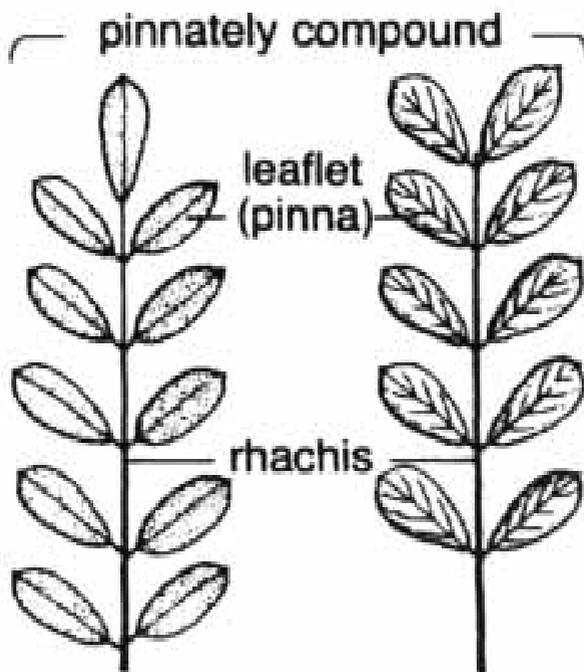
GLOSSARY

Grass stalk



Annual plant - a plant that can only survive for a year.
Arid - dry or parched land due to a low rainfall.
Average - the generally occurring amount or degree.
Awns - bristles or stiff hairs that help to bury the seeds.
Calcareous pans- pans surrounded by rock or soil that contains calcium carbonate, greyish-white in colour.
Calcrete - type of rock containing high levels of calcium carbonate, greyish-white in colour. Dissolves easily in water.
Carbuncle - a severe abscess (swollen area with puss) in the skin.
Climax grass - a grass species forming part of a plant community in a mature ecological condition (peak of development of the community). This grass is not replaced by other species.
Colic -severe spasmodic abdominal (stomach) pain.

Compound leaf



Drought-resistant plant - a plant that is able to withstand drought (when there is no or little rainfall for an abnormally long period of time).

Dysentery - a disease with inflammation (swelling and pain) of the intestines, causing severe diarrhoea (excessively frequent and loose bowel movements).

Ecological balance - the well-balanced state of an ecological system (natural system).

Ecology - the study of organisms (living things) in relation to one another and to their surroundings.

Ecosystem - a system of interacting organisms in a particular habitat. A habitat is the natural home of an animal or plant.

Ecotone - a transitional zone between two different habitats (or veld types).

Evaporation - the loss of water or moisture as vapour into the air.

Geology - the study of the composition, structure and history of the earth, in this booklet specifically the study of the rocks of the earth's crust.

Herbivore - an animal that feeds on plants.

Herbivorous - feeding on plants.

Indigenous - an organism (plant or animal) that belongs naturally to a place.

Invasive plants - plants that have been introduced into our country from elsewhere (exotic plants), and have become naturalised (ie. can reproduce and spread without man's assistance). These plants are capable of penetrating and replacing indigenous vegetation.

Lance-shaped leaf - a simple leaf of the shape of a broad sword, with a sharp tip.

Leaflet - a division of a leaf known as a compound leaf (see sketches above).

Micro-habitat - a small habitat within a habitat, eg. underneath a stone or bush where the climate and other factors differ from the general habitat.

Natural environment - the physical world around us, consisting

Overgraze - excessive grazing of grass by animals to the detriment of the veld condition.

Palatable - pleasant tasting and therefore readily eaten. The palatability of a plant is the measure of how tasteful or palatable it is.

Parasite - an animal or plant living in or on another and drawing its nutrients directly from it.

Perennial plant - a plant that can live for several or many years.

Pioneer plant - a plant that is the first to colonise or grow in an area that has been disturbed or has no plant cover. It is eventually replaced by other plants.

Rheumatism - any of a few diseases that cause pain in the joints, muscles or tendons.

Savanna - a grassy plain with scattered trees.

Semi-arid - an area that is dry, with a fairly low, unpredictable rainfall (250 - 500 mm per year), but not as dry and hot as a desert that has a rainfall of less than 250 mm per year.

Soil erosion - the loss of soil due to water action on bare ground or ground with little plant cover.

Species - a group of animals or plants with common characteristics. Two different species generally cannot interbreed.

Spikelet - the unit ("grass flower") of the grass inflorescence (flower-bearing structure or "seed head"). See grass sketch.

Succession - the sequence of plant communities that develop from a simple community (pioneer stage), which creates a favourable environment for other more complex communities to develop, to a mature or climax condition (climax stage).

Vegetation - plant life, plants grouped together.

Veld condition - the condition of the veld in terms of its food value and its ability to withstand soil erosion.

Veld type - one or several plant communities that share common plant species, as well as a similar overall form (structure) and the same set of ecological processes. A plant community is a group of plants of the same species or different species that grow together.

THINGS TO THINK ABOUT

* Why do some plants only grow on the koppies and not on the flat sandy plains?

* How many other species of plants can you find and identify?

Certain patches are covered with only one or two grass species and not many other plants. Why is this so? How can you manage these patches to increase the number of plant species?

* Why are plant invaders such as mesquite (*Prosopis glandulosa*) taking over certain areas? Would you try and stop this process, and if so, how?

* What possible effect did the Anglo-Boer War have on the veld at Magersfontein?

* How do you think the climate and general vegetation of the Kimberley area affected the Boers and English soldiers during the war?

* How would you go about finding out which insects pollinate which plants and how the flowers are adapted for specific pollinators?

FURTHER READING

- Carruthers, V. (ed) 1997. *The Wildlife of Southern Africa: A Field Guide to the Animals and Plants of the Region*. Southern Book Publishers, Halfway House.
- Henderson, L. 1995. *Plant invaders of Southern Africa*. Plant Protection Research Institute Handbook No. 5. Agricultural Research Council.
- Holm, E. 1986. *Struik pocket guides for Southern Africa: Insects*. C. Struik, Pretoria.
- Le Roux, P.M. et al. 1994. *Bossieveld. Grazing plants of the Karoo and karoo-like areas*. Department of Agriculture, Pretoria.
- Palgrave, K.C. 1996. *Trees of Southern Africa*. 2nd revised edition. Struik, Cape Town.
- Shearing, D. 1994. *Karoo. South African Wild Flower Guide 6*. Botanical Society of South Africa, Cape Town.
- Van Oudtshoorn, F. 1991. *Grasses of Southern Africa*. Briza publications, Pretoria.
- Van Wyk, B., van Oudtshoorn, B. & Gericke, N. 1997. *Medicinal Plants of Southern Africa*. Briza Publications, Pretoria.
- Van Wyk, P. & van Wyk, B. 1997. *Field Guide to Trees of Southern Africa*. Struik Publishers, Cape Town.
- Williams, M. 1994. *Butterflies of Southern Africa: A Field Guide*.