

# The 'forest' in the Kalahari

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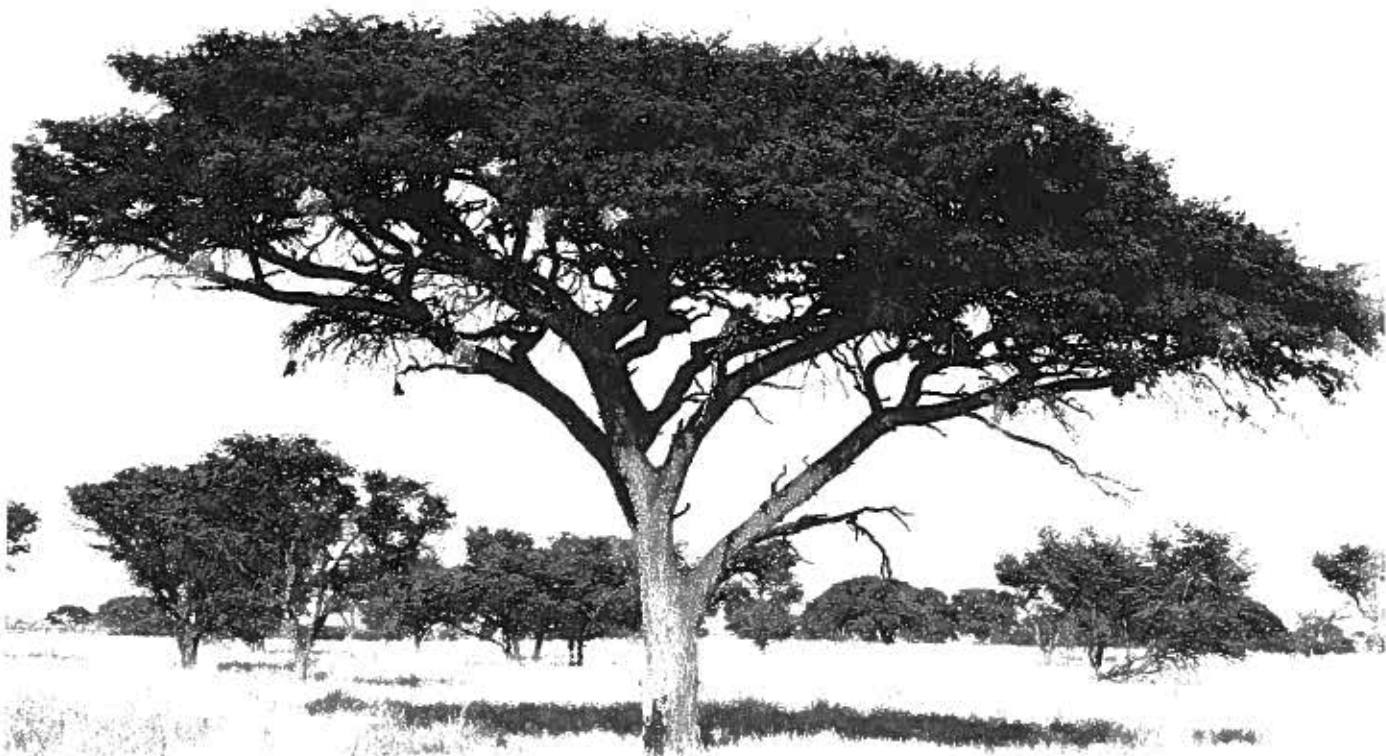
Commonly known as the Kathu Forest, an exceptional *Acacia erioloba* (Camel Thorn) woodland stands tall in the semi-arid southern Kalahari, just north of the town of Kathu which is 50km south-west of Kuruman. It is described as a forest because of the exceptional size and density of the Camel Thorn trees which form an open to closed canopy. It is apparently one of only two such woodlands in the world, with the other being between Mariental and Rehoboth in Namibia. The uniqueness of this small 4000 ha 'forest' was recognised as early as 1920, when it was declared a State Forest. In 1956 this forest was de-proclaimed to allow for the establishment of the town of Kathu, 'the town under the trees', in the southern portion of the woodland. In 1995 several properties containing the largest part of the Kathu Forest were registered as a Natural Heritage Site. It is encompassed by the Griqualand West Centre of Endemism (Van Wyk & Smith 2001).

The Kathu Forest is found on red aeolian sand of the Gordonia Formation, Kalahari Group, which is now considered to be a fossil desert. The red sands of the Kalahari are often underlain by calcrete of tertiary to recent age, which in turn overlies andesitic or basaltic lava of the Ventersdorp Group (Visser 2006). This

intrazonal woodland is within the Eastern Kalahari Bushveld Bioregion and the Kathu Bushveld vegetation unit (Mucina & Rutherford 2006). Only 1% of the vegetation is transformed when considering the level of transformation at the macro-scale for the entire extent of this vegetation unit. At the local level however around the town of Kathu there is significant transformation pressure on the vegetation, especially where there are high concentrations of *Acacia erioloba*. The presence of this dense woodland at Kathu may be due to the large underground water supply, which occurs in huge aquifers below the red Kalahari sand and calcrete substrates.

*Acacia erioloba*, a protected tree under the National Forests Act of 1998, plays an important role in the Kalahari Savanna of the Northern Cape. Throughout most of its range, it is the only large tree species that grows on sand where average annual rainfall is below 400mm (Carr 1976; Milton & Dean 1995). Large, isolated Camel Thorn trees provide resources and services that are scarce in the Kalahari, such as shade and shelter for many animal species, nest sites for birds and mammals, observation posts, bark foraging for birds, mammals and reptiles, and specialized food or

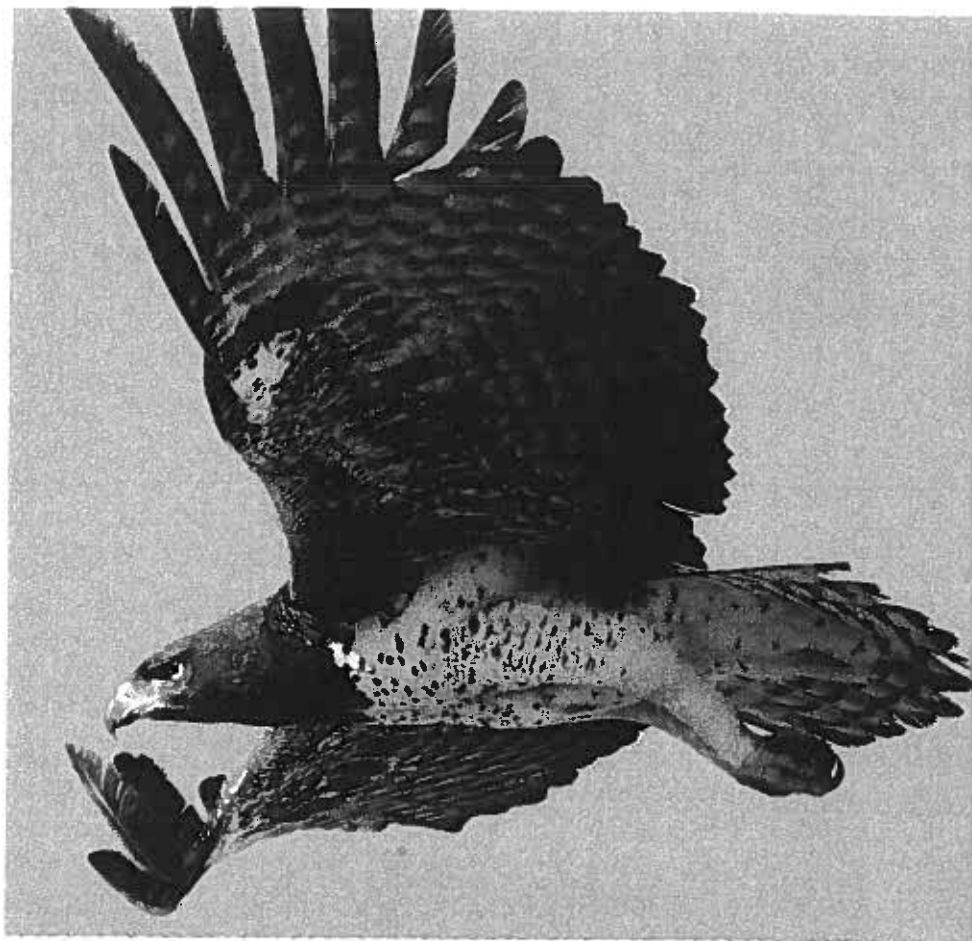
The Camel Thorn, *Acacia erioloba*.



prey items (Milton & Dean 1995). Owls, raptors and vultures use Camel Thorn trees for perch-hunting, nesting and roosting. Camel Thorn trees provide food to many animals, in the form of foliage and pods, with the latter being available during winter when other protein-rich foods are scarce.

The Camel Thorn is considered to be a keystone species in the Kalahari because it facilitates the processes that maintain heterogeneity and species diversity, namely seed dispersal and site modification (Milton & Dean 1995). One of its keystone functions is the generation of patchiness, performed only by large trees. Over the centuries it has been of much use to man; many historical moments have been made in the shade of a Camel Thorn tree. The wood was used to make domestic utensils, the seeds used as a coffee substitute by the Korannas, the bark and pods were used medicinally, and the roots used to make flutes by the Nama when reeds were unavailable.

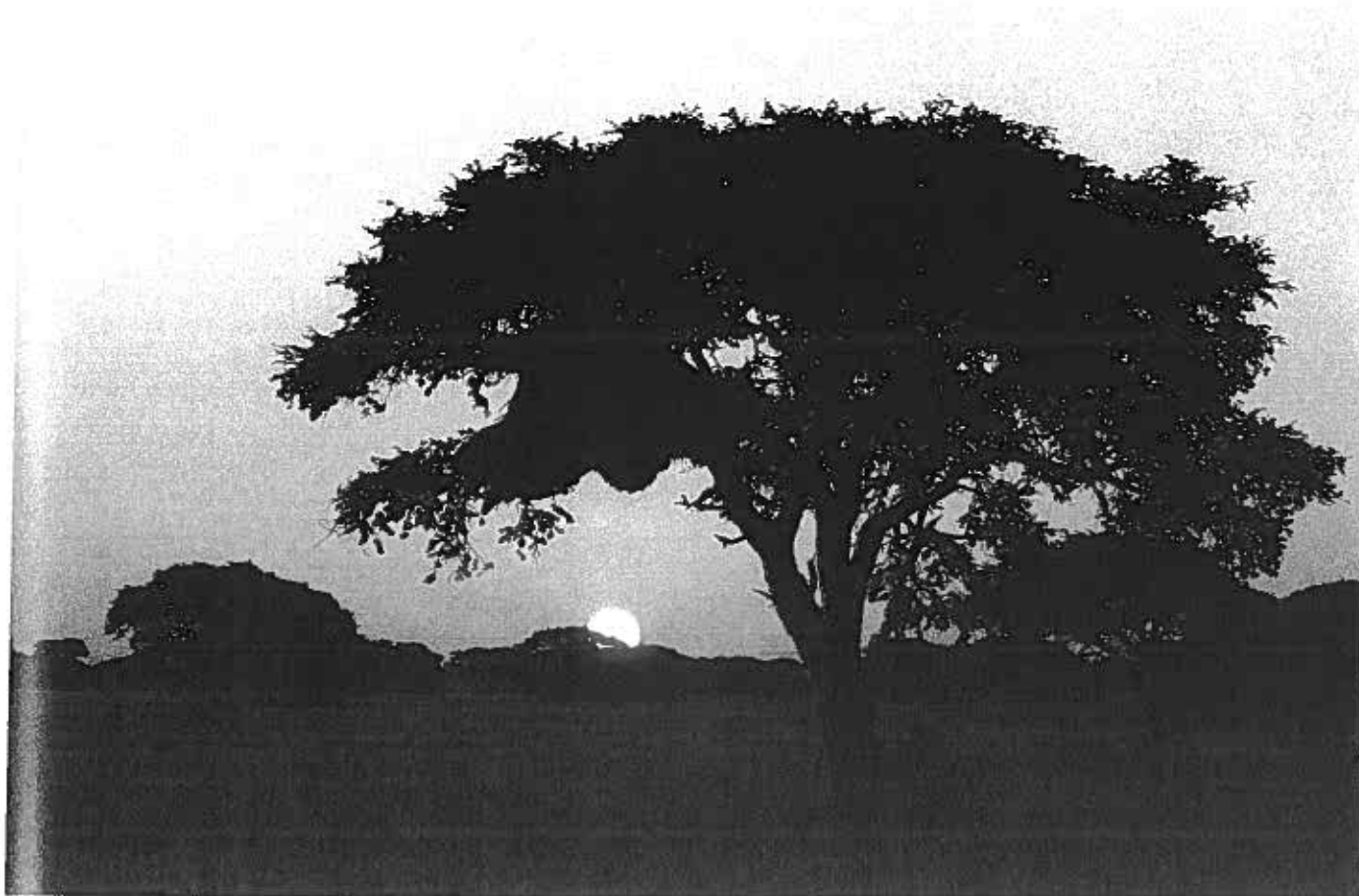
Today it continues to provide shade and shelter in desert areas, and sweet gum that is relished as a sweet by children, to mention but a few of its values to man. The Kathu Forest has had a long history of utilization by man dating back 800 000 years, confirmed by the presence of innumerable artefacts which make it one of the richest archaeological sites in the world.



The magnificent Martial Eagle inhabits the Kathu Forest.  
Photo: Mark Anderson

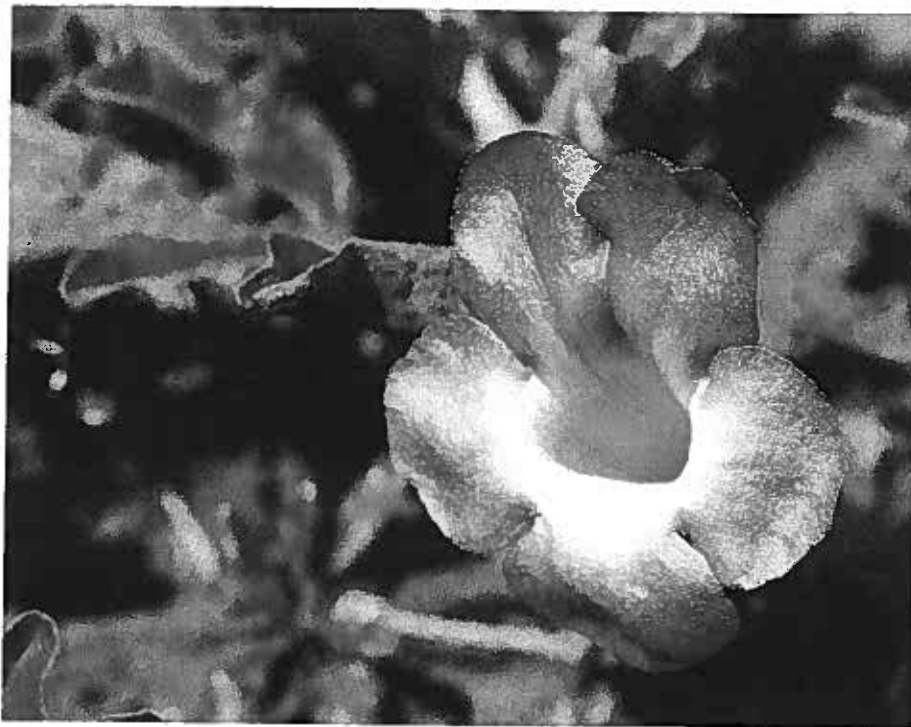
The teeth of an extinct species of elephant, *Elephas recki*, along with finely crafted silica-coated hand axes, have been found in a site on the edge of the forest. The most recent traces of early people include San stone tools and Tswana pottery. Early people would have harvested berries from the large Buffalo Thorns (*Ziziphus*

Sunset view of *Acacia erioloba* woodland.



*mucronata* subsp. *mucronata*), Raisin Bushes (*Grewia flava*) and Blue Bushes (*Diospyros lycioides*), and used the roots of the Shepherd's Tree (*Boscia albitrunca*), which is also present in the forest. *Hoodia gordonii*, present in small numbers as isolated individuals, has for thousands of years been used by the San to stave off

hunger during their often lengthy hunting trips. *Boophone disticha* and other geophytes may have provided their medicinal needs. Red Data species recorded in the woodland include *Hoodia gordonii* and *Harpagophytum procumbens* subsp. *procumbens*; both these species occur in low numbers



*Harpagophytum procumbens* flower.

*Harpagophytum procumbens* is a Red Data species, visible above ground for a few months after summer rains.



and in fairly small populations throughout most of their range. The woodland also harbours protected species such as *Ammocharis coranica*, *Nerine laticoma* and *Ruschia griquensis*, and the endemics/near-endemics *Rhus tridactyla* (endemic to the Griqualand West Centre), *Antheophora argentea* and *Panicum kalaharensis* (endemic to the southern Kalahari).

The plants of the Kathu Forest support a unique array of bird species, such as the rare yellow morph of the Green-winged Pytilia, yellow Crimson-breasted Shrikes, Red-billed Spurfowl, Pied Babbler, Groundscraper Thrush and Red-billed Buffalo Weaver (Liversidge 2000).



For thousands of years this dynamic ecosystem has been providing goods and services and playing a role in the maintenance of patterns and processes in the southern Kalahari.

Now, faced with a new suite of increasing threats, it must be actively conserved or die a slow death by a thousand cuts. In recent decades, parts of the Kathu Forest have been mis-managed which has led to its deterioration.

Arbicides have been used to control Black Thorn trees (*Acacia mellifera* subsp. *detinens*), spreading as a result of overgrazing. The chemicals have also affected other woody vegetation including Camel Thorns (Liversidge 2000).

Mine dust from the nearby Sishen Iron Ore Mine has been implicated as a possible cause of tree die-offs. Camel Thorn pods were being collected on a large scale to use as livestock feed and sections have been overstocked. For several years harvesting of protected Camel Thorn trees from the Natural Heritage Site for the fuelwood market escalated (Anderson & Anderson 2001).

Today, the rich fossil water resource in the aquifers is rapidly being abstracted for use by Kumba's Sishen Iron Ore Mine, by surrounding farmers and by a developmental boom in the once-sleepy town of Kathu which includes water-thirsty, up-market housing developments. This unsustainable use and lowering of the water table could lead to the death of Camel Thorn trees, the keystone species of the forest. *Acacia erioloba* is able to access permanent water deep in the soil, and tap roots of up to 60m have been reported.



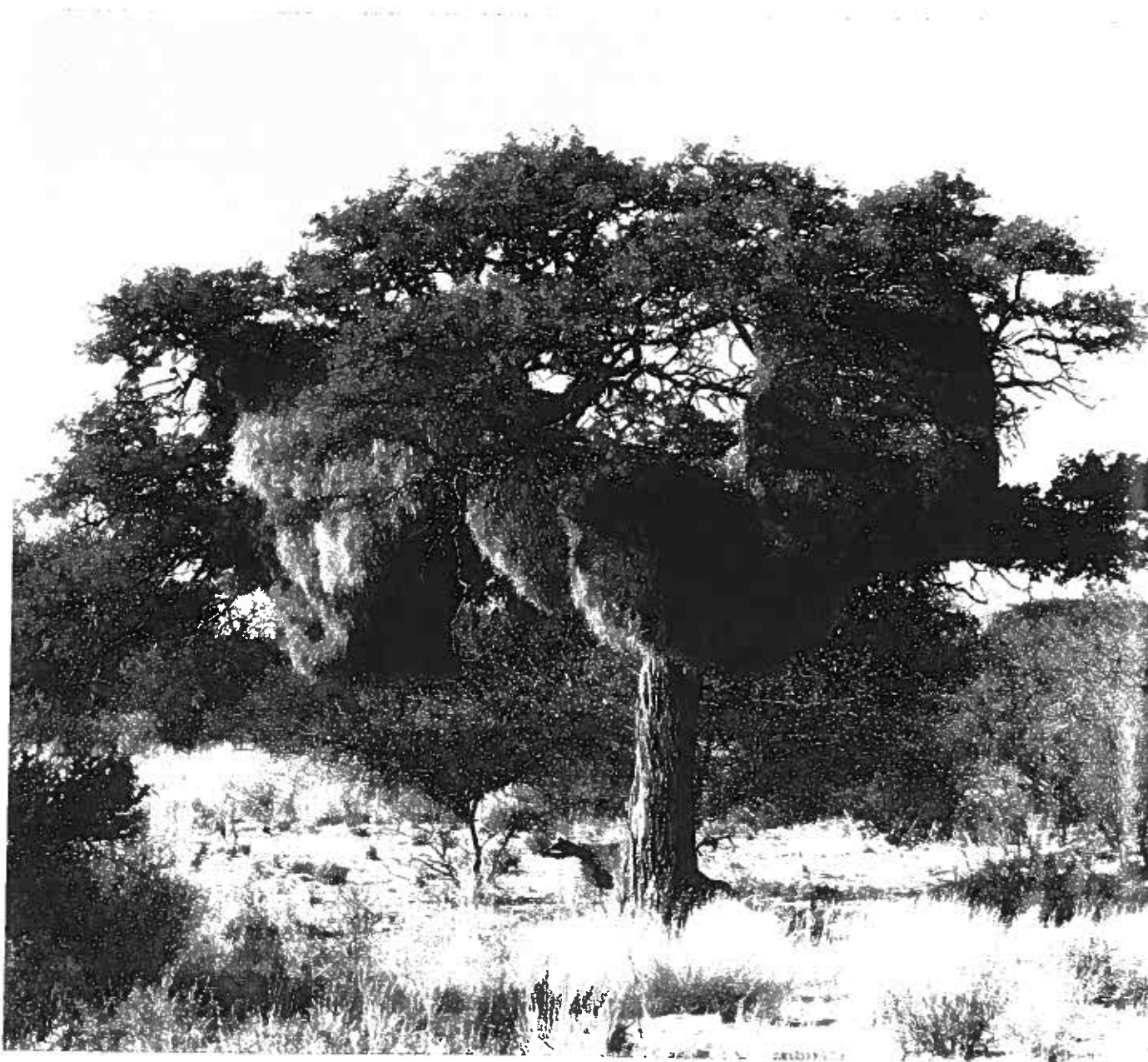
*Nerine laticoma* on pan fringes at Kathu.

Kathu Forest is considered worth protecting for scientific, biodiversity, landscape and eco-tourism reasons. Surveys have shown a moderate to high diversity in plant and animal species, including several Red Data, endemic and protected species. Specialist reports for environmental impact assessments around Kathu indicate that the Kathu forest is seriously under-protected (Van Rooyen 2006). Between 27-34% of the forest has already been transformed, and new developments could increase this figure to 36%.

According to the National Spatial Biodiversity Assessment for South Africa, the threshold at which an ecosystem could become critically endangered is when only 16 to 30% of the natural ecosystem remains. For a forest ecosystem the threshold could be as high as 70% and, as this has already been reached for the Kathu Forest, it could already be considered Critically Endangered.

To afford the woodland a higher level of protection before too much is transformed, a request was made to the Department of Water Affairs and Forestry (DWA) in April 2006 for emergency protection of the Kathu Forest under the National Forests Act (NFA). The DWA in July 2007 gazetted its intention of declaring the Kathu Forest a Protected Woodland under Section 12 of the National Forests Act.

A task team co-ordinated by the provincial Department of Tourism, Environment and Conservation met for the first time in November 2007 to tackle the process of formally declaring the forest a protected environment under the National Environmental Management: Protected Areas Act. Such protection will allow current land use practices to continue, but will safeguard the woodland against future detrimental anthropogenic influences. The core area of dense woodland will be regarded as the prime conservation area, while the development of limited low-impact, ecotourism facilities may be allowed in the second class of more open woodland. Low density residential eco-estates may be considered in the buffer area (comprising the third class of open woodland), but with compensatory actions to provide for the protection of the primary conservation areas.



A large Sociable Weaver nest in a Camel Thorn tree. Photo: Mark Anderson

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Sociable Weavers entering their nest at sunset. Photo: Mark Anderson

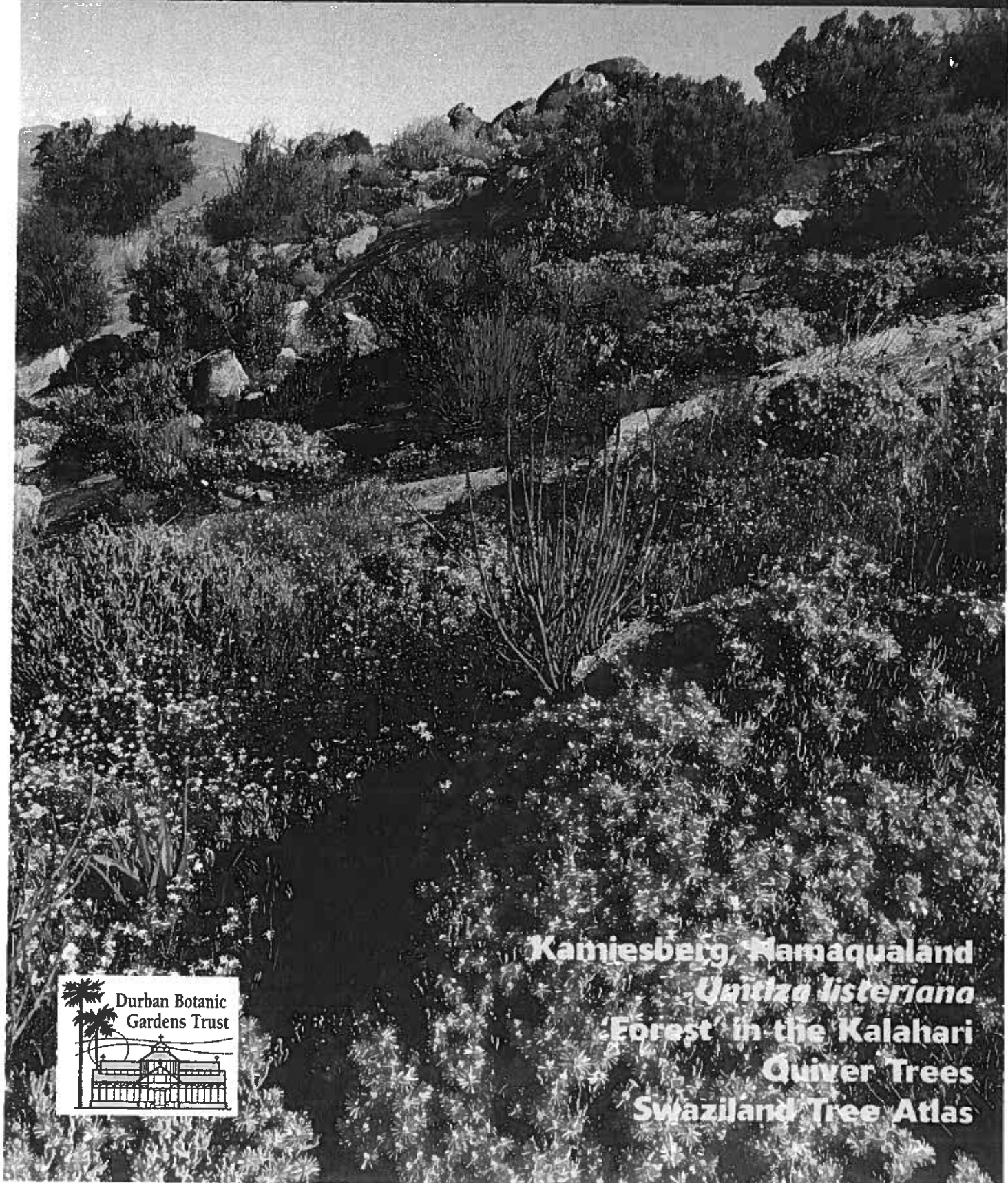


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