



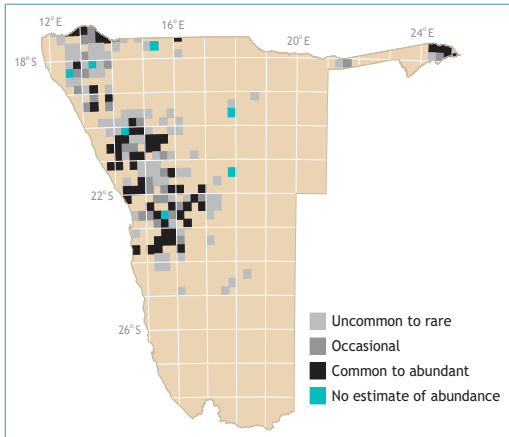
TWENTY Namibian trees



ANA TREE

Faidherbia albida

Other names: Anabaum, Anaboom, Anas, Mbunga, Omue, Winter Thorn



The Ana Tree is protected in Namibia and belongs to the pea family, Fabaceae. Most individual trees are 10 to 20 metres in height, but the spreading crowns of the tallest trees reach up 30 metres above ground. The young trees are usually thin or spindly, and have a relatively smooth, light coloured bark that later becomes rough and greyish-brown. Young twigs are almost white and bear light coloured thorns of about 2 centimetres in length. The flowers are creamy-white, very small and clustered in spikes, and appear before the onset of the rainy season or during winter. The leaves are also borne during winter, and these unusual features are possibly due to the roots being deprived of oxygen during the summer when rivers are in flood. The fruit are large, curled, orange-brown pods, which sometimes look like dried apple-rings.

The species occurs widely in the drier areas of tropical and sub-tropical Africa, and extends into the Middle East. The trees are most abundant on alluvial soils along rivers, especially along the western ephemeral rivers of Namibia. Ana Trees may survive several months of flooding but are reputed to be sensitive to frost.

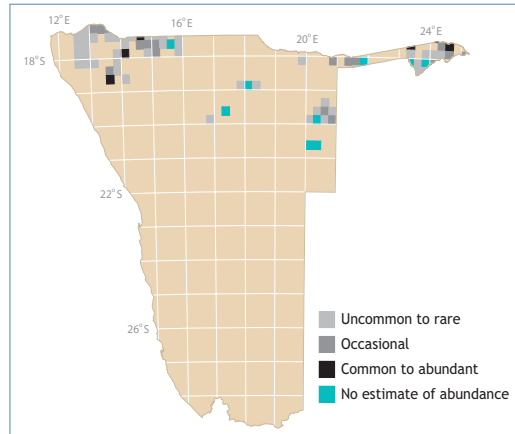
The fruit is attractive to herbivores, which disperse the seeds in their droppings. Germination is aided by the herbivores' digestive juices. Young trees can grow quite rapidly, their height increasing by 1.5 metres and more per year, and their roots growing up to 13 millimetres per day. Damaged roots may coppice, thus producing new trees vegetatively.

The pods are valuable fodder, especially in western Namibia and when other food is scarce in winter. Farmers frequently collect and grind up the pods to improve the digestibility of seeds that would usually pass undamaged through cattle, thus increasing the animals' intake of energy and protein. Other important benefits are provided by shade in reducing the evaporation of soil moisture beneath the crown, and in creating cool resting places for animals and people. The trees add nutrients to the soil as a result of nitrogen fixation by their roots and the decomposition of fallen leaves and twigs. Dung and urine produced by animals resting in the shade further improve soil quality. The wood is coarse-grained, rather light, and is not suited for furniture.

BAOBAB

Adansonia digitata

Other names: Affenbrotbaum, Divuyu, Dorsboom, Kremetartboom, Monkey-bread Tree, Mubuyu, Mukura, Omukwa, Uyu



Of all trees in Africa, the Baobab – with its characteristic and peculiar shape – must rank as the best known. It is also one of the largest trees in the world, and often associated with legends and superstitions. There are nine species of Baobabs: one in Africa, seven in Madagascar and one in Australia. The trees belong to the family Bombacaceae. The Baobab is a protected species in Namibia.

Baobabs occur singly or in loose groves throughout drier woodland areas south of the Sahara, being absent from the wettest, driest and highest areas. Populations are clumped in five areas in northern Namibia. Most trees grow on well-drained soils in places free of frost. The tallest trees rarely exceed 25 metres in height, and the biggest trunks can be up to 12 metres in diameter. The bark is normally greyish and smooth, but often deeply folded. Both the bark and wood are relatively soft and fibrous.

The fruit is oval, with a hard woody shell covered in short velvety hairs. The large white flowers have an unpleasant scent, and are probably pollinated at night by bats. Flowering occurs at the end of the dry season, while the fruit develop late in summer.

Seedling and sapling growth is very rapid. Under optimal conditions, young trees may grow to heights of 3 metres within two years.

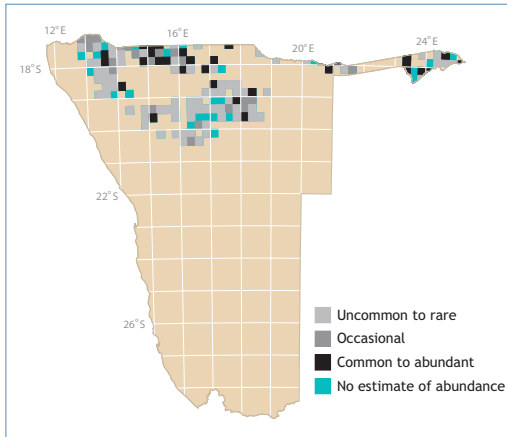
Baobabs provide food to people and a wide range of animals. They are also considered a good source of water during the driest conditions. The leaves are rich in vitamin C and sugars, and are often cooked as spinach. Young roots are cooked as well. Many animals eat the leaves and flowers. The fruit pulp also contains lots of vitamin C and is used to prepare a drink. Elephants chew the soft wood, especially at the end of the dry season when water is in short supply. The fibrous bark is often twisted into fibre or rope to fashion baskets, floor-mats and other items. Hollow trunks are frequently used to store water and provide shelter. Some of the biggest trees have provided cavities for toilets, homes, post offices, bars and prisons! The leaves, roots and pulp are used as traditional treatments for urinary disorders, diarrhoea and fever. Recent chemical analyses have shown that the pulp has significant anti-inflammatory and analgesic properties.



BIRD PLUM

Berchemia discolor

Other names: Bruinivoor, Eembe, Mukalu, Mukerete, Muzinzila, Ombe, Omuve, Wilde Dattel



The Bird Plum is widely distributed in Africa, extending from the Sudan to South Africa, and growing in a variety of woodland and forest habitats. In drier areas, its growth is often in association with termite mounds. The tree is most abundant in Caprivi and in the Cuvelai Drainage in north-central Namibia, but nowhere is it a common species. Despite its socio-economic importance, relatively little appears to be known about the Bird Plum in Namibia. It belongs to the family Rhamnaceae.

This is a medium-sized deciduous tree, which usually reaches a height of between 7 and 20 metres. The crown is rounded, the bark dark grey, rough, fissured, and flaky on older trees. The wood is yellow to brown, hard and has an attractive grain suited to furniture. However, its commercial value for timber is limited because few trees have stems long enough to produce usable planks. The oval to oblong leaves are dark green above, much paler below and their herring-bone veins are a diagnostic feature. Small greenish to yellow flowers are borne between October and January. The fruit is a small drupe that turns yellow when ripe. It is easy to propagate from seed and the species may produce

root suckers. Once established, however, the tree is reputed to be rather slow growing.

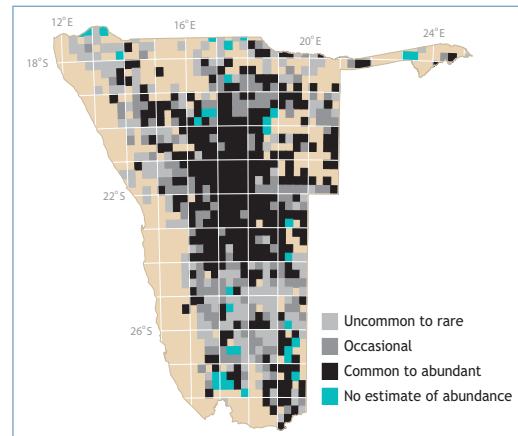
The tasty fruit are rich in vitamin C, and are often collected and eaten as snacks. They also have a high sugar content making them suitable for the production of alcohol known as *ombike*. Dried fruit are often sold at informal markets in north-central Namibia. Birds and other animals are attracted to the fruit. An extract of the inner bark is frequently used to produce a dye to colour palm fibre for weaving. The potential production of liqueurs and jelly from fruit for commercial purposes is now being investigated.

Various traditional healing properties are associated with the tree. The phloem, found directly under the bark, is pounded and boiled to treat nausea, vomiting and diarrhoea, while the leaves are used to make poultices for the treatment of wounds. As a result of all these uses the Bird Plum is of substantial value to people in many rural areas where the trees are usually protected. It has also been legally protected in Namibia since 1975. However, the harvesting of bark for dyes sometimes results in trees being killed.

BLACK THORN

Acacia mellifera

Other names: !Noes, Hakiesbos, Kankata, Omungondo, Omusaona, Omutukahere, Swarthaak



Black Thorns are widespread in Namibia and elsewhere in Africa, where they occur south from Egypt to South Africa, and also on the Arabian Peninsula. Two distinct subspecies are present in Namibia: *Acacia mellifera detinens*, which is most widely distributed, and *Acacia mellifera mellifera* in the far north-west. They grow in a variety of soils, aspects, elevations and habitats in Namibia, but are generally absent from sandy and saline soils, and from the most arid western and southern areas. In many places, the species forms almost pure, dense, impenetrable, even-aged thickets. This is especially the case in the central parts of the country, where the growth of Black Thorns has led to problems of bush encroachment (see page 112). Densities of 10,000 and more Black Thorns per hectare have been recorded. Taxonomically, they belong to the family Fabaceae.

Growth forms vary between multi-stemmed shrubs or small to medium sized trees. The dark grey bark is initially smooth, but roughens as the tree ages. The sapwood is light in colour while the heartwood is dark brown. Small hooked sharp thorns grow in pairs along the branches. The

leaflets are characteristically rounded rather than elongated, and grey-green in colour, drying to yellow. The creamy white flowers have a pleasant scent, and are said to be highly attractive to bees. Flowering usually occurs before the rainy season in August and September, and the fruit mature over the following two or three months. The pale brown pods hold two or three seeds, and are very thin and papery, properties that allow them to be dispersed by wind.

This is a hardy species that can withstand long periods of low rainfall. The seeds germinate readily, and Black Thorns also coppice easily. As a result, a new cover of shrubs rapidly develops in areas where invasive bushes have been cut, but not killed by herbicides or other means. The fungus *Phoma glomerata* has killed fairly large patches of Black Thorns in certain parts of the country (see page 114).

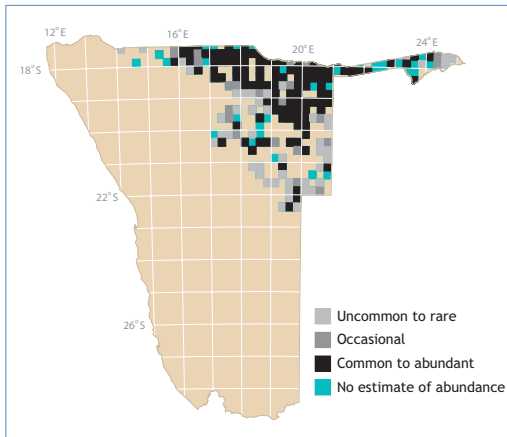
Flowers, leaves, twigs and pods of Black Thorns are considered valuable fodder for cattle, goats and game. The bark of the tree is traditionally used for treating colds. Charcoal is now produced on many farms where the species has caused bush encroachment.



BURKEA

Burkea africana

Other names: Omutundungu, Muhehe, Musheshe, Red Syringa, Sandersing, Wildesering, Wild Syringa,



This is the most abundant and conspicuous large tree growing on Kalahari sands in the north-eastern woodlands, where it forms almost pure stands over large areas. It is particularly abundant in Kavango and eastern Ohangwena. Elsewhere in Africa, Burkeas are widely distributed in dry savannas from Nigeria southward to north-eastern South Africa. The species belongs to the family Fabaceae. It is a deciduous tree growing up to 12 metres tall, and very vaguely resembles a Syringa. It has a characteristic long, thin trunk, which divides into several large branches that support a loose canopy. The bark is dark grey and has a tendency to flake, thus being rough to the touch. The wood is a pale yellow to reddish-brown, hard and heavy. Unfortunately the wood is frequently attacked by woodborers which, together with the generally thin trunks of most trees, means that it has little use as timber for furniture production. However, the wood is often used for building huts, and for pestles and mortars. It serves moderately well as firewood.

Burkeas are the last large trees in the north-east to lose their leaves during the dry season when they produce a splendid show of autumn colours.

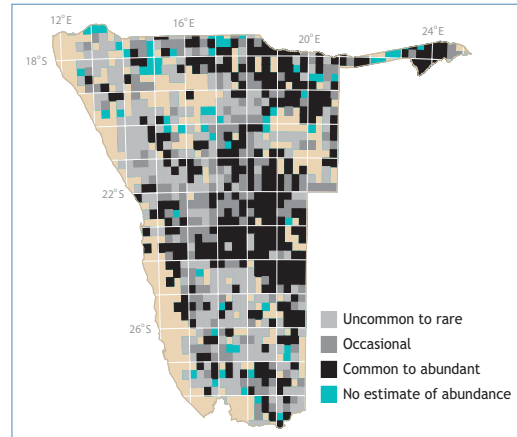
Flowering is between September and November before the flush of new leaves. The flower spikes are unspectacular creamy-white to green. Each fruit is a flat pod bearing one seed. The pods hang in conspicuous clusters and may remain on the tree throughout the dry season. Flowering is possibly halted for several years after severe fires. Seedlings appear to establish themselves more vigorously under a tree canopy than in the open. Growth above ground is initially slow as the root system develops, but they grow more rapidly once they reach sapling-size. Most large trees are at least 100 years old.

Their leaf-litter adds significant amounts of nitrogen to the soil. Two species of edible caterpillars feed on the leaves, and these may form a valuable source of supplementary protein for people. An extract from the bark and pods can be used for tanning, while the bark may be chewed and used as a poultice on septic sores. Infusions from the roots are used to treat toothaches and stomach pains. Some hunters believe that smoke from fresh roots make their prey drowsy. Ash from charred roots is rubbed into the skin to ensure a successful hunt.

CAMEL THORN

Acacia erioloba

Other names: _ganab, Kameeldoring, Kameldornbaum, Muhoto, Muntu, Omumbonde, Omuonde, Omuthiya



Camel Thorns must rank as the best-known, most popular, and perhaps most widespread tree in Namibia. They vary in structure and size, growing as shrubs or medium-sized trees up to 20 metres in height, and with typical umbrella-shaped, flat-topped crowns. The rough bark is dark grey to blackish brown and deeply furrowed. The wood is dark red, extremely hard and reputed to be termite-proof. Like other Acacias, Camel Thorns belong to the pea family (Fabaceae) and were proclaimed a protected species in 1952.

The branchlets have a characteristic zigzag growth, and bear straight, paired thorns that are swollen at the base. The leaves are dark green, relatively hard and feathery, and carried almost year-round since old leaves fall late in the dry season just before the new ones emerge. Clusters of bright yellow, strongly and sweetly scented flowers are also produced before the first rains between August and November. The pale grey, half-moon shaped pods grow to a maximum length of about 13 centimetres; this makes them the largest Acacia pods. The number of flowers and pods produced varies greatly between individual trees and from year to year.

Other than in the most arid areas along the Namib coast, Camel Thorns are conspicuous throughout Namibia. However, they only grow in places where they can sink their deep roots to water far below the ground. It is those roots and water sources that allow them to grow on dunes in the Namib and Kalahari, and in other areas that receive very little rain. Elsewhere, Camel Thorns are found throughout Botswana and Zimbabwe, northern South Africa, southern Angola and Zambia.

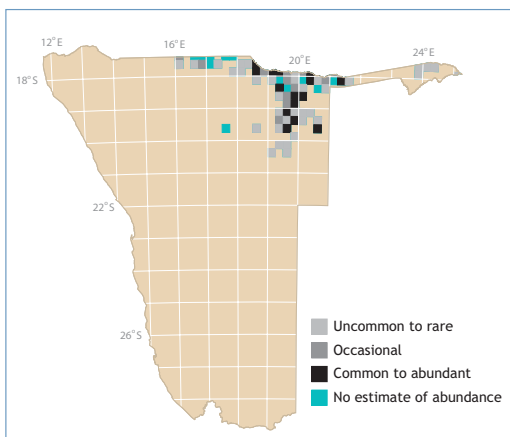
Camel Thorns are slow growers, and most large trees in Namibia are probably at least 200 years old (see page 39). Their hard wood is popular for firewood (even though they were proclaimed a protected species in 1952), and stems and thicker branches have been used extensively for fence posts. Traditional medicines are produced from the roots (chewed to relieve pain or treat coughs) and the bark (burnt and ground to a powder as a cure for headaches). Cattle and game animals browse pods, flowers and foliage, and the pods are said to stimulate milk production by cows. The extensive crowns of Camel Thorns often provide the only available shade in the hot Namib and Kalahari Deserts.



CORKY MONKEY-ORANGE

Strychnos cocculoides

Other names: Omauni, Maguni, geelklapper, muhuluhulu



Corky Monkey-oranges are mostly found on deep sand in north-eastern Namibia, elsewhere occurring in northern South Africa, Zimbabwe, Zambia and Angola. These small trees with their dense, rounded crowns normally grow to a height of 2 to 8 metres. Their bark is characteristically corky, pale brown to creamy coloured with deep longitudinal ridging. The wood is white and fairly tough. Paired, slightly curved, strong spines arm the branches and twigs, each of which generally ends in a spine. The young leaves are very hairy, becoming rather smooth and dark green later. Small greenish white flowers are produced in September to November. All species of monkey-oranges belong to the Strychnaceae family; strychnine poison is derived from the seeds of some species in this family.

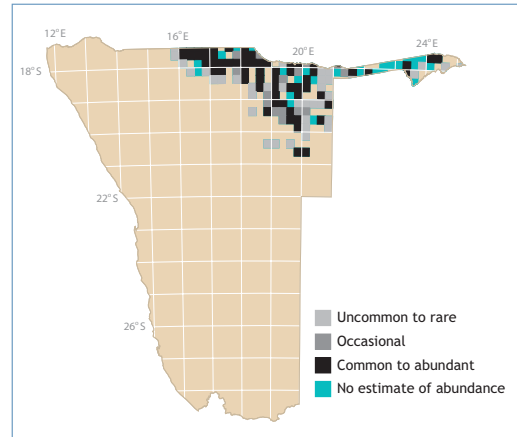
The fruit of this species and those of Spine-leaved and Spiny Monkey-oranges are popular in north-eastern Namibia, and are frequently sold along the road between Rundu and Grootfontein and in informal markets in towns and villages.

The fruit ripen between April and August, and are about the size of oranges. However, sizes vary from one area to another. Corky Monkey-orange fruit have hard, woody shells that are dark green and speckled with white while young, while those of Spiny Monkey-oranges lack the white speckles, and Spine-leaved Monkey-orange fruit have a distinctive bluish green colour. The fruit of all these species, however, turn yellow when ripening. Seeds are embedded in a pulp that gradually liquefies as the fruit ripen. In fact, the green fruit are often harvested and buried in the sand until the pulp has liquefied. A hole is then made in the shell and the liquid is drunk directly. Jam and spirits may also be produced and a bottled liqueur from monkey-orange fruit has been made and sold. Other commercial prospects include the production of oils and more widespread marketing of fresh monkey-orange fruit. The wood is used to make handles for implements.

KIAAT

Pterocarpus angolensis

Other names: Bloodwood, Dolf, Ghughuwa, Mukwa, Uguva



Kiaat grow in warm, frost-free areas in South Africa, Zimbabwe, northern Botswana, Mozambique, Angola, Namibia, and north into Tanzania. Namibian Kiaats are strictly limited to sandy soils in areas where rainfall exceeds 400 millimetres per year. Mature trees normally reach a height of 10-12 metres, and have characteristic flat-topped crowns, giving the trees an umbrella-shape. The bark is grey-brown, deeply creviced with a slightly corky feel. The flowers are yellow to orange, and the distinctive bristled and winged pods give the genus its name: *pter* meaning wing and *carpus* for fruit in Greek; literally winged-fruit. The Kiaat belongs to the Fabaceae family.

Fire apparently stimulates germination, and seedlings are generally only found in open areas cleared by fire or human activity, so that the young trees have less competition from other woody plants for water or light. Growth rates vary, probably according to rainfall, soil fertility and other environmental conditions, but the trees normally grow slowly and most large trees are therefore between 100 and 150 years old (see page 39). Kiaat only start flower-

ing at an age of about 20 years. New flowers and leaves usually appear in September and October before the onset of the first rains.

Cut stems and large branches exude a dark-red sap which gives the tree its alternative name of Bloodwood. The sapwood is pale yellow, while the heartwood is dark, reddish brown, attractive and relatively hard. These qualities, the long, straight stems, and the fact that the wood is seldom knotted and easier to plane and cut than other local hardwood species, make Kiaat the most valuable tree for timber and furniture production in Namibia. Very large numbers of the biggest trees were harvested between the 1940s and the 1990s in Kavango and Caprivi.

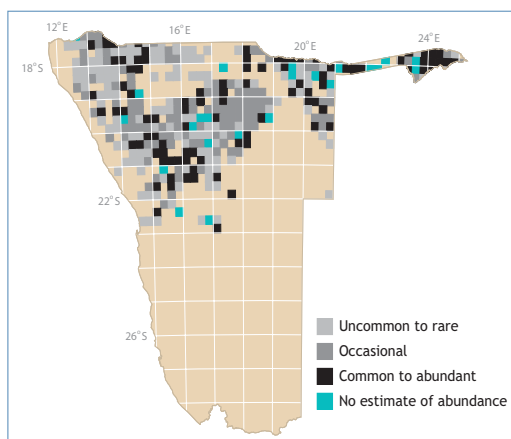
Kiaat trees are also the mainstay of the woodcraft industry, while whole tree trunks may be used to produce *mokoro* dugout boats. As a traditional medicine, the sap is used to treat coughs, and stomach and eye problems, and is also processed into a paste for skin care. The latex can be used to produce a red dye used to colour baskets.



LEADWOOD

Combretum imberbe

Other names: Ahnenbaum, Hardekool, Munyondo, Muzwili, Omukuku, Omumborombonga



Leadwoods are highly respected for their spiritual and cultural value in representing the ancestry of people and animals; Herero folklore tells how the first humans emerged from a hole in the trunk of the tree, followed by their cattle and wild animals. The tree generally grows to a height of between 7 and 15 metres, but very tall ones can reach 20 metres. The bark is usually light grey and fissured, forming an irregular pattern of small squares. Leadwoods belong to the family Combretaceae, together with the many other Combretum species. The species is protected in Namibia.

The wood is dark and extremely heavy or dense, giving it durability (for example, as fence posts) and making it amongst the best firewood in Namibia. Dead trees may remain standing for decades. Even fallen branches do not decay for a very long time. The leaves are grey-green and the flowers are creamy to yellow and sweetly scented. They bloom between November and March. The small four-winged pods seldom exceed 15 millimetres in diameter. The Leadwood is the largest

of all the Combretums but has the smallest pods. These are borne in large numbers, giving the trees a yellowish appearance.

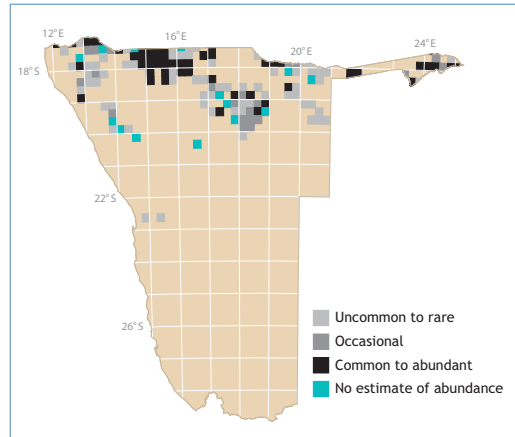
The species is very widely distributed, occurring over much of northern and eastern South Africa, Swaziland, Botswana, Namibia, Angola and north into East Africa. They are most abundant in eastern Caprivi. Although widely spread across the rest of northern Namibia, Leadwoods are generally and locally limited to alluvial clay soils on the edges of rivers, dry water courses, inter-dune valleys and isolated pans. Their absence further south might be due to sensitivity to frost. Leadwoods are very slow growing, and the largest trees in Namibia must be extremely old.

Leadwood ash has been used as a toothpaste, or, when mixed with milk, as a whitewash paint. A variety of large mammals and cattle eat the foliage. As a traditional medicine for bad colds, smoke from the leaves is inhaled or the leaves are chewed.

MAKALANI PALM

Hyphaene petersiana

Other names: Omurunga, Fan Palm, Epokola, Mbare



Makalani Palms are common along many of the ephemeral rivers in north-western Namibia, but they are a really prominent feature of the oshana landscape of channels in Omusati, Oshana and western Oshikoto. They grow here as tall single trees or in copses on clay soils which is their preferred substrate in most parts of their range. In Kavango and Caprivi, however, most plants are much smaller and more bushy than those near the Cuvelai Drainage. Outside Namibia, the species is broadly distributed in tropical and sub-tropical areas from northern South Africa up to Tanzania and west across into the Congo Basin. Some trees have one slender trunk but most have multiple stems that are fused at the base. Often the stems have a bulge along the middle of the trunk. The leaves are fan-shaped, usually dark green to greyish green, and carried on thorny stalks in a dense cluster at the top of the stem. Makalanis are protected in Namibia, and belong to the Arecaceae or palm family.

Male and female flowers are produced on separate trees during September and October. The rounded fruit with reddish-brown shells are borne in large bunches. Fibrous tissue inside the shell sur-

rounds a relatively hard core. New plants can grow vegetatively from suckers produced by the roots. During the first seven years or so, young plants concentrate their growth on the development of underground stems, which are probably used to store water until the tap roots have grown long enough to reach water sources far below the surface. The palms also have extensive shallow roots, perhaps to anchor and stabilise the tall plants with their thin stems, and to take up water during rains and flooding.

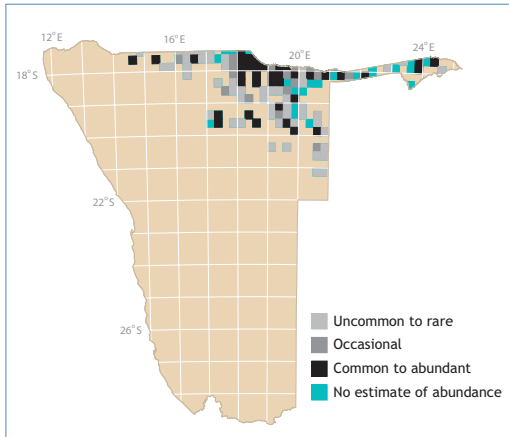
The leaves provide fibre to weave mats, hats and baskets for domestic uses and the craft industry, while leaf stalks are often used for fencing (see page 67). The nuts are very hard, but may be processed and eaten. Often called vegetable ivory, the nuts are nowadays often carved into small ornaments and trinkets to adorn key rings, necklaces or charms. The core of the trunk is relatively soft and may be extracted and eaten as a vegetable. Palm wine is produced from sap collected from the growing tip, but this often results in the death of the plant. Elephants sometimes bump the trees to dislodge bunches of fruit.



MANGETTI

Schinziophyton rautanenii

Other names: Manketti, Mugongo, Omunkete, Ugongo



The Mangetti is a medium to large deciduous tree growing to a height of 12 metres. Although the tree has a fairly characteristic shape, the form of the crown varies, apparently in relation to the density of trees. Isolated trees have rounded crowns while those in denser stands have crowns with flatter tops. The bark of mature trees is very thick, yellow-grey to golden in colour and relatively smooth, sometimes flaking off. The pale yellow wood is light, sometimes being used to produce carvings and small pieces of furniture. Five to seven leaves are arranged spirally around a single point, a formation known as digitate. The sexes are separate on different individual trees. Yellow flowers, each about 10 millimetres in diameter, are borne in slender sprays in October and November. Mangettis belong to the Euphorbiaceae family, and were declared a protected species in Namibia in 1952.

Mangetti trees are patchily distributed across northern Namibia, growing on deep Kalahari sands. Elsewhere, the species only occurs in a narrow belt extending across southern Angola, northern Botswana and Zimbabwe, and over much of

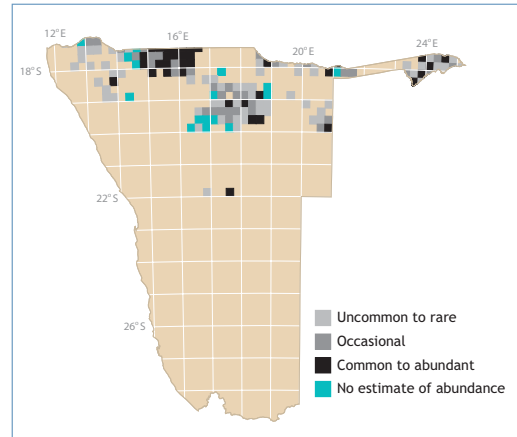
Zambia, Malawi and Mozambique. The trees have long taproots to draw water from deep, saturated sands. In some areas, such as in western Kavango, they are locally dominant and abundant. The groves may extend over thousands of hectares, and are valuable resources to nearby rural communities who harvest the fruit. Each fruit contains one or two nuts surrounded by an extremely hard shell. Kernels extracted from the nuts are roasted or pulped. Oil is obtained from the boiled pulp and the remaining pulp is eaten. A potent alcoholic drink, known as *kashipembe*, is derived from the fruit. The possibility is being investigated of producing nuts, liquor and oil for commercial markets.

Fruit production varies from year to year, apparently in relation to rainfall. In years after good rains, female trees may produce a thousand or so fruit. About 2,000 tons of fruit were exported each year during the early 1900's, perhaps making Mangetti to be the first indigenous fruit exported from Namibia.

MARULA

Sclerocarya birrea

Other names: Malula, Maroela Omugongo, Omungongo, Uwongo



The Marula is a medium-sized deciduous tree, usually growing to a height of 10 to 20 metres. The crown is rounded and somewhat spreading, topping a trunk that may grow to a diameter of 1 metre and more at its base. The bark is dark grey, but flakes that peel off reveal a lighter under-layer, giving the trunk a mottled appearance. The wood is very pale with a pinkish tinge, and relatively light in weight.

Male and female flowers may be borne on the same tree but are usually carried on separate trees. Flowering is between September and November, and fruit mature between February and June. The egg-shaped fruit remain green while on the tree, but turn yellow and ripen once they fall to the ground. Each fruit contains a single stone that is surrounded by a fleshy edible pulp. The stones themselves contain two or three seeds that are rich in protein.

Marulas are widely, but patchily distributed in northern Namibia. They are absent from the Kalahari sands. The species is most abundant and conspicuous in the Cuvelai Drainage where the

trees have been nurtured, protected and perhaps propagated by small-scale farmers over several hundred years. Along with Bird Plum and Jackal Berry trees, they are the only large trees that remain in many parts of the Cuvelai. Marulas occur widely elsewhere in Africa: from Namibia, Botswana and South Africa north to Angola, Zambia, Ethiopia and Sudan, and through the savannas north of the tropics to West Africa.

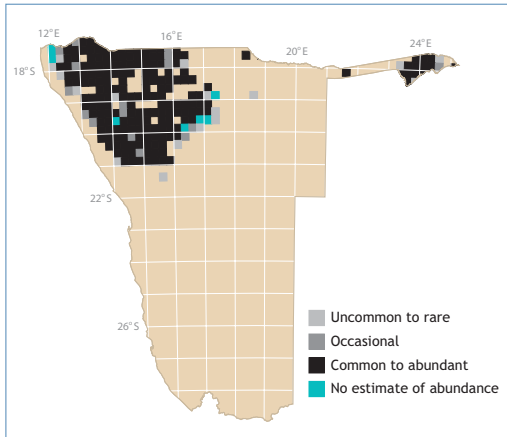
Fruit are collected at the end of the rainy season and processed into a variety of products. The pulp is rich in Vitamin C and is often eaten directly. However, it may also be used to produce juices, jelly or alcoholic beverages, such as marula wine, known as *oshinwa*. Kernels extracted from the hard shells are either eaten unprocessed or boiled to extract their oil, which can be used for cosmetic purposes. The oil is also used for cooking or processed into soap (see page 72). The nutritious fruit are favoured by elephants and many other animals. The bark has been used to treat dysentery and diarrhoea and is believed to prevent malaria.



MOPANE

Colophospermum mopane

Other names: Gais, Mupanyi, Omusati, Omutati, Pana, Tsaerahais



Mopane trees provide many resources to rural communities lucky to live near populations of this species in and around Omusati and Oshana, and in eastern Caprivi. Livestock browse the trees and shrubs; stems and longer branches provide poles for construction and fencing; and the wood makes excellent firewood. Rope and twine can be made from the bark, which is also used for tanning. Many of the uses derive from the fact that Mopane wood is extremely hard and resistant to decay. Moreover, bushes or trees that have been harvested produce new coppiced growth quite rapidly. The largest trees in Namibia are probably 150 and more years old. Mopane is a protected species. Roots are sand blasted and sold as ornaments in Europe, supporting a small local export industry. Many people value Mopane worms as a delicacy. They are the larvae of emperor moths that feed on the leaves (see page 75).

Mopane belong to the Caesalpinioideae, one of three subfamilies of the pea family Fabaceae. The species is locally abundant and may dominate the vegetation, often forming pure stands. In some areas, they grow as relatively tall trees (up to 10

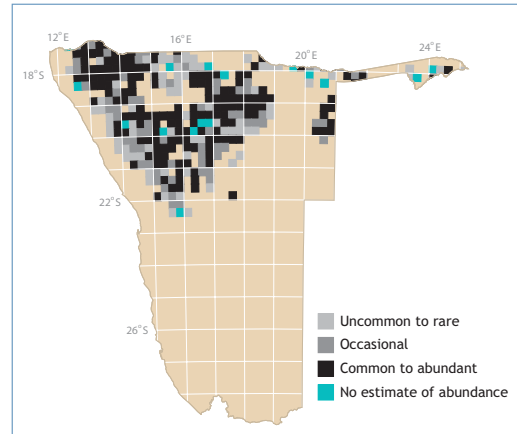
metres), while in other areas (especially in central Omusati) Mopane forms continuous stands of shrubs that average 1 or 2 metres in height. What determines these very different growth forms appears unknown, but soil conditions, water availability, and perhaps frost, are likely to play a role. Throughout its localised, patchy range in Namibia and elsewhere in Angola, South Africa, Mozambique, Botswana, Zimbabwe, Zambia and Malawi, the species is limited to clayey, alluvial soils in dry, hot and low lying areas.

Each plant normally has several stems. The bark is grey, deeply fissured and flaked on larger trees. The heavy wood is reddish brown in colour. Each leaf consists of two distinctive leaflets joined at the base, looking like a butterfly or the hoof print of an antelope. Small, green flowers are borne in slender sprays from November to January, but individual plants may not flower for several years. A single seed is contained in each flat, kidney-shaped pod. The pods are distributed by wind or by sticking to the hooves of animals. The name *Colophospermum*, which means oily seed in Greek, was given because of the high content of sticky resin found in the seeds.

PURPLE-POD TERMINALIA

Terminalia prunioides

Other names: Blutfruchtbaum, Deurmekaarbos, Heras, Muhama, Omuhama



The Purple-pod Terminalia is usually a shrub or tree growing to height of 3 to 10 metres, although some much taller trees grow to 15 metres. Its rounded, untidy crown is formed by the jumbled growth of the branches, most appropriately reflected in the Afrikaans name *Deurmekaarbos*. The bark is grey to brownish and stringy on young branches, while the wood is yellow and hard. The fruit are characteristically dark red or purple, each consisting of a single kernel surrounded by two wings. Fruit often remain hanging on the tree until the next flowering season, when old fruit and flowers may be seen together on the same tree. Its colourful display of purple fruit makes this an attractive ornamental garden plant. The flowers are small and cream coloured and emit an unpleasant odour. Fresh leaves appear in distinctive clusters on the tips of branchlets in the beginning of November, before the first flowers appear. Flowers are produced following rain, and a tree may flower more than once in a season. Purple-pod Terminalias belong to the Combretaceae family.

The species grows in a variety of habitats, ranging from dense woodland and rocky hills to dry watercourses or flat grassy plains, and often on poor soil. However, they are absent from the Kalahari sands, and those Purple-pod Terminalias in north-eastern Namibia are all found on patches of more clayey or other soils. In some areas of the country, especially around the Otavi-Grootfontein-Tsumeb hills, the species has become an invasive problem associated with bush encroachment.

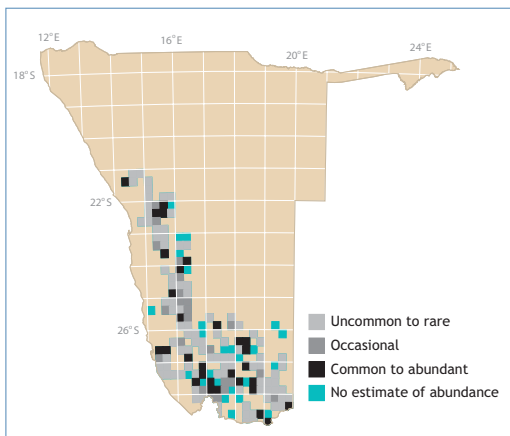
The hard wood of this species is very useful for firewood, charcoal, implement handles, hut construction and fence posts. Its fresh fruit and leaves are sometimes used to prepare tea, but no medicinal properties seem to be attributed to the brew. Pulverised rotten heartwood of the tree is sometimes used as a fragrant cosmetic. Giraffe browse the flowers and young shoots while antelope are reported to eat the leaves and small shoots during the dry season. Young buds form an important source of food for Rüppell's parrot at the Waterberg.



QUIVER TREE

Aloe dichotoma

Other names: IlGaras, Kokerboom, Köcherbaum



This and the Giant Quiver Tree are amongst the largest aloes in the world. Along with other aloes, they belong to the family Aloaceae. Quiver Trees are prominent features of many desert or semi-desert areas in southern Namibia, occurring elsewhere only in the Namaqualand and Bushmanland regions of western South Africa. Their range extends from northern Erongo southwards along the escarpment above the Namib, and then across the whole of the southern quarter of the country. In all these areas, they grow mainly on rocky hills. A high proportion of dead trees are found throughout their distribution, but more so in their northern range than in South Africa. One possible explanation is that this is an effect of global warming. Quiver Trees are a protected species in Namibia.

Quiver Trees usually reach a height of 3 to 8 metres, and have a rounded, dense crown that is characterised by repeated, dichotomous branching. The comparatively compact trunk may attain a diameter of up to 1 metre at ground level. The

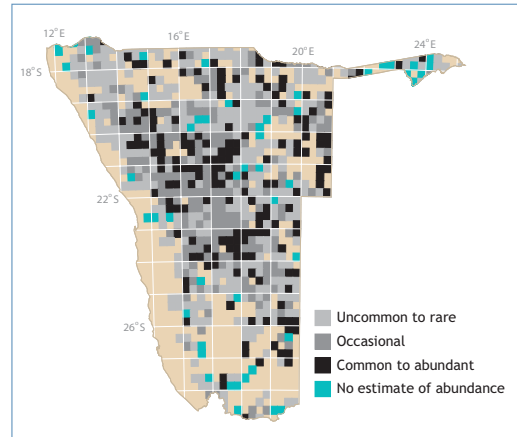
bark is white, yellow or golden, smooth and flaky, but often also folded, giving the appearance of molten wax. The large fleshy leaves are dark green and have a row of brown serrations or 'teeth' along their margins. The flower heads are up to 30 centimetres in length, and carry bright yellow flowers in June and July. Seeds germinate readily but rates of germination improve if the seeds are left lying in the sun for a day before planting. The growth of trees is extremely slow.

Little or no direct current use has been reported for the species. The common name is derived from the fact that San hunters formerly used the bark to make quivers for their arrows. Young flower buds may be eaten, while dead tree-trunks have been hollowed out and used as natural fridges. Sociable weavers frequently build their spectacular on Quiver Trees, and baboons are reported to eat the flowers to benefit from the sweet nectar. The Quiver Tree Forest near Keetmanshoop is an important local tourist attraction. The aloes are also popular garden plants.

SHEPHERD'S TREE

Boscia albitrunca

Other names: /Hunib, Omunghudi, Omutendereti, Weissstamm, Witgat



The Shepherd's Tree is one of the hardiest trees in Namibia, surviving in extremely dry and hot conditions and withstanding severe frost. Although the species grows on a variety of substrates, their deep rooting system suits them well to arid, sandy areas. They often grow on or close to termite mounds in the central regions, and frequently grow up inside other trees of different species, which offer them protection from browsers. The Shepherd's Tree belongs to the caper family Capparaceae, and is widely distributed both in southern Africa and Namibia, where it is most abundant in the centre of the country. It is a specially protected species.

This is a small tree, most individual trees ranging between 3 and 5 metres in height. The tallest ones may reach 7 metres. Many trees have a distinct browse line beneath their small, shapeless canopies, reflecting the reach of browsing cattle, game or goats. The bark is generally smooth and pale-grey although it is often pitted and can be quite dark. The wood is yellow, heavy and tough, and only considered suitable for the carving of household utensils.

The leaves are grey-green and have a leathery

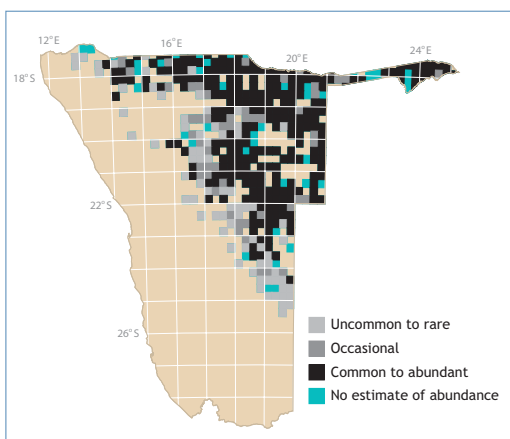
texture. Even though the tree is evergreen, many of the leaves are lost when the tree flowers, which is usually between August and October, and before the first rains. The small, green flowers are borne in dense clusters, but the tree does not produce flowers every year. Round, berry-like fruit ripen between October and December. Seeds germinate readily, but the subsequent growth of seedlings is tenuous. Birds often eat the fruit, which probably helps to disperse the seed.

The greatest value of the tree is during very dry periods when the leaves and branchlets provide valuable fodder for livestock and wildlife. Goats are known to nibble and strip off bark when there is little else to eat. A number of medicinal uses have been recorded, including the use of a decoction from the roots to treat haemorrhoids and an infusion of leaves to treat inflamed eyes of cattle. The roasted roots are used as a substitute for coffee, while pounded roots can be used to make porridge. The fruits are also edible, and flower buds can be pickled as capers. In the most arid, desolate parts of Namibia, it is the shade of the Shepherd's Tree that provides welcome, cool relief to many animals.

SILVER-LEAF TERMINALIA

Terminalia sericea

Other names: Gaab, Geelhout, Gelbholtz, Ghushosho, Mugoro, Muhorono, Omuseasetu, Silver Cluster-leaf, Sandgeelhout, Vaalbos



The Silver-leaf Terminalia is an extremely abundant tree or bush in northern and eastern Namibia, in many places dominating all other woody species. Its vigorous, pioneering growth also means that it is one of those invasive species associated with bush encroachment (see page 112). The trees are generally found on deep sandy soils, preferring open areas but also growing in open woodland as bushes under other trees. They are deciduous shrubs or trees, usually reaching heights of 3 to 15 metres. Most of those in Caprivi are much taller than trees to the south and west, perhaps because of higher rainfall in the north-east.

The crown of the tree is slightly rounded and layered. Younger trees have smooth brown bark, which turns grey-brown and fissured as they age. The wood is distinctively yellow, fine-grained, hard and durable. Dense hairs cover the leaves, giving them the silver appearance for which the tree is named. The leaves are clustered on the tips of small branchlets, and take on a distinctive reddish-brown colour when dry. Flowers are small spikes that appear before the first rains in September and October. Fruit are pale red, pinkish

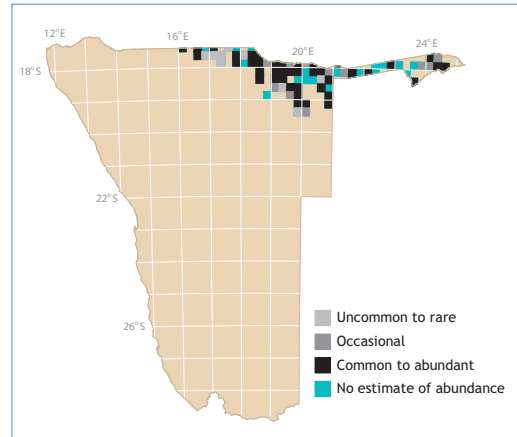
or flesh-coloured, with two wings, one on either side of a single kernel. The fruit may hang on the tree throughout the dry season. Plants damaged by fire or cutting coppice readily. This is particularly true of smaller, younger individuals. In a study of growth rings, no trees older than 100 years were found (see page 39).

The leaves are eaten by various wild and domestic animals, as well as by a caterpillar which some people collect and eat. It is said that the silver hairs from the leaves are used to glaze pottery. Domestic implements for cooking, such as spoons and pestles, are made from the wood. Rough furniture is also produced. Stems and thicker branches are commonly used as poles for the construction of huts and for fences. Twine is made from the outer covering of the roots, and a host of traditional medicinal uses have been recorded for the roots themselves. These include decoctions to treat headaches, wounds, persistent colds, diarrhoea, skin problems and colic. Pharmaceutical companies are now showing an interest in producing an anti-inflammatory agent from the roots. The agent could be used in cosmetics.

USHIVI

Guibourtia coleosperma

Other common names: Bastermopanie, False Mopane, Ghushi, Msivi, Muzauli, Omusii, Rosewood



Ushivi trees are strictly limited to deep Kalahari sands in north-eastern Namibia, from where their range extends north into Angola and Zambia, and east into Zimbabwe. They often grow in association with Kiaat and *Burkea* trees, but their abundance varies locally. For example, Ushivi are much commoner in Kavango than in Caprivi. The species belongs to the *Caesalpinioideae* subfamily of the pea family, *Fabaceae*.

The evergreen trees are medium to large, growing to between 6 and 20 metres in height. Many of them are prominent features along the tar road south of Rundu. The main trunk usually forks fairly low down, above which there is a large, rounded crown with drooping branches. A variety of colours give the bark a patchy appearance of pale brown or cream, sometimes tinged with pink and frequently with dark brown or black blotches. A reddish tinge and beautiful fine grain characterizes the very hard wood. The leaves are dark green, and somewhat resemble the leaves of Mopane. Small, creamy white flowers appear between December and March. The fruit is woody, splitting open

down one side while still on the tree and then exposing a bean-like seed that dangles on a short stalk from the open pod. The seed is covered by a bright scarlet aril.

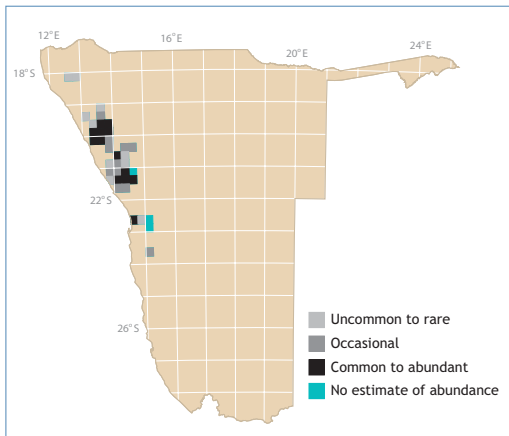
In the past few years, Ushivi wood has been used increasingly for carving crafts for sale and for furniture, especially as bar counters now seen in many lodges and hotels in Namibia. Most thicker stems and branches curve and twist, with the result that it is seldom possible to cut long, straight planks suited for more conventional furniture. Traditional knife-handles and sheaths are made from the wood in some areas. The seed and aril that covers it are valuable sources of food. The seeds are soaked in water until the moistened arils come away from the seeds. Soups or other drinks are then prepared from the arils, while the remaining seeds are roasted in hot ash to be eaten whole or ground up and mixed with water and Mangetti nuts. It is believed that wounds heal more rapidly if pounded bark is applied to them.



WELWITSCHIA

Welwitschia mirabilis

Other names: !Kharos, N'tumbo, Onyanga, Tweeblaarkanniedood



This is perhaps Namibia's most famous plant, attracting the interest of lay people and scientists because of its rarity, peculiar growth form, its harsh environment, and the fact that it shares features of the gymnosperms (pines) and angiosperms (flowering plants). It is the only species in the family Welwitschiaceae. In addition to being a protected species, the *Welwitschia* enjoys international protection from the CITES convention that prohibits the plant from being traded. *Welwitschias* are endemic to the Namib Desert, almost their entire range being confined to narrow zone stretching from the Kuiseb River about 1,000 kilometres north into southern Angola.

The *Welwitschia* is really a stunted tree. The apical growing point dies off early, and the plant then only grows laterally. There are no branches on the very short trunk, which can expand to about 1 metre in diameter. A shallow concave depression forms as the trunk ages. Each plant normally has only two leaves, which grow continuously from opposite sides of the stem. Damage caused by wind, herbivores and other agents breaks up

the outer points of the leaves, giving them a scraggly appearance. The longest leaves reach over 6 metres.

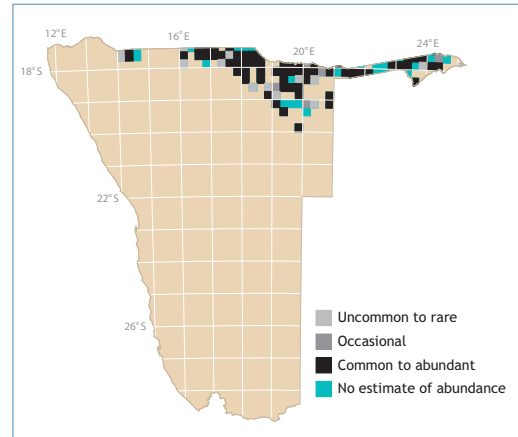
The plants grow on gravelly soils, largely in a zone 30 to 50 kilometres from the coast. Rainfall in the zone is minimal but fog occurs regularly. Fog water is absorbed through stomata on the leaves, while ground water and nutrients are drawn up through a network of fibrous roots that go down between 1 and 3 metres and extend around the plant in a radius of up to 15 metres. The stomata are closed during extreme heat and periods of very dry weather to conserve water.

Male and female plants are separate. Males secrete a liquid that attracts pollinating insects to their flowers. Females carry seed in cones, which are borne on inflorescences growing from the rim of the stem cup. The seed are very light and have a translucent, papery wing for dispersal by wind. Each female can produce between 10,000 and 20,000 seeds per year. Some very large *Welwitschias* are reputed to be between 2,000 and 3,000 years old, but these ages have not been confirmed.

ZAMBEZI TEAK

Baikiaea plurijuga

Other names: G'lòà, Mukusi, Mukutji, Omupapa, Uhahe



The Zambezi Teak belongs to the pea family Fabaceae, and has been a protected species in Namibia since 1952. The tree occurs broadly in north-eastern Namibia, but its abundance varies substantially. Patches where it is extremely common include the Caprivi State Forest, north-western Kavango and eastern Ohangwena, and on old sand dunes in central Kavango and to the west of the Kwando River. Its entire range outside Namibia is limited to south-eastern Angola, south-western Zambia, western Zimbabwe and northern Botswana. In all these areas, the Zambezi Teak is very much a species of deep Kalahari sands.

This is a large evergreen tree growing to a height of 20 metres and a stem diameter of up to 75 centimetres. It has a dense spreading crown. The bark is pale and relatively smooth on younger trees, becoming darker with age. The wood is very hard and red-brown; again, as timber, the wood colour darkens over time. Showy, purple-pink flowers held above the canopy normally appear between December and March. The fruit are flattened pods

covered with dark, golden-brown hairs that give them a velvety texture. The dry pods split and scatter their seeds from June to September. These germinate readily, but rates of survival among seedlings in their first year are low as a result of inadequate water, browsing and fire. The young plants concentrate growth in their roots to develop deep roots that can reach moist, sub-surface soils. Later growth is very slow and large trees in Namibia are old. Those with stems having diameters of 45 centimetres or more are at least 150 years (see page 39).

The greatest direct value of Zambezi Teak is in its timber. The wood is termite proof and is popular for flooring, furniture and canoes. It has also been used for props by the mining industry and as railway sleepers. San people often thread the seeds onto necklaces to be sold to as craft. The biggest threats to Zambezi Teak populations come from fires, the clearing of land for farming and timber logging, although this has now stopped in Namibia.

