



Department of  
Primary Industries and  
Regional Development

## Journal of the Department of Agriculture, Western Australia, Series 3

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Volume 2  
Number 2 March-April, 1953

Article 10

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3-1953

### Trees of Western Australia— the coolabah

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Gardner, C A. (1953) "Trees of Western Australia— the coolabah," *Journal of the Department of Agriculture, Western Australia, Series 3*: Vol. 2: No. 2, Article 10.

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# TREES OF WESTERN AUSTRALIA

By C. A. GARDNER, Government Botanist

## No. 16—THE COOLABAH (*Eucalyptus microtheca* F. Muell) and

## No. 17—THE GREY BOX (*Eucalyptus tectifica* F. Muell)

**T**HE coolabah and the grey box are two common tropical trees which closely resemble each other in bark, foliage and other characters, but which differ widely in their soil requirements and in their timbers. Both are numbered among the most valuable trees of the Kimberley district because of the strength and durability of their exceedingly hard timbers and their resistance to the ravages of the termite.

To those who classify trees according to their bark characters, both the coolabah and the grey box are typical "box trees", each possessing close, persistent bark not unlike that of the tuart or the trunk of the york gum.

### THE COOLABAH

#### (*E. microtheca* F. Muell)

The coolabah of the Kimberleys always has this rough persistent bark except on its smaller branches, although even these are occasionally rough-barked. The bark of the larger coolabah trees is often deeply fissured.

On the other hand, in the southern forms of the coolabah, the whole of the trunk and branches may be white and smooth. Coolabah trees found in an area extending from the Strelley River as far south as the Murchison River have bark which appears to have been whitewashed, that is to say it has an external matt-white powdery bark which is easily rubbed off.

The white-barked trees of the Murchison River were called "callaille" or "yathoo" by the aborigines.

This form of coolabah is apparently not found outside Western Australia, but in Central Australia, trees with rough bark over all, or the greater part, of the trunk, with smooth branches are not uncommon. The Central Australian tree was formerly named *Eucalyptus coolabah*, a name that has fallen into disuse.

The timber of the two West Australian forms appears to be different. The northern coolabah has a deep sepia-brown excessively hard timber with an interlocked grain traversed by numerous whitish threads. In hardness it is unsurpassed among Australian eucalyptus timbers, being about as hard as the famed lignum-vitae of tropical America, but lacking the oily character of the latter. Coolabah trees from the Gascoyne and Murchison districts have a reddish-brown timber that is very hard, heavy and elastic.





Fig. 1.—Coolabah tree (*E. microtheca* F. Muell) near Fitzroy Crossing, West Kimberley.

In the Kimberleys the coolabah tree attains a diameter of up to four feet. The timber is used for buildings (especially for posts in the soil) and for stock yards. No visitor to the Kimberleys can fail to be impressed by the amount of labour expended on the construction of these massive post-and-rail stock yard fences which are six to eight feet in height and of extraordinary strength and solidity.

The coolabah tree in both of the forms has its own particular habitat. It is found exclusively near rivers and water courses on alluvial soils subject to periodic inundation and it appears to favour a clay subsoil. Extensive areas of this nature occur throughout the length of the Fitzroy river to the south of the Geickie Gorge and along the plains of its principle tributaries, the Margaret, Mary and Louisa Rivers, and Christmas Creek. It is also common along the Lennard river and lower Ord river, but much less common on the streams of the Hann plateau to the north of the King Leopold Range.

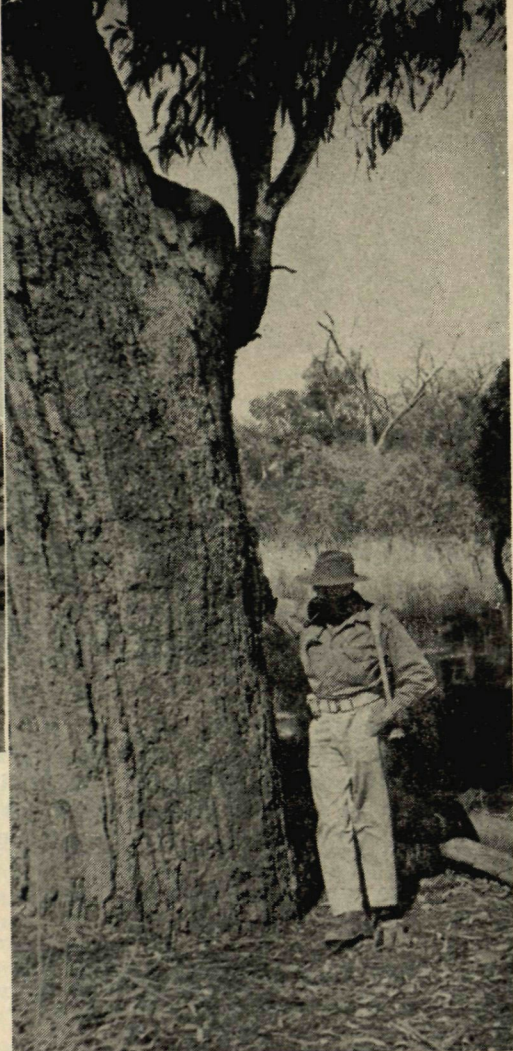


Fig. 2.—Large coolabah, showing deeply-fissured bark.

## BOTANICAL DESCRIPTION

**COOLABAH** (*Eucalyptus microtheca* F. Muell.)—A tree attaining a height of over 80 feet, but more frequently 40-60 feet tall, with widely spreading branches, more richly branched than most tropical *Eucalyptus* trees, the crown as broad as the tree is tall; the trunk relatively short, up to four feet in diameter, and together with the main branches covered with a grey hard fibrous-flaky, usually deeply-fissured bark, brown in fracture, the bark of the upper branches and branchlets usually smooth, but the smooth bark sometimes extending down the branches, or the entire bark smooth, matt-white, and appearing whitewashed; the timber deep sepia-brown in colour, very hard and dense with an interlocked grain. Branchlets slightly angular.

Leaves alternate, stalked, lanceolate to oblong, acute or more frequently obtuse, straight or sickle-shaped, 6-15 cm. long, the same colour on both surfaces, dull, leathery, the midrib prominent, the lateral nerves widely diverging from the midrib and loosely anastomosing, forming an open network, the intramarginal nerve distant from the leaf-margin.

Umbels 3-7-flowered, arranged in small terminal or axillary panicles, the peduncles and pedicels short, the pedicels usually shorter than the calyx-tube.



Calyx-tube almost hemispherical, 3-4 mm. long or more, smooth; operculum (cap) hemispherical, obtuse or umbonate, smooth, varying from slightly shorter, to slightly longer than the calyx-tube. Stamens in a continuous ring, all perfect, the filaments inflexed in the bud, yellowish-white in colour; anthers basifixed, ovoid to almost globular, opening longitudinally in short broad slits which almost converge upwards, but remain quite distinct. Fruit variable in shape from hemispherical to cup-shaped, rather thin, falling after the seeds have matured, or perhaps before, 3-5 mm. long and about as broad, often slightly contracted at the top, the rim thin, the disc lining the calyx-tube. Capsule more than half free, 3-4-locular, the broadly ovate valves flush with the rim or slightly protruding. Fertile seeds elliptical; cotyledons broadly cordate-reniform. Flowering season, January-February.

## THE GREY BOX (*E. tectifera* F. Muell)

In the grey box the rough bark extends to the ultimate branches, unlike that of the coolabah where the smaller branches are usually smooth.

The grey box is the common tree of the basalt areas to the north of the King Leopold Range, but unlike the coolabah it is not found along the streams but is more typical of the stony hills and undulating country. Its occurrence is so closely connected there with basalt and andesite, that this particular soil type can at once be mapped by reference to the grey box trees.

To the south and to the east of the Hann Plateau however, it is found in quite different soils but does not appear to be common in these areas. Apart from isolated specimens I have only found the tree on the sandstone soils at Carlton Hill Station, the high sandy ground along the Fitzroy River between Fitzroy Crossing and Ellendale, and the red sandy country close to Yeeda and on the plains of the Lennard and Barker Rivers between the King Leopold Range and the Lennard River.

Its value as timber is second only to that of the coolabah but it rarely attains a height in excess of 45 ft., with a comparatively slender trunk. The accompanying photograph shows a small tree. Unlike that of the coolabah, the grey box timber is a deep red in colour and lacks the white threads so characteristic

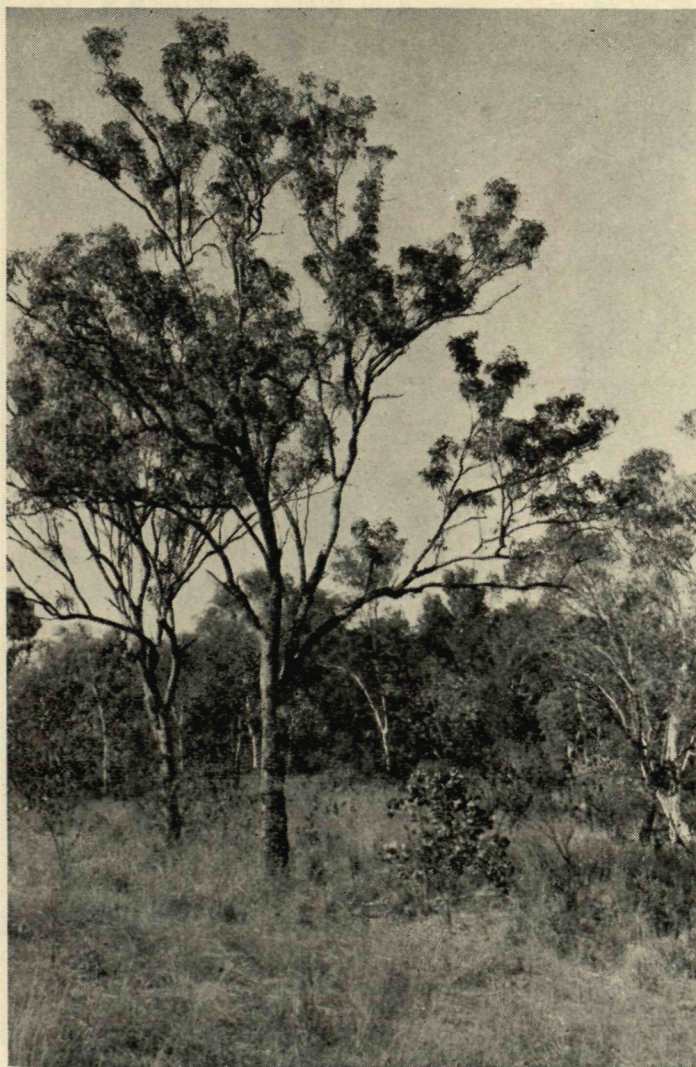


Fig. 3.—The grey box (*E. tectifera* F. Muell).

Photo: R. A. Perry.





COOLABAH (*E. microtheca* F. Muell) A-H). A—Twigs with buds, flowers and fruits; B—Flower buds (much enlarged); C—Ant+er; D and E—Fruits (much enlarged); F—Fruit in section; G—Seeds (much enlarged); H—Coty ledons.

GREY BOX (*E. tectifera* F. Muell) (I-Q). I—Branchlet with young buds; K—Panicle with buds (much enlarged); L—Anther (much enlarged); M and N—Fruits (enlarged); O—Fruit in section; P—Seeds (much enlarged); Q—Cotyledons. Icon. origin.



of coolabah. The grey box is stated to be a valuable nectar-producing species.

No information is available concerning the oils of the two trees but from field observations it is doubtful whether they have any value in this respect. The young leaves of the grey box have a pleasant odour, suggesting the presence of limonene, but this requires confirmation.

Both trees have fruits which fall during the same season as flowering, but they do not persist like those of the southern *Eucalyptus* species. Those of the grey box are fragile and of a thin almost eggshell-like consistence, being easily crushed between the fingers. In this, the tree resembles the cabbage gum, ghost gum, carbeen and some other tropical species.

The fruit of the coolabah is much smaller and less fragile but equally deciduous.

### BOTANICAL DESCRIPTION

**GREY BOX** (*Eucalyptus tectifica* F. Muell.)—A tree attaining a height of 40 feet, but usually 20-30 feet tall, with a proportionately longer and more slender trunk than that of the coolabah, and rarely exceeding 18 inches in diameter, the branches remaining erect and relatively few, the crown open. Bark persistent throughout, pale grey, fibrous-flaky and narrowly fissured, hard, deep brown in fracture; timber deep red, hard and dense. Branchlets subterete.

Leaves alternate, stalked, lanceolate to oblong-lanceolate, the same colour on both surfaces, dull green or glaucous, leathery, usually pendulous, 8-17 cm. long, acute or acuminate, the midrib alone prominent, the lateral nerves less widely divergent than in the coolabah, and usually more numerous, not close, loosely anastomosing, the intramarginal nerve usually rather close to the margin, except in broad leaves.

Umbels 3-5-flowered, in terminal panicles, or rarely the panicle axillary, shorter than the leaves, the peduncles rather slender, the pedicels short. Calyx-tube pyriform-campanulate, smooth, more or less tapering into the short pedicel, 4-5 mm. long.

Operculum hemispherical, apiculate or umbonate, not broader than the calyx-tube and shorter than it, rarely the operculum almost conical. Stamens all perfect, in a continuous series, the filaments white, inflexed in the bud; anthers basifixed, globular-reniform, opening in almost transverse slits which almost converge at the top, the gland terminal.

Fruit pedicellate, cupular to cupular-cylindrical, usually slightly contracted at the orifice, 4-8 mm. long, thin and fragile, and falling after the seeds mature, the rim very thin, the capsule more than half free, 3-4-locular, the valves broad and obtuse and almost flush with the rim, or more deeply included. Seeds spherical; cotyledons cordate-reniform.



Fig. 4.—Trunk of grey box, showing typical bark growth.

Photo: R. A. Perry.

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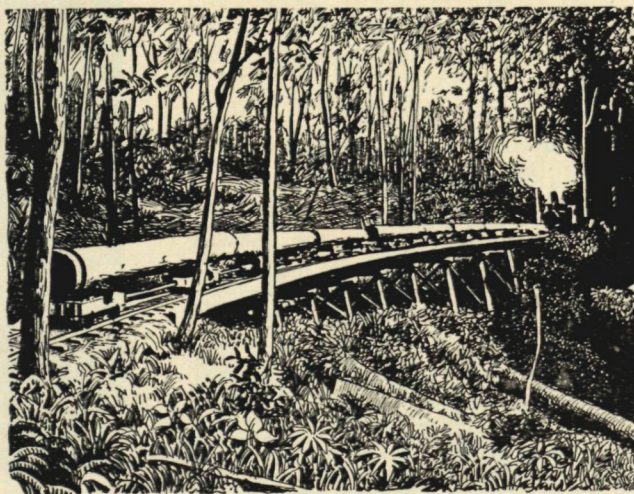
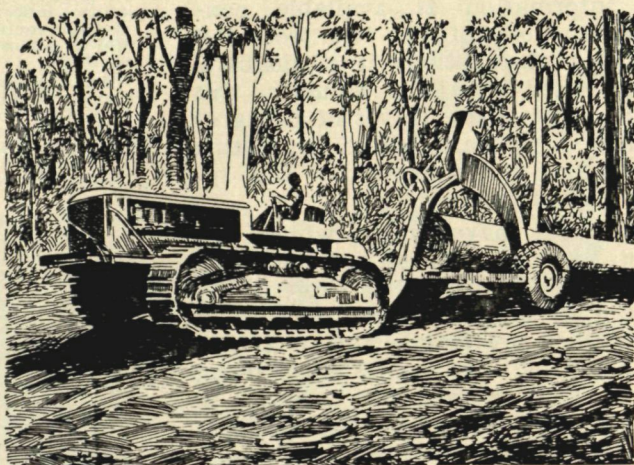
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