

SANDALWOOD

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Santalum spicatum is the Western Australian sandalwood, which occurs also in South Australia. It is a small, stoutly-branched shrub or tree, usually growing to a height of 5 metres and a diameter of 200 mm; larger trees have been exploited. At one time it extended throughout the agricultural and arid lands of Western Australia, not in pure formations but as a root parasite scattered among the other species of shrubs and woodlands of Eucalyptus and Acacia.

Sandalwood was located in the well-drained soils along the main drainage lines over a wide area of the State (generally between latitudes 25° and 34° south) from the north-west islands near Carnarvon on the coast, south through Northampton and east of the Darling Range jarrah forest, bounded by the Nullabor Plain and longitude 126° east.

The common name is derived from the commercial sandalwood of fragrant timber of Arabian origin, and the botanical name from the latin spicatus for the spike-like tight arrangement of the flower buds. The sapwood is a pale yellow in colour and the truewood usually dark brown. The truewood contains strongly aromatic santolols; these are the principal alcohols of the sesquiterpenes and form over 90 percent of the distilled oil, equal in quality to the earlier oil of the East Indian sandalwood, Santalum album. Work on the structure or chemistry of this oil still may be incomplete. The oil was used in medicine prior to penicillin and is valued for use in cosmetics, soaps and perfumes. The distillation of the oil from roots and dead pieces ceased in 1967 and exports from stock ceased in 1971 (W.A.F.D. Annual Reports).

The Chinese have valued the use of sandalwood highly in ceremonies for hundreds of years. The common joss stick is a slip of bamboo 1 mm x 300-600 mm long. Approximately two-thirds is smeared with paste and sandalwood-flour. After lighting this tip and blowing out the flame, the coated bamboo smoulders down towards the uncoated portion, giving off smoke and incense for the portrayal of a ritual. Sandalwood also is highly esteemed in ornaments and the fine arts by Chinese. Kessell (Conservator from 1921-1941) reported that sandalwood grew originally in quantity

in various Asian countries, notably China and India. As exploitation led to the exhaustion of supplies in China, Chinese junks obtained supplies from the Pacific Islands. This source was nearing exhaustion when white settlement commenced in Western Australia in 1829. This led to the opening up of a new source of supply, which by the late 1800's supplied the greater part of the sandalwood consumed in China.

The story of sandalwood is the story of people who sought new land for agriculture, of how they used this land and of how they lived. Sixteen years were to pass, from the beginning of settlement, before the first consignment of four tonnes in 1845 demonstrated that the fragrant wood of this small tree could be traded to the Chinese. The export value in the 1860's reached one sixth of the State's total export income, second only to wool. The export value of 3 016 tonnes of sandalwood in 1868 was \$104 180 (or 27% of the State's export value for that year). The export value of other timber in 1868 was only \$2 552.

Demand, through manipulation by oriental traders, fluctuated tremendously and exports ranged from 400 to 14 200 tonnes per year. More than three quarters of the total resource was exploited before regulation through legislation was accomplished by the passing of the Sandalwood Act in 1929.

The average quantity of 3 450 tonnes exported annually during 128 years (440 000 tonnes from 1845 to 1973) has now fallen to 1 200 tonnes. Nevertheless, this is the highest since World War II and it is being exported mainly to expatriate Chinese. Present supply is from Meekatharra and Cundeelee, where trees previously too small have now grown into commercial size of 105 mm diameter overbark.

A survey is being made to determine the influence of drought, of over-use and of the pulling quota on this resource. Both short term and long term aims of this project are:

1. to examine the influence of the sandalwood pulling quota on the vegetation;
2. to define the place for sandalwood in the restoration of site capacity in relation to these agencies,
 - (i) following drought,
 - (ii) in the grazing system.

An information sheet on Sandalwood, written by P. Richmond, is currently in press and, as mentioned in the last edition of Forest Notes, a future edition of Forest Focus will also be dealing with the subject.