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Australian Plants SOCIETY NSW

NORTHERN BEACHES GROUP
July 2018


pic Andre Porteners

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Next Meeting: **Thursday July 5, 2018** at Stony Range Botanic Garden, Dee Why.

7 pm Committee Meeting.

7.30 pm Presentation: Independent researcher **Bob Jones** will talk about the latest developments in his **Eastern Pygmy Possum project**, the results of his extensive monitoring of wildlife using camera surveys and nest boxes; the threatened vulnerable species and habitats found; the nature of the main threats they face; and the action needed to lessen these threats.

Supper: Conny & Pam.

Coming Up:

APS Northern Beaches next walk/garden visit to be discussed at the July meeting.

From the Editor
Thankyou Penny for your Show & Tell piece on Asplenium obtusatum. Please send your stories, photographs etc that other members would enjoy to me at march@ozemail.com.au

ASPLENIUM OBTUSATUM
Penny Hunstead

At Wirreanda Nursery, one often has to wait at the sales counter. The areas around sales counters are places where impulse-buy bait is placed. Lollies and soft drinks at the supermarket and eye-catching plants at the plant nursery. So it was that I saw this little fern, as I waited to be served, at Wirreanda. I didn't need to buy it but it was so attractive that I had to have a look at the name. I was surprised to find it was an Asplenium. Very unlike the bird's nest fern, A. nidus and the other popular Aspleniums, bulbiferum and hookerianum.


Asplenium obtusatum. pic:Richard Hunstead

Nurserymen (and women) cunningly state that this plant "……" can also be grown in a container, even if it doesn't thrive, there, in order to maximise their customer base. So, I bought this A. obtusatum, because it was recommended as a potted plant, despite its natural habitat.

There are about 700 Asplenium species, worldwide and 30 species in Australia. The common name of A. obtusatum is "shore spleenwort". Part of the name is understandable and part is not. The plant grows naturally by the shore, but is not able to cure sick spleens, as once imagined.

The notable feature of this tough little fern is that it grows in granitic or basaltic rock crevices in exposed coastal situations and tolerates salt spray. It is rarely found inland. (So I hope it's not being sold in other than seaside nurseries!) Another feature is the very stiff, plastic-like nature of the leaves.

It is found in Southern Queensland, NSW, Victoria, Tasmania and New Zealand. In N.Z the fern is A. o. var obliquum.

Further web searches turned up some interesting information. It is supposedly difficult to maintain in good condition in cultivation. So, I will pot it into a permanent home of granitic soil. Living in a seafront position, I hope it will get

enough salt spray, to be happy. It's supposed to be susceptible to slugs and snails. None here. That could be a topic of future discussion. Where have all the snails gone.

This Asplenium is also found growing amongst bird colonies and thus thrives on guano. I am lucky to be keeping hens and thus have a fresh source of guano, to supply the plant.

Granitic soil, sea spray, guano…… I hope for the best for my little fern.

RARE FLOWERING PLANT KUNZEA NEWBEYI FOUND IN WA'S SOUTH WEST SET TO BLOOM

abc.net.au 30 May 2018 Cameron McAloon

Photo: The Kunzea newbeyi flowering plant was first discovered in 1964. (Supplied: Libby Sandiford)

An "inconspicuous" rare flowering plant has been discovered to be in abundance in Western Australia's South West following a survey of bushland.

The *Kunzea newbeyi* plant, while is endemic to WA's South West, has been found in only five locations worldwide.

First discovered in 1964, it has now been identified in large quantities in the Monjebup Reserve, between the Fitzgerald River and Stirling Range national parks, during a survey by Bush Heritage Australia.

Relatively little is known about the plant, which is classified as a "priority one" rare species by WA's Department of Agriculture and Food. However Bush Heritage Australia landscape manager Simon Smale said the discovery had come as a shock and showed how important the region was for conservation.

"It's sort of a surprise but we're kind of getting used to these sort of surprises, you know?" he said.

Photo: Flora experts Craig Luscombe, Jack Mercer and Angela Sanders examine the rare flowering plant. (Supplied: Simon Smale)

"We know [the South West is] a global biodiversity hotspot. It just goes to prove the point that in this part of the world, quite small patches of bush can actually be extraordinarily important for the conservation of flora."

Bush Heritage plans to monitor the population over the coming weeks as Kunzea newbeyi begins to flower.

Mr Smale said the plant would flower throughout October before going back to looking fairly unremarkable.

"It's a relatively inconspicuous little plant until it flowers," he said. "[When it flowers] it's a beautiful mauvey-pink colour. It's quite striking."

Seeds will be collected from the plant when it flowers for use in a restoration project specifically designed to enhance the conservation of the species.

The work will be incorporated in an already-successful revegetation program in the area known as the Gondwana Link.

THE ART OF HEALING: FIVE MEDICINAL PLANTS USED BY ABORIGINAL AUSTRALIANS

Theconversation.com June 5, 2018 Beth Gott, Honorary Research Fellow, Monash University

People have lived in Australia for at least 65,000 years. In all those generations the land provided original Australians with everything they needed for a healthy life.

At least half the food eaten by the first Australians came from plants, and it was the task of women to collect them. Fruits, seeds and greens were seasonal, but roots could usually be dug up all year round, because the earth acted as a natural storage cupboard.

The particular plants eaten or used as medicine varied in different parts of Australia. In Arnhem Land, North Queensland and the Kimberley, many tropical trees bear fruits and seeds, such as native figs (Ficus spp.), lilly-pillies (Acmena, Eugenia and Syzygium spp.) and macadamia nuts.

In Central Australia, where water is scarce, plants are spread thinly over the land. Here the people relied more on the seeds of native grasses and wattles such as mulga (Acacia aneura), wiry wattle (Acacia coriacea) and even the coolabah tree (Eucalyptus microtheca). In the southern parts of Australia, roots (applying that word to all the underground parts of a plant) were the most important foods.

Treahna Hamm (b. 1965), Dhungala cool burn, 2017 (detail, one panel), acrylic paint, river sand, bark ink, paper 100.9×114cm (each of three panels). MHM2017.2, © Treahna Hamm. Medical History Museum, Author provided

In terms of medicines, many different parts of plants were used. Native mints (Mentha spp.) were remedies for coughs and colds, while the gum from gum trees, which is rich in tannin, was used for burns. The green plum (Buchanania obovata) is enormously rich in vitamin C.

Here are five other plants that have medicinal uses:

1. Kangaroo apple (*Solanum aviculare* or *Solanum laciniatum*)
This is a great example of a food source and medicinal plant for many Victorian Aboriginal clan groups. This shrub varies in height. Its leaves resemble a kangaroo's paw and it produces purple flowers.

The early fruits that form are at first yellow or green and highly poisonous, but can be eaten when they are at their ripest, turning a blood-orange colour. The fruit contains high levels of the alkaloid solanine, which can be infused from the leaves with hot water to create steroids.

Also known as bush apple, it has been farmed in several parts of the world to produce and manufacture oral contraceptives, using extracts from the young leaves and green fruits.

2. Wattles (Acacia spp.)
Australia has more than 1,000 wattle species. The gum of some species (golden, silver and black wattles) was an important food as well as a useful cement. The seeds of other species are high in protein and carbohydrate and in arid areas were eaten both green and dry.

Wattle blossom was hung in people's huts to promote sleep. In Victoria, the bark of blackwood *(Acacia melanoxylon*) was infused and used to bathe rheumatic joints, or ingested as a mild sedative for rheumatism or indigestion.

Treahna Hamm (b. 1965), Yorta Yorta bush medicine first aid kit, 2017 Paperbark, kurrajong pods, Lomandra, she-oak pods, bark ink, riverbed clay, charcoal, billabong sediment, raffia, bottlebrush wood and bloom, ash, possum bone, mussel shell, black wattle bark, stringybark, river sand, Eucalyptus leaves, tree bark, sap, 4×12×27cm, MHM2017.1, © Treahna Hamm. Medical History Museum, Author provided

3. Old man's weed (*Centipeda cunninghamii*)
Commonly found along the Murray River, as well as in other low-lying, swampy habitats, this plant is useful for treating many complaints, including eye infections, tuberculosis and skin complaints. It is administered as an extract in water, or sometimes rubbed onto the skin.
It's usually used for colds and coughs and chest infections, but, being a natural restorative plant, it can help strengthen the immune system and mobility.

4. Drooping she-oak (*Allocasuarina verticillata*)
In Victoria, mature cones from this tree were ground up and applied to sores to treat rheumatism. Extracts from the bark and wood can also be used as a general medicine.

5. Hop bush (*Dodonaea viscosa*)
This plant grows across Australia. In Queensland the juice of the root was applied for toothache and cuts.

The chewed leaf and juice were put on stonefish and stingray stings and bound up for four or five days.

Rosie Ngwarraye Ross (b. 1951), Bush flowers and bush medicine plants, 2015 acrylic on linen, 91×91cm, MHM2017.3, © Artists of Ampilatwatja. Medical History Museum, Author provided

Kathrine “Kat” Clarke, artist and proud woman from the Wimmera, contributed to this article. The artworks used in this article are on display at the University of Melbourne's Medical History Museum, as part of The art of healing: Australian Indigenous bush medicine exhibition, which runs until September 28. This article is made up of essay extracts published in the exhibition's catalogue.

ORCHID RESCUE

Bush Heritage 20 Jun 2018

Some may call them fickle, but Julie Radford sees native orchids as sentinels of an unseen world and reminders of a delicate web.

Stuart Mill Spider Orchid. Photo by Julie Radford. Stuart Mill Spider Orchid. Photo by Julie Radford.

"The thing that really captivates me about orchids is that they highlight those intricate relationships that happen in ourenvironment that we don't see with the naked eye or that we're not aware of around us," says Julie, an orchid expert from Amaryllis Environmental.

"And I think that's why I've become an orchid conservationist; because they've helped highlight that nothing is isolated, and if you lose one element of an ecosystem, then gradually over time everything becomes lost."

Julie has turned her attention to Bush Heritage's John Colahan (J.C.) Griffin Reserve, a rare remnant of box-ironbark and grassy woodlands in north-central Victoria. There, she has helped to increase the number of threatened Stuart Mill Spider-orchids from 12 plants in 2008 to around 186 last year.

Geoff Neville and Julie Radford replanting orchids at J.C. Griffin Reserve. Geoff Neville and Julie Radford replanting orchids at J.C. Griffin Reserve.

The Stuart Mill Spider-orchid (Caladenia cretacea) is a "very elegant, beautiful, dainty little orchid" that's endemic to Victoria and listed as threatened. Like its bush orchid brethren, the Stuart Mill Spider-orchid has a complex, interconnected relationship with its surrounding environment and is a good indicator of ecosystem health: healthy ecosystems beget healthy orchid populations.

However, land clearing, grazing by stock and feral herbivores, and weeds have pushed the Stuart Mill Spider-orchid close to extinction and continue to challenge the species.

"If you look at the box-ironbark country across central Victoria, we've actually only got about 13% of our native vegetation remaining. So the species that are trying to exist in these tiny little isolated, remnant patches of vegetation are really struggling," says Julie.

To grow Stuart Mill Spider-orchids, Julie needs to replicate a germination process that relies on a delicate dance between a particular pollinator, a symbiotic relationship with fungi, and the right environmental factors. First, she needs to go out at flowering time and pretend she's a bee. She hand-pollinates by taking pollen parts from one plant and inserting them into another.

Photo by Julie Radford.

A few months later she collects the seed capsules containing thousands of tiny, microscopic seeds that look like finely ground pepper. She also takes plant tissue samples back to the laboratory at the Royal Botanic Gardens Victoria (RBGV) in Melbourne. There, RBGV research ecologist Dr Noushka Reiter, who leads the gardens' orchid conservation program, can isolate the fungus responsible for germinating the seeds and grow it in petri dishes.

The seeds are then sprinkled onto the fungus, which inoculates them so they grow into tiny fluffy protocorms (tuber-shaped bodies). Eventually, after many more steps and three-to-five years, the plants are big enough to be transported back to the reserve for planting.

From 2014 to 2016, Julie did three plantings of Stuart Mill Spider-orchids at J.C. Griffin Reserve, with the help of volunteers from the Australasian Native Orchid Society,The St Arnaud Field Naturalist Club and the Kara Kara Conservation Management Network.

Their success is measured not only in the number of orchids that survived (60% to 80%) but also the flowering rates.

"Not all orchids will flower every year. Some might flower only one out of every three years, depending on weather conditions, but in 2016 I had a very good flowering rate of 50%," says Julie.

For Jeroen van Veen, Bush Heritage's Victorian Reserves Manager, the impact of the orchids on other species can be quite stark. "When we fence off a small area where we raise these orchids, we see the density of wattles increasing and the bush peas coming back in high numbers," says Jeroen. He says Bush Heritage is aiming for 1,500 self-sustaining plants across the Stuart Mill district by 2030.

Bush Heritage acknowledges the support of The R E Ross Trust towards our efforts to conserve orchids in central Victoria, as well as RBGV staff, who are working to reintroduce 200 more Stuart Mill Spider-orchids back into their broader range by 2020.

HOW DOES AN ECHIDNA BREATHE WHEN DIGGING THROUGH SOLID EARTH?

Theconversation May 23, 2018 Christine Cooper Curtin University

This is an article from Curious Kids, a series for children. The Conversation is asking kids to send in questions they'd like an expert to answer. All questions are welcome – serious, weird or wacky! How does an echidna manage to breathe when digging through solid earth? – Isabella, age 8, Cowes, Phillip Island.

When it comes to breathing, a digging mammal faces some big problems. It has to be able to physically move its chest to inflate its lungs. It also has to be able to get enough oxygen and find a way to get rid of the carbon dioxide it breathes out.

The good news is that echidnas are well adapted to solving these problems. When breathing in and out, they use their muscular diaphragm (a muscle between their chest and abdomen) as well as the muscles between their ribs. These muscles are strong enough to push air in and out, even when they are buried under the top layer of soil and leaf litter.

When they dig down, they loosen the soil around their body. It gets so loose, it doesn't actually stop their chest from moving in and out, so they can still breathe. When they dig deeper, they form a burrow which has self-supporting walls and roof and so the echidna has enough room to be able to breathe and move.

Getting enough oxygen

A bigger problem is getting enough oxygen, and getting rid of enough carbon dioxide when burrowed underground.

Like all mammals, echindas need to breathe in oxygen from the air, and when they breathe out they expel carbon dioxide as a toxic waste product. Having too much carbon dioxide around (from your out-breath) can be a real problem.

Gases such as oxygen and carbon dioxide move through soil more easily than most people think. As long as echidnas do not burrow into very wet soil, just enough fresh air can usually get in and the carbon dioxide from their out-breath can get out.

Echidnas also have a few special tricks. When they are buried, they move the front part of their bodies a lot to flush the gases through the soil. They make these flushing movements more often if they are buried in really thick soil, or when they are digging really hard and need more oxygen.

Echidnas have very low body temperatures and, like many other burrowing animals, a low metabolic rate (metabolic rate means how fast they use up energy; when you have a high metabolic rate, you use up oxygen faster). Compared with other mammals of a similar size, they 'dont use as much oxygen or make as much carbon dioxide. This means that the oxygen that is available isn't used up very quickly, and 'carbon dioxide doesnt build up to dangerous levels.

Finally, echidnas can survive low levels of oxygen. Echidnas in low-oxygen environments breathe more, but they don't reduce their energy use like most other mammals; they can maintain their normal levels of metabolism. Echidna blood is especiallygood at holding and transporting oxygen.

BOGONG MOTHS FIRST INSECT KNOWN TO USE MAGNETIC SENSE IN LONG-DISTANCE NOCTURNAL MIGRATION

Sciencedaily.com June 21, 2018

Researchers reporting in Current Biology on June 21 have found that nocturnal Bogong moths, like migratory birds, depend on the Earth's magnetic field to guide them on their way. The discovery offers the first reliable evidence that nocturnal insects can use the Earth's magnetic field to steer flight during migration, the researchers say.

This photograph shows Bogong Moths on a cave wall. Credit: Eric Warrant

Each spring, millions of nocturnal Bogong moths hatch across breeding grounds throughout southeastern Australia before flying over 1,000 kilometers through the dark night to reach a limited number of high alpine caves in the Australian Alps.

After a few months of summer dormancy in those cool mountain caves, the moths fly right back to the breeding grounds where they were born. Now, researchers reporting in Current Biology on June 21 have found that the moths, like migratory birds, depend on the Earth's magnetic field to guide them on their way.

The discovery offers the first reliable evidence that nocturnal insects can use the Earth's magnetic field to steer flight during migration, the researchers say. "When we began this study, we were convinced that the Bogong moth would exclusively use celestial cues in the sky, such as the stars and the moon, for navigation during migration," says Eric Warrant of the University of Lund, Sweden. "This, it turned out, was not the case. We were very surprised when we discovered that these moths could sense the earth's magnetic field just like night-migratory birds -- and probably for the same reason."

Bogong moths and monarch butterflies are the only known insects to migrate over such long distances, and along such a specific route, to a distinct and geographically restricted destination visited by thousands of previous generations. In the new study, Warrant, David Dreyer, and colleagues set out to explore how such a small animal, with its tiny brain and nervous system, could travel so precisely and so far, having never been to their destination before. How could the same individuals then find their way back again after months in the mountains?

Bogong moths fly for over 1,000km to reach the cosy caves of Mount Kosciuszko and nearby alpine areas. Supplied: Eric Warrant

The researchers tethered migrating moths in an outdoor flight simulator.

They found that the moths' flight direction turned predictably when dominant visual landmarks and a natural Earth-strength magnetic field were turned together. When those two cues were turned in conflicting ways, the moths became disoriented within minutes. The findings led the researchers to conclude that Bogong moths rely on a magnetic sense.

The findings suggest that nocturnally migrating insects might use the Earth's magnetic field as a compass during migration just as nocturnally migrating birds do. The researchers suspect the moths use a magnetic compass to determine their migratory direction and then align this direction with a celestial or terrestrial landmark in the same or a similar direction, which they then use as a visual beacon.

This is essentially the same strategy we use when hiking in wilderness terrain: we determine our direction with a compass and then look for some distant landmark in roughly the same direction -- for instance a mountaintop or a distant tree -- and then head for this as we walk," Dreyer said. "When this landmark is no longer reliable, we again check our direction with the compass and choose a new landmark to orient towards."

The researchers say they would now like to dissect in more detail how and which visual and magnetic cues the moths use and how they are integrated in the brain. Due to the moth's relatively simple nervous system, they also hope to learn how the insects detect magnetic information, something that hasn't yet been achieved in any animal.

"The discovery of the magnetic sensor is one of the Holy Grails of sensory physiology," Warrant says.

MOUNTAIN ASH HAS A REGAL PRESENCE: THE TALLEST FLOWERING PLANT IN THE WORLD

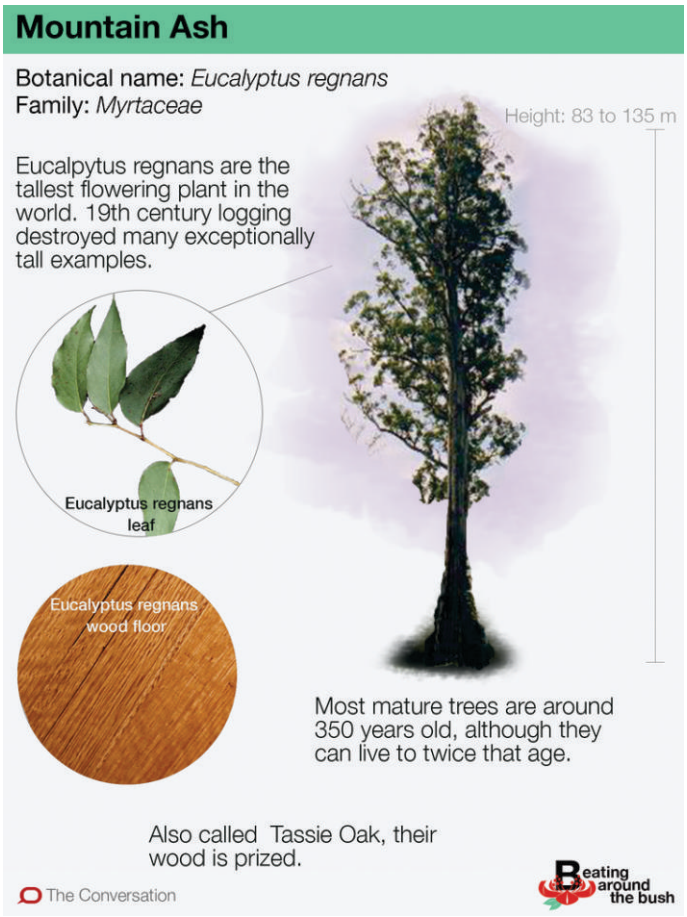
The conversation June 1, 2018 Gregory Moore, Doctor of Botany, University of Melbourne

Welcome to Beating Around the Bush, a series that profiles native plants: part gardening column, part dispatches from country, entirely Australian. Read more about the series here batb@theconversation.edu.au.

The Indigenous people of Victoria and Tasmania have long known of the giant trees to be found in some of the wetter and cooler forests of these parts of Australia. The first Europeans were amazed to see trees of such stature growing in what they regarded as a dry and hostile environment.

The trees are straight and tall – almost incredibly tall – and many have massive girths. They are in every sense living giants.

Today we know the species by various common names, such as mountain ash, swamp gum, stringy gum or even giant gum, in different parts of Australia. Perhaps this is a situation where the proper botanical name, which many people find difficult and confusing, says it all. This monarch of eucalypts is officially called Eucalyptus regnans; regnans being Latin for ruling or reigning. Its massive stature gave rise to the name.



How does it grow?

Mountain ash lack many of the typical eucalypt adaptations to environmental stresses like fire, drought and poor soils. They compensate by growing very fast under the right conditions; eventually over-topping all the other species present.

They have huge and often deep root systems to supply adequate amounts of water. To grow successfully they need plenty of water and sunlight – so they are not really very hardy – but in the right environment they are unbeatable.

They always grow tall and so are not for your smaller suburban backyard, but there are many in backyards in the Dandenongs, in peri-urban sites to the east of Melbourne and in towns in Gippsland and the Otways.

Their mature leaves are about 3mm wide and can be as long as 150mm, while their flowers are white to cream in colour and 8mm across. The buds and flowers grow in clusters, but like the flowers of many eucalypts they often go unnoticed, especially on the taller trees. The fruits or gumnuts are again in clusters, about 10mm across and, somewhat surprisingly for such a large tree, contain hundreds of tiny seeds.

The bark is rough and fibrous at the base and for up to about 10m from the ground, but then is a beautiful smooth, mottled cream and grey with long ribbons of dead bark hanging from the canopy. These ribbons burn in bushfires and can carry fire for many kilometres ahead of a fire.

A forest giant

We will never know if a Eucalyptus regnans was the tallest living thing on Earth; they are certainly the largest flowering plants in the world. Many of the biggest were felled in the mid to late 1800s before they could be properly measured.

There have been, and continue to be, a number of rivals for the tallest mountain ash; of course there have been the usual rivalries between states. Tasmania currently holds the record, but there are several tall specimens in Victoria that may take the crown in future.

Some of these trees were so large that the stumps could neither be transported from the forest, nor processed in the timber mills of the day. These huge logs can still be seen rotting on the forest floor more than a century later.

A stump of a Eucalyptus regnans in Tasmania's Styx valley. TTaylor/Wikipedia, CC BY-SA

These trees were so large, an old forester told me in the early 1970s, that when they felled them by hand with cross-cut saws, air could be heard being sucked into the cuts – the so-called sighing of the trees as they died.

We do know, however, that specimens of Eucalyptus regnans regularly exceed 85 metres in height and that one tree was measured at 132m tall. Often they were measured after they had been felled and the uppermost branches (and sometimes the stump) were not included in the measurement. Today the tallest specimens are just under 100m tall and the biggest tree is 10.74m in diameter and 33.75m in girth (measured at 1.4m above the ground).

They are second only to the coast redwood, *Sequoia sempervirens*, in height. For such mighty trees, it often comes as a surprise that they are not as old as many people think. While the coast redwoods can exceed 2,000 years of age, mature Eucalyptus regnans tree are commonly about 300 years old, but may reach about twice that age if they are growing in the right place to miss bushfires.

Vulnerable to fire

Mountain ash are easily killed by bushfires. Although they grow in the cooler and wetter parts of southeastern Australia where fires are not so frequent, as time passes, a fire becomes inevitable. The fire kills the individual specimens, but at the same time rejuvenates and renews the forest. The mighty Eucalyptus regnans regenerates from the tiniest of seeds that are shed from the woody fruits that were present in the canopy at the time of the fire; seedlings often emerge about six months after a fire.

When fires burn through Eucalyptus regnans-dominated wet forests most of the trees die, but those that don't can be fire-scarred – often on one side. Over time these trees decay and then hollow out. Given their massive girths, they can develop huge cavities at the base and a hollow trunk leading upwards like chimney.

As with other similar large-girthed eucalypts, Indigenous people used these trees as shelters. They weren't the only ones: there are records of early settlers and timber cutters using these trees as their homes for families of seven or more people.

The timber from Eucalyptus regnans reminded some people of European ash timber and hence the name mountain ash, while others thought it had properties as good as oak and so the name Tasmanian or Tassie oak was used for the timber. The timber is still highly valued today and Eucalyptus regnans is a common plantation species in Australia and overseas.

In Victoria and Tasmania, Eucalyptus regnans forests are to be found within an hour's drive of major cities, but in Melbourne, you can catch a glimpse of these magnificent trees and the forest over which they reign by visiting the atrium of the Melbourne Museum.

GIANT AFRICAN BAOBAB TREES DIE SUDDENLY AFTER THOUSANDS OF YEARS

Agence France-Presse June 12, 2018

Demise of four out of 13 of the ancient landmarks linked to climate change by researchers

One baobab tree has been estimated to be 2,500 years old. Photograph: Alamy Stock Photo

Some of Africa's oldest and biggest baobab trees have abruptly died, wholly or in part, in the past decade, according to researchers.

The trees, aged between 1,100 and 2,500 years and in some cases as wide as a bus is long, may have fallen victim to climate change, the team speculated.

“We report that nine of the 13 oldest … individuals have died, or at least their oldest parts/stems have collapsed and died, over the past 12 years,” they wrote in the scientific journal Nature Plants, describing “an event of an unprecedented magnitude”.

“It is definitely shocking and dramatic to experience during our lifetime the demise of so many trees with millennial ages,” said the study's co-author Adrian Patrut of the Babeș-Bolyai University in Romania.

Among the nine were four of the largest African baobabs. While the cause of the die-off remains unclear, the researchers “suspect that the demise of monumental baobabs may be associated at least in part with significant modifications of climate conditions that affect southern Africa in particular”. Further research is needed, said the team from Romania, South Africa and the United States, “to support or refute this supposition”.

Between 2005 and 2017, the researchers probed and dated “practically all known very large and potentially old” African baobabs – more than 60 individuals in all. Collating data on girth, height, wood volume and age, they noted the “unexpected and intriguing fact” that most of the very oldest and biggest trees died during the study period. All were in southern Africa – Zimbabwe, Namibia, South Africa, Botswana, and Zambia.

The baobab is the biggest and longest-living flowering tree, according to the research team. It is found naturally in Africa's savannah region and outside the continent in tropical areas to which it was introduced. It is a strange-looking plant, with branches resembling gnarled roots reaching for the sky, giving it an upside-down look.

The iconic tree can live to be 3,000 years old, according to the website of the Kruger National Park in South Africa, a natural baobab habitat.

The tree serves as a massive store of water, and bears fruit that feeds animals and humans. Its leaves are boiled and eaten as an accompaniment similar to spinach, or used to make traditional medicines, while the bark is pounded and woven into rope, baskets, cloth and waterproof hats.

The purpose of the study was to learn how the trees become so enormous. The researchers used radiocarbon dating to analyse samples taken from different parts of each tree's trunk. They found that the trunk of the baobab grows from not one but multiple core stems. According to the Kruger Park, baobabs are “very difficult to kill”. “They can be burnt, or stripped of their bark, and they will just form new bark and carry on growing,” it states. “When they do die, they simply rot from the inside and suddenly collapse, leaving a heap of fibres.”

Of the 10 trees listed by the study authors, four died completely, meaning all their multiple stems toppled and died together, while the others suffered the death of one or several parts.

The oldest tree by far, of which all the stems collapsed in 2010/11, was the Panke tree in Zimbabwe, estimated to have existed for 2,500 years. The biggest, dubbed Holboom, was from Namibia. It stood 30.2 metres (99 feet) tall and had a girth of 35.1 m.

'CATASTROPHE' AS FRANCE'S BIRD POPULATION COLLAPSES DUE TO PESTICIDES

theguardian.com March 21, 2018 Agence France-Presse

Dozens of species have seen their numbers decline, in some cases by two-thirds, because insects they feed on have disappeared

Bird populations across the French countryside have fallen by a third over the last decade and a half, researchers have said. Dozens of species have seen their numbers decline, in some cases by two-thirds, the scientists said in a pair of studies – one national in scope and the other covering a large agricultural region in central France.

“The situation is catastrophic,” said Benoit Fontaine, a conservation biologist at France's National Museum of Natural History and co-author of one of the studies. “Our countryside is in the process of becoming a veritable desert,” he said in a communique released by the National Centre for Scientific Research (CNRS), which also contributed to the findings. The common white throat, the ortolan bunting, the Eurasian skylark and other once-ubiquitous species have all fallen off by at least a third, according a detailed, annual census initiated at the start of the century.