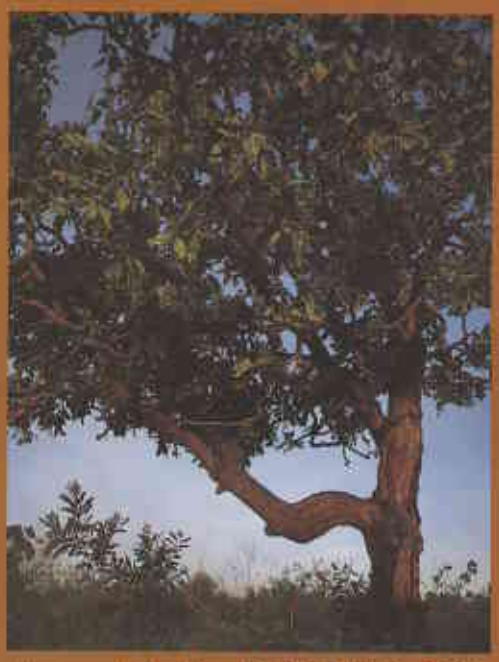
Fragrant Harvest



by IAN KEALLEY

Sandalwood conjures up many images. For some, it excites memories of Asian holidays, exotic fragrances and carvings. Older generations of farmers, prospectors and "bushies" think of the tough breed of sandalwood pullers who worked from bush camps. For the few remaining pullers it's a living. Sandalwood harvesting, one of W.A.'s first export industries, continues to thrive in remote parts of the State.

SANDALWOOD (*Santalum spicatum*) is a small tree or shrub 3 to 8 m tall and 10 to 30 cm in diameter, with sparse irregular spreading branches and dull grey-green fleshy leaves. It is a root semi-parasite associated with a range of hosts, and is slow growing, but well adapted to drought. The heartwood is highly valued for its aromatic oils.

The genus *Santalum* contains several species found in Asia, Australia, Indonesia and South Pacific Islands. Quondong (*Santalum acuminatum*), bitter quondong (*Santalum murrayanum*) and false sandalwood (*Santalum lanceolatum*) are close relatives. All occur in W.A.

Sandalwood is distributed from the W.A. coast and Wheatbelt through the drier areas of W.A. and S.A. to north of the Flinders Ranges. It grows on a wide range of soils with the best stands found where vegetation types mix, providing a wide range of hosts.

Growth is very slow. In the more arid regions, it takes 50 to 90 years for a sandalwood tree to reach 125 mm in diameter. Flowering depends on rainfall and can occur in any season, and the small, primitive, pungent flowers develop into fruits with red-brown leathery skin.

Sandalwood seeds germinate after rain cracks the nut. Only 1 to 5 per cent germinate. Germination and survival is greater in research areas and plantations, but still generally less than 20 per cent. This, along with sandalwood's susceptibility to fire and grazing by domestic and feral animals has resulted in low levels of regeneration outside conservation reserves.

Once widespread in the Wheatbelt, today sandalwood is mainly found over 42 million ha of pastoral properties and vacant Crown land of the Eastern Goldfields, Murchison, North-Eastern Goldfields and Central Desert (Map 1).

The W.A. sandalwood industry has an annual export value of around $10 million. The wood is exported to Taiwan, Hong Kong, Singapore, Thailand and Malaysia, where it is used to manufacture joss sticks used in religious ceremonies.

In arid regions sandalwood trees take up to 90 years to reach commercial size and natural regeneration is low, so harvesting is strictly controlled. ◄

Sandalwood pullers are a rugged breed: they often work from isolated bush camps in the outback. But the rewards can be high. Pullers receive at least $900 per tonne for dead or green sandalwood.
Photo-Cliff Winfield ▼

EARLY HISTORY

In the early part of the nineteenth century there was an enormous trade imbalance against the Western Australian colony. In 1843 the value of native sandalwood was recognised and settlers were instructed to salvage and store wood for possible export.

In early 1845 a group of settlers shipped 4 tons to the Far East. When they received the excellent price of $20 per ton, the Western Australian sandalwood industry began. By 1848 exports had leapt to 1335 tons, earning 45% of the colony's export income and making sandalwood the colony's primary export industry. For the rest of the nineteenth century, about 3000-4000 tons of sandalwood was exported each year, providing the colony with badly needed income.

In those days, sandalwood harvesting was time consuming; it had to be cut, cleaned and hauled to the coast by bullock or horse teams for export from Fremantle, Bunbury, Albany or Geraldton.

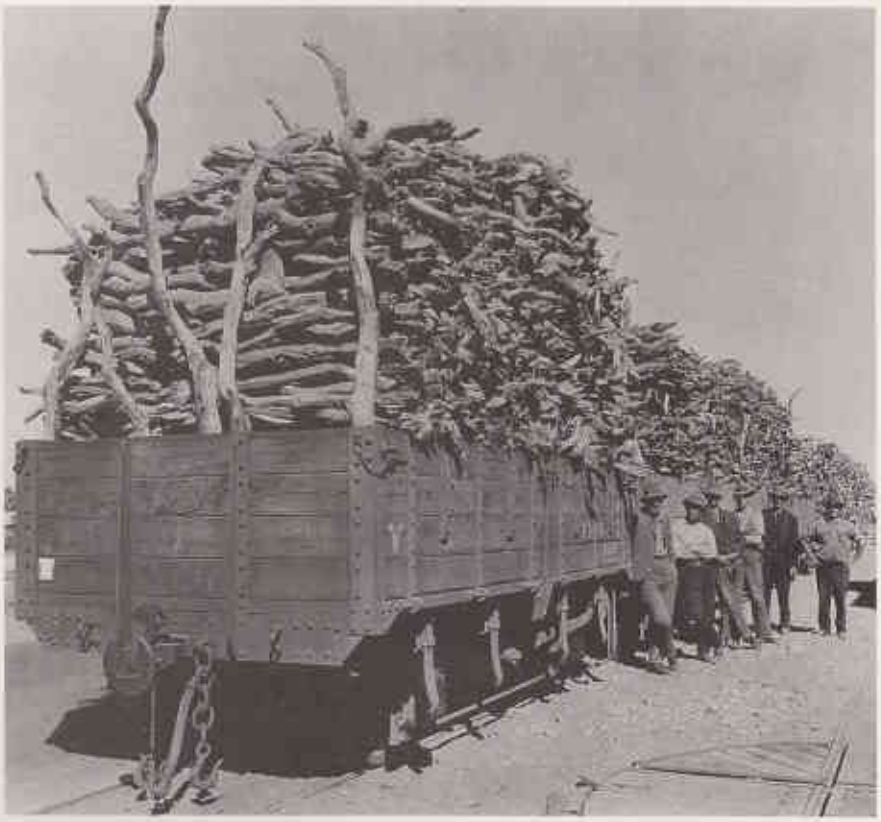
The export trade picked up around 1900. Pullers were quick to capitalise on the opening of the Eastern Goldfields Railway in 1896, which gave access to large areas of uncut sandalwood in the interior. Sandalwood harvesting provided essential supplementary income for many prospectors and gold miners, and opened up many areas in the State's Goldfields.

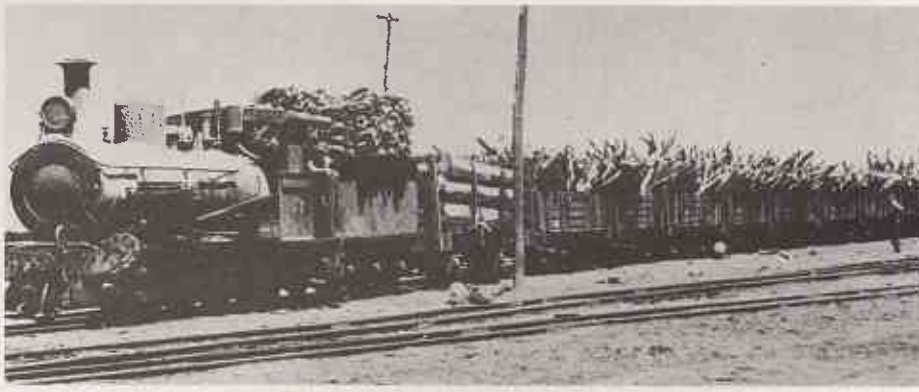
In the late 1920s and early 1930s four companies were exporting sandalwood and competing for markets in China. There was no restriction on prices or quantities and pullers were usually only paid a subsistence wage.

When civil war broke out in China the market collapsed, and huge stocks of sandalwood accumulated at Fremantle and country rail sidings. Pullers were not paid and the industry was in chaos. To rationalize the industry and provide funds to pay the pullers, who were in dire straits, the Government agreed to underwrite the sandalwood stocks if the four companies merged. In 1929 a Sandalwood Act was passed and in 1930 the companies were amalgamated into the Australian Sandalwood Company.

In 1932 a Sandalwood Export Committee was set up, with representatives from the Western Australian and South Australian Governments, the Australian Sandalwood Company and the Co-operative Sandalwood Company (S.A.). The Committee still operates, but without South Australian involvement, as the State no longer exports sandalwood.

The Export Committee co-ordinates the industry. It determines policy, harvesting and management and sets an annual export quota based on availability, market needs and conservation. Although market demand for sandalwood is greater than the current export quota of 2000 tonnes, this figure ensures top returns and market stability.



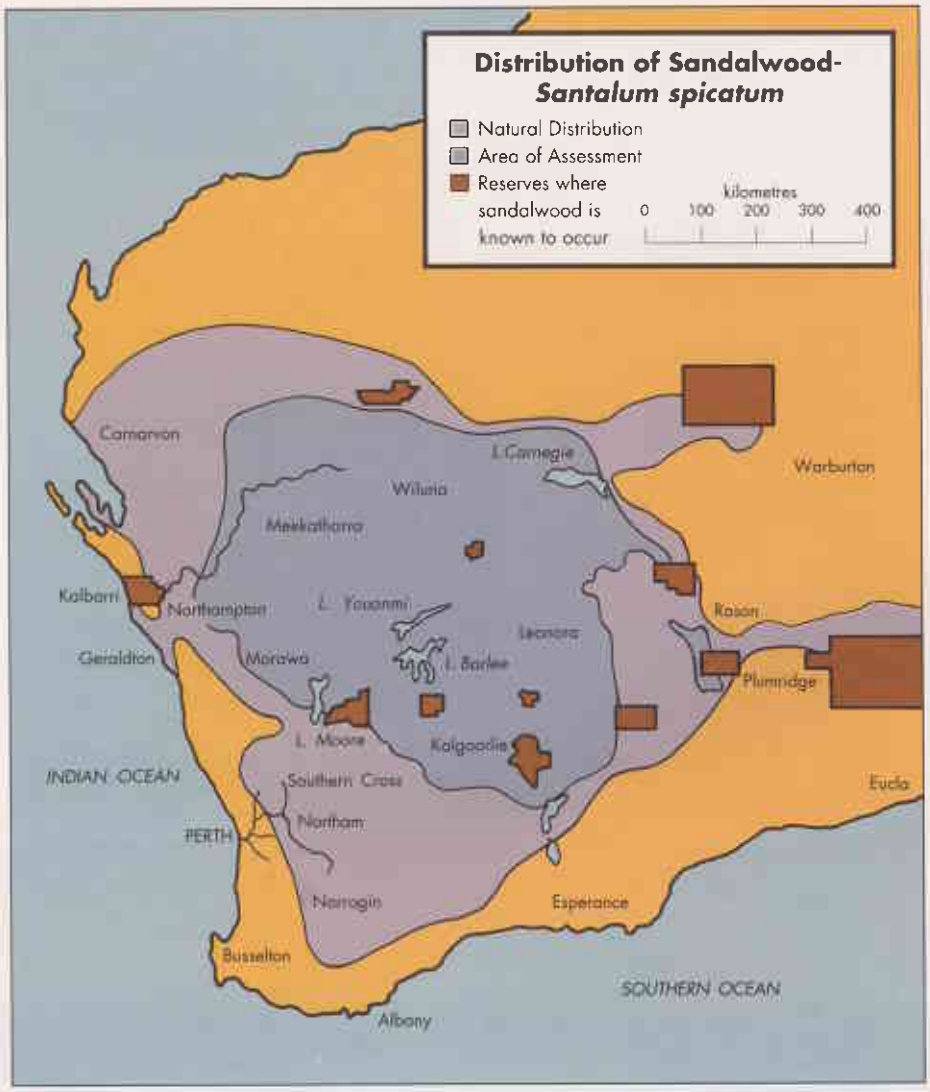


In earlier times, sandalwood pulling was a common activity associated with agricultural clearing. Now only a few people are licenced to harvest the tree. ▲▲

The new rail service to the Eastern Goldfields in 1896 opened up large areas of the Goldfields to the sandalwood trade. ▲

CURRENT INDUSTRY

The W.A. sandalwood industry is now stable and profitable. The annual export quota is filled by full and part time contractors operating from mobile bush camps under CALM license. There are currently 21 licence holders with quotas from 5 to 300 tonnes per annum.



Contractors employ a further 50 people, and operate in the Goldfields, Murchison and Yilgarn and, to a lesser extent, at Shark Bay, parts of the Central Desert and in the North-Eastern Goldfields. Harvesting is strictly controlled by licence conditions.

Sandalwood is harvested as either green barked logwood or deadwood. No useful part of the tree is wasted. Trees are pulled or pushed from the ground, not felled or cut, because the roots, butts, stems and branches all contain valuable heartwood. Green wood was originally cleaned down to the heartwood with an adze; now only the bark is removed with a machine. Loose bark, dirt and charcoal are cleaned from deadwood.

Once cleaned, the wood is packed into pallets and transported to the Australian Sandalwood Company shed at Spearwood, where it is processed, sorted and packed for export to South-East Asia. Products include trimmed green and dead logs, butts, chips and powder.

CONSERVATION

Conservation is of paramount concern. Sandalwood may only be harvested if there is no damage to young plants, or alteration to the distribution or conservation status of the species.

Strict controls, including a minimum size for harvesting live trees are applied. No harvesting is allowed within a certain distance of water points, homesteads and outbuildings, main roads and access tracks. Seeds must be planted when harvesting green stems, and there are incentives to take a greater amount of deadwood and salvage dead trees (the proportion of deadwood was 61 per cent of the quota in 1988). Harvesting is restricted or banned in areas of high conservation value. These measures have greatly improved sandalwood conservation.

However, outside Crown reserves, grazing by animals like sheep, goats and rabbits prevents regeneration, and sandalwood, like a number of other species, is declining as a result. It is also extremely fire sensitive, and more frequent fires since European settlement have had an effect.

RESERVES

Through sandalwood's range, 7.3 million ha of statutory reserves contain varying amounts of sandalwood.

Widespread harvesting before controls were introduced significantly reduced the sandalwood resource in the Wheatbelt and adjacent areas, and today there is a lack of suitable land for reserves in some pastoral areas, especially in the Murchison and Gascoyne.

Conservation reserves of representative sandalwood stands are adequate in the Goldfields, Yilgarn and Central Desert. Additional reserves are needed in the North-Eastern Goldfields pastoral areas.

RESEARCH

Initial research and experimental planting of sandalwood in the 1920s and 1930s at sites in the Wheatbelt and Goldfields revealed low germination rates, poor survival (around one per cent) and problems with grazing. Best results were achieved in water-gaining sites on good loam soils, where sheep and rabbit grazing could be prevented.

From 1980 to 1984 the Forests Department compiled comprehensive resource data, mapped the occurrence of sandalwood and calculated the total remaining resource. A major study on the regeneration requirements of the species was also carried out. This information is now used to manage the industry.

SCARP PROJECT

In September 1988 the $1 million Sandalwood Conservation and Regeneration Project (SCARP), funded by the sandalwood industry and aimed at improving the conservation status of sandalwood, commenced in WA.

The priority is to conserve representative areas of sandalwood with viable populations of plants in an effective reserve system. Pastoral leases will be purchased for reserves and grazing will be removed. Reserves are being fenced to keep out feral animals.

Sandalwood plantations will also be developed. Trial plots have been

established and fenced in the Greenough Region, and a 40 ha block has been purchased in the Wheatbelt (near Narrogin) for a trial plantation in 1990. Site preparation and irrigation has been completed within the Ord irrigation area in Kununurra for planting of 8 ha of Indian sandalwood (*Santalum album*) in May 1990, and further 12 ha in May 1991. Plantings in remnant woodland on farms in the Merredin, Katanning and Greenough districts will also be encouraged.

Research will be carried out and existing research utilised to ensure the best possible management.

The project will also promote general awareness of sandalwood conservation and regeneration through publicity, information and interaction with landholders and the public. A permanent sandalwood display recently opened at the Museum of the Goldfields.

Sandalwood has played a vital role in W.A.'s history since it was first exported in 1845. Today it is still shipped from Fremantle and forms a living link with the past. Conservation through management and initiatives such as the SCARP project guarantee the sandalwood heritage will survive for future generations.

It takes two workers about a day to harvest and clean one tonne of green sandalwood. The bark is removed with a machine before the wood is carted to Perth.◄

Sandalwood reserves, like this one at Bullock Holes, offer the best chance for natural regeneration, as they can be fenced to keep out grazing animals. ▼

Characters & Rogues

Eighty five year old Bill Savage, who still pulls sandalwood 140 km east of Kalgoorlie with his "modified" 1927 Chev truck, is typical of the characters associated with the sandalwood industry.

The industry, by its very nature, attracts the rugged independent type prepared to rough it in the bush while gathering the next load.

Bill, who has pulled sandalwood on and off for most of his life, harvests his 50 tonne annual quota of deadwood from a rustic bush pole tent camp. Like many others, he works a two week shift before returning the 140 km to Kalgoorlie for supplies.

As well as the many characters there were a few rogues. My grandfather, Herbert Booth, relates the story of one unscrupulous puller operating around Konnongorring in the mid-1920s, when sandalwood pulling was associated with agricultural clearing and was a common activity.

The puller was only licensed for certain properties, but made a practice of employing "new chums" off the boats, setting up their camp on the boundary of his area and neglecting to mention the harvesting restriction on adjacent properties. Once pulled, the owners had little option but to sell the sandalwood.

The same puller was known to take the sandalwood buyers from the city, who measured the stacks in the field for payment, to his three stacks. That is, stack one, stack two then, by a circuitous route, back to stack one. The buyers were none the wiser and the puller increased his earning by a third.

LANDSCOPE

VOLUME 4 NO 4 WINTER EDITION 1989

Effluent disposal ponds from industry disfigure an idyllic strip of coastal land. But restoration work and a new conservation park are planned for the Leschenault Peninsula, near Bunbury. *Turn to p.8.*

Wood that was once only suitable for firewood can now be used to make high grade furniture. *Find out how on p.24.*

With spring approaching, the bush beckons...but without proper planning your walk could turn to disaster. *See p.40.*

A spectacular landscape, with an astounding array of plants and animals lies inland from Jurien Bay. Read about the Mt Lesueur area on p.28.

A population explosion of coral-eating snails threatens the unique reefs of Ningaloo Marine Park. How does CALM plan to counter their attack? *See p.14.*

COVER

In W.A.'s far north, Aboriginal rangers with ties to land now in national parks draw on the traditional wisdom of their people for use in Park management. Photo-Robert Garvey

FEATURES

REGULARS

SPECIALS

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