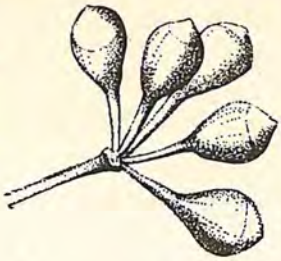
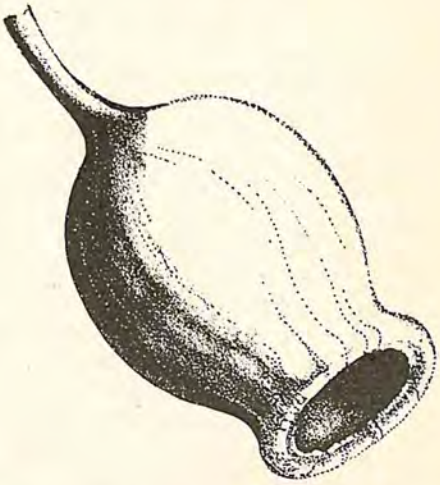
Leaflet No. 3.



Western Australian Forests Department

Marri



Marri Forest, Pemberton, W.A.

Marri (*Eucalyptus calophylla, R. Br.*)

INTRODUCTION

Marri, a large and shapely tree, is the most widely distributed eucalypt in the south-west of Western Australia. The early settlers knew the tree as red-gum, no doubt because of the prevalence of a red gum or kino in the wood. The kino was often used as a tanning material. However, to avoid confusing the tree with the better known River Red Gum *(Euc. camaldulensis)*, the native name of MARRI was substituted for redgum some 50 years ago.

The tree is well known to the apiarist and farmer. In suitable seasons it gives a copious supply of nectar, usually flowering in the summer months of February and March. For the farmer its shapely form, dense crown and large white flowers make it an attractive and valuable shade tree.

The name *calophylla* signifies beautiful leaf, while children know the fruits as "hockey nuts".

HABIT AND DISTRIBUTION

Marri has been recorded as growing near Port Gregory, some 64 km north of Geraldton; near Tinkurrin, 48 km east of Narrogin and as far as Cape Riche on the south coast. In the marginal areas, the tree is usually stunted.

In the prime jarrah forest, mature marri trees grow to over 30 metres in height, with 12 to 15 metres of bole and diameters at breast height of 1.2 metres or more. In the wetter karri regions they frequently attain heights in excess of 46 metres with a correspondingly greater bole length.

The largest tree yet recorded grew about 3 km west of Pemberton in a farmer's paddock, and had a height of 61 metres, a bole of 2.2 m, a girth at breast height of 6.35 m and a merchantable log volume of 34.4 m^3. A second large tree occurs some 32 km south-west of Collie with the corresponding measurements of 54.25 m, 29.87 m, 5.84 m, and 36.7 m^3.

Marri usually occurs in mixture with jarrah or karri and is not often seen in pure formation, although small pure stands do occur south of the Blackwood where the species reaches its best development, some small areas east of Yanchep in the inter-dune of the Bassendean sands, and occasional patches near Bindoon in sandy loams where there is a unique association of marri where the only understorey shrub is zamia palm.

Growing in forests yielding high quality clear timber of jarrah and karri, marri until recently has been by-passed in logging. However, it is now coming into wider use following appreciation of its good properties.

TIMBER PROPERTIES

In mature trees the heartwood is light brown and the sapwood varies in width from 10 to 25 mm. The grain is slightly interlocked and the wood is nonfissile, with a uniform medium-coarse texture.

It is easily worked, but the prevalence of gum veins and the occasional loose ring has, in the past, inhibited its use as a saw timber. Nevertheless, it is stronger than jarrah, seasons with much less shrinkage than jarrah and karri and takes paint well. It is not difficult to nail and does not tend to split as much as some of the lighter eucalypts.

It steam bends satisfactorily.

Marri is of particular interest because it shows little decay or fibre breakdown, even in the heart of the tree. In wood-chip and pulp mills, this will enable the species to be chipped as a whole tree operation, avoiding costly segregation of faulty material. In this respect marri is unique among the hardwoods of Australia available for this purpose.

SEASONING AND DURABILITY

Marri seasons well but somewhat slowly by air or kiln drying, with medium shrinkage and practically no distortion. Degrade resulting from gum vein and ring shake separation may be serious, particularly in quarter sawn stock. Collapse is slight and reconditioning unnecessary.

The sapwood is susceptible to lyctus attack and should be removed in sawing any timber intended for use where appearance will be important. Alternatively, the sapwood can be readily treated by a suitable preservative process.

Although better than karri, the timber is not as durable in the ground as jarrah.

The heartwood is moderately resistant to attack by termites and fungus, but experience shows that it is not as resistant as jarrah. Beams in damp situations have been proven sound after 12 years, and it is considered that their life as bridge stringers can be reckoned as 25 years. As fence posts, marri heartwood gives a service life of about 20 years. Piles have satisfactory driving qualities in both green and dry conditions. Marri has been used in small quantities for marine piling on the Western Australian coast from Geraldton to Albany, and has lasted 10 to 15 years. Its corrosive action on bolts and spikes is negligible.

Marri is in C.S.I.R.O. durability Class C. Treated at 1378 kpa the timber retains an average of 0.0673 grams/cm^3 of creosote-oil mixture.

AVAILABILITY

Marri is not stocked by all timber merchants, but supplies are available in small and large sections and in lengths up to 10 metres from most mills in the south-west. Sections above 65 cm^2 often contain a fair amount of kino in the form of gum veins or pockets. Marri is also readily available in pole and pile sizes and the total quantities available in either form are very large.

GENERAL USES

Marri has adequate strength and durability for use as piles, sills and beams in bridge construction and it is satisfactory for marine piling where the hazard from marine borers is of low intensity. Preservative treatment makes marri suitable for use as poles. Experimental lots of sleepers have been used by the Western Australian Government Railways, and they are also in use in New Zealand.

The timber is being used successfully for handles, shafts and oars, and for bats and other sporting goods. Sawn marri has been used in some cottage framing, weather boards and tile battens quite satisfactorily. It is being used for the framing of flush panel doors and in select quality it would be excellent for furniture construction. It has also been found to make satisfactory fruit and beer cases.

MARRI STRENGTH PROPERTIES

(Tests on small clear specimens)*

Property	Green	12% M.C.
	gr/cm³	gr/cm³
Density	1 217	798
Static Bending—Centre Loading—	kg/cm²	kg/cm²
Fibre stress at limit of proportionality	5 364	7 977
Modulus of rupture	7 944	12 795
Modulus of elasticity	1 378 017	1 694 399
Compression Parallel to Grain—		
Stress at limit of proportionality	2 904	4 120
Maximum crushing strength	4 134	6 742
Modulus of elasticity	1 595 969	1 870 166
Compression Perpendicular to Grain—		
Stress at limit of proportionality—		
Radial	1 090	935
Tangential	956	1 033
Torsion—		
Stress at limit of proportionality	674	816
Maximum torsional shear stress	1 272	1 575
Modulus of rigidity	85 071	107 569
Hardness, Janka Test—	kilograms	kilograms
Radial	676	717
Tangential	671	735
End Grain	644	671
Shear—	kg/cm²	kg/cm²
Radial	935	1 328
Tangential	935	1 230
Cleavage—	kg/metre	kg/metre
Radial	475	579
Tangential	594	644
Impact Bending Strength—	mm/kg	mm/kg
Denison—		
Radial	10 527	11 703
Tangential	10 695	11 255
Izod—		
Radial	9 542	11 490
Tangential	10 415	11 692
Shrinkage, green, to 12% M.C.—	Before reconditioning	After reconditioning
Radial	3.7%	3.4%
Tangential	6 6%	5.6%

* Data not to be used for designing.

PREPARED UNDER THE DIRECTION OF B. J. BEGGS, CONSERVATOR OF FORESTS.