

CALEYI



NORTHERN BEACHES GROUP

austplants.com.au/northern-beaches

January/February 2021

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CALENDAR

APS Northern Beaches Meetings have been cancelled due to the corona virus outbreak.

APS Northern Beaches next walk will be on Saturday February 20. Anne will email details closer to the date.

ANPSA Biennial Conference 2021 now scheduled for **2022: Australian flora -past present future**. The conference is being hosted by the Australian Plants Society NSW in the beautiful village of Kiama on the pristine south coast. To register an expression of interest, click the '<https://austplants.com.au/event-3403188>'

Who could this be?

An alabaster skinned 9 year old in her garden. She was recovering from a fractured femur, after being knocked down by a car. Having spent 6 weeks in hospital in traction and then 6 weeks at home inside in a hip spica (plaster of paris from toe to chest). Hence the pale complexion!



Editor march@ozemail.com.au 0407 220 380

2021 WELCOME FROM APS NORTHERN BEACHES PRESIDENT CONNY HARRIS.

Dear Members,

Starting the new year in 'lock down' and not having had quite the Christmas we planned probably applies to all of us. I feel the dreaded Climate Change has fully arrived and we have to adjust. Yes, I know it was not a vector transmitted disease as foreshadowed to bring an epidemic, but the decline in natural habitats and human invasion into every habitat niche, a precipitating factor for Climate Change, brought us an even greater turmoil: a pandemic and with it changes like these 'lock downs' which were unimaginable 12 months ago.

We have done already some adjusting with our outdoor meetings and we will get even better with doing them if needed. So let's look at the good side, the glass being half full or even a few extra drops after all that rain! The vegetation is thriving, the bush to enjoy and the weeds to attack. It has even been cool and gardening was a pleasure, when the rain paused.

Having had a nice break many are looking forward to our next get together. Our evening meetings remain cancelled for the time being and even though our zooming skills are improving, I do wonder if we should replace them with another way of social interaction. I could offer bushcare at North Head, which is after the burn off a really rewarding task and allows us to connect with the regrowing bush. Other bright ideas? Please send them my way.

Anne is fine tuning plans for the next excursion and I do look forward to seeing you all.

Let's have a great and happy 2021!
Conny [conny.harris@gmail.com]

The plant identification quiz is for a bush that grew at Hat Head which is next to Crescent Head:



APS NORTHERN BEACHES XMAS LUNCH

David Drage - words

Harry Loots - photos

The usual venue for our Christmas lunch, Stony Range Botanic Garden, was not available to us this year. This was because the Northern Beaches Council covid-19 precautionary regulations restricted gatherings there. However, not to be denied, our Events Co-ordinator, Ann Gray, booked an area in Davidson Park, Forestville, more than big enough for the group to gather but maintain suitable spacing between us. We also brought our own food and drinks which we didn't share except for boxes of wicked chocolates.



Davidson Park is part of Garigal National Park and lies along the eastern side of a thin northerly arm of Middle Harbour. There are plenty of walking tracks through the bush in this area but not for us on this occasion as we concentrated on chatting with our fellow members and having lunch in a lovely spot. Perhaps next year we can walk through some of this lovely area right on our doorstep.

We were blessed with cool weather on the day and also the absence of cicada exudate (i.e. pee) which we are usually inflicted with where we gather at Stony Range. We finished our lunch and were starting to leave when a few drops of rain started to fall. Good timing.

ANNE GRAY - a profile



My childhood family home was in a village called Burton Joyce, 5 miles from Nottingham in the UK. We had a large 1 acre garden. My mother tended a rose garden and extensive herbaceous borders. My father's interest lay in the vegetable garden, orchard (apples, pears, plums and damsons) and a nuttree (hazel nuts).

I particularly remember a tree onto which my father grafted 3 different varieties of apple. He was very proud of this and I recall one of the apple varieties was Cox's Orange Pippin.

Every year there was a village horticulture show. One of the children's classes was a miniature garden presented in a rectangular baking tin. I loved doing this, the pond was a broken piece from a mirror, the grass was moss, the paths were made from fine gravel and small flowers and twigs for trees were collected from the border plants in my mother's garden.

All my childhood summer holidays were spent in the Highlands of Scotland I was especially impressed by the beautiful small bog flowers. Examples of these are the Heath Spotted Orchid, Bog Asphodel, Tormentil, Round-leaved Sundew, Birdsfoot-Trefoil, Mountain Pansy and Common Cotton Grass.

The first year I was in Australia (1978) my husband took me on an extensive camping holiday in the August/September school holidays in NSW and Victoria. It was from this trip that I learnt to love the Australian landscape and relish the very different fauna and flora it presented from that of my childhood. We continued for all our married life, camping in many National Parks, always with our trusted wildflower and bird guides. I continue to this day to love camping and visiting many coastal, mountain and bush sites in this wonderfully diverse country and to extend my knowledge of all things botanical.

My professional work was not directly related to Botany, however in my later years as a physiotherapist I did do home visits and was lucky to see many beautiful gardens. Whenever possible, I would devise an exercise program partially outdoors. This noticeably raised the spirits of my patients.

I have not undertaken any formal studies. However I would like to acknowledge the people who have helped me to identify many Australian native plants and taught me how to propagate them. These include Cynthia Leech, Jennifer McLean, Kim Auld and Penny Hunstead.

When we had our first garden in Cromer in the 1980's, I was keen for it to be a totally Australian native garden. To this end, I attended Pamela Polglaze's native gardening evening classes at Narrabeen High School for several years.

SILKY OAKS ARE OLDER THAN DINOSAURS AND LITERALLY DRIP NECTAR – BUT WATCH OUT FOR THE CYANIDE

The conversation November 24, 2020 Gregory Moore



pic: Shutterstock.

As we come to the end of spring, look up from the footpath or at the park, and you may spot the fiery flowers of the silky oak, *Grevillea robusta*.

You may already be familiar with grevilleas – perhaps you have low-growing ground cover and shrub species in your garden.

Some people love the brilliant red, yellow, orange or white flowers of grevilleas. They're also nesting and roosting havens for small native birds, and so people may plant them to attract wildlife.

Of all the grevillias, the silky oak is the one that catches my eye. It's the largest and tallest of the species, reaching up to 30 metres. They're now blooming along the east coast and in some inland places – like huge orange light bulbs dominating the skyline.

Strong like oak

Grevilleas have an ancestry older than dinosaurs. They originated on the super-continent Gondwana, and are closely related to banksias, waratahs and proteas.

Today, the 360 species of grevilleas occur in Indonesia and Australia and are a diverse group. Their colourful, distinctive flowers lack petals and instead consist of a long tube known as a "calyx", which splits into four "lobes".

Like most other grevillea, silky oak possesses proteoid or cluster roots, which are dense and fine. These roots greatly increase the absorbing surface area and allow plants to thrive in nutrient-deprived soils.

The word "robusta" refers to the fact that the timber is strong like real oak. The freshly split wood has a silky texture, and a pattern and light colour resembling English oak – hence the common name "silky oak".

Watch out for the cyanide

Grevilleas literally drip nectar, much to the delight of native birds and bees. Aboriginal people enjoyed the sweet nectar straight from the plant or mixed with water – the original lolly water.

But you have to know which species to taste as some, including the silky oak, contain hydrogen cyanide that could make you ill.

Like other grevilleas the silky oak also contains tridecyl resorcinol, which causes an allergic reaction leading to contact dermatitis. The chemical is similar to the toxicodendron in poison ivy.

So when working with silky oaks, you'd be wise to wear gloves, a face mask, protective eye wear (or face shield) and long sleeved clothing. Washing hands and showering at the end of the day is also recommended.

A prized timber

Silky oak timber was widely used in colonial times. Then it was marketed as "lacewood", and that name persists today among some who use it.

Silky oak veneer was used widely in colonial table tops and other furniture. Over the years, silky oak has also been used to make window frames because it is resistant to wood rot.

Overseas, silky oak timber is still widely grown, in timber plantations and as windbreaks.

But it's not widely available in Australia, due to low market demand – the allergens and cyanide it contains means people are generally reluctant to work with it. However silky oak is still highly prized by those who make guitars, and wood turners who make bowls and cabinets.

In the garden

Although an evergreen tree, some specimens are almost semi-deciduous, losing most of their foliage just prior to flowering.

Some specimens of silky oak can be a bit scraggly in their canopy form. They can benefit enormously from a bit of formative pruning when they are young, and perhaps some structural pruning from a good arborist as they get older. A little attention at the right time will be amply rewarded with a safe and great looking tree that can live for 150 years or more.

Silky oak is drought-tolerant. In dry times they often flower a bit later than their usual October blooming, providing a big splash of colour in otherwise drab and difficult years.

The trees can be vulnerable to frost when young, but grow well once taller. This makes the silky oak a potential winner as climate change brings warmer, drier weather.



Pic: Shutterstock

Silky oaks have been declared an environmental weed in parts of New South Wales and Victoria where it grows outside its native distribution range. They're also considered an invasive or invader plant in Hawaii and South Africa. However *Grevillea robusta* is declining in its natural rainforest/wet forest habitat.

In some cities in China, silky oaks have been planted along roadsides with great success. The tree has also gained the Royal Horticultural Society's Award of Garden Merit for its performance in growing under United Kingdom conditions. That just shows you how one person's weed is another's treasure.

THE BUFFEL KERFUFFLE: HOW ONE SPECIES QUIETLY DESTROYS NATIVE WILDLIFE AND CULTURAL SITES IN ARID AUSTRALIA

The Conversation November 16, 2020 Christine Schlesinger, Ellen Ryan-Colton, Jennifer Finn, John Read.



Buffel grass surrounding *Hakea divaricata*, a bushfood and medicine tree. Ellen Ryan-Colton, Author

Many of us are aware of the enormous destruction feral cats inflict on Australia's native wildlife, but there's another introduced species that will cause at least as much harm if left unmanaged — yet it receives far less attention.

We're referring to buffel grass (*Cenchrus ciliaris*), a plant native to parts of Africa and Asia that has been widely introduced elsewhere for pasture and to stabilise soils.

Buffel is fast growing, deep rooted and easy to establish, with each plant producing thousands of seeds. But these very characteristics for which it was prized have caused it to spread much further than ever planned.

We recently published two studies on buffel grass. One looked at just how serious the buffel invasion is to humans and wildlife by comparing it to other high-profile threats such as cats and foxes. The other study found that when buffel was removed, native wildlife quickly bounced back.

A catastrophic threat to wildlife

Buffel is now one of the worst invaders of dryland ecosystems worldwide. In Australia, this single species has replaced once diverse communities of native grasses and wildflowers across vast tracks of land. For example, most conservation reserves in the southern part of the NT have been invaded, including parts of Uluru-Kata Tjuta National Park.

Because it grows so thickly, the dense grassy fuel can feed bigger, hotter and sometimes unexpected fires. These new fires are a risk to wildlife, humans and large, old trees.

Our study compared buffel to threats posed by changed fire regimes, feral predators (cats and foxes) and feral herbivores (rabbits and camels). We found buffel was equal to feral cats and foxes in terms of future risk to biodiversity.

Feral cats are currently listed as threatening some 139 species under national environment legislation, including the night parrot and the central rock rat. Each year across Australia, feral cats kill more than three billion animals.

Buffel is formally listed as threatening 27 species under this legislation, such as the floodplain skink (buffel can choke its burrows). But because there has been much less research on the impacts of buffel, this number is likely a significant underestimate.

Unlike cats, buffel impacts whole plant communities and the animals they support. For example, when large old trees are burnt, birds that rely on tree hollows for nesting can no longer breed successfully.

What's more, buffel has only spread widely in the last 20-30 years, which means its full impact on ecosystems has not yet been realised. In fact, 70% of the Australian continent has suitable conditions for buffel growth and could, in time, become invaded.

In contrast, cats have already roamed Australia for more than 200 years and, tragically, have caused many species, like the lesser stick-nest rat, to become extinct.

A social and cultural threat for Aboriginal people

Our study found buffel ranked higher than any other environmental threat in terms of its social and cultural impacts for Aboriginal people.

Because buffel is valued as a pasture grass in some regions, much debate has focused on its agro-economic benefits versus environmental costs.

Meanwhile, the views and values of Aboriginal custodians of inland Australia have remained marginalised. It's time this changes.

While feral cats and buffel both threaten culturally important wildlife, buffel is also causing the decline of valued plant foods and medicines.

For example, native desert raisin (*Solanum centrale*) — “katjirra” to Western Arrernte people and “kampu arpa” to Pitjantjatjara people — remains an important staple food across central Australia and is part of Australia's living cultural heritage.

However, it is becoming harder for women to find and collect as buffel takes over country. Buffel also damages important cultural sites by bringing fire and choking water holes.

Thick grass makes it difficult to walk through country and it's now hard to see tracks or animals. Together with the loss of species, this inhibits the transfer of cultural knowledge from one generation to another.

The return of native wildlife

Buffel responds well to herbicide in smaller areas, and spread can be slowed or stopped by treating isolated infestations.

For six years, we tracked the response of native plants and animals (particularly lizards) after buffel was treated at six sites in the Tjoritja National Park near Alice Springs. And we found biodiversity soon bounced back.



A buffel grass removal experiment, near Alice Springs. Christine Schlesinger, Author provided

Following good rains, native plants like billy buttons and golden everlasting that had just been hanging on quickly re-established in areas where buffel was treated. And as native plant communities were restored, a range of lizards and other wildlife returned, too.

Birds such as Australian ring-neck parrots and red-tailed black-cockatoos began to selectively use the treated areas, foraging on seeds on the more open ground.

Ants also became much more abundant and diverse where buffel was removed. Ants play an important role in ecosystems, for example, by dispersing seeds. This has likely been diminished in buffel-occupied areas.

Importantly, while research demonstrates the potential for ecosystem recovery following effective control, the negative effects of buffel on fauna increased in areas where we did nothing.

Where to from here?

The findings from both our studies underline the urgent need for management on a much larger scale than what is currently possible, and prevention of further spread. It's clear a nationally coordinated response is required, along with policies that support positive local initiatives.

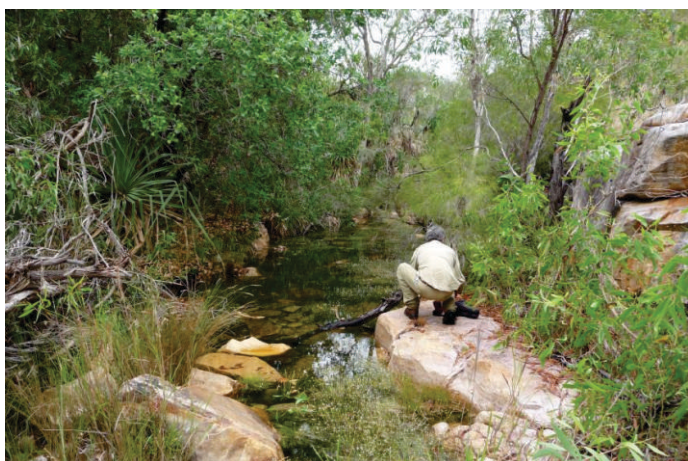
Creating and maintaining large buffel-free sanctuaries in areas not yet invaded could help to protect biodiversity in the future. But we found the cost of maintaining these could be an estimated 40–50 times more than other pest-free sanctuaries, if restricted to current methods of control.

This is why Australia needs new, cost-effective, culturally appropriate and safe control options, rolled out on a broad scale. We stress the need for Aboriginal people from regions affected by buffel and prone to invasion to be central to discussions and the development of solutions.

It's also important to note controlling buffel doesn't require its eradication from pastoral regions where it's valued. It does, however, require a national commitment and dedicated research, with strategic, coordinated and committed action.

STORIES BEHIND WA HERBARIUM FEATURE CROCODILES, HELICOPTERS, REMOTE ISLANDS AND THE OCCASIONAL GUN

ABC Kimberley December 6, 2020 Ben Collins



More than 4,000 samples were gathered from remote islands off the Kimberley coast over the course of the survey. (Supplied: Mike Lyons)

Western Australia's state Herbarium, where plant samples sit in a quiet chill, is a world away from the sweat-soaked helicopter rides, remote islands, crocodiles, and occasional firearms used to create this invaluable collection.

Mike Lyons is one of the research scientists at the herbarium who has been conducting botanical surveys of Western Australia for 30 years. But the pinnacle of his botanising adventures has been three years surveying the remote islands of the Kimberley coast, in the far north of the state.

Along with zoologists and Indigenous rangers, Mr Lyons travelled to some of Australia's most inaccessible and intact natural habitats to investigate what was growing there. Only now, almost 10 years later, have the thousands of Kimberley island plant samples collected in pouring rain, scorching sun, from deep gorges and towering precipices, been carefully studied and added to the herbarium.

"It's about 4,300 collections that we have put in ... it's a really major contribution to the understanding of the flora of those islands," Mr Lyons said.



Tourists will often fork out tens of thousands of dollars to reach the islands the herbarium team travelled to for the survey. (Supplied: Mike Lyons)

'A whole new world'

The Kimberley coast is one of Australia's wildest, where thousands of islands dot tropical waters with just a few very remote Indigenous communities found on the mainland.

It is a bucket-list destination for those who can afford the charter boats visiting isolated waterfalls, gorges and beaches, but it is another level again for a botanist like Mr Lyons.

"It was like going, botanically, to a whole new world," he said.

"The thing that really struck me was in what wonderful condition that part of the coastline is in. I've worked in lots of places that have suffered from exotic animals and weeds, and too frequent fires but to go there, biologically for me, was like stepping back in time that was intact and wonderful."

But like most good things, there is a catch; the Kimberley is hot, harsh, rugged, and there are crocodiles.

"I can't believe how much water I drank, and it just didn't seem to quench my thirst," Mr Lyons said. "We would get up at dawn and be taken to the island in a dinghy, and by lunch time I was just shattered, just the heat and humidity was just amazing."

Choppers, crocs and guns

With few roads, much of the travel around the thousands of kilometres of coast was done by helicopter, and camps were established where few people ever visit. "While the team was on a particular island the helicopter would resupply us with water if required, more food, and they would fly specimens and things we'd collected, back to base-camp," Mr Lyons said.

"In the wet season, simply because of the conditions we were based on a charter vessel.

For three years snakes and crocodiles were just a part of the work environment, and required sustained vigilance. "Snakes were quite abundant, tree-snakes and pythons just used to be around camp, but I was just always very cautious," Mr Lyons said. "After two or three days of people repeatedly walking [a coastal] track, we noticed that a crocodile might have discovered our movements and just be hanging about."

Guns were also a part of camp life, but Mr Lyons' was more concerned using this to collect botanical samples than for protection. "I used to see things through the binoculars, looking up into the canopy, and then I'd ask one of my colleagues, 'Can you get a piece of that with the gun?'" he said.

"I have a few stories about that, people shooting branches down for me, and then the branch succeeding in destroying half of camp when it comes down, those sorts of fun things."

Knowledge factory

Three years of collecting plant samples in the Kimberley has been followed by more than twice that time back in the city, processing all that was collected at the WA Herbarium.

The three-storey building could not be further from the sweaty days riding in helicopters with an unquenchable Kimberley thirst, and is climate-controlled at a chilly 16 degrees to suppress insects that may want to eat the hard-earned collection.

"It's a huge, warehouse-sized room full of shelving and full of boxes containing specimens," Mr Lyons said. "There's over 800,000 collections in the herbarium currently, and it also stores things like fungi and algae."

The herbarium is more than just a record of fungi, algae, and the state's extraordinarily diverse plant species, it is also a repository of botanical discoveries waiting to be made.



The new Kimberley samples have been added to the more than 800,000 specimens in the Herbarium's collection. (Supplied: Juliet Wege, Western Australian Herbarium)

"We use it to describe and document the flora, and that means finding new taxa that are brought in from the field, but also there's a new species sitting in our collection as we speak," Mr Lyons said.

"People go in and study a group in detail and discover that in amongst those collections, there are new things to be formally described."

The herbarium sits almost like a factory of knowledge, steadily churning out new discoveries that only increase the wonder of Western Australia's botanical heritage.

"There's 50 new taxa being described this year as part of the 50th anniversary of our journal, *Nuytsia*," Mr Lyons said. "It's the foundation for plant conservation in the state, and I think all West Australians value their flora — we're renowned for it."

WESTERN DISTRICTS ALLIANCE

Glenn Walker

This vast natural area is the site of one of the planet's most spectacular natural phenomena and is globally recognised as one of the world's last great internally-draining and free-flowing wetland systems.

Because of this amazing natural irrigation system, the Queensland's Channel Country is an arid landscape that supports more than 50 ecosystems including coolibah woodland, sand plains and vast dune fields.



Pic: Glenn Walker

Unlike the Murray-Darling river system to its east and south, there are no massive dams or diversions of water in the Channel Country.

The waters, when they flow, still go where nature intended them to go; filling waterholes and creating vast inland seas. This attracts birdlife from thousands of kilometres away to breed on wetlands brimming with plant and insect life.

Below the extraordinary landscapes of the Channel Country lies the Great Artesian Basin, the only reliable source of water across 22 percent of Australia.

A collection of individuals and organisations have come together to form the Western Rivers Alliance, which is a campaign for better protection of the rivers and floodplains of the Channel Country against threats like unconventional gas (fracking). The alliance includes traditional owners of the Lake Eyre Basin, graziers, community members and leaders, the Pew Charitable Trusts, and the Australian Floodplain Association.

ONE MORE PHOTO FROM JAN CARNES' PILLAGA ADVENTURE



TREE FERNS ARE OLDER THAN DINOSAURS. AND THAT'S NOT EVEN THE MOST INTERESTING THING ABOUT THEM

theconversation August 14, 2020 Gregory Moore, University of Melbourne.



The Conversation.com

With massive fronds creating a luxuriously green canopy in the understory of Australian forests, tree ferns are a familiar sight on many long drives or bushwalks. But how much do you really know about them?

First of all, tree ferns are ferns, but they are not really trees. To be a tree, a plant must be woody (undergo secondary plant growth, which thickens stems and roots) and grow to a height of at least three metres when mature. While tree ferns can have single, thick trunk-like stems and can grow to a height of more than 15 metres, they are never woody.

They're also incredibly hardy — tree ferns are often the first plants to show signs of recovery in the early weeks after bushfires.

The unfurling of an almost iridescent green tree fern fiddlehead amid the sombre black of the bushfire ash is almost symbolic of the potential for bushfire recovery.

Ancient family ties

Tree ferns are generally slow growing, at rates of just 25-50 millimetres height increase per year. This means the tall individuals you might spot in a mature forest may be several centuries old.

However, in the right environment they can grow faster, so guessing their real age can be tricky, especially if they're growing outside their usual forest environment.

As a plant group, tree ferns are ancient, dating back hundreds of millions of years and pre-dating dinosaurs.

They existed on earth long before the flowering or cone-bearing plants evolved, and were a significant element of the earth's flora during the Carboniferous period 300-360 million years ago, when conditions for plant growth were near ideal. This explains why ferns don't reproduce by flowers, fruits or cones, but by more primitive spores.

In fact, fossilised tree ferns and their relatives called the fern allies laid down during the carboniferous then have provided much of the earth's fossil fuels dating from that period. And tree ferns were a great food source, with Indigenous people once eating the pulp that occurs in the centre of the tree fern stem either raw or roasted as a starch.

Until recent times, ferns were quiet achievers among plant groups with an expanding number of species and greater numbers. Today, human activities are limiting their success by the clearing of forests and agricultural practices. Climate change is also a more recent threat to many fern species.

Species you've probably seen

Two of the more common tree fern species of south eastern Australia are *Cyathea australis* and *Dicksonia antarctica*. Both species have a wide distribution, extending from Queensland down the Australian coast and into Tasmania.

They're often found growing near each other along rivers and creeks. They look superficially alike and many people would be unaware that they are entirely different species at first glance. That is, until you look closely at the detail of their fronds and run your fingers down the stalks.

C. australis has a rough almost prickly frond, hence its common name of rough tree fern, and can grow to be 25 metres tall. While *D. antarctica*, as the soft tree fern, has a smooth and sometimes furry frond and rarely grows above 15 metres. Both contribute to the lush green appearance of the understory of wet forests dominated by eucalypts, such as mountain ash (*Eucalyptus regnans*).

Stems that host a tiny ecosystem

The way tree ferns grow is quite complex. That's because growth, even of the roots, originates from part of the apex of the stem. If this crown is damaged, then the fern can die.

At the right time of the year, the new fronds unfurl in the crown from a coil called a fiddlehead. The stem of the tree fern is made up of all of the retained leaf bases of the fronds from previous years. The stems are very fibrous and quite strong, which means they tend to retain moisture. And this is one of the reasons why the stems of tree ferns don't easily burn in bushfires — even when they're dry or dead.



Dicksonia antarctica is one of the more common species in Australian forests. Shutterstock

In some dense wet forest communities, the stems of tree ferns are a miniature ecosystem, with epiphytic plants — such as mosses, translucent filmy ferns, perhaps lichens and the seedlings of other plant species — growing on them. These epiphytes are not bad for the tree ferns, they're just looking for a place to live, and the fibrous, nutrient-rich, moist tree fern stems prove brilliantly suitable.

Engulfed by trees

Similarly, the spreading canopies of tree ferns, such as *D. antarctica*, provide an excellent place for trees and other species to germinate. That's because many plants need good light for their seedlings to establish and this may not be available on the forest floor. Seeds, such as those of the native (or myrtle) beech, *Nothofagus cunninghamii*, may germinate in the crowns of tree ferns, and its roots can grow down the tree fern trunks and into the soil.

As time passes, the tree species may completely grow over the tree fern, engulfing the tree fern stem into its trunk. Decades, or even centuries later, it's sometimes still possible to see the old tree fern stem embedded inside. Still, tree ferns are wonderfully resilient and give a sense of permanence to our ever-changing fire-affected landscapes.