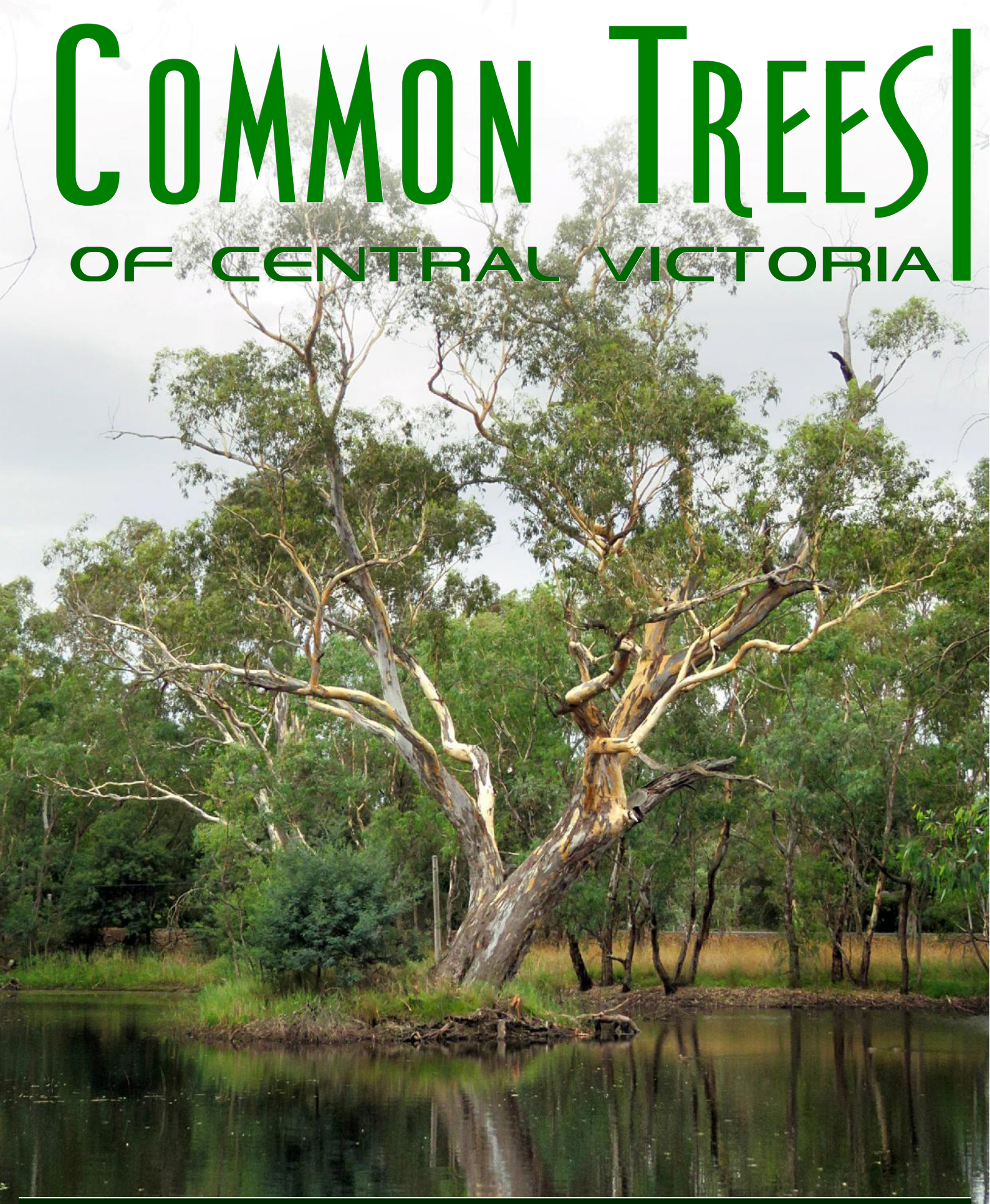
Common Trees
of Central Victoria



River Red Gum

By Steven & David Hibbert

COMMON TREES OF CENTRAL VICTORIA

RIVER RED GUM

Eucalyptus camaldulensis Subsp. camaldulensis

By Steven and David Hibbert

Contributors:
Trevor Hibbert, Debbie Hibbert, Lance Adams, Angela ten Buuren, Fred & Robin CB, Bev Dick, Robert Gardiner, Jack Hibbert, Allan Layton, Denis Martin, Peter Matheson, Kathie Maynes, Kelly Petersen, Robert Tate, Shez Tedford, Ron Turner

FIRST PUBLISHED 17 JANUARY 2020 AND LAST UPDATED ON 20 JULY 2024

INTRODUCTION

In preparing this resource, we acknowledge the traditional custodians of this land, current, past and future. Our efforts are not meant to harm, but to respect and value this history and to educate ourselves and others about First Nations Peoples and what we might learn from them.

This publication is dedicated to our father Trevor Hibbert who passed in early 2019. As the patriarch of our family, he guided us into a greater understanding of nature and taught us to appreciate and respect our natural environment. As a carpenter for most of his adult life, he loved wood and understood its strengths and weaknesses.

This book is a collaborative effort between two tree-loving brothers Steven Hibbert and his younger brother David Hibbert. As brothers growing up in the rural township of Alexandra in Central Victoria, we were constantly around trees and wood.

This book is a comprehensive free photographic eBook on the iconic river red gum. It is our hope that it can be used for nature-based education in schools as well as for the broader community.

As an education aid, this publication has been designed with teachers and their classrooms in mind. Teachers can easily load the eBook onto their students' electronic learning devices and the content has been crafted to be visually instructive and easily understood.

This eBook will continue to improve over time, including through community input and direction. If you can help, we would love to hear from you.

Thanks to our contributors for helping make this publication possible.

Steven and David Hibbert

River red gum

Yarck

CONTENTS

Introduction

Common name:	**River red gum** (Dehn. *camaldulensis)*
Kingdom:	Plantae
Order:	Myrtales
Family:	Myrtaceae
Genus:	*Eucalyptus*
Species:	*E. camaldulensis* subsp. *camaldulensis*

Growth rate:	Medium to fast depending on availability of water and soil quality
Height:	Up to 45 m
Trunk:	Up to 3.9 m diameter (girth of 12.4 m at one metre above ground)
Age:	Usually up to 200 years, but some are thought to live up to 1000 years
Distribution:	Waterways in Australia
Altitude:	Up to 450 m
Cultivation:	From seed in summer to autumn months
Frost:	Tolerant
Drought:	Moderate, they may shed branches to survive drought conditions
Fire:	Moderate
Bark:	Usually greyish and smooth, but becoming rougher with age
Bark colour:	White, grey to red-brown
Adult leaves:	Dark green leaves that range in length from 90 mm to 210 mm
Flower:	Cream flower from November to February (not always yearly)

Description

The river red gum species *Eucalyptus camaldulensis* has the widest naturally occurring distribution of all Eucalyptus trees in Australia. It is found in every state of Australia and is usually near waterways, on floodplains, or in areas with a subterranean supply of water.

River red gum is named for the rich red colour of its wood. Unusually, the river red gum was first described in 1832 at a private estate near Naples, Italy, having been imported and grown at that locality. Red gum trees have no trunk rings, so it is hard to approximate their age outside of photographic records.

E. camaldulensis Subsp. *camaldulensis*

Introduction

Taxonomy
There are seven subspecies of *Eucalyptus camaldulensis* now accepted by the Australian Plant Cencus. These are:

Eucalyptus camaldulensis
|
acuta *arida* **subsp. *camaldulensis*** *minima* *obtuse* (blakely) *refulgens* *simulata*

Eucalyptus camaldulensis* subsp. *camaldulensis
Eucalyptus camaldulensis subsp. *camaldulensis* is the focus of this eBook. It is abundant on the banks and floodplains of the Murray and Darling rivers and their tributaries (like the Goulburn River).

This subspecies is distinct for: its pronounced beak on its bud caps (operculum), having stamen that are inflexed or irregularly flexed in buds, and having narrow lanceolate juvenile leaves which are non-glaucous (not covered with a dull waxy coating often seen on other eucalypts).

The river red gum and Aboriginals


Message Stick

The early custodians of Australia were a people often referred to today as Aboriginals. They were very well adapted to living outdoors and sourced their food via a highly successful symbiotic relationship with nature. While the river red gum is just one of thousands of trees on the continent, Aboriginals formed a special bond with this species and uses included:

- shade and basic shelter
- for finding food (e.g. birds eggs, possums, grubs)
- wood for fires
- musical instruments
- birthing and burial purposes
- ring trees for marking territory, ceremonial grounds, burial grounds and direction
- birthing trees (where women sheltered when giving birth)
- As carving trees (where carvings were made directly into the tree)
- tools such as message sticks and digging sticks, canoes and canoe sticks
- utensils such as coolamons

- weapons such as boomerangs, throwing sticks, woomeras, spears, clubs (waddys and nulla nullas) and shields
- personal use items such as tick-sticks and tooth-picks
- small wooden fashion items
- bark, stick and leaf shelters
- source for resin (known as kino in eucalypts)
- eucalyptus oil (sourced from leaves)
- medical and aromatherapy uses

While current day Australians use the river red gum wood for purposes such as fire and heating, furniture, wood chipping and pulping, the keen knowledge and experience of Australian Aboriginals meant they were able to rely on the river red gum in a practical sense, which far outweighs current day uses.

The river red gum today

The river red gum continues to be used today by humans due to it being readily available and dense, durable, long burning and extremely pretty when polished and an oil or protective coating such as lacquer is applied.

In farming the river red gum continues to be popular due to its availability, density and resistance to white ants and rotting. For instance, those benefits make it a perfect wood for fencing. In the Australian rail industry it remains popular for sleepers, but their use is now in decline due to the introduction of cheaper concrete sleepers.

The furniture manufacturing industry is often drawn to the river red gum because of its rustic look due to its beautiful colour and pattern. Sadly we are now seeing the illegal harvesting of burls from large trees for the production of furniture.

In the bush the wood from the river red gum remains a favoured firewood, burning bright, hot and long. Its charcoal produces a long lasting strong radiant heat that is useful in cooking. Because of the tree's tendency to lose branches, harvesting wood from fallen

River red gum

Beside the Goulburn River

branches is easily sustainable on medium to large properties where river red gums grow, and there are currently no restrictions on the collection of fallen river red gum branches on private property.

Big trees are best for the environment

(by © Robert Gardiner)

Ecologically, the presence of large river red gum trees, or for that matter any large and mature native tree, is both critical and very significant for the survival of most native species. Large trees provide much, much more than just refuge for animals to forage in, nest and roost.

They provide a fortress of ‘stability’ from which hundreds of animals can flee to, rest during the heat of the day, perch and observe the surrounding land, and when the local area is safe to do so... fly, hop or crawl away from and move to the next tree or patch of forest. If there are too few trees; animals are constantly at risk when moving to and from each patch of forest (or solitary tree).

Large trees in paddocks or near townships, provide a stable micro-ecosystem from which almost countless generations of other ‘tiny’ animals can grow, thrive and survive in times of:

- sudden storms
- hot spells and cold snaps
- prolonged droughts
- raging fires
- arduous famines
- flooding rains
- occasional feasts (e.g. when a tree is flowering).

The enormous bulk of these large trees are not just confined to the large bole (or trunk of the

tree) that you can normally observe. Much of the tree's volume is above your head, up in the canopy area overhead. Just look up into the branches and what you see are thousands and thousands of tiny living spaces.

The millions of leaves and branches in just one big tree, provide a mini forest in which animals such as birds, bats and insects, can hide and live their entire lives.

Large trees also provide a significant source of food in the form of pollen and grazing surfaces for a multitude of creatures to feed upon. The surface of a single leaf can be the home and grazing surface for microscopic animals. Tiny lerps and other insects, and much larger species such as birds and koalas, need the leaves to feed upon. Their combined droppings, which constantly rain down upon the lower surfaces and soil beneath, feed another level of the local eco-system. Under every tree is a buried ecosystem; which reaches way down into the soils directly under the canopy.

When the weather and climate is fair, organic life can easily flourish. However, when droughts and bushfires rage across the land, it is the large trees that become the long-term survivors that help to replenish the land when the danger has passed. Able to withstand prolonged droughts and indeed long periods of being thoroughly soaked, these big old trees of the Riverine areas, are from where new trees, forests and our own eco-system regenerates. In times of drought, they provide vital food (blossoms and pollen) for insects and birds to feed upon. When good times return, these same animals can spread out again and pollinate the remaining forest, as well as our agricultural food crops that are essential for today's food hungry world.

Chopping down individual trees may seem to be inconsequential, however, after over centuries of continual clearance of Australia's forests (especially near the rivers and wetlands), we simply do not have tens of millions of trees left to clear, burn and ignore. Many older river red gums have been survivors for hundreds of years, let us hope we can help them survive even longer.

Old Growth Tree Timeline

2020	South-east coast Bushfires
2009	Black Saturday Bushfire
2003	Iraq War
1998	Start of Victoria's 15 year drought
1990	Gulf War
1969	Major bushfire
1955	Vietnam War
1950	Korean War
1939	Major bushfire
1939	Start of World War II
1914	Start of World War I
1908	Women receive the right to vote
1901	Federation of Australia
1880	Bushranger Ned Kelly was hung
1858	Aussie rules football was born
1855	Bushranger Ned Kelly was born
1851	Victoria was officially separated from New South Wales
1835	John Batman signed the first agreement (unofficial) between whites and Aboriginals in Victoria
1824	Hume and Hovell expedition
1770	Captain Cook made contact with the Aboriginals of Australia
1750c	This river red gum germinated

Yea river red gum (cut down in 2013)

River red gum

Yea Wetlands

QUICK ID

A Quick Reference Guide for the river red gum

QUICK ID

The river red gum can grow to 45 metres and often grows in a crooked fashion.

It is usually found on or near the banks of waterways, as well as on flood plains.

Bark of the river red gum is greyish, with patches that can range from yellow to red and even green.

QUICK ID

Limbs are smooth and often patterned to their end.

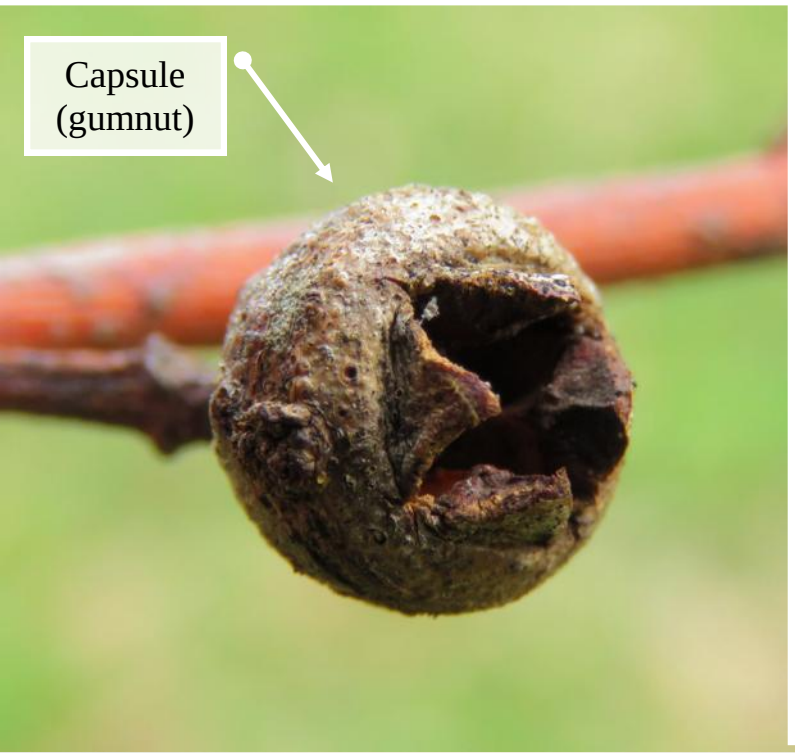
Adult leaves can grow to 210 mm in length, but mostly range between 100–130 mm. They can grow to 60 mm wide.

Buds grow in clusters of 4 to 12, to a width of up to 6 mm. They can have cap hats, which eventually fall off.

QUICK ID

They flower most years between December and February. Flower width is up to 25 mm.

The fruit of the flower swells after the flower is pollinated. They eventually dry and drop seeds.



Capsules have between three and five valves, which open up as they dry out. At this stage, they are known as gumnuts.

River red gum

Thornton Flood Plains

TREE

Exploring the Tree in Pictures

TREE WATER BANKS ROOTS TRUNK LIMBS

BARK LEAVES BUDS FLOWERS FRUITS CAPSULES SEEDS

TREES

River red gums are unique as they often grow crooked.

They usually grow beside rivers, creeks, billabongs, lakes and dams, but can be found on hills.

They vary widely in appearance and often have thick stout trunks.

SAPLING TREES

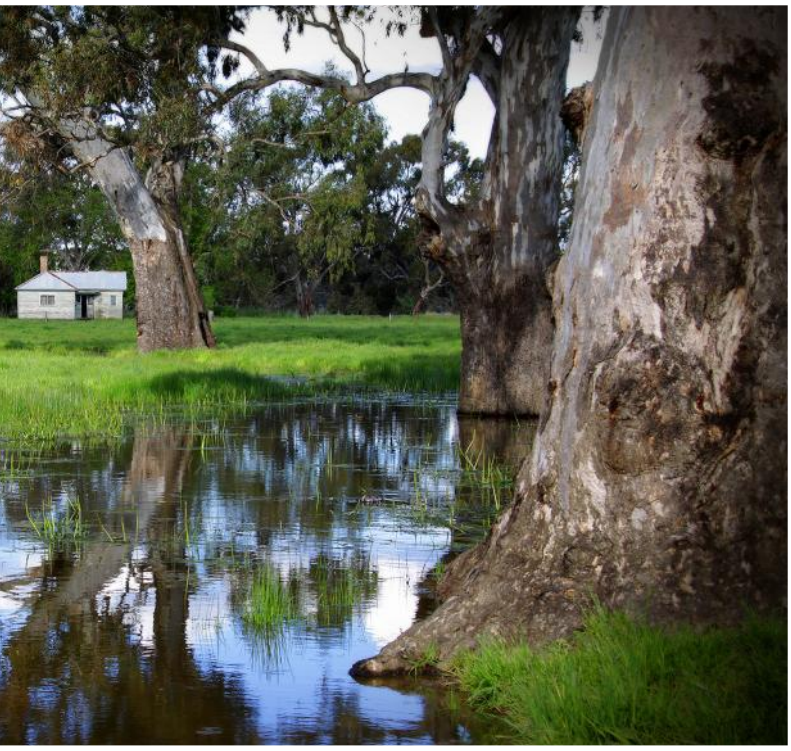
River red gum saplings can look extremely messy.

As they grow, they vary widely in how they appear. These are competing for light, so grow tall and straight.

Saplings can have more than one trunks.

WATER

River red gums are often found growing on banks or floodplains.



They can survive in water for long periods of time. When in drought they draw water from deep below the surface.

They generally grow quicker when they have a good water supply and a moist healthy soil.

River red gum

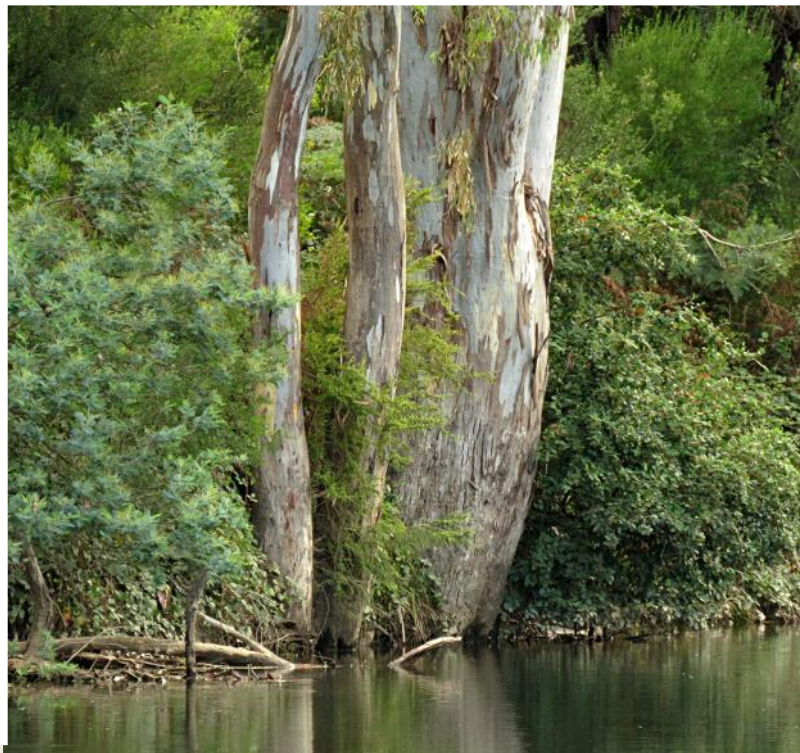
Floodplain

BANKS

River red gum trees help protect the banks of waterways from soil erosion.

Their roots can help hold soil in place during flooding.

Waterways are healthier when their banks are secure from erosion.



ROOTS

The river red gum is the only eucalypt species that can tolerate its roots being in water for long periods.

They like to be in water each year, but with increasing periods of drought in Australia, this is becoming less frequent.

Modern day water management means they miss out on the benefits of floodplains regularly flooding.

River red gum

Alexandra river red gum

TRUNK

Younger river red gum trees are slim and have a smooth trunk.

As they grow older, their appearance takes on a rougher appearance.

Older trees are known for having gnarly uneven bark.

TRUNK

Other plants find it hard to grow under the canopy of the river red gums. This phenomenon is called allelopathy.

However there are exceptions. Here two younger river red gums are growing beside a larger one.

Another exception is the native kurrajong, which may be found growing under river red gums.

TRUNK GIRTH

Girth is a measurement of a tree's circumference usually measured at a height of one metre above the ground.

The Euroa 'Big Red' tree has a girth of just over 10 metres.

Orroroo's 'Big Tree' in South Australia has a girth of 10.89 metres and is one of the biggest girthed trees in that state.

TRUNK HOLES

River red gum trees can have holes in their trunks and still live long healthy lives.

Holes may be small or large. Some are large enough to be a home, such as the Herbig Family Tree in South Australia.

This often results from fire burning the inner wood, or when white ants eat out the inner wood.

TRUNK DAMAGE

Major damage to river red gum trunks can result in the long-term death of the tree.

Normally trees function as a sealed unit, but trunk and limb damage creates an entry point into the tree.

Open wounds such as this are susceptible to moulds, fungal infections, rot, white ants and more.

Euroa river red gum

Largest girth we currently know of (12.460 m)

TRUNK BURLS

Burls grow on the river red gum and often on the main trunk.

Burls are the result of abnormal cell growth.

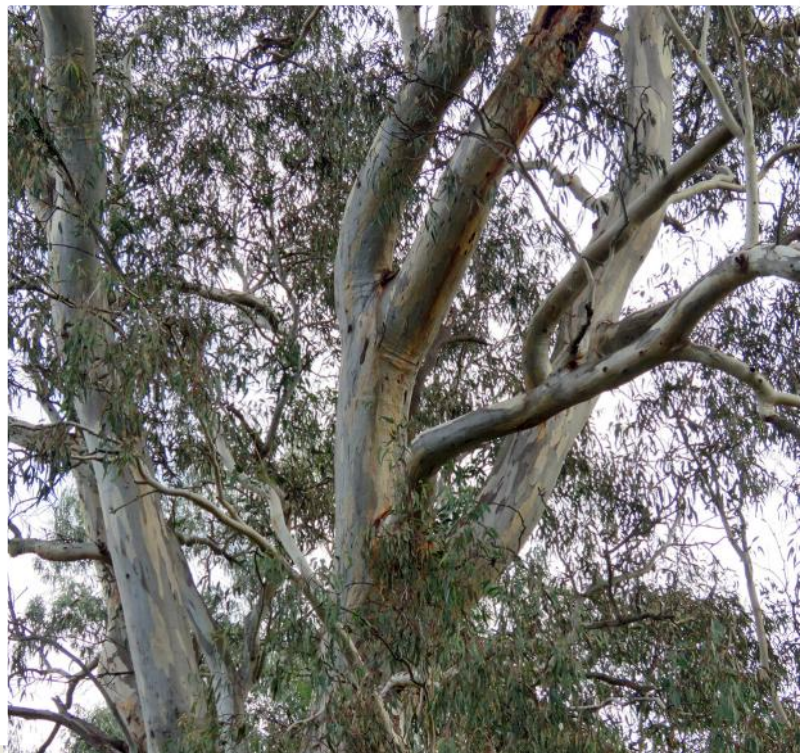
Burls are often illegally removed to make table tops, bowls and wooden furniture. Their removal damages the tree.

LIMBS

Older river red gums can have limbs that are extremely large and weigh many tons.

Like trunks, limbs can have holes which act as habitats for animals.

Upper limbs have smooth bark like the trunk.



FALLEN LIMBS

River red gum trees
may self-sacrifice limbs
during times of stress,
so it can save the tree.

Limbs can drop
with no warning.

Falling limbs cause deaths
in Australia most years.
Never rest or camp under
a river red gum tree.

UNUSUAL LIMBS

At times the river red gum can grow in unusual ways.

In this instance the tree has lost its way and five large branches have grown to the ground.

This tree has extremely long limbs, but none on the apposing side of the trunk for balance.

Watchman Tree

Leckie Park, Alexandra

BARK

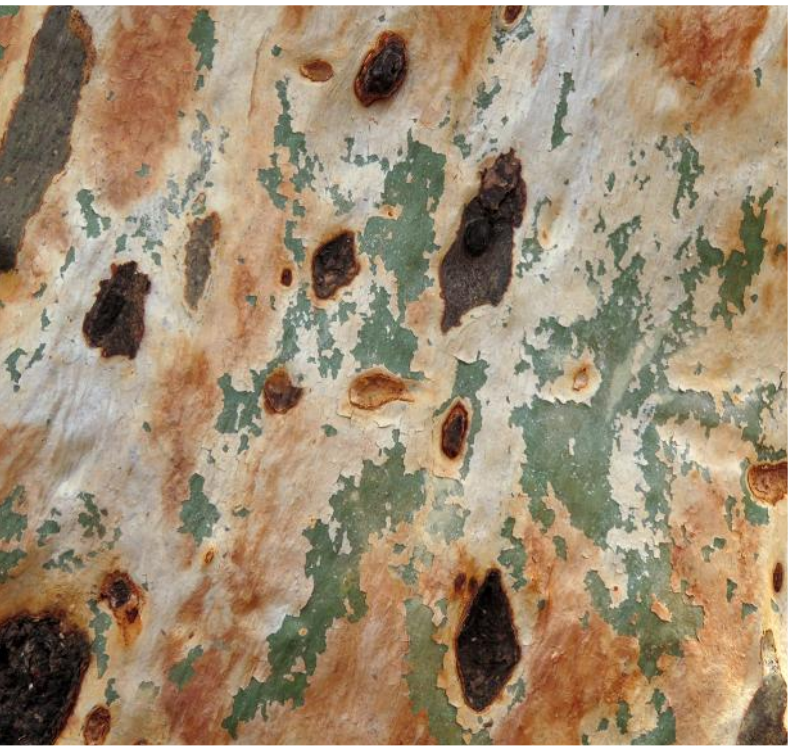
The river red gum bark is usually grey and cream.

Bark of younger trees is usually more smooth than their older counterparts.

Damage to trees may make the bark appear rough and darker.

BARK

The bark of the river red gum peels off annually from summer to autumn.



Exposed new bark can have green, red yellow and orange hues.

Bark can peel off in smaller pieces as well as larger ribbons. Bark is also known as rind.

BARK

When bark-shedding, multiple layers of a trees bark will be visible at the same time.

After bark has peeled, the new bark can appear shiny.

The inside of bark is usually reddish, hard and textured. Bark dries out quickly.

Paddock Trees

Fawcett

JUVENILE LEAVES

At the earliest state of growth, river red gum leaves uncoil.

Juvenile leaves are brighter in colour than older leaves.

Developing leaves can have a reddish colour.

INTERMEDIATE LEAVES

Intermediate river red gum leaves are brighter in colour than the darker green adult leaves.

Intermediate leaves are thinner, softer and more flexible than adult leaves.

Intermediate leaves become adult leaves when they stop growing.

ADULT LEAVES

Leaves of the river red gum have appeared on Australian Postage Stamps.

Adult leaves can grow to 21 cm long, but mostly range from 10–13 cm. They can also grow to a width of 6 cm.

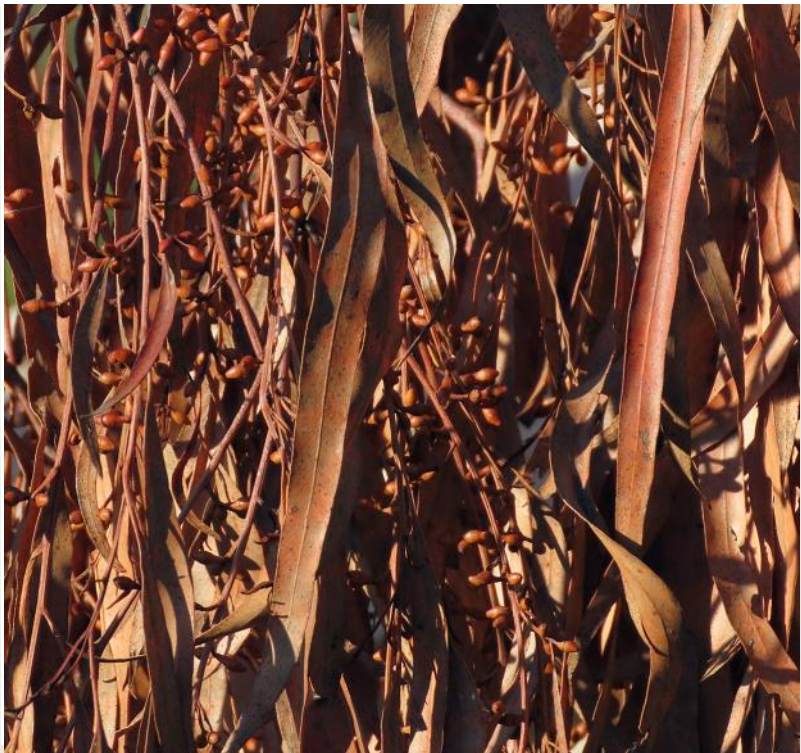
Some species of insect, the koala and some species of possum feed on the leaves of the river red gum.

ADULT LEAVES

Leaves of the river red gum eventually change colour, die, and fall from the tree.

Chlorophyll keeps leaves green, but as they die, chlorophyll stops being produced by the leaf.

Eventually they turn brown as they dry out, such as on this dead tree branch.

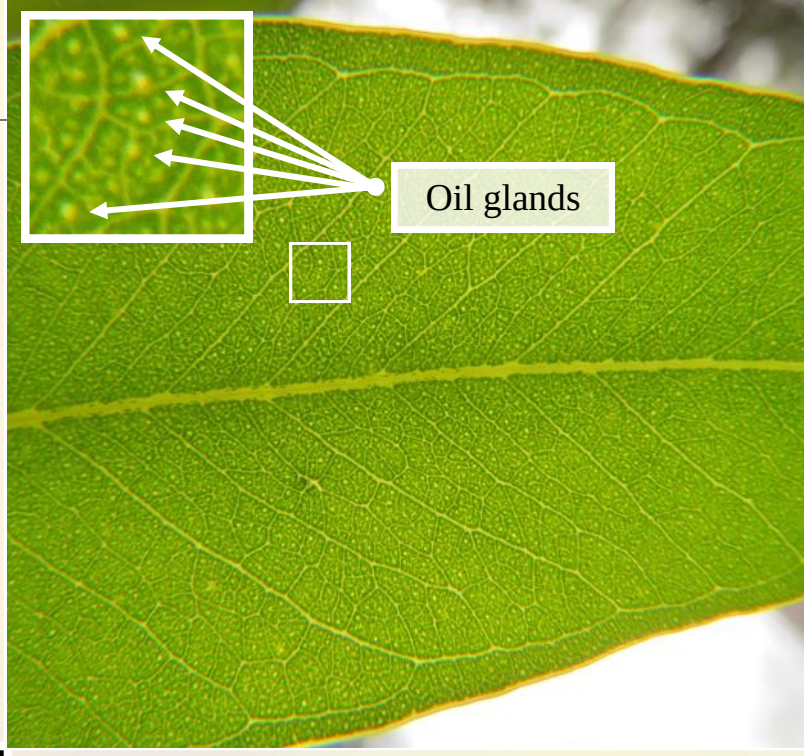


Significant region-wide lerp leaf damage

Fawcett

LEAVES

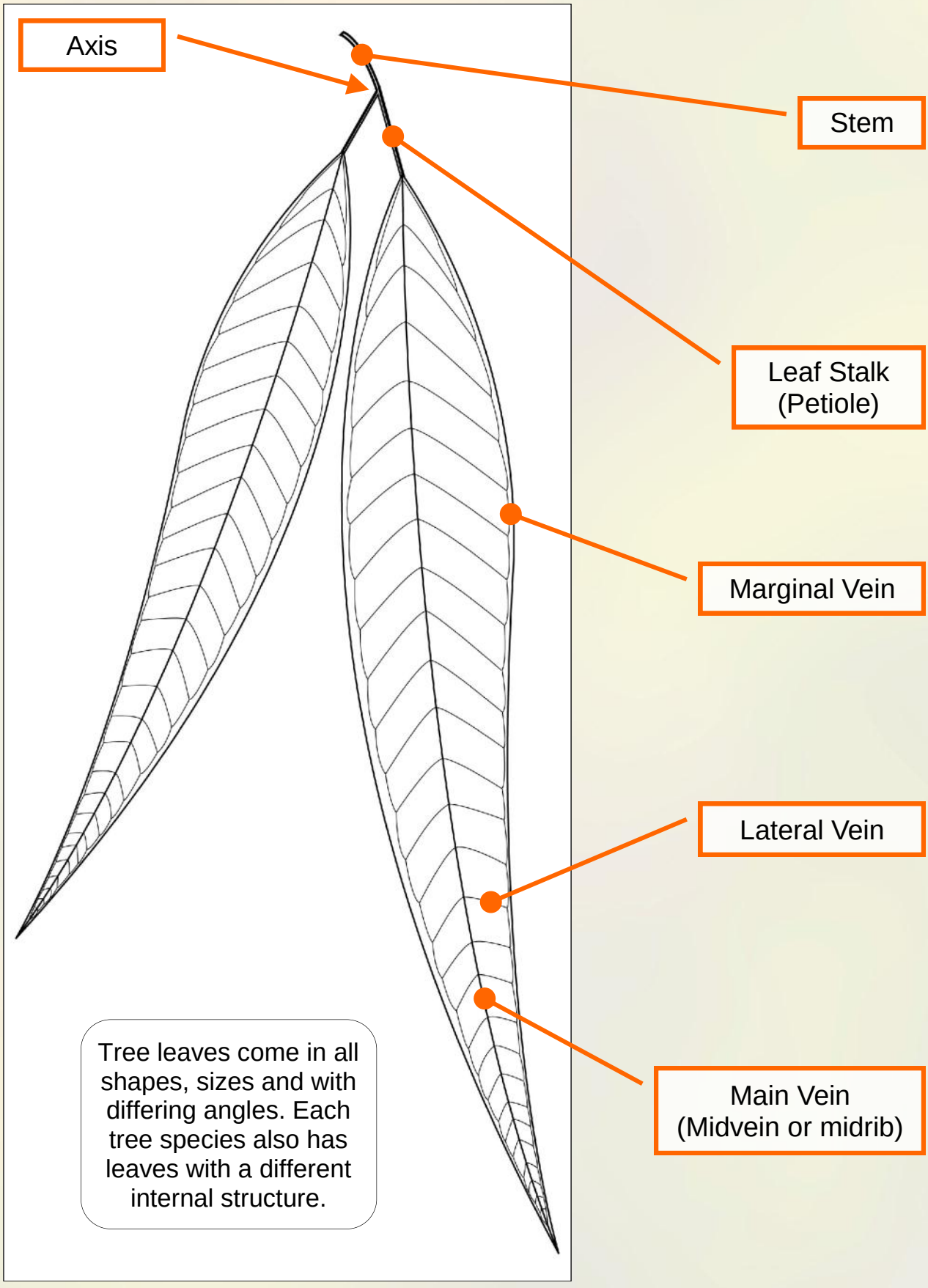
River red gum leaves have eucalyptus oil glands and smell of eucalyptus.



Eucalyptus oil can be seen on the surface of leaves if they are crushed.

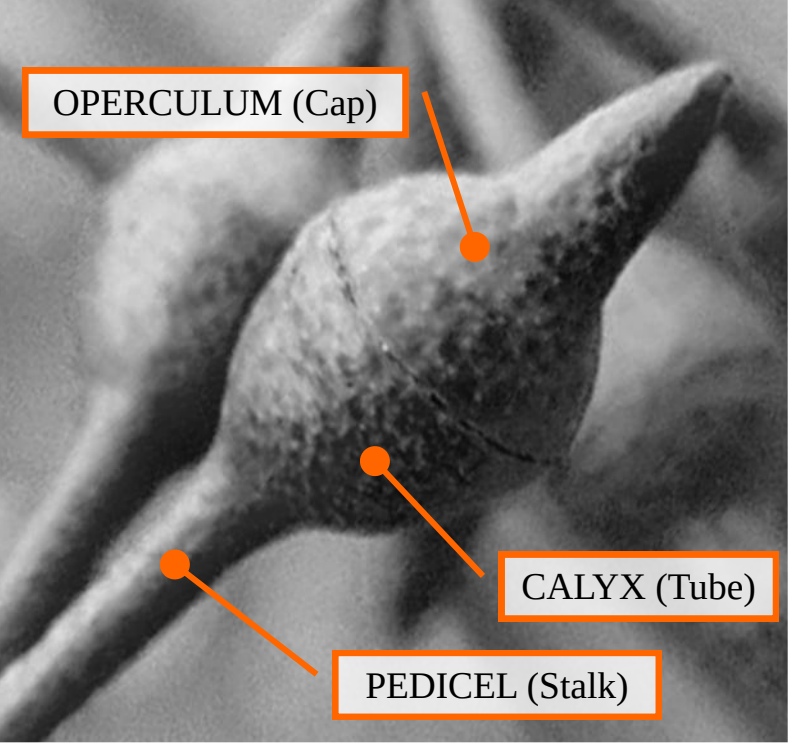
Eucalyptus Oil is sold as a cleaning product, as well as a remedy for muscular pain and colds.

LEAF PARTS


Axis
Stem
Leaf Stalk
(Petiole)
Marginal Vein
Lateral Vein
Main Vein
(Midvein or midrib)
Tree leaves come in all shapes, sizes and with differing angles. Each tree species also has leaves with a different internal structure.

River red gum

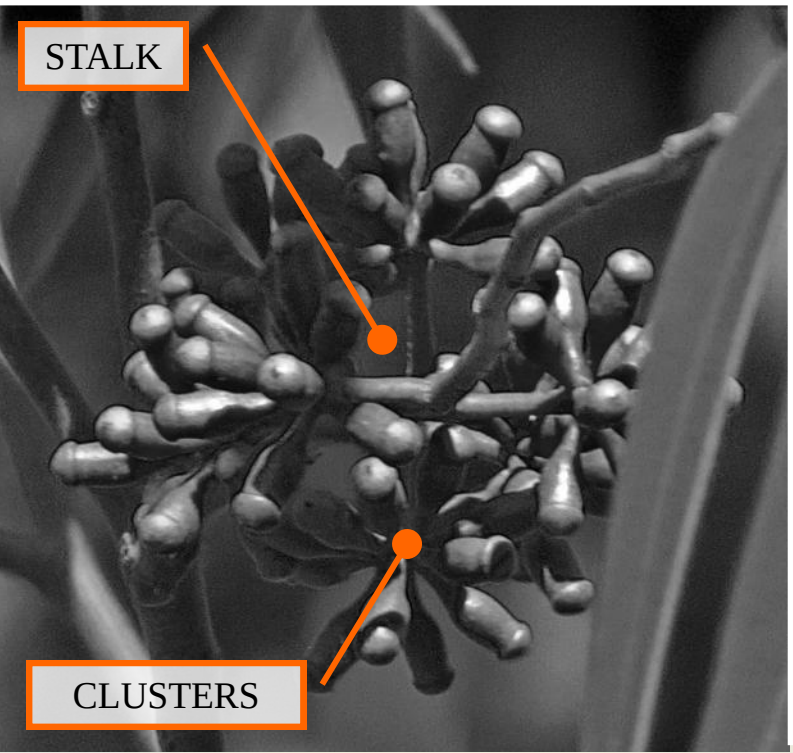
Fawcett



BUDS

The bud is made up of the cap, calyx (tube) and stalk. Buds develop into flowers.

A cluster of buds on a stalk. The peduncle holds the developing buds.



A cluster (panicle) of buds growing from a branch.

These images are from numerous species of eucalypt.

JUVENILE BUDS

Juvenile buds grow in clusters of 4 to 12, but mostly form in clusters of seven.

Buds grow most abundantly high in the canopy.

The buds form in an elongated shape and can have a slight bend towards the tip.

BUDS

Buds can be up to 6 mm at their widest point just before they flower.

By this stage caps on the buds are visible.

Buds can have little hats known as caps. In these images the caps have fallen off.

BUD CAPS

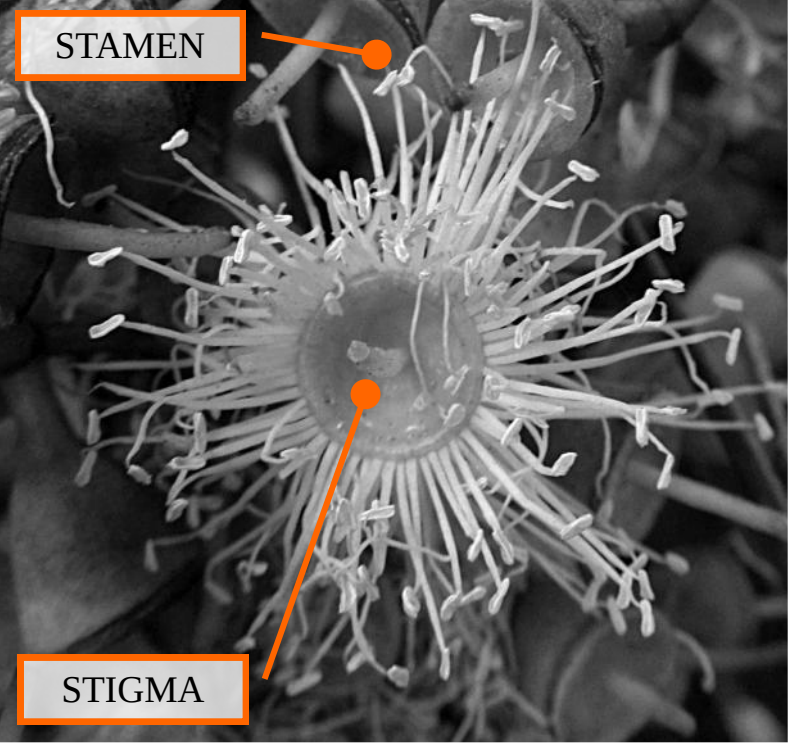
River red gum buds have caps which are also called hats.

These caps fall off as the buds develop.

Buds turn orange in colour as they age. It is not known why this bud has red markings dots.

River red gum forest

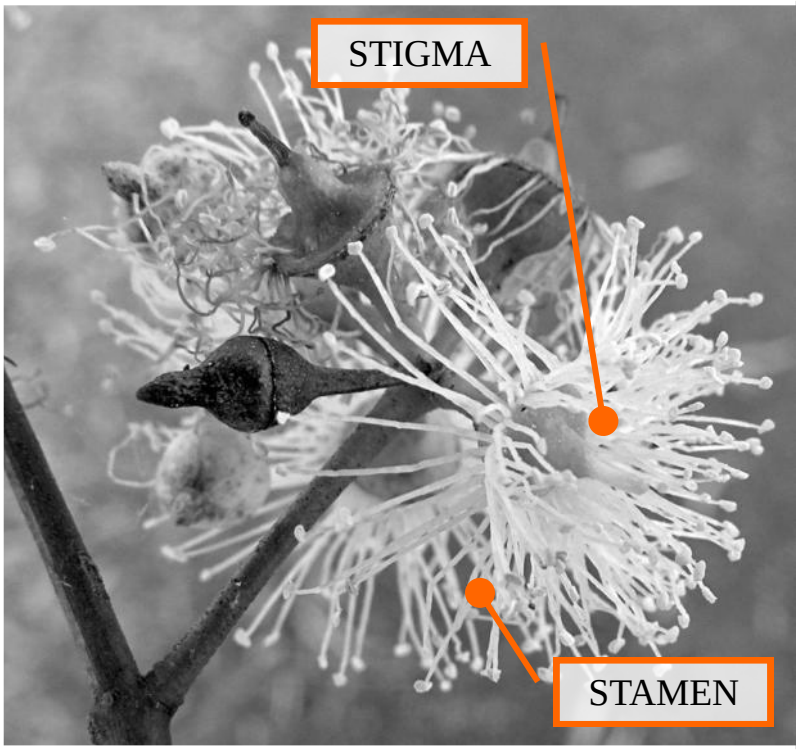
Beside the Goulburn River near Murchison

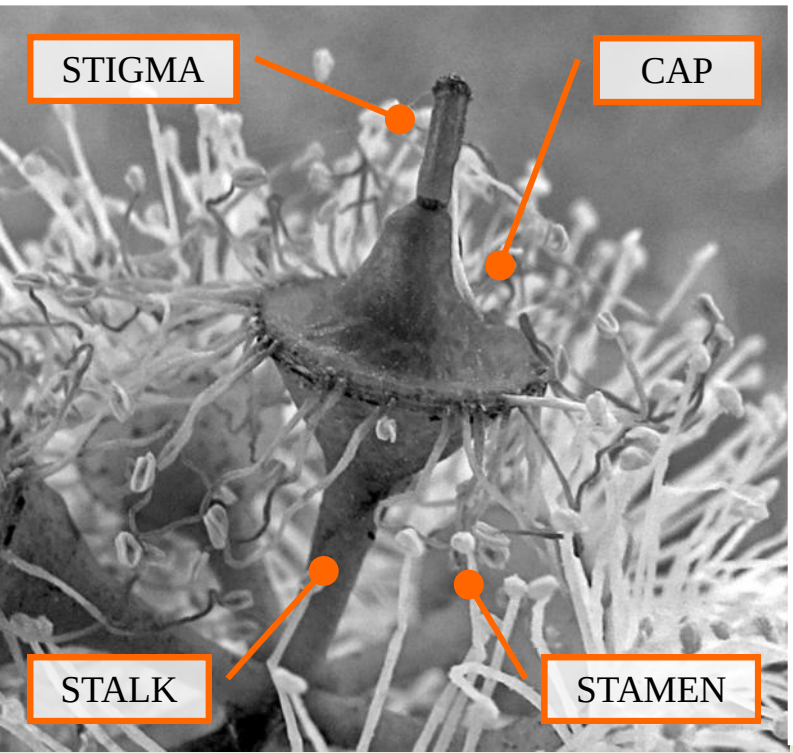


FLOWERS

A flower with a female stigma and male stamen. Flowers develop into fruits.

One bud is losing its cap, the other has become a flower.



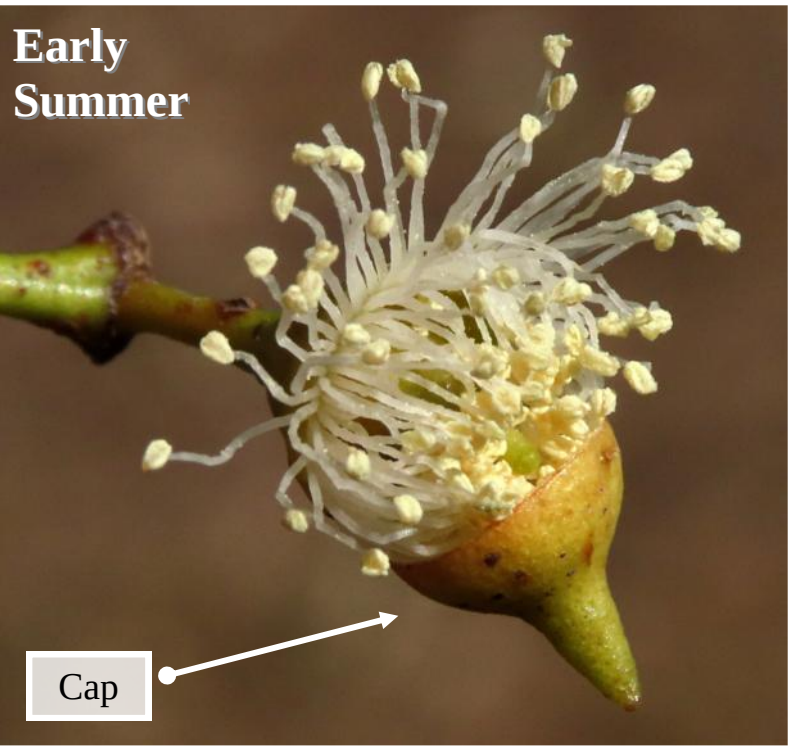


Two buds with sunken valves, a depressed rim and pedicel.

These images are from numerous species of eucalypt.

FLOWER CAPS

As the flowers of the river red gum burst forth, their tiny caps fall off.

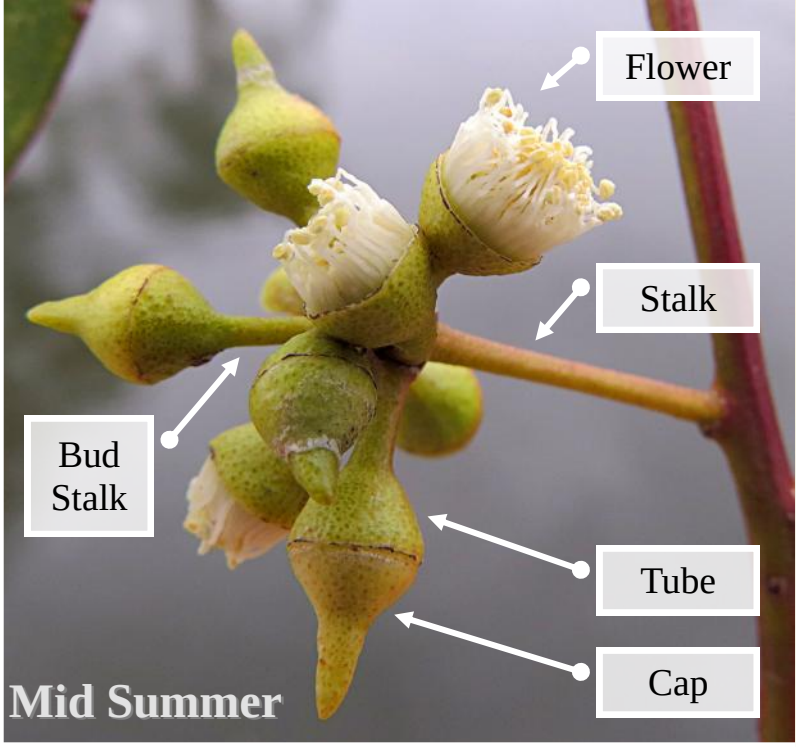


The caps often develop a reddish tinge as the buds near their flowering time.

The caps fall to the ground on mass during flowering and quickly bleach in the sunlight.

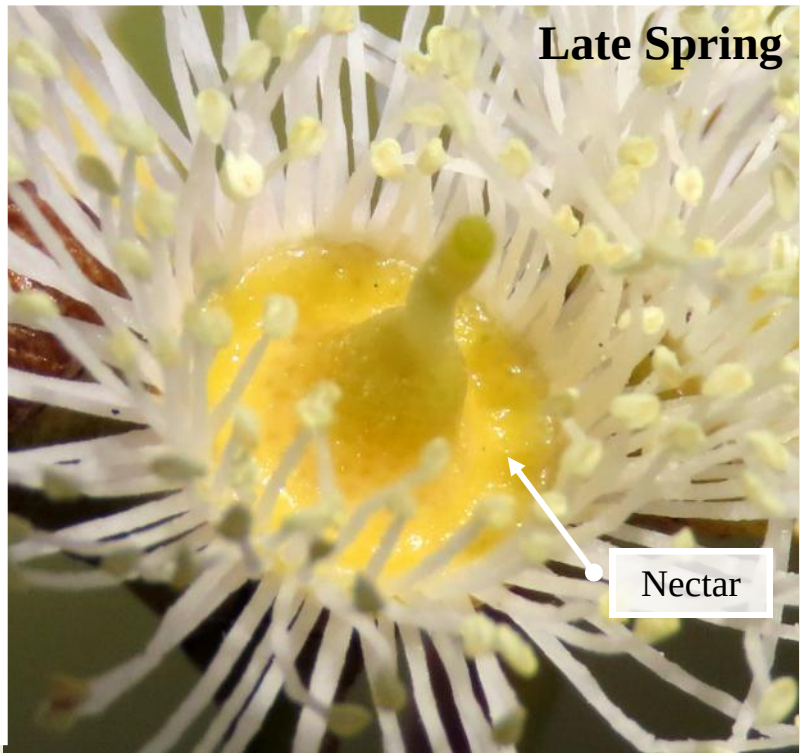
FLOWERS

Yellowish-white flowers appear in late Spring and Summer.



Flower parts of the river red gum have names, which all eucalyptus flowers share.

Flowers attract insects with their nectar, which then pollinate the flower.



FLOWERS

The river red gum does not always flower annually.

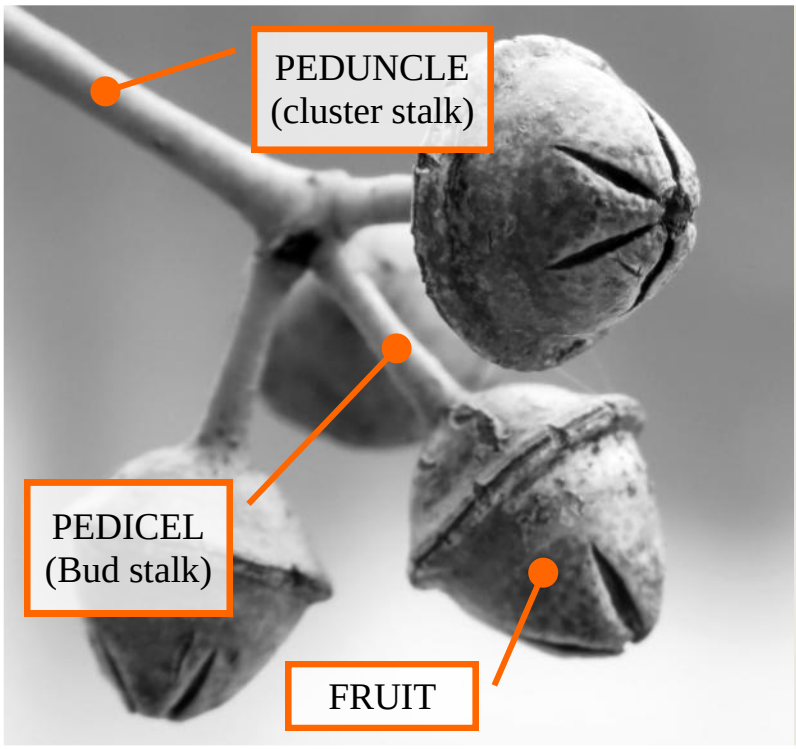
Flowers grow to a width of up to 25 mm.

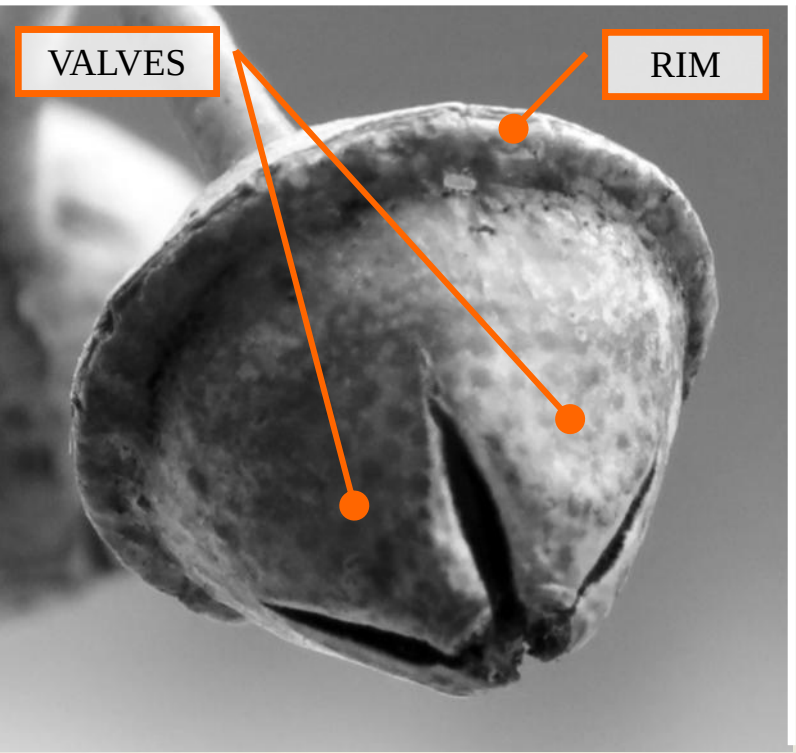
After flower have been pollinated, they begin the process of changing into fruits.

FRUITS

An early stage fruit with no visible valves. The seeds are in an early stage of development inside the fruit.

The seeds inside these fruits are fully developed and the valves are ready to open and release them. This cluster of well developed fruits is held by a peduncle. Each individual fruit is held by its pedicel.

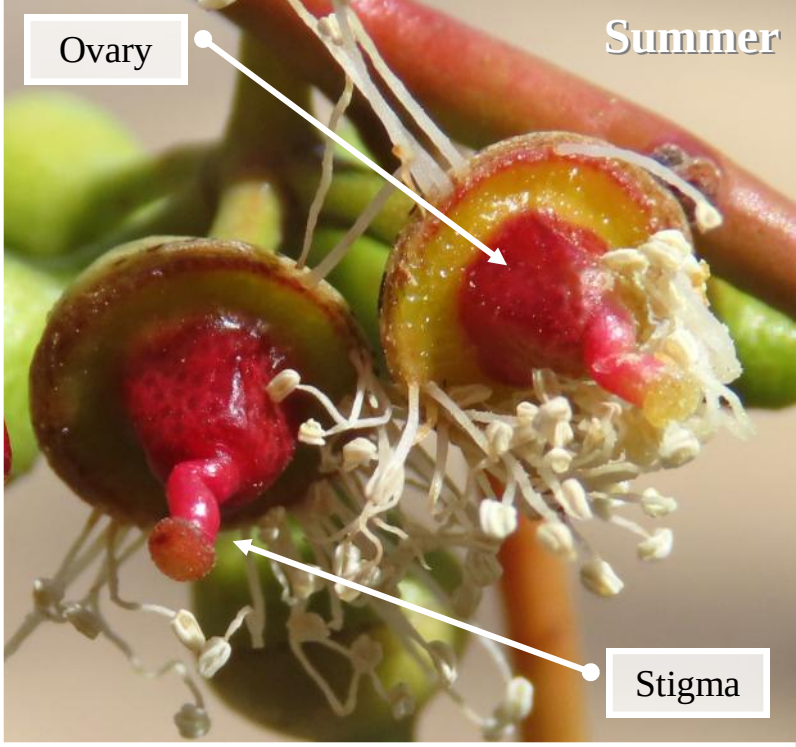




A fruit with valves just starting to open. The seeds can only be released when the valves fully open, and this occurs as they dry out in the warmer months. When they dry out, they are known as gumnuts.

FRUITS

After river red gum flowers are pollinated by insects they start to develop into fruits.



The flower's stamen and stigma fall off and the fruit's ovary swells.

Maturing fruits high in the canopy of a young river red gum.

FRUITS

As fruits mature they develop a pointy red top, but their valves are not yet visible. Their stigma's also fall off.

As fruits near their fullness, their valves become highly visible as they begin to separate.

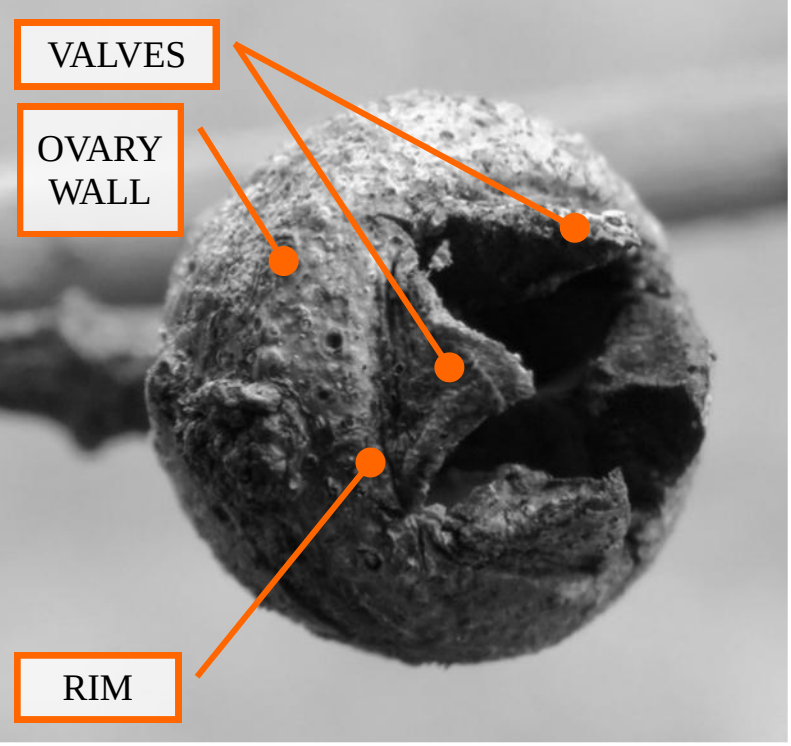
As fruits dry out, their red tops are often replaced with a greyish top and valves become more greyish.

FRUITS

Some fruits near the point of opening, but run out of time as cooler weather arrives.

These photos show buds in the last few weeks of Autumn, with red caps and insect damage.

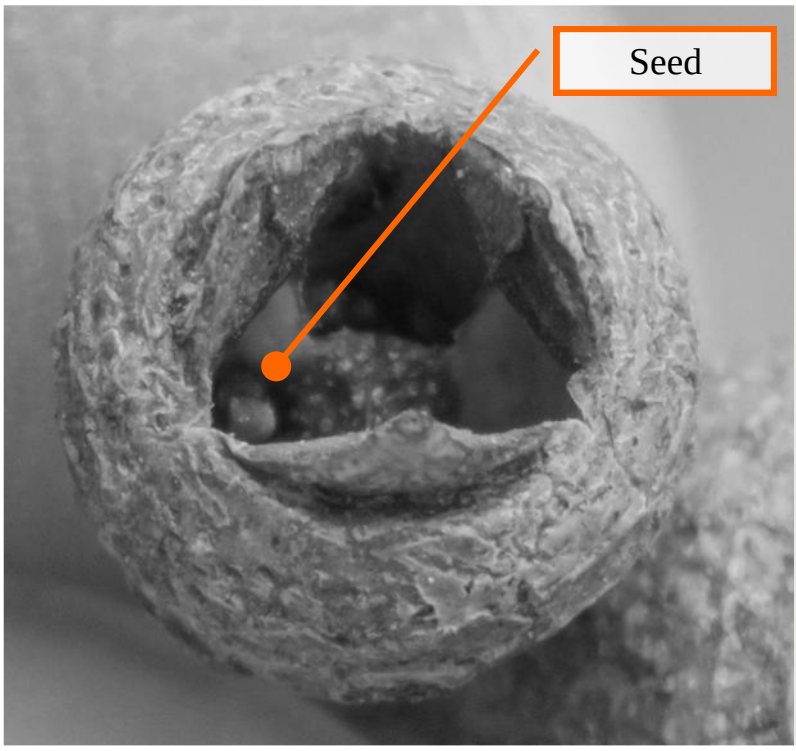
These fruits are now unable to dry out, open and drop their seeds. They will eventually fall to the ground as is.

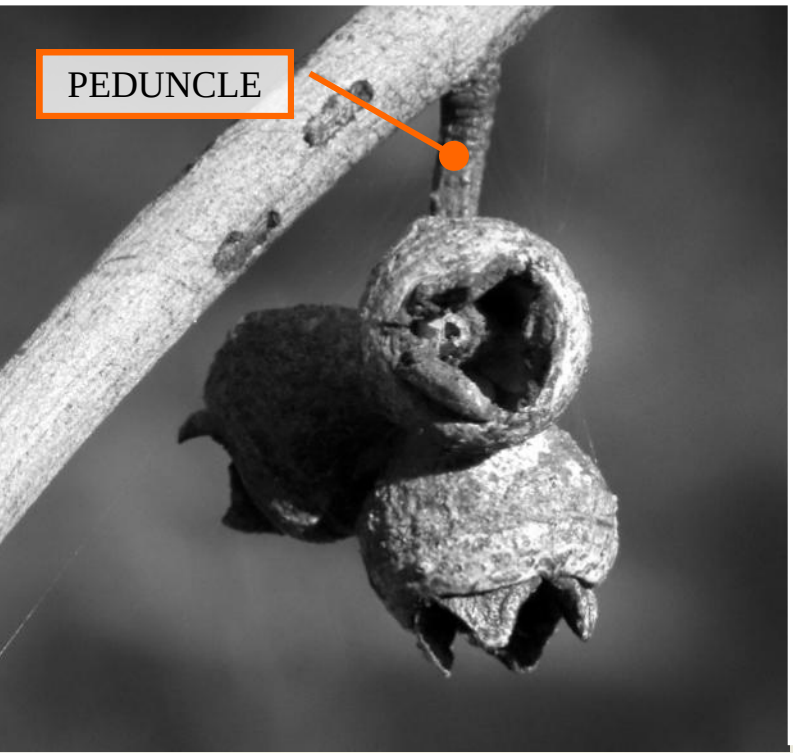


CAPSULES

A fruit becomes a capsule when it opens and allows its seeds to escape and the ovary wall becomes hard as it dries out. Capsules of eucalypts are called gumnuts.

This capsule shows a seed still yet to escape from its natural enclosure.



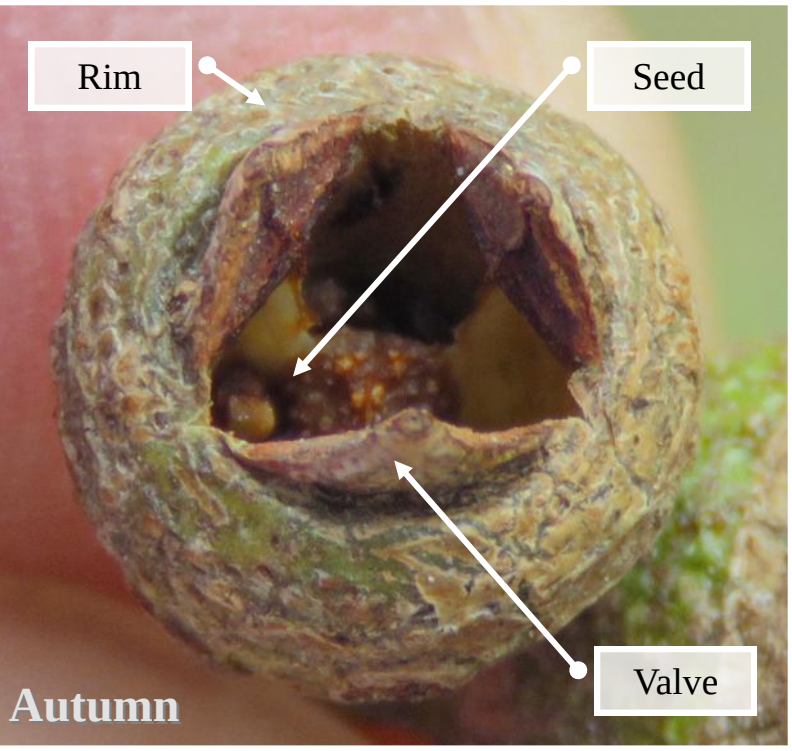


A cluster of capsules that have opened and released their seeds into the wind. They look different depending on the species of tree.

These images are from numerous species of eucalypt.

CAPSULES

River red gum capsules are called gumnuts.



They have between three and five valves, which open up as they dry out.

When the valves open, the seeds fall to the ground.

SEEDS

The seeds from the river red gum are extremely small, measuring just a few millimetres in length.

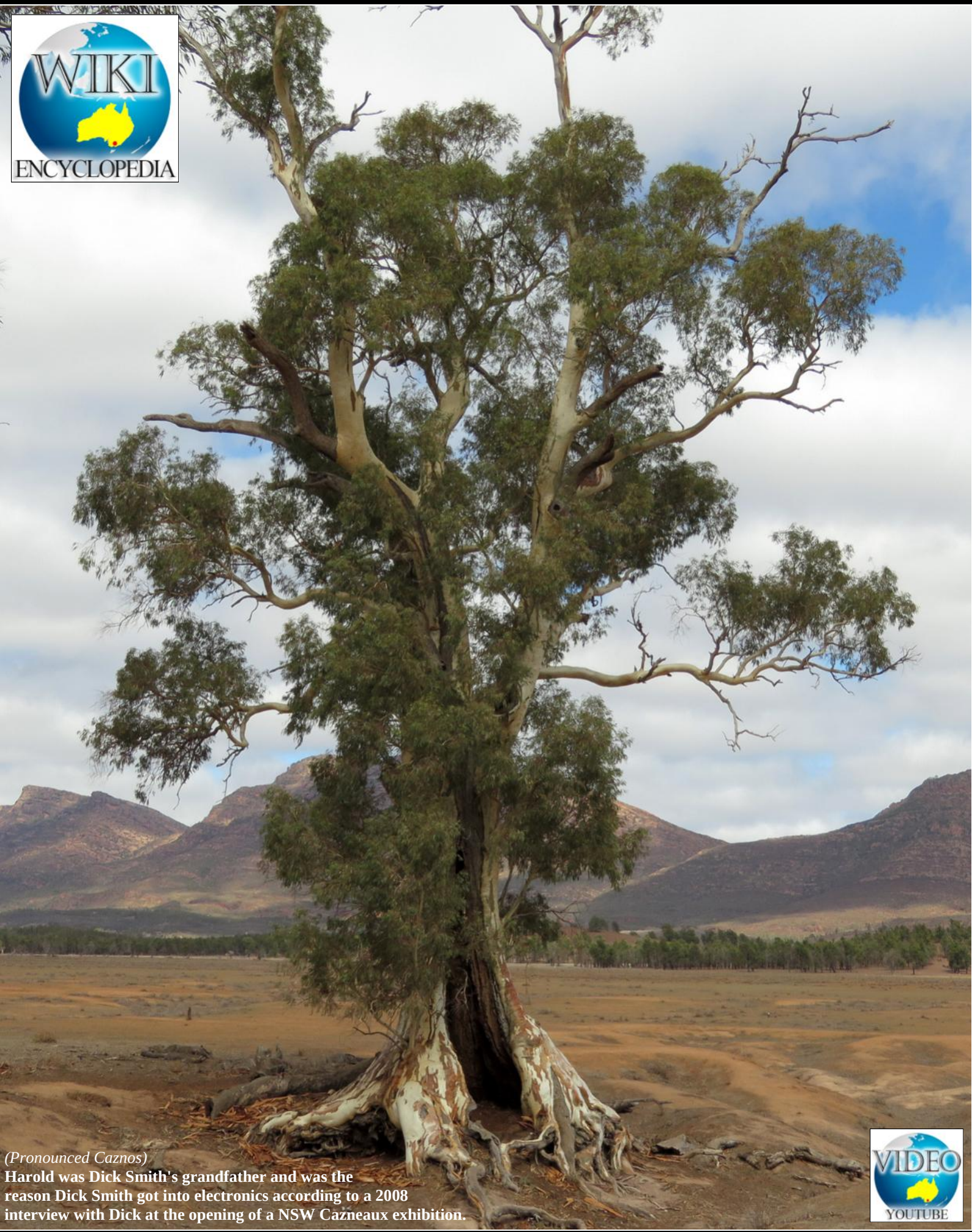
Each gumnut disperses a large number of seeds. Some are taken by ants which store them in their nests as a winter food.

The seeds fall to the ground where they can germinate into new trees.

COMBINED

It is possible for all of these to appear on a tree at the same time.

Cazneaux Tree



(Pronounced Caznos)
Harold was Dick Smith's grandfather and was the reason Dick Smith got into electronics according to a 2008 interview with Dick at the opening of a NSW Cazneaux exhibition.

Wilpena, Flinders Ranges, SA

HABITATS

A Quick Reference Guide for the river red gum

Brush-tailed possum in a river red gum

Swan Hill

ANIMAL HABITATS

Koalas live in river red gum trees.

Koalas find refuge amongst the limbs.

Koalas feed on the leaves of the river red gum.

ANIMAL HABITATS

Some possums live in river red gum trees.

They build nests amongst the limbs.

They can be found nesting in hollows found in river red gum trees.

ANIMAL HABITATS

Platypus build nests in the bank under river red gum trees.

Snakes live in holes in and around river red gum trees.

Wombats live in holes, which they sometimes dig under river red gum trees.

Galahs in a river red gum

E. camaldulensis Subsp. *camaldulensis*

BIRD HABITATS

River red gum trees support a wide variety of birds including cockatoos.

Crimson rosellas live in holes found naturally in river red gum trees.

Kookaburras spend time in river red gum trees resting and looking for food below.

BIRD HABITATS

Bell miners feed on insects found on river red gum trees.

Noisy miners build nests in the limbs of river red gums.

Tawny grogmouths roost on the branches of the river red gum.

BIRD HABITATS

Treecreepers eat insects found on the bark of the river red gum.

White-browed Tree creeper

Magpies will often build their nests in the branches of the river red gum.

Blue-faced honeyeaters frequent river red gums.

BIRD HABITATS

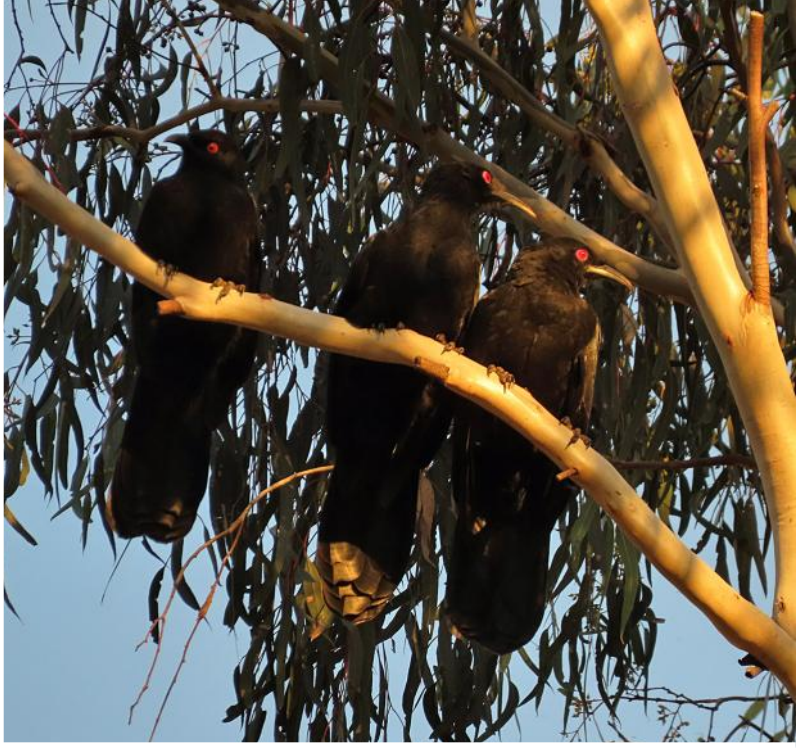
Common starlings find shelter and protection in the canopy of the river red gum.

Galahs roost in hollows found in older river red gums.

The magpie lark live in and around river red gum trees.

BIRD HABITATS

White-winged choughs shelter for the night in the canopy of the river red gum.



Australian wood ducks rest on branches of the river red gum.

FLYING FOX HABITATS

Grey-headed flying foxes shelter in the canopy of the river red gum.

This species are also known as fruits bats.

They are usually pollen and nectar eaters and are very noisy.

Bee Hive in a river red gum

E. camaldulensis Subsp. *camaldulensis*

INSECT HABITATS

River red gums support a large number of insect species such as bush flies.

Beetles and bugs often visit the river red gum.

They are found in the canopy as well as on the trunk.

INSECT HABITATS

Pill bugs are found under river red gum trees.

Some insects such as this honeybrown beetle *(Ecnolagria grandis)* are found on leaves and braches.

Wasps can build their nests on river red gum trees.

INSECT HABITATS

An Austral ellipsidion cockroach (*Ellipsidion australral*) instar on a river red gum trunk.

A caterpillar living between two leaves (exposed here for the photograph) and eating the leaf.

An unknown insect may have eaten part of this new flower.

INSECT HABITATS

Insects vary in colour, size and shape.

Cicadas such as the green grocer cicada pictured here are found on river red gums.

River red gum trees are thought to be a habitat for hundreds of insect species.

INSECT HABITATS

An unknown fly on a river red gum leaf.

A spider making his home by utilising juvenile leaves.

A crane fly pictured after flying from a river red gum leaf.

INSECT HABITATS

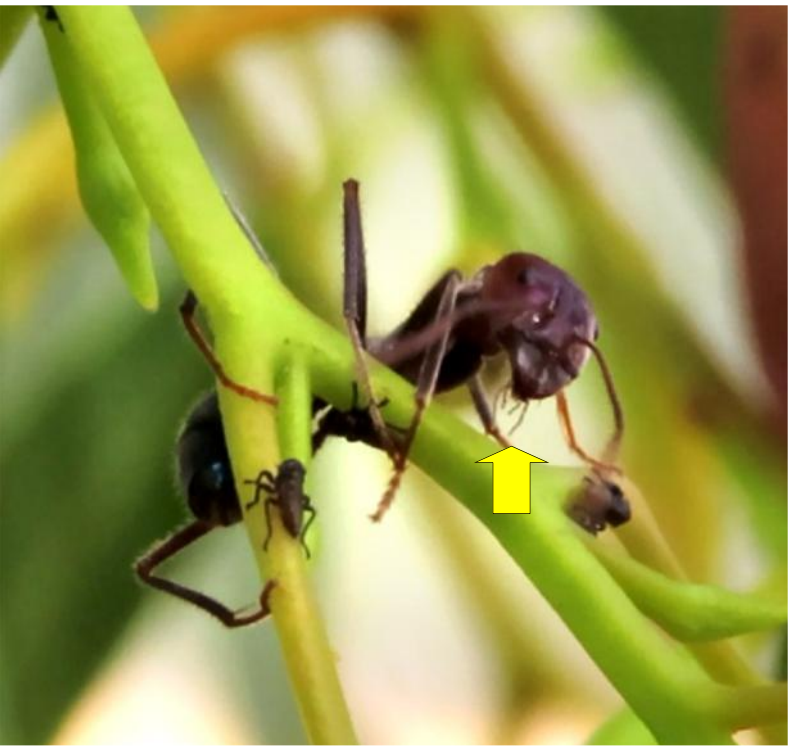
Two-lined leafhoppers (*Eurymeloides bicinctaare*) found on a river red gum.

There are over 3,000 species of leafhoppers found on all continents except Antarctica. The inset image shows how they cause minor damage.

Treehoppers build tiny nests for their young out of honeydew which they secrete as a liquid from their abdomens.

INSECT HABITATS

Meat ants feed on honeydew produced by the tiny treehopper.



Meat ants have four sensitive hairs which they move along stems and sense honeydew.

Here a meat ant can be seen inspecting the rear of a treefhopper insect for excreted honeydew.

INSECT HABITATS

Some ants travel to the canopy to feed on nectar from river red gum flowers.

Meat ants will scour the surface of new leaf stems for nutrients.

Sugar ants are found on river red gum trees.

INSECT HABITATS

Some ants nest inside river red gum trees.

This nest of ants was located 15 metres from ground level.

After this tree fell, the ants evacuated their young to a nearby river red gum.

INSECT HABITATS

White ants feed on the heartwood of the river red gum.

White-ants rarely see daylight, but winged white ants swarm annually in order to find new wood to feed on.

This white ant nest has a large number of openings where white ants had recently swarmed from.

INSECT HABITATS

Some insects form cocoons on river red gum trees for their young to grow in.

Cocoons come in many different shapes and size.

Cocoons are made from many different natural fibres and materials.

INSECT HABITATS

This small cacoon is hidden in the bark of a river red gum.

This carefully built nest protects an unknown insect.

A treehopper home built of honeydew.

INSECT HABITATS

An unknown beetle on new river red gum leaf growth.

An unknown flying insect.

An unknown caterpillar.

INSECT HABITATS

The home of an unknown caterpillar on a river red gum.

Two juvenile river red gum leaves have been lashed together to form a home for the insect.

A 6 mm long grub can be seen between the two leaves.

INSECT HABITATS

The river red gum is a preferred tree for the larvae of the spitfire sawfly (*Perga affinis*).

Here spitfire sawfly caterpillars are seen on a river red gum branch.

The spitfire sawfly grow into a large fly which is rarely seen.

INSECT HABITATS

An unknown bug on river red gum limbs and trunk in late spring as flowering commenced.

They left soft tracks behind them as they fed on something on the bark.

They are up to 5 mm wide, 7 mm long and 3 mm high, and develop camouflage on their shells.

INSECT HABITATS

The river red gum attracts the western honey bee.

It is one of the heaviest producers of nectar and pollen, amongst all of the eucalypts.

Honey is golden in colour. of good flavour, has a milder odour than some eucalypt honeys and generally candies quickly.

INSECT HABITATS

The Caterpillar-hunter wasp is attracted to the pollen of the river red gum flowers.

ARACHNID HABITATS

The river red gum is home for a large number of spiders such as the jumping spider.

Some spiders build webs in the bark of the river red gum.

Wolf spiders can be found in the ground around river red gum trees.

AQUATIC HABITATS

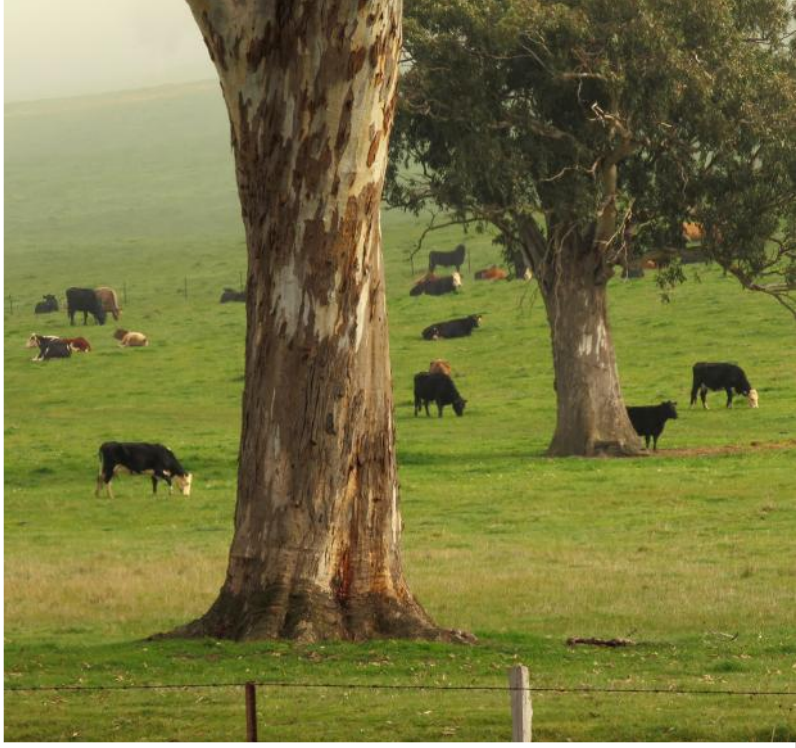
The river red gum root systems can provide homes for many aquatic animals.

Fallen trees can land in waterways and provide habitats for aquatic animals such as fish and platypus.

Turtles can live around fallen trees. This Eastern Long-necked turtle is sunbaking on a fallen river red gum limb.

FARMING HABITATS

The river red gum is found on farmland across Australia.

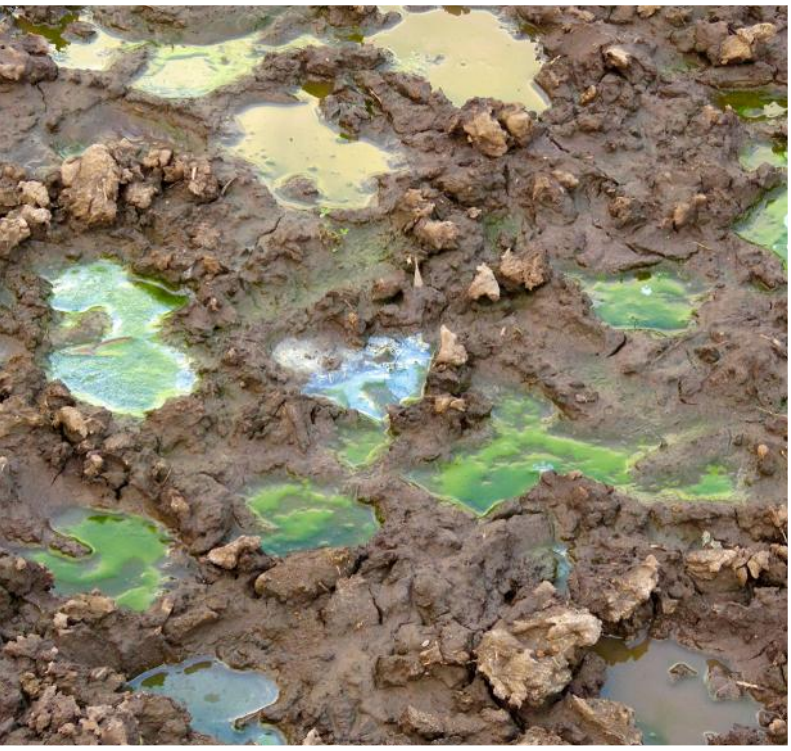


Farming land where the river red gum is found can be sustainable when managed correctly.

Large trees can help stock find shelter on hot days.

FARMING HABITATS

The river red gum can be damaged by intensified farming practices, such as by stock ringbarking trees.



High stock numbers can produce high nutrient loadings around the rootzone, effecting the health of the trees.

Unusually high numbers of cockatoos, corellas and galahs attracted to stock feed, can result in damage to trees on and near intensified farms.

Shade Tree

Fawcett

PARASITES

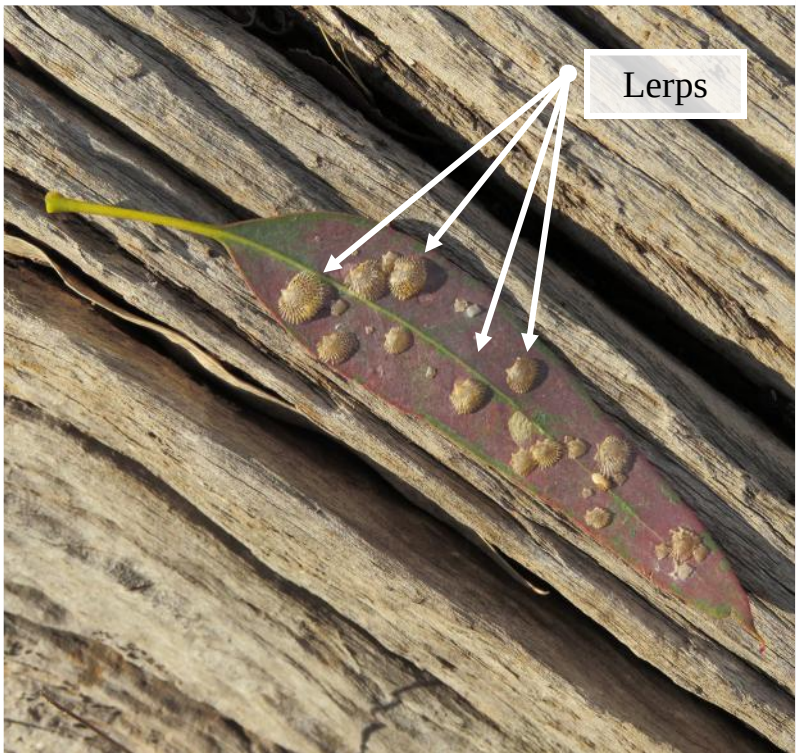
A FEW OF THE PARASITES OF THE RIVER RED GUM

PARASITES

A river red gum weakened by a species of native mistletoe.

A river red gum weakened by a boring insect which is evident by its damaged trunk.

The red gum lerp psyllid (*Glycaspis brimblecombei*) is a small native insect that sucks sap from leaves and builds lerps for protection.



Lerp damage dieback

Trawool

LERP INFESTATION OF 2018/19

2018/19 season infestation
During late Spring and early Summer 2018/19, a major lerp infestation caused significant damage to most leaves on roughly 99 out of every 100 river red gum trees in Central Victoria. Our broader travel showed that this also extended to areas along the Murray River and into New South Wales and South Australia. The infested trees barely flowered during the 2018/19 season. Instead the damaged leaves died and dropped, new leaves developed, and any un-flowered buds remained on the tree in stasis. It is worth noting that the roughly one out of every 100 trees that had missed the infestation, did flower as per a normal season. It is therefore considered a possability that the lerp infestation and the lack of flowers that season were connected.

2019/20 season
During the 2019/20 season, most of the trees previously infested in the 2018/17 season did not flower, even though the lerp infestation had passed and only a few trees now had small numbers of lerp on them. The buds that remained from the previous season simply continued to develop for the current season but most did not flower. Interestingly, the rare un-infested tree from the 2018/19 season continued to flower as normal.

Infested trees flower in the third season (2020/21)
During the 2020/21 season, the trees damaged by lerp in the 2018/19 season flowered in bulk from late November. It is worth noting that the lerp infested trees from the 2018/19 season missed two years of flowering, while the rare un-infested trees from that season had continued to flower annually as per their normal cycle.

2021/22 season was relatively normal minor lerp infestations
2022/23 season was relatively normal minor lerp infestations

Infested trees flower in the third season (2023/24)
During the 2023/04 season, trees were again damaged severely by lerp across our District akin to the 2018/19 season.

Consideration
It is considered possible that the infested trees did not flower in the year of the lerp infestation (or the following year) as the tree's energy was possibly being diverted to healing itself after battling through a season where it had suffered a substantial loss of leaf photosynthesis. Leaf photosynthesis is needed for the health and wellbeing of a tree.

How long is it between major lerp infestations
It would seem on this limited experience that major lerp infestations across a wide area are not yearly, but around five yearly.

Lerp damage dieback

Trawool

Lerp damage dieback

Trawool

Lerp damage dieback

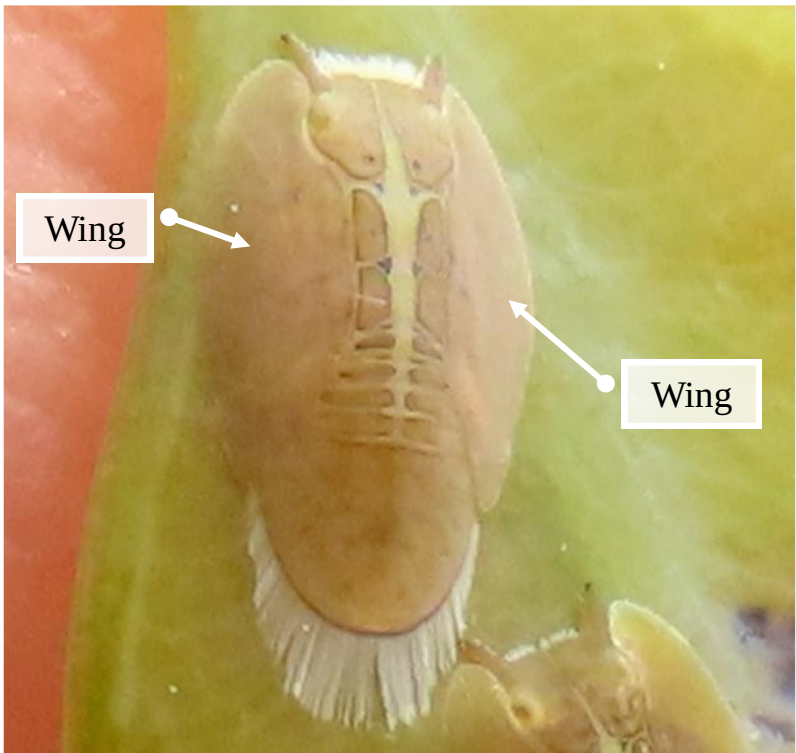
Trawool

PARASITES

River red gum psyllid bug nymphs on a young river red gum leaf prior to shedding its exoskeleton.

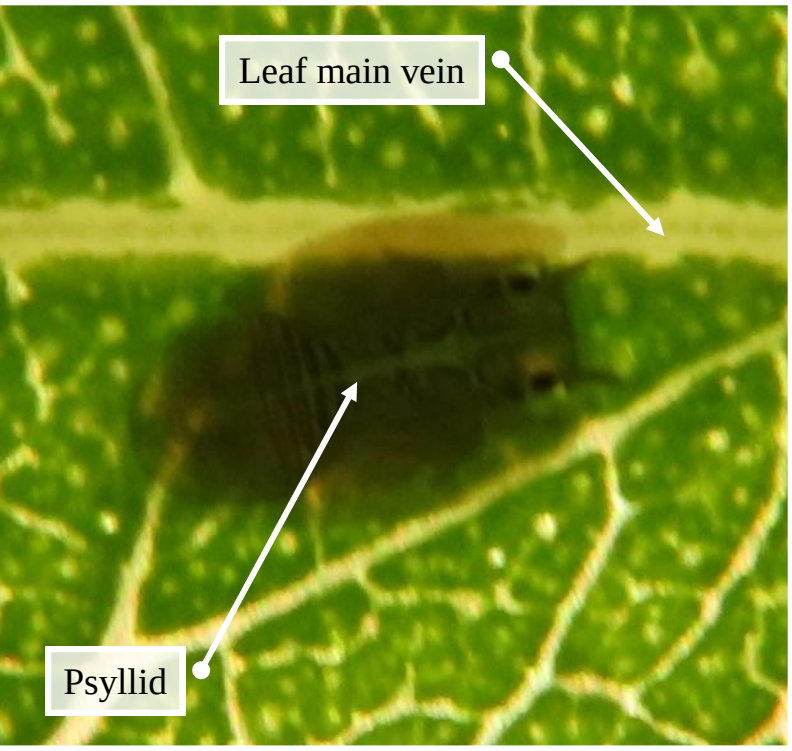
First identified on this leaf at Yea on 21 October 2020. We then found them at Alexandra, Yarck, Acheron, Eildon and Bonnie Doon.

A DNA test being conducted overseas to determine the exact species is pending.



PARASITES

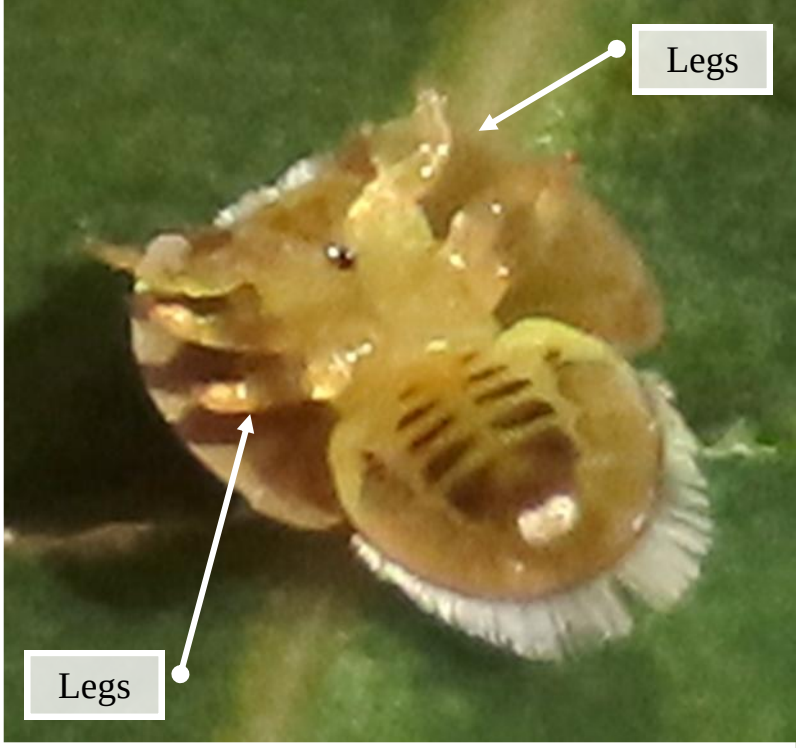
Psyllids are often found beside the main vein or stem of juvenile and intermediate leaves.



Younger leaves are softer and easier for insects to penetrate. It is likely the insect extracts nutrients and moisture (sap) from within leaves.

Like other insects, they have six legs.

This species is similar to the Asian citrus psyllid, though does have some distinct differences.



It has been found on leaves singly and in groups, is less than a millimetre high and is just a few millimetres long.

We first published images of the unusual discovery in this eBook on 24 October.

PARASITES

An adult psyllid bug (top) and a nymph (bottom) just prior to shedding its exoskeleton.

The nymph psyllid bug (above-bottom) shedding its exoskeleton.

A psyllid bug after shedding its exoskeleton (visible on the left) and walking away from it. Its wings then uncoiled.

Lerp damage dieback

Yea

PARASITES

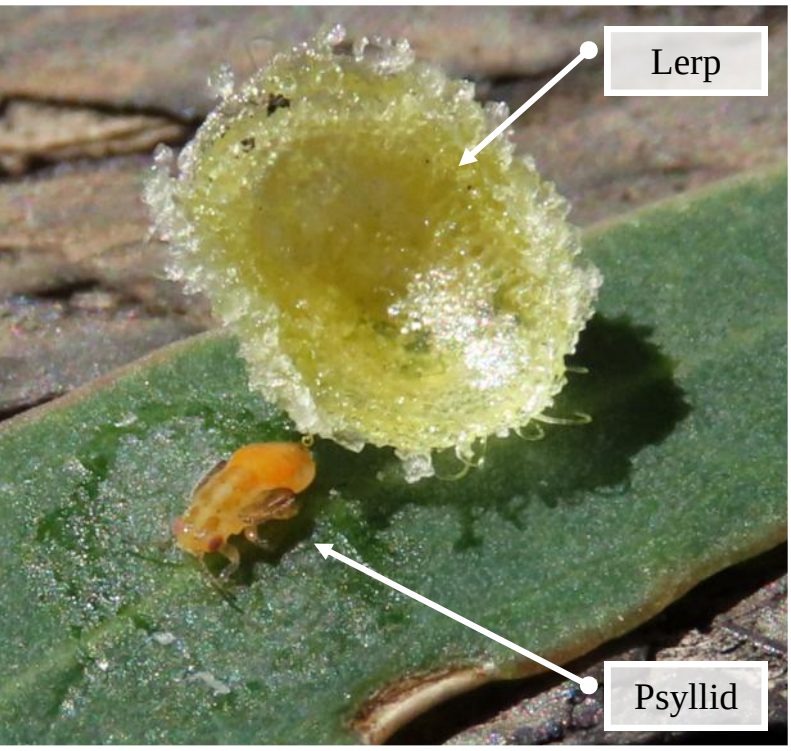
A psyllid bug on a river red gum leaf after shedding its exoskeleton.

Victoria was hit by a psyllid bug infestation in 2018/19 and most river red gums in the State were damaged and didn’t flower.

At this stage their wings are developed and are used to fly to a safe place to lay eggs.

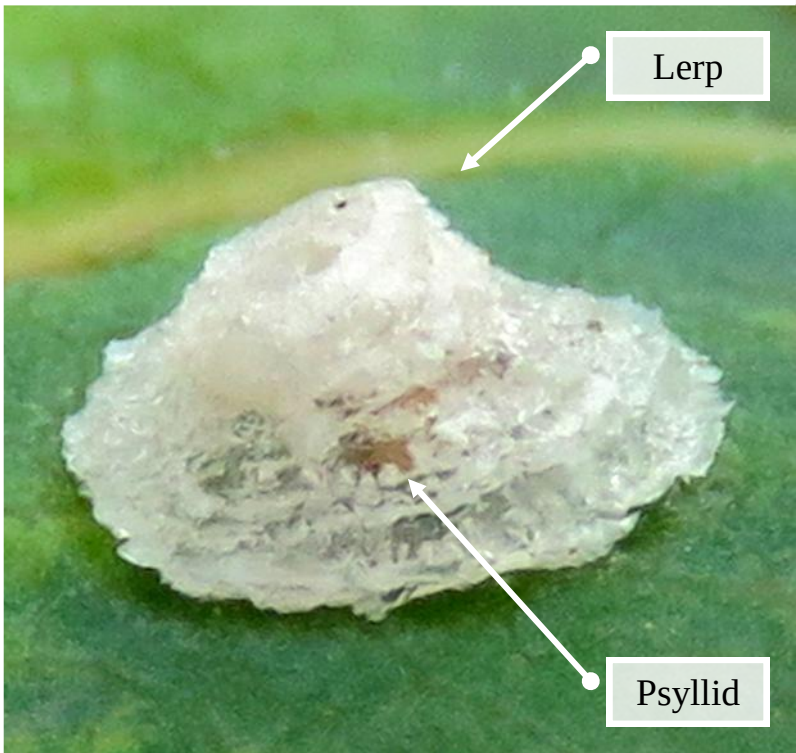
PARASITES

Newly hatched psyllid bugs build lerps to live under from honeydew they excrete from their abdomen.



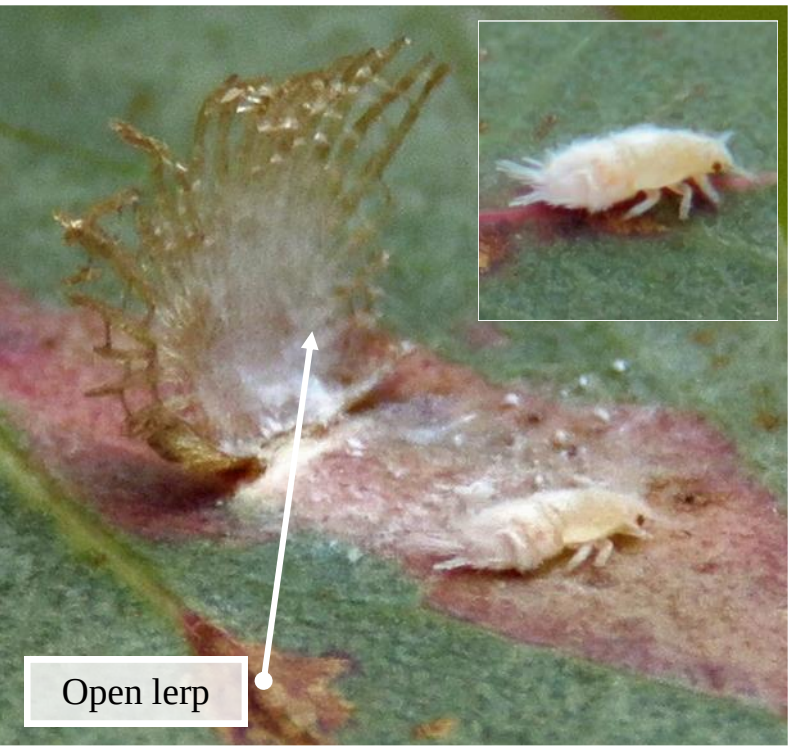
Lerps are edible, having a sweet taste and were once eaten by Aboriginals. This new lerp was lifted up to expose the psyllid.

A psyllid under a hat shaped lerp it had just built on a river red gum leaf. The psyllid underneath is just 2.5 mm in length.



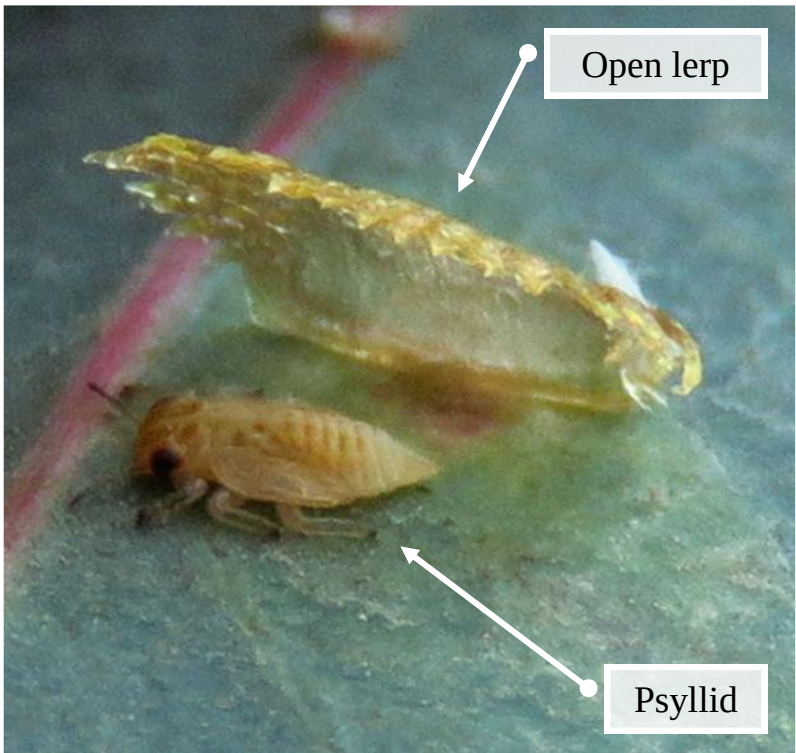
PARASITES

A psyllid bug under a claw-shaped lerp built on a river red gum leaf.



Lerps are made from honeydew and are edible. It is sweet and were eaten by early Aboriginals.

A psyllid bug nymph under its lerp. The bug measures just a few millimetres in length.



PARASITES

An unknown species of psyllid bug.

As psyllid bugs age, they darken in colour.

It is thought that this adult psyllid bug is nearing the end of its life-cycle and may have already laid its eggs.

PARASITES

A psyllid bug found in early Autumn. It measured just 2 mm in length.

The psyllid bugs pictured on this page had their lerps removed to expose the bug to the camera.

It is unknown why this psyllid bug is black, unlike other psyllids found under lerps on the same day.

PARASITES

Lerps have distinct structure, even though they can look messy.

Different species of psyllid bug make different lerps.

The underside of a lerp.

PARASITES

There are different kinds of lerp that appear on river red gum.

This structure is made of honeydew and was often collected and eaten by early Aboriginals.

The six-legged psyllid bug can easily be identified under this lerp.

Lerp damage dieback

Trawool

PARASITES

Eggs of an unknown insect species on a river red gum leaf.

Larva of the eucalyptus weevil (*Gonipterus scutellatus*) eating a river red gum leaf and disposing of its excrement in a spiral.

An insect cacoon on a river red gum leaf.

PARASITES

Gum-leaf skeletoniser (*Uraba lugens*) caterpillars that have hatched on a river red gum leaf.

The caterpillars are feeding on the upper layer of the leaf.

These caterpillars are hairy and eventually develop into a moth.

Burl Skirt

Molesworth

PARASITES

Remains of an unknown insect species found on river red gum leaves.

These white samples have brown heads and were hard and dry. It was assumed they were dead.

Leaf eating caterpillars.

PARASITES

Tiny galls on a river red gum leaf. There was well over 100 galls on this leaf.

These fresh galls are around 1 mm in width and were photographed in late Autumn.

Over time these galls will expand to be much larger than they currently are.

PARASITES

Young galls on a river red gum leaf.

A large gall on a river red gum leaf. It is home to a parasitical gal wasp.

An old dried gall.

PARASITES

Unknown growth on a river red gum leaf.

The river red gum is susceptible to wood rot and fungal infections.

This leaf has curled, allowing it to become a home. It is likely that a leaf-curling spider or grub redesigned this leaf.

PARASITES

Unknown leaf-curling insect making a home from a river red gum leaf.

Spiders and grubs are both known to curl leaves into homes.

Homes such as this afford the insect protection as well as the leaf being a ready food source.

PARASITES

Bud parasites are parasites that lay eggs in buds where the insect feeds and grows.

The bud grows larger than usual buds, then dies on the tree. (Inset above) A visible worm.

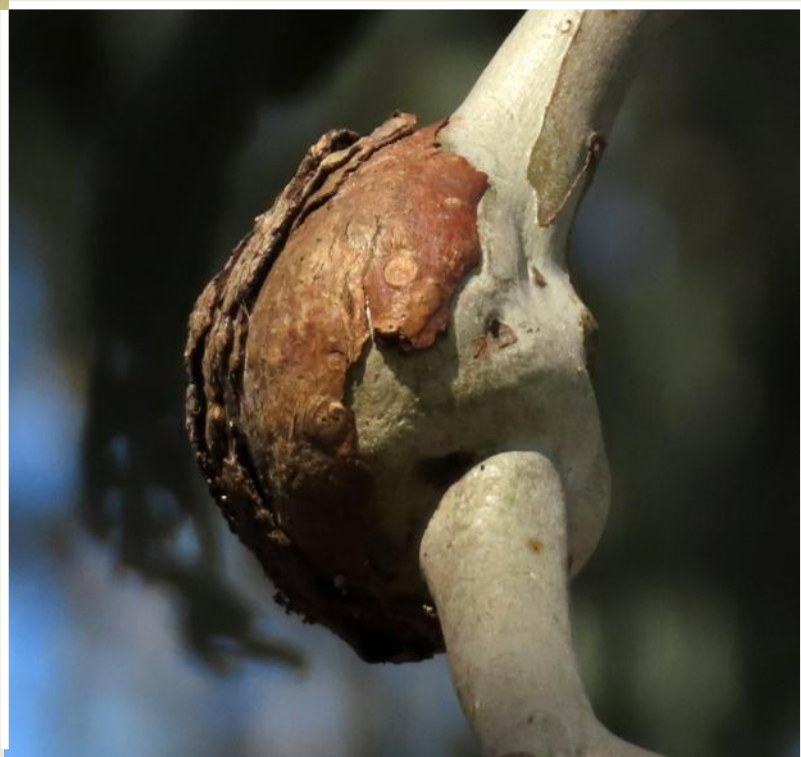
A dried up swollen bud after the parasitical insect has left.

PARASITES

A parasitical growth on the junction of stems.

A twin parasitical growth with new growth visible on the left.

Parasitical growth with bark peeling from it.



PARASITES

Dried up bud

parasite bud.

Holes show where the

parasite left its home.

Inside a dried bud

parasite bud.

PARASITES

River red gum attracts the fungus *Cryptococcus neoformans*.

It is a serious threat to humans who may inhale the spores after cutting into a tree with saws and releasing them into the air.

Here the fungus has lined a hole found deep inside the heartwood of a river red gum tree.

PARASITES

River red gum trees attract the witchetty grub, the larvae of the cossid moth *Endoxyla leucomochla*.

They burrow into the wood when small, then eat their way to the trunk as they grow.

They grow to 16 cm and are preyed upon by birds such as the Yellow-tailed black cockatoo which dig them out.

PARASITES

River red gum trees attract other unusual structures.

This insect habitat is from an unknown insect.

A great number of insect species rely on each and every river red gum tree.

PARASITES

Unknown empty eggs measuring 1.5 mm width on a river red gum leaf.

Unknown cocoons around a small new branch stem. Each cocoon is 1 mm wide and up to 4 mm long

Under Water

Goulburn Weir

INSECT HABITATS

A large cockchaffer grub found in the wood of a rotting river red gum tree.

Large grubs were a vital food source for early Aboriginals.

The yellow-tailed back cockatoo is adept at digging grubs from trunks of trees and eating them.

Rural river red gum

Yarck

USES

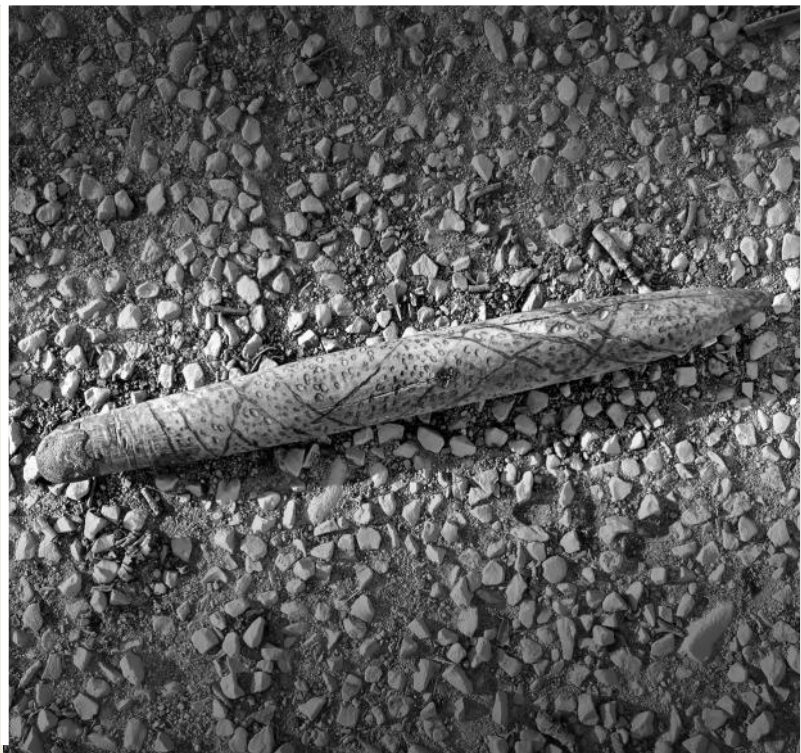
Uses over Time of the Wood of the river red gum

ABORIGINAL USES

Aboriginals used the wood and bark from the river red gum tree. Wood from this scar was used for a coolamon.

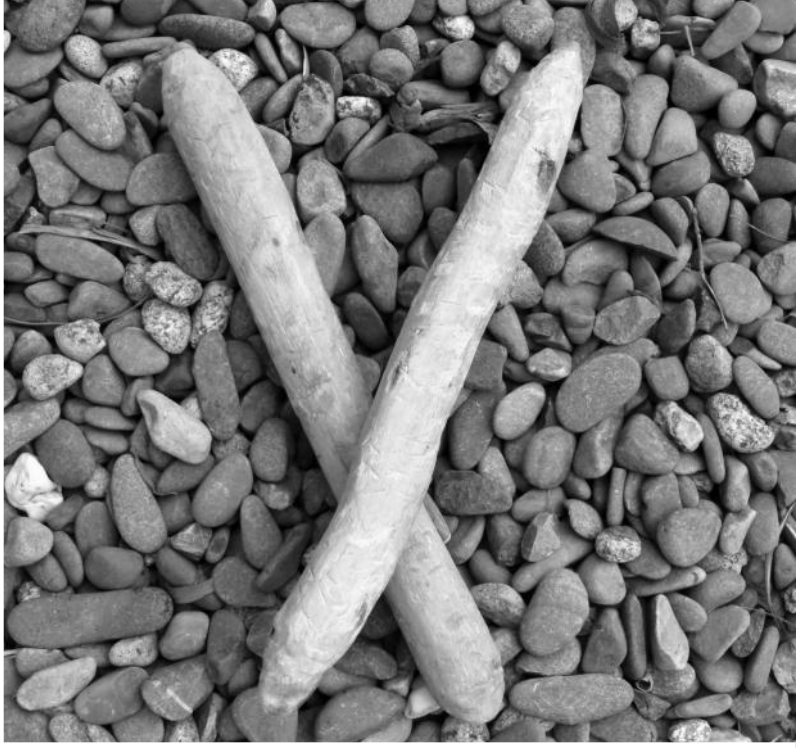
Wooden coolamons were carrying vessels, but they were also used for digging softer soils and sand.

Wooden message sticks were a form of tool used for communication and were made from the wood of the river red gum.



ABORIGINAL USES

Wooden clapsticks were used to make sound for ceremonial purposes.

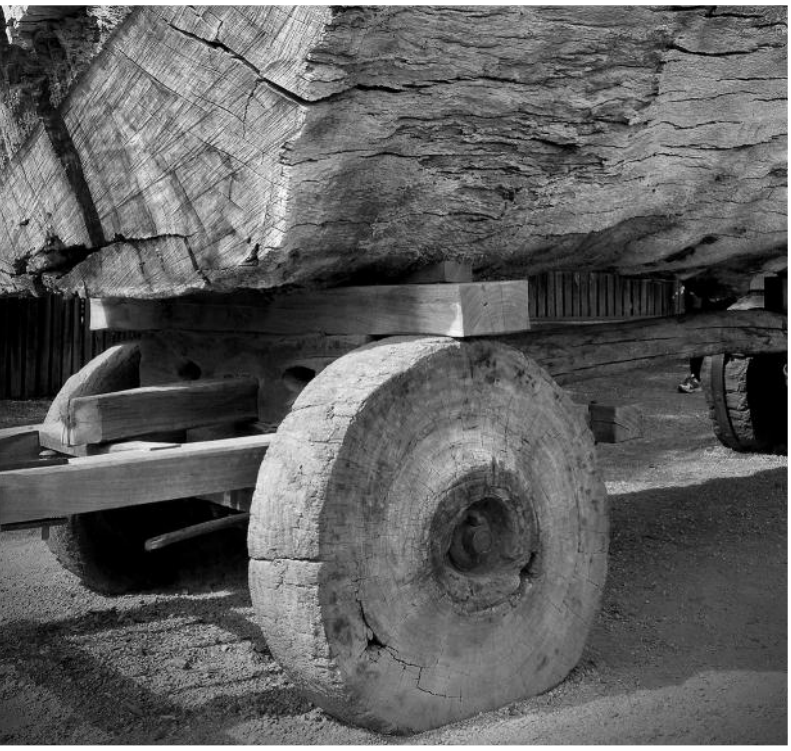


River red gum ring trees were reportedly formed to mark territory, ceremonial sites, burial sites and to act as direction signs.

Wooden boomerangs came in different shapes and sizes and were used for hunting and fun. Some boomerangs could return after being thrown.

OTHER USES

River red gum was used to make troughs capable of holding water for animals and human use.



Basic wheels were once made from sliced portions of river red gum logs.

Police lockups were once made from river red gum logs.

OTHER USES

River red gum logs can last in water for many decades, which made it perfect for making piers.

river red gum wood was also good for building bridges.

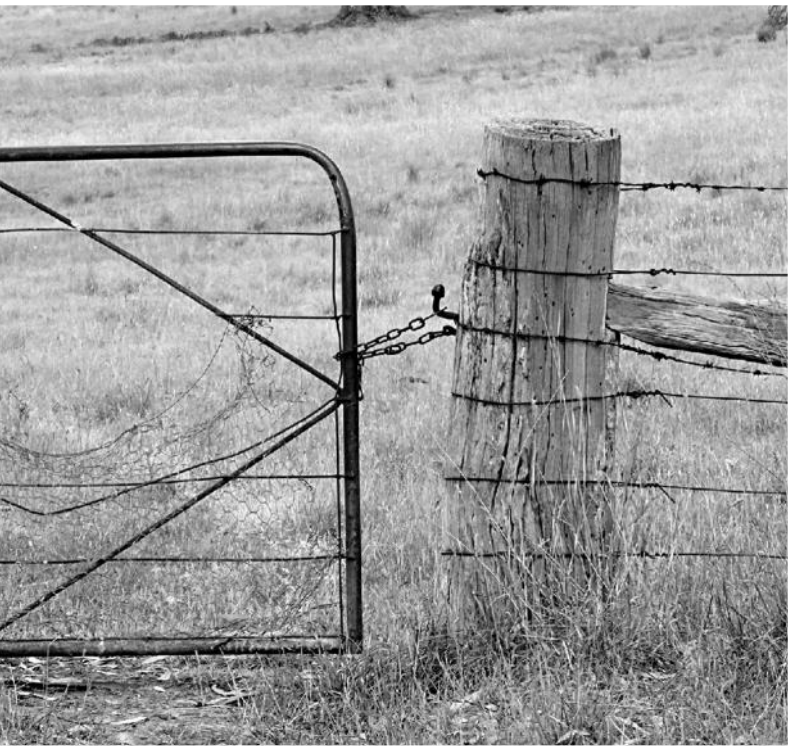
River red gum wood was once used to power ships and large boats such as paddle steamers.

Sign swallowing tree at *Orroroo Rock Poem*

Orroroo, SA

OTHER USES

River red gum wood was used to make tools.



River red gum has long been used for gate and fence posts.

Railway sleepers were once made from river red gum trees. Early locomotives were also fired using this wood.

Courtesy Museums Victoria

OTHER USES

River red gum was a preferred wood for blacksmiths to use in their early forges.

river red gum coals burn hotter and longer than most woods, making it a perfect forge fuel.

While not preferred, river red gum wood was used for transport when other woods could not be sourced.

Post cut into live tree

Avenel, Victoria

OTHER USES

River red gum wood was used to make paddle steamers.

River red gum has been used for road guttering.

River red gum wood is a strong and durable wood for platforms and stairs.

OTHER USES

River red gum trees are still being used at Echuca as markers.

Posts for mounting signs are made from river red gum wood.

Seats like these at Moama are made from river red gum wood.

River red gum

Echuca Foreshore

OTHER USES

River red gum can be used for wood sculptures after the tree has died.

River red gum wood has been used for grave crosses, fencing around burial sites and in this instance, as a feature.

In Echuca a river red gum tree is being used as a canvas for a collection of thongs.

OTHER USES

River red gum wood and burls can be used for lamp stands.

The wood can be used for small mallets.

Using wood that would otherwise be burnt in a fire is an excellent form of recycling.

River red gum boat remnant

Echuca

OTHER USES

River red gum is a dense wood and has long been a favourite for making furniture.

Once dried, its dense wood burns long and hot.

It is especially good for heating and cooking

James Macintosh Red Gum Trophy

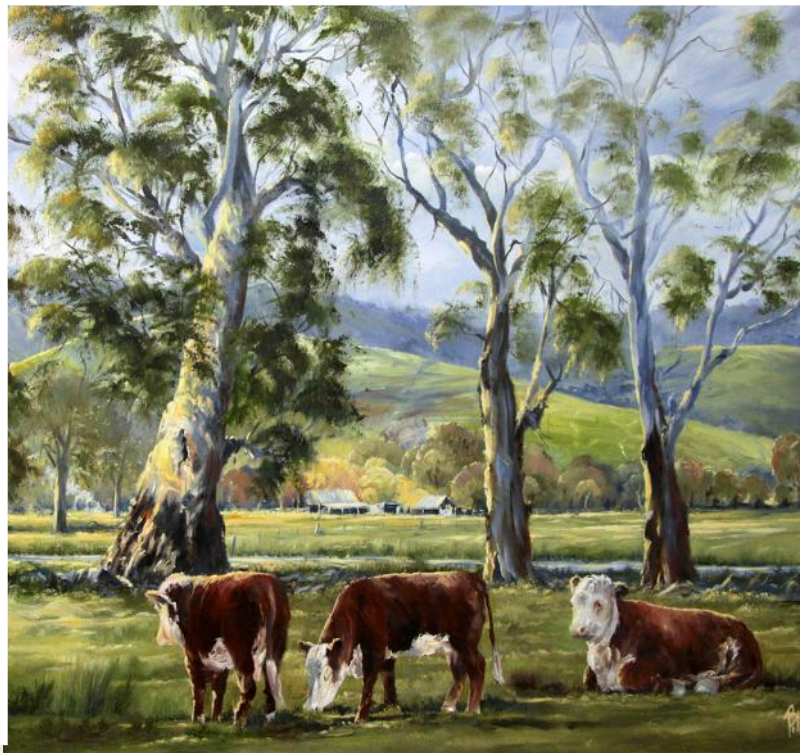
Echuca

THE ARTS

The river red gum is one of the most widely illustrated trees in all of Australia.

Being such an iconic Aussie tree, its majestic appearance and strong scene dominance draws artists into using it.

These works by former Alexandra artist Peter Matheson show how the river red gum can easily take centre stage.



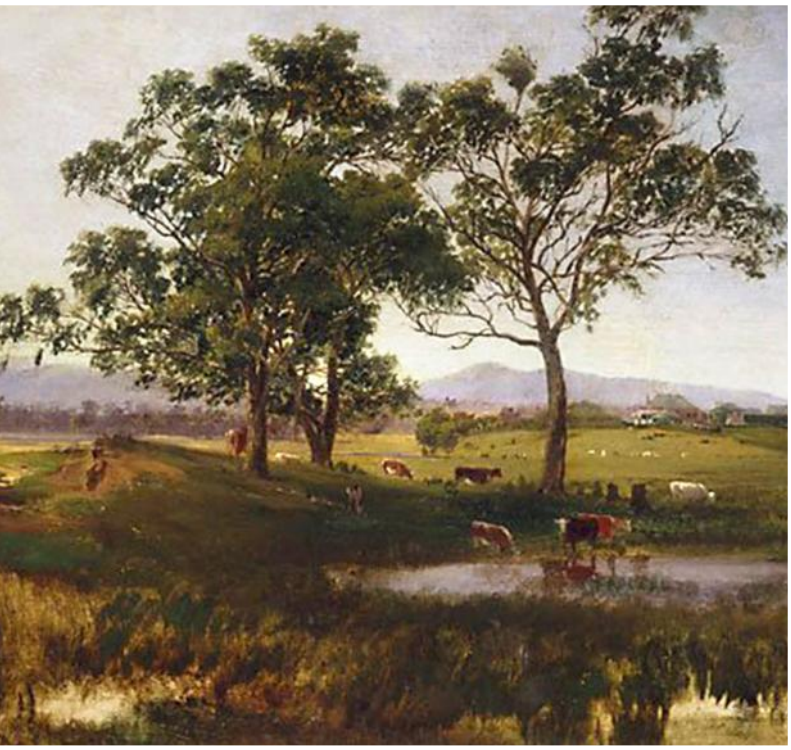
River red gum

EARLY ARTISTS

Eugene von Guérard

(1811–1901)

Click images for more on these early artist who painted river red gums



Louis Buvelot

(1814–1888)

Hans Heysen

(1877–1968)

River red gum

Beside the Goulburn River

QUICK FACTS

The river red gum is Australia's most iconic eucalypt tree.

There are seven subspecies of river red gum.

It is one of the most evasive species of Australian eucalypt.

The river red gum was first described near Naples, Italy in 1832. It was an imported tree growing on a private estate.

It was introduced to California in the USA in the 1850s. Today they are considered a weed and are constantly being burnt by wildfire.

They are one of the most grown plantation eucalypts in the world.

River red gums can make an interesting bonsai plant.

Because of their rough texture, style of bark and tendency for dropping limbs that leave holes in the tree, they are also one of the most successful habitat trees in Australia.

Early farming relied on the river red gum for fence and gate posts, and as firewood. It was not generally used for construction, unless other more suitable timber was not available.

Miners used the river red gum for firewood, and for shoring-up gold mines when other more suitable wood could not available.

Most river red gum timber used for railway sleepers was sourced from near Barham, on the Murray River. From the 1870s until the 1970s, this area was heavily milled.

The iconic Australian band 'Redgum' was formed in 1975 and released their last single in 1987. Click for more.

Blakely red gum is another subspecies that grows in Central Victoria.

The Murrumbidgee Valley National Park part of the largest continuous tract of river red gum forest in the world.

River red gum trees do not have trunk rings, so their age is harder to estimate.

River red gum habitat tree

Beside the Goulburn River

Some local flowering trees (alphabetical)

Name	Flowers	Flower width	Colour
Black wattle ☑	Oct – Dec	Up to 13 mm	Yellow
Blackwood ☑	Aug – Oct	Up to 13 mm	Yellow
Blue gum ☑	Dec – Mar	Up to 35 mm	Cream-white
Broad-leaved peppermint ☑ 2019, 2023	Aug – Nov	Up to 13 mm	Cream-white
Burgeon scrub	Nov – Mar	Up to 22 mm	White, red centre
Buxton silver gum ☑	Sept – Jan	Up to 35 mm (composite)	Cream-white
Candlebark ☑	Feb – May	Up to 25 mm	Cream-white
Cootamundra wattle ☑	Jun – Aug	Up to 12 mm	Yellow
Golden wattle ☑	Jul – Oct	Up to 15 mm	Yellow
Grey box ☑	Feb – May	Up to 18 mm	Yellow
Ironbark ☑	May – Sep	Up to 35 mm	Cream-white
Kurrajong ☑	Dec – Feb	Up to 30 mm	Cream, red speckles
Lemon-scented gum	May – Jan	Up to 30 mm	Cream-white
Long-leaved box ☑	Dec – May	Up to 26 mm	Cream-white
Manna gum ☑	Dec – Apr	Up to 25 mm	Cream-white
Messmate ☑	Jan – Mar	Up to 20 mm	Cream-white
Mountain ash	Jan – Mar		Cream-white
Myrtle beech	Jan – Feb	Up to 6 mm	Red
Narrow-leaved peppermint ☑ 2019, 2023	Oct – Feb	Up to 10 mm	Cream-white
Red box ☑	Aug – Dec	Up to 15 mm	Yellowish-cream
Red stringybark ☑	Jan – Mar	Up to 25 mm	Cream-white
River red gum (Severe lerp: 17/18, 20/21, 23/24)	Nov – Jan	Up to 25 mm	Cream-white
Silver wattle ☑	Jul – Oct	Up to 12 mm	Yellow
Smooth-barked Apple	Dec-Feb	Up to 30 mm	Cream-white
Snow gum ☑	Oct – Feb	Up to 20 mm	Cream-white
Southern blue gum ☑	April – July	Up to 35 mm	Cream-white
Spotted gum	July – Aug	Up to 20 mm	Cream-white
Sugar gum ☑	Jan – Mar	Up to 18 mm	Cream-white
White box ☑	Feb – April	Up to 25 mm	Cream-white
Yellow box ☑	Nov – Jan	Up to 13 mm	Yellowish-cream
Yellow gum ☑	April – Nov	Up to 25 mm	Yellowish-cream

Some species of eucalypt do not flower every year, and timing of flowering can very widely depending on seasonal conditions such as drought.
The dates relate to Central Victoria. Most trees flower earlier the further north you travel.
This chart is from personal observations and is being updated as time allows.
Species introduced to Central Victoria from other areas of Australia are in blue

Some local flowering trees (flowering order)

Name	Flowers	Flower width	Colour
Messmate	Jan – Mar	Up to 20 mm	Cream-white
Myrtle beech	Jan – Feb	Up to 6 mm	Red
Mountain Ash	Jan – Mar		Cream-white
Red stringybark (2018)	Jan – Mar	Up to 25 mm	Cream-white
Sugar gum	Jan – Mar	Up to 18 mm	Cream-white
Candlebark	Feb – May	Up to 25 mm	Cream-white
Grey box	Feb – May	Up to 18 mm	Yellow
White box	Feb – April	Up to 25 mm	Cream-white
Southern blue gum	April – July	Up to 35 mm	Cream-white
Yellow gum	Apr – Nov	Up to 25 mm	Yellowish-cream
Ironbark	May – Sep	Up to 35 mm	Cream-white
Cootamundra wattle	Jun – Aug	Up to 12 mm	Yellow
Spotted gum	July – Aug	Up to 20 mm	Cream-white
Golden wattle	Jul – Oct	Up to 15 mm	Yellow
Blackwood	Aug – Oct	Up to 13 mm	Yellow
Silver wattle	Aug – Oct	Up to 12 mm	Yellow
Broad-leaved peppermint (2022)	Aug – Nov	Up to 13 mm	Cream-white
Red box	Aug – Dec	Up to 15 mm	Yellowish-cream
Buxton silver gum	Sept – Jan	Up to 35 mm (composite)	Cream-white
Black wattle	Oct – Dec	Up to 13 mm	Yellow
Narrow-leaved peppermint (2019/21)	Oct – Feb	Up to 10 mm	Cream-white
Snow gum	Oct – Feb	Up to 20 mm	Cream-white
Yellow box	Nov – Jan	Up to 13 mm	Yellowish-cream
River red gum * (17/18, 20/21, 21/22)	Nov – Jan	Up to 25 mm	Cream-white
Burgeon scrub	Nov – Mar	Up to 22 mm	White, red centre
Kurrajong	Dec – Feb	Up to 30 mm	Cream, red speckles
Lemon-scented gum	Dec – Feb	Up to 30 mm	Cream-white
Smooth-barked Apple	Dec-Feb	Up to 30 mm	Cream-white
Blue gum	Dec – Mar	Up to 35 mm	Cream-white
Manna gum	Dec – Apr	Up to 25 mm	Cream-white
Long-leaved box	Dec – May	Up to 26 mm	Cream-white

WARMER COLDER MONTHS WARMER

Some species of eucalypt do not flower every year, and timing of flowering can very widely depending on seasonal conditions such as drought.
The dates relate to Central Victoria. Most trees flower earlier the further north you travel.
This chart is from personal observations and is being updated as time allows.
(Years in brackets represent years that the species broadly and strongly flowered in our area)

River red gum

River red gum beside the Goulburn River

GLOSSARY

A Growing Basic Glossary of Terms

Basic Glossary

.ssp	*(acronym)* Sub Species.
Abscission	*(noun)* The normal separation of flowers, fruit and leaves from plants.
Adult	*(noun)* Any life form that has stopped developing.
Alleopathy	*(adjective)* The phenomenon where a plant us able to stop other plants growing near them by producing biochemicals which resist their germination, growth and reproduction.
Bark	*(noun)* The outer protective layer of tissue that surrounds all stems, roots and woody plants, such as trees. Bark is most evident on tree trunks.
Borer	*(noun)* A term often used to describe any of the wood boring insects that can infect a bush or tree.
Capsule	*(noun)* A dried fruit that is at its seeds releasing stage. They are also known as gumnuts.
Chlorophyll	*(noun)* A green pigment manufactured by trees and found in their leaves. Chlorophyll helps leaves absorb energy from light (photosynthesis).
Conifer	*(noun)* A tree where the seeds are located within a cone.
Corolla	*(noun)* Whorl of petals of a flower.
Deciduous	*(adjective)* A tree that sheds all of its leaves each year.
Endemic	*(adjective)* Prevalent or regularly found among a people or in a district; confined to a particular area (*biology*).
Escarpment	*(noun)* A long, steep slope, esp. one at the edge of a plateau or separating areas of land at different heights.
Eucalyptus Longhorne	*(noun)* The beetle (*Phoracantha semipunctata*) which attacks eucalypt trees, eating the sapwood under the bark.

Basic Glossary

Flower	*(noun)* The seed bearing reproductive organ of a plant..
Frass	*(noun)* A fine powdery wood produced as excrement by wood boring insects.
Fruit	*(noun)* A seed bearing reproductive organ.
Geotropism	*(noun)* Oriented growth with respect to gravity.
Girth	*(noun)* Circumference of a tree trunk (usually measured a certain height from the ground – this measurement varies around the world though is often 1 m or 1.2 m).
Glabrous	*(adjective)* Free from hair.
Glaucous	*(adjective)* Of a dull greyish-green to greyish-blue colour, or covered with a powdery bloom.
Heartwood	*(noun)* The older harder wood found between the sapwood and the centre of woody plants (pith), It is classed as non-living.
Inflorescence	*(noun)* A cluster of flowers arranged on a stem that is composed or a main branch or a complicated arrangement of braches.
Internodes	*(adjective)* The part of the plant between the nodes on a stem from where leaves grow from.
Inosculate	*(verb)* to unite intimately, connect or join so as to become one.
Juvenile	*(noun)* Any individual organism that has not reached its adult form. Juvenile life forms are still developing, but adult life forms have stopped developing.
Kino	*(noun)* Resin from a eucalypt tree, especially those known as bloodwood trees.
Node	*(noun)* The part of a plant's stem from where leaves emerge.
Organism	*(noun)* Any plant or single-celled life form.

Basic Glossary

Pinacle	*(noun)* A loose cluster of buds or flowers.
Perenial	*(noun)* A plant that lives for two or more years.
Petiole	*(noun)* The stalk that attached the leaf blade to the stem. It can twist the leaf so it faces the sun.
Pith	*(noun)* The very centre wood of a tree. It is found inside the heartwood.
Phyllode	*(noun)* Modified petioles (leaf stems) which look like a and function as a leaf. In some species the leaf and petiole is modified to the point that the phyllode serves as a leaf. They are common in acacias such as the narrow-leaved wattle (*Acacia linearifolia*).
Root	*(noun)* Anchors the tree to the soil and absorbs water and soil minerals.
Sapwood	*(noun)* The softer section of recently formed wood found between the bark and heartwood of a woody plant.
Sclerophyll forest	*(noun)* Vegetation dominated by evergreen species with hard leaves to reduce water loss and short internodes.
Sessile	*(adjective)* Attached directly by its base without a stalk or peduncle or fixed in one place and immobile.
Stamen	*(noun)* The male fertilising organ of a flower, typically having a anther which contains pollen and a filament.
Stigma	*(noun)* The part of the flower that receives the pollen during pollination.
Tree	*(noun)* A single erect woody perennial plant that has a trunk, lateral branches and attains a good height.
Tubor	(noun) The thick underground root-like part of some plants that serves as a food reserve as well as bearing buds. A potato is a tuber.

Basic Glossary

Umbel *(noun)* An inflorescence in which a number of similar length flower supporting stalks or pedicels, emerge from a common point.

Umbrageous *(noun)* Creating or providing shade.

Understory *(noun)* The shrubs and plants growing beneath the main canopy of a forest or tree.

Whowl *(noun)* A set of leaves, flowers, or branches extending from a stem at the same level and encircling it.

River red gum

Euroa

By
Steven and David Hibbert