

Wealth of the Veld

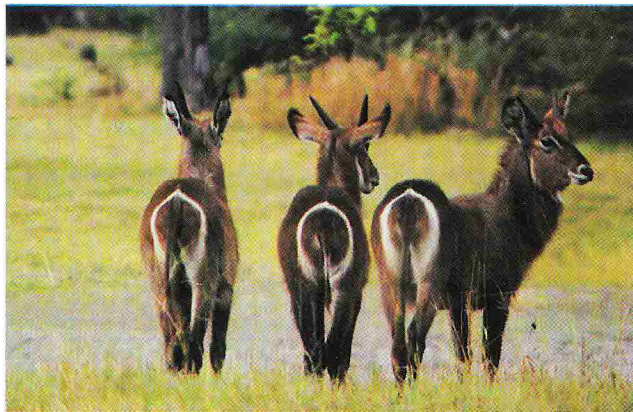
Grasses

are the

backbone of

agriculture

and wildlife



Whether used for grain crop, grazing, sugar, thatching or furniture – grasses are economically and ecologically the most important plant family on earth.

Grasses are all members of the family Poaceae or Gramineae, which are recognised by their unique arrangements of flowers and flower parts, something most people do not even associate with grasses. However, like typical flowers, grass “flowers” possess pollen containers and the female pendant which receives the pollen (stigma, style and ovary) develops into seed after fertilisation. What does distinguish grasses from other flowering plants is the lack of large, colourful petals, which are usually produced to attract pollinators. Instead, grasses possess inconspicuous bracts which serve only to protect their sexual parts.

For pollen-transfer, grasses rely on wind. Thus they produce large amounts of pollen – billions of pollen

PHOTOGRAPHS BY ANTJE BURKE AND JOHN BURKE



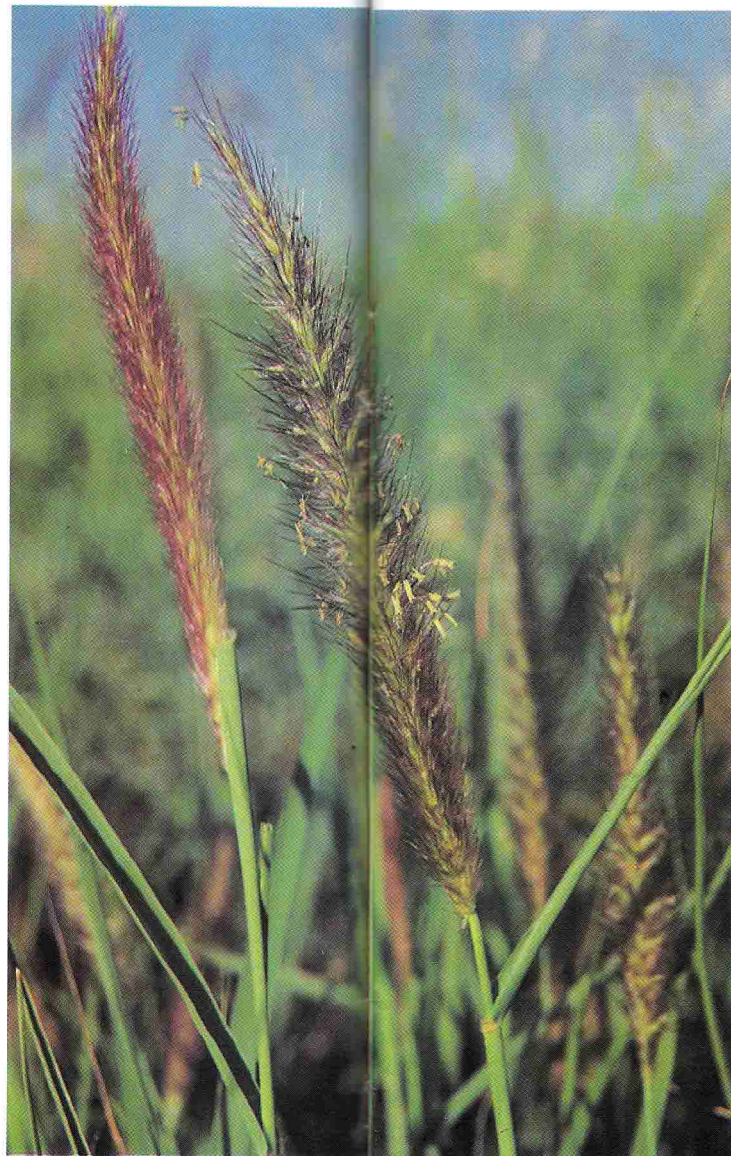
grains are suspended in the air during the flowering period of grasses, a nuisance to many people who suffer from hayfever. And to maximise pollen reception they possess a feather-like female part which hinges on a long stalk, swinging in the wind to capture pollen of another grass flower. The general growth form of grasses – thin, flexible stems, surrounded by long, narrow leaves – also facilitates transfer of pollen by wind. The particular way in which the grass flowers, the spikelets, are arranged, is the most important feature by which grass species can be distinguished from each other.

About 30% of the earth's land surface is covered by vegetation dominated by grasses. From the poles to the tropics grasses make a major contribution to much of the world's landscape. What enables grasses to grow in such a wide range of habitats?

Most grasses are fast-growing herbs. Thus they are active during favourable conditions only, here in Namibia during the rainy season. Like other plants with a short life cycle, they germinate rapidly, grow fast and produce seeds before the water in the soil is exhausted.

Another very valuable adaptation – and this one is restricted to grasses only – is the fact that their growing tissue is not only situated at the leaf and stem tips, like in other plants, but also at the bases of internodes and leaves. This "intercalary meristem" enables them to regrow after fires or after they have been grazed by animals.

The first step towards civilisation began with the cultivation of grasses. Nearly 10 000 years ago people in Egypt started farming barley, which is today one of the most important grain crops. Around the same time Far Eastern cultures started growing rice, while maize was cultivated in the New World. What made grasses so attractive to our ancestors is the high nutritive value of the endosperm. The endosperm in a grass seed is the tissue that contains the nutrients for the germinating embryo. It makes up the bulk of a grass seed, in contrast to other fruits such as legumes, which



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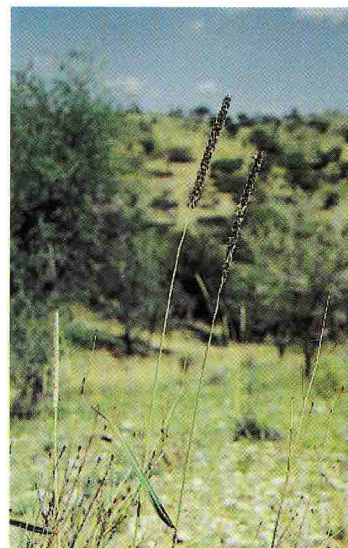
Although not always appreciated as valuable fodder in its region of origin, tropical and subtropical Africa, Buffalo grass ("Cenchrus ciliaris") is cultivated as pasture in America and Australia.

store their food in leaf-like cotyledons. Today grain crops such as wheat, barley, maize and rice are some of the most important trade commodities, while the majority of the world's sugar production depends on sugar cane, another domesticated grass.

Rural people in northern Namibia rely heavily on the growing of mahangu (*Pennisetum glaucum*), a local variety of pearl millet. Rainfall in northeastern Namibia is usually sufficient to allow growing of fairly drought-resistant crops in what is known as a "dry-farming system". Coinciding with the start of the rainy season farmers begin planting mahangu and sorghum. The crops thrive with the water which is naturally available from rainfall and runoff and the harvesting takes place about four to five months later. After the harvest, livestock grazes the remaining stalks in the fields at the same

time leaving droppings which add essential nutrients to the soil.

Many cultures still utilise a multitude of indigenous



Wool grass ("Antherphora pubescens") is one of the valuable fodder species which indicate healthy veld condition in Namibia.

grasses as additional food supply. In Damaraland, for example, the local people take advantage of the industrious harvester ants and simply collect the seeds the ants have gathered in their nests. However, to be able to use this source on a long-term basis, they never deplete the nests entirely and leave part of the ants' harvest behind.

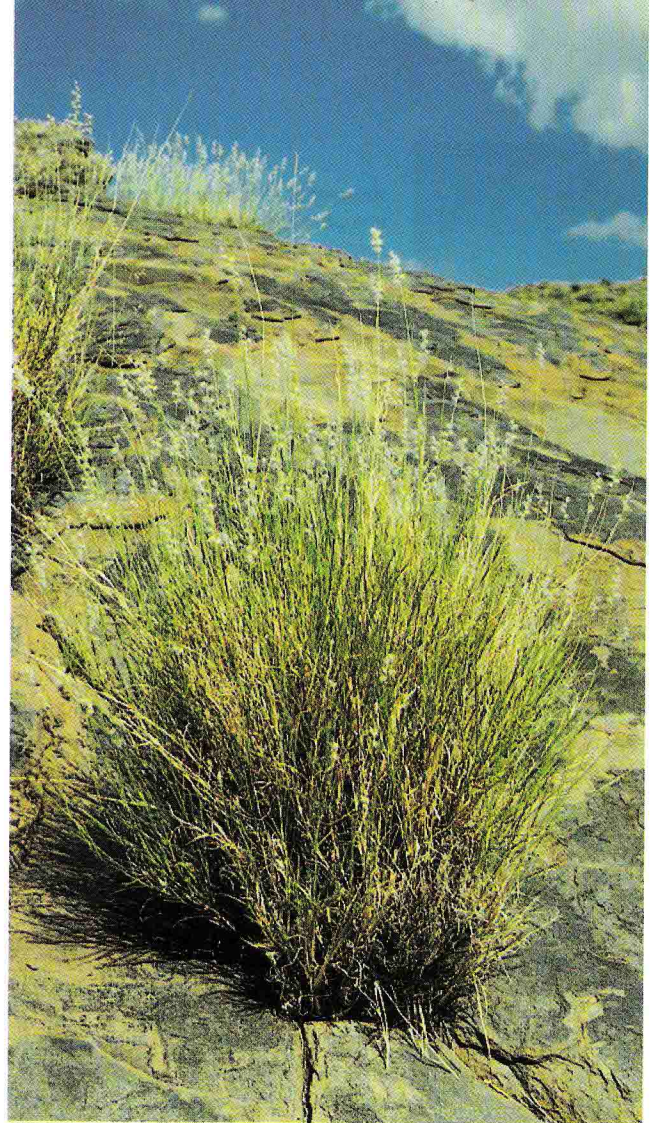
Besides man, many domestic and wild animals rely on grasses as the major component of their diet. Areas which are unsuitable

Many *Pennisetum* species are cultivated as food, fodder, lawns or garden ornamentals. "*Pennisetum foermeranum*" is endemic to central Namibia and often found in mountainous habitats.

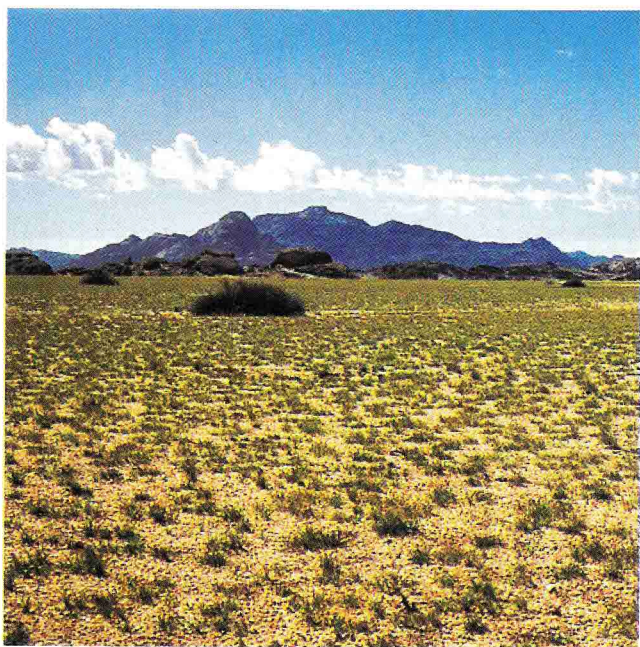
for cultivation because of low rainfall or cold are usually used as rangelands and here livestock relies on natural grazing. In Namibia, nearly all land is dedicated rangeland, either for livestock, or wildlife such as in the conservation areas. Cattle, horses and donkeys are prominent livestock in the central and northern regions, while sheep are mainly grazing the southern rangelands. Goat farming is prevalent in the entire country.

How much livestock can be kept on a particular piece of land without destroying the essential soil and vegetation is hotly debated by rangeland scientists all over the world. Namibian farmers have to be particularly careful, since nearly one third of the country is arid and the rest semi-arid with sparse vegetation cover which can only support low numbers of livestock. It is problematic to determine the correct stocking rates in an arid country, since rainfall and subsequently the amount of vegetation available for grazing changes virtually every year. In addition, for

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many people in rural Namibia livestock is like a savings deposit in a bank, which they draw from in times of food shortages. Today too many livestock and unsuitable farming practices have resulted in severe degradation of the vegetation and subsequently in soil erosion or bush encroachment in many parts of the country. To stop this process before it becomes irreversible, rangeland scientists have suggested using the appearance of certain plants, including grasses, as indicators for too high-stocking rates. Poisonous and aromatic plants, which are usually avoided by livestock, tend to become over-abundant where there



After exceptionally good rains the Namib Desert plains turn into green pastures, here dominated by Wether love grass (*Eragrostis nindensis*).

is heavy grazing pressure. The species of grasses dominant in the veld are an even better indicator of veld condition and can give an early warning of potential overgrazing. Unpalatable grass species, such as Spreading stick grass (*Aristida effusa*), Fox-brush (*Aristida hordeacea*), Feather-top Chloris (*Chloris virgata*) and Bushman grass (*Schmidtia kalahariensis*) often appear in large numbers in overgrazed areas indicating decreasing veld conditions. Others such as Wool grass (*Antheophora pubescens*), Blackfooted Brachiaria (*Brachiaria nigropedata*) and Guinea grass (*Panicum maximum*) are welcome by farmers because they indicate good veld conditions. The prominent grass species vary according to climatic region and soil type, thus knowing the grasses and what they signify can be a very useful tool not only for farmers.

As a major food source for man and animals but also as providers of thatching, cane and bamboo, grasses occupy an extremely important niche on our planet. And if one takes a closer look, at first sight their insignificant flowers are no less intriguing.

