

Resource Notes

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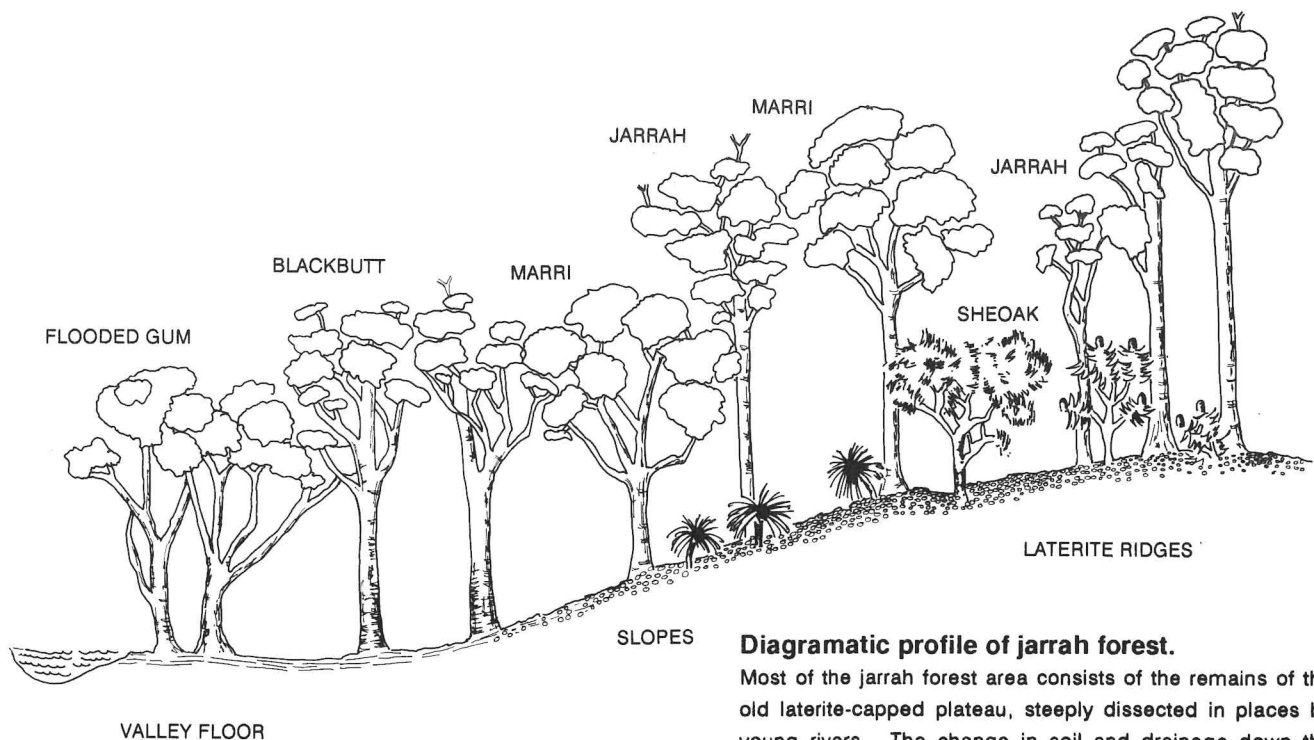
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SOME TREES OF THE JARRAH FOREST

Despite the relatively infertile soil and the long dry summers, there are many different plant species in the jarrah forest. The forest is named for its dominant tree, jarrah (*Eucalyptus marginata*), but there are a number of other trees in the forest, most of which, like jarrah, are eucalypts. Precisely where species grow in the forest depends mostly on the type of soils and the available moisture, so the trees provide a clue to the environmental conditions of their site.

This guide follows the change in tree species from the gravelly laterite ridges where jarrah predominates, down the slopes where jarrah mixes increasingly with marri to the moist, more fertile valley floors where flooded gum and blackbutt occur. It only applies to areas of natural forest though; in some parts of the forest bauxite mining has altered the soil profile and different types of trees have been replanted. All the species in this guide occur naturally only in Western Australia.

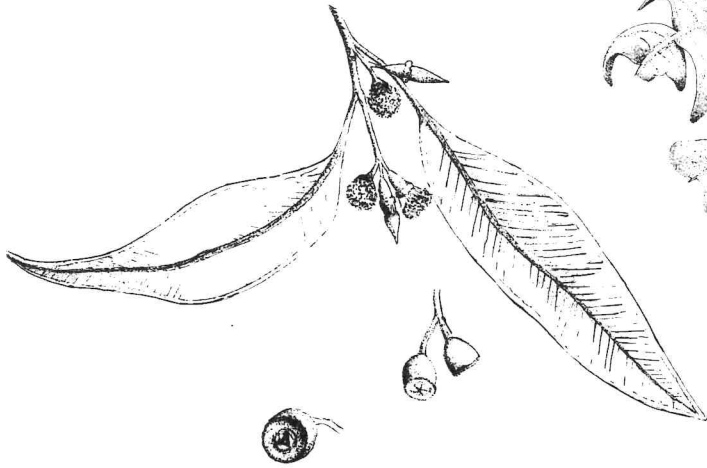


Diagrammatic profile of jarrah forest.

Most of the jarrah forest area consists of the remains of the old laterite-capped plateau, steeply dissected in places by young rivers. The change in soil and drainage down the slopes provides a range of conditions, suitable for different species.

1. LATERITE RIDGES

On the top of the ridges, where the thickest laterite occurs, the soil is gravelly, relatively infertile and usually well drained. These ridges support the best, often almost pure, stands of jarrah. There is also a small amount of marri (*Eucalyptus calophylla*) mixed in with jarrah. *Banksia grandis*, a much smaller tree, often occurs as part of the understorey, particularly in areas of heavy laterite. In some very poorly drained sites there is an acute dieback problem.

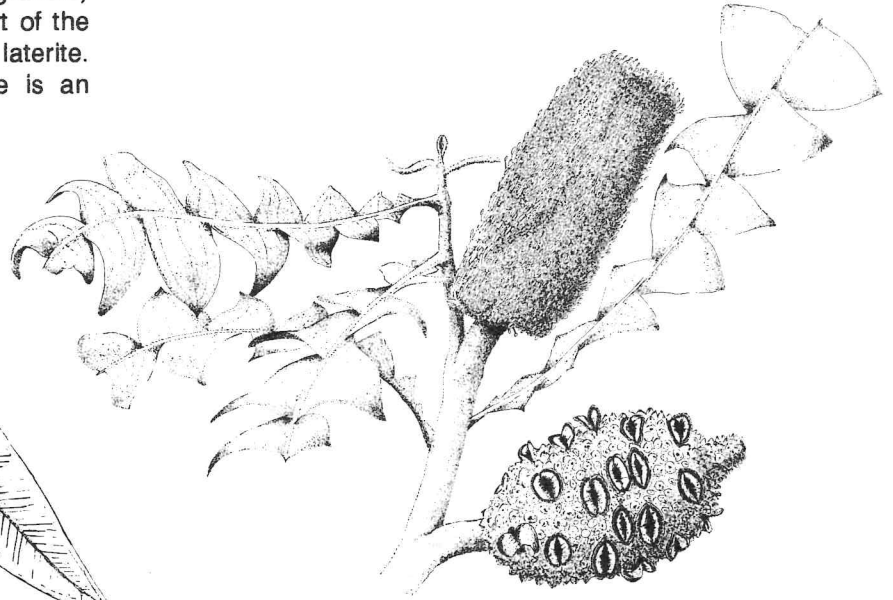


Jarrah (*Eucalyptus marginata*)

Jarrah grows to a large tree, often over 30 metres, with a straight trunk and dark grey fibrous bark. It can be distinguished from other eucalypts by its bark, fruit and buds. Its species name, *marginata*, comes from the pattern of veins forming a margin around the edge of the leaf.

Jarrah can grow to a huge size, despite long droughts, infertile soils and frequent fires. It sends deep sinker roots down through cracks and gaps in the hard caprock to locate water, and thus is able to continue transpiring through summer, in contrast to many shallower rooted species, which become dormant. It is a very slow-growing tree. If seedlings are sheltered from sunlight and suffer from competition, they may remain as small, suppressed shrubs for many years. During that time they grow deep roots, and build up a lignotuber, a swollen root-stock which contains a supply of buds ready to grow should the opportunity present itself. Seedlings establish normally after fire on ashbeds where nutrients are available and competing shrubs have been killed.

As it is a quality timber, much of the finest jarrah has been removed from the forest. Look for big old stumps for evidence of past logging activities. Note the wide spacing of these stumps in relation to the density of the regrowth trees.



Bull Banksia (*Banksia grandis*)

The banksia is much smaller than the forest trees, and really makes up part of the understorey, growing to about 10 metres.

Its long, dark green, serrated leaves are arranged in circles around the tall, pale yellow flower spikes. *B. grandis* flowers in spring. As the flowers die, the large, woody fruiting cones are left.

The prominent spikes make a useful landing place for birds, and the nectar is an important food source for many, especially honeyeaters, as well as the tiny honey-possum. Many animals, including owls, bats and the pygmy-possum, feed on insects attracted to the flowers. In exchange for food, animals act as pollinators, transferring pollen grains on feathers and fur, from one plant to another. The hard, woody fruits help to protect the seeds from heat and drought. *B. grandis* grows in infertile soil, but it has a special fine feeder root, adapted to trap nutrients normally unavailable to plants. Unfortunately, it is particularly susceptible to *Phytophthora cinnamomi*, the fungal disease causing dieback, which invades the roots. Yellow leaves are the first sign of infection and plants die quickly.

2. MID-SLOPES

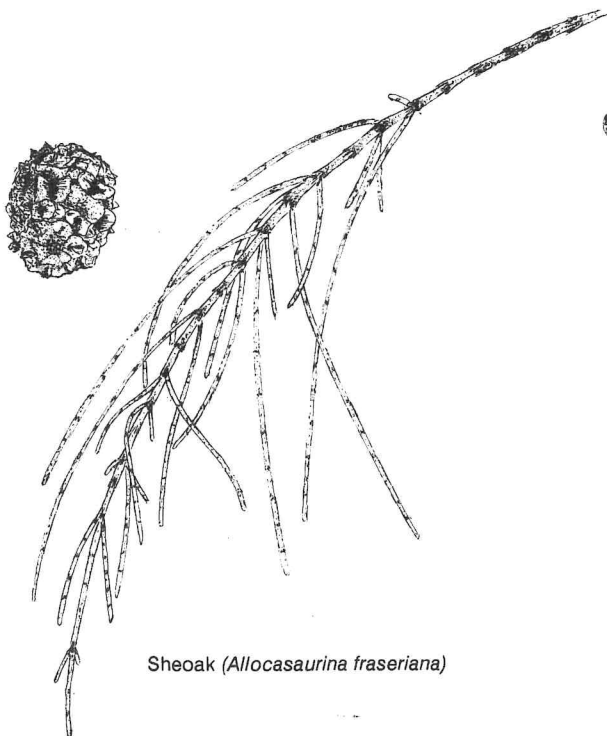
Jarrah, banksia and marri extend down the slopes, but in well-drained sites on fine gravel there is often a grove of sheoaks. These always occur in poor, infertile soil, and few other plants grow underneath them.

Sheoak (*Allocasaurina fraseriana*)

Because of the soft bed of needles, the limited understorey, and the sound of the wind, a casaurina grove has a different atmosphere to the rest of the forest.

The casaurinas resemble pines, but they do have very small flowers and leaves. The leaves are reduced to minute scales on modified stems, which look like pine needles.

The flowers are specialised for wind pollination. Located at the end of special branchlets, the long, red flower styles protrude to catch pollen grains carried by wind from male trees, identifiable by branchlets covered with rust-coloured pollen. The female flowers develop into woody fruits. When these open, the winged seeds are dispersed by the wind.



Sheoak (*Allocasaurina fraseriana*)

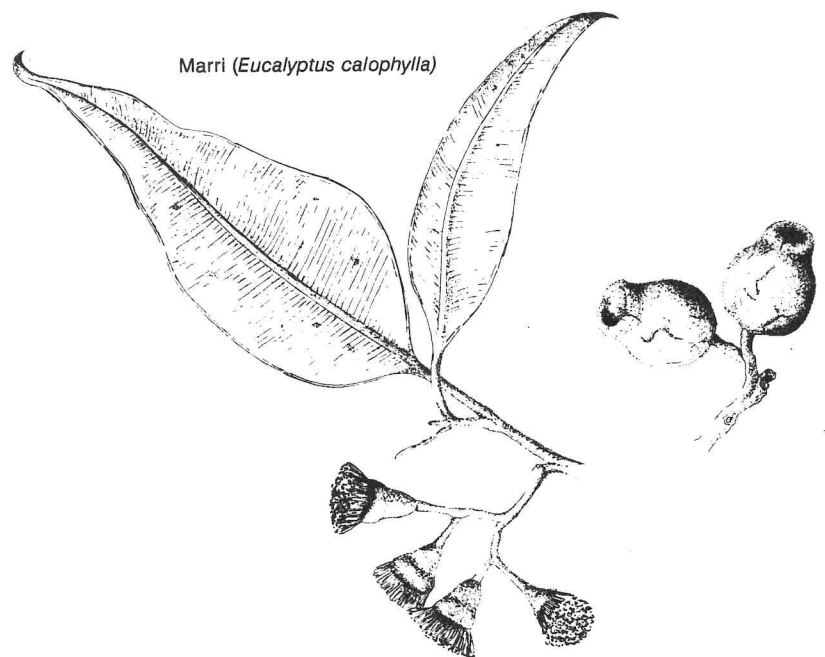
3. LOWER SLOPES

Further down the slopes, the amount of jarrah decreases slightly, and the amount of marri increases. Marri prefers moister sites, and becomes quite common near the bottom of valleys and around granite outcrops (which act as water catchment areas).

Marri (*Eucalyptus calophylla*)

Marri, often called redgum, is common over most of the South-West. Look for the large fruits (honky nuts) to distinguish marri from jarrah. Its bark is different too; it is grey-brown and breaks up on the trunk into rough squares rather than strips. The form of the tree is also distinctive: the branches are wide-spread and often wiggly, beginning about two-thirds of the way up the trunk. The leaves are broader than jarrah, with closer veins.

Marri flowers plentifully in late summer, and its creamy white flowers are an important food source for bees, other insects and many birds. Parrots feed on the seeds and often nest in hollows in the trunks and limbs. Marri can be an important habitat tree for possums as well. A possum tree can be recognised by scratch tracks up the side of a trunk.



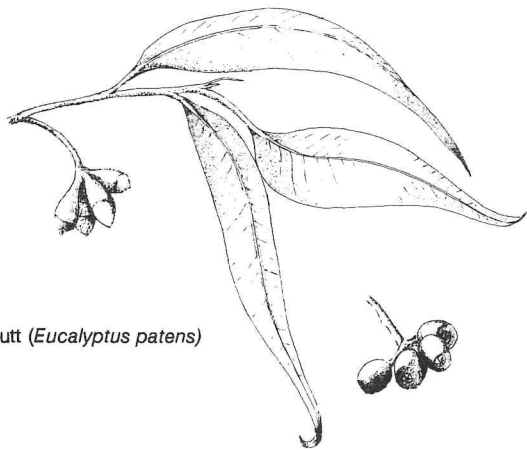
Marri (*Eucalyptus calophylla*)

4. VALLEY FLOORS

On the bottom of the valleys, fertile soil has built up from stream deposition. Blackbutt occurs in the most fertile moist sites, and bullich in the wet sites, particularly along the smaller streams.

Blackbutt (*Eucalyptus patens*)

Blackbutt gets its name because the bark, which is very durable, is often charred and blackened from past fires. It looks similar to jarrah, but the fruit is smaller and the leaves have a bluish tinge. Also, it generally occurs in different places to jarrah. It prefers fertile alluvial soil or red loam. In the best sites, it can occur in pure stands.



Blackbutt (*Eucalyptus patens*)

Bullich (*Eucalyptus megacarpa*)

For bullich moisture is more important than fertile soil, so it tends to grow in gullies and near creeks.

Bullich is quite different to the other common jarrah forest eucalypts, with its smooth yellowy-white deciduous bark and unusual hemispherical fruits. The name megacarpa means large fruit, though the fruits are not exceptionally large. It flowers in late spring.



Bullich (*Eucalyptus megacarpa*)

5. FLOODPLAINS

In the very moist sites, on river and creek banks, in flood plains and in swamps, another eucalypt, the flooded gum, grows.

Flooded gum (*Eucalyptus rudis*)

Flooded gum is most easily distinguished by its bark, which is rough and dark over the short stout trunk and lower branches, and smooth, pinky-grey over the upper branches. Flooded gum is always associated with water courses, swamps or other low-lying wet areas.



Flooded Gum (*Eucalyptus rudis*)

Trees don't give the only clues to environmental conditions though. The large range of understorey plants (over 600 species) have very sensitive requirements, and changes in plant communities can be used to indicate a transition from one type of site to another. Community boundaries are usually indistinct because changes in conditions are gradual, so often a large range of species occur together.

FURTHER READING

*Erikson, R., George, A.S., Marchant, N.G., and Morecombe, M.K., 1973. Flowers and Plants of Western Australia.

*Ecology of Jarrah. Bulletin Number 1. Department of Conservation and Land Management.
