

Is the harvesting of camelthorn trees for firewood in the Kalahari sustainable?

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What is the value of a dead camelthorn *Acacia erioloba* tree? In monetary terms, it certainly has value, judging the extent of the harvesting of dead trees for firewood in certain areas of the Northern Cape. Its ecological value is less well known. Live trees fulfill a very important role in maintaining numerous ecological processes. They are nutrient islands and thus nursery areas for a wide diversity of herbs, shrubs and other plants. The shade of the tree provides a favourable microclimate for many animals, which in turn deposit dung and thus nutrients beneath the trees where they rest and escape the midday heat. These magnificent trees are used as perching and breeding sites by many species of raptors, such as White-backed Vultures and Bateleurs, and other birds, including Sociable Weavers. Their leaves and pods are eaten by many animals, from the hairy black-and-white *Gonometa* caterpillars to Steenbok, Giraffe and a host of other herbivores. Besides its ecological and intrinsic value, we believe that these trees also have significant aesthetic value. Who ventures into the Kalahari or Namib deserts without admiring and photographing these beautiful trees? Who has not pondered the ability of these large trees to grow in the arid and seemingly inhospitable places of southern Africa? What other unknown value might future research into the properties of this tree reveal?

The camelthorn, most abundant in the arid western regions of southern Africa, is the royal tree of Botswana. Over the centuries it has been of much use to man; many important historical events have taken place beneath the branches of camelthorns. The wood was used to make domestic utensils, the seeds used as a coffee substitute by the Koranas, the bark and pods were used medicinally, the roots used to make flutes by the Nama when reeds were unavailable and its sweet gum is relished as a sweet by children. This tree therefore has many values to man. Considering the quality of its wood, it is not surprising that its chief use since European settlement has been for fuel, and tens of thousands of trees, particularly in the Kimberley area, have been felled over the past century. Even before that, more than 140 years ago, the well-known missionary Robert Moffat wrote of 'the remains of ancient forests of the camelthorn' that had been destroyed by 'the Bantu'.

Despite their great value, beauty and apparent ecological importance, camelthorn trees are currently being removed from vast areas of the Northern Cape and North West Provinces of South Africa. The motivation behind this utilization is short-term monetary gain, as this activity is surely not sustainable. Granted, times are tough for farmers in South Africa – many areas are experiencing yet another drought, government subsidies are being done away with, and unfavourable meat and wool prices have made farming less profitable. Many farmers are looking for alternative means of generating income, including hosting ecotourists in their guest-houses and hunters in their game camps. The harvesting of indigenous trees for the braaivleis market has also become a means of generating much-needed income. We recently visited several farms along the ephemeral Gamagara River, north of Kathu, and determined that up to 60 tons of wood are bundled per month on some properties!

Dead trees are cut down using chain-saws or bow-saws; they are then dragged by a tractor to a central locality, cut with a chain saw into approximately 30-50 cm lengths, chopped with an axe into pieces, and tied in bundles or placed in bags. The wood is very hard, so the work is arduous and extremely labour-intensive. Although the unemployed people who are used for most of this work probably welcome the daily stipend, it is presently not known who are the real beneficiaries of this firewood industry – the landowner, labourers, contractor or retailer. In fact, because no information is available about the economic value of this industry, this will be the focus of a study during 2001 by Jaco Powell, conducted with German funds from the German Ministry of Arts and Sciences. The study will be done under the auspices of Professor Sue Milton, University of Stellenbosch, and the Northern Cape Nature Conservation Service.

According to the National Forests Act (No. 84 of 1998) the camelthorn is a protected tree. The Act prohibits a person from cutting, disturbing, damaging, destroying, removing, transporting, purchasing or selling any protected tree without a licence granted by the Minister of Water Affairs and Forestry. The Act does not distinguish between dead or live trees. In the Northern Cape (and probably elsewhere in South Africa) it appears as if this legislation is not being effectively administered as camelthorn trees are being removed on a large scale, particularly along the dry riverbeds in the southern Kalahari. They are also being removed in the Kathu Nature Reserve, originally declared a reserve to protect the camelthorn forest. This should be urgently investigated by the Department of Water Affairs and Forestry, the government department delegated with the task of enforcing this legislation.

It is probably the consumers in the big cities of Cape Town, Johannesburg and elsewhere who are driving the exploitation of these hardwood trees. Large quantities of invasive blackthorn *Acacia mellifera* and exotic mesquite *Prosopis* spp. are available, but *Acacia erioloba* is the preferred firewood because of the supposed "better" coals it provides. It is perhaps at this end where, through improving the awareness of the consumer, the unsustainable harvesting of the camelthorn can be addressed.

No, or very little, research has been conducted to determine the role dead camelthorn trees play in the ecology of the Kalahari. It is known that these trees provide a microhabitat for cavity-nesting birds, insects and certain species of lizards but this has never been quantified. This makes it difficult to provide guidelines for the sustainable removal of a quota of dead trees. An added problem is that, for such a long-lived tree, the sustainable utilization of a small number of dead trees may not prove profitable and, indeed, there are indications that in some areas live trees are also being removed.

Researchers and conservationists will now be addressing some of these issues and it has been considered a priority to determine (1) the extent of the harvesting of these trees, (2) the economics of this activity (particularly relating to who benefits financially), (3) whether the wood is a by-product of woodland clearing for cattle and

other livestock or driven solely by market forces, (4) the ecological role of dead camelthorn trees and (5) recommended levels of sustainable utilization of dead trees.

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