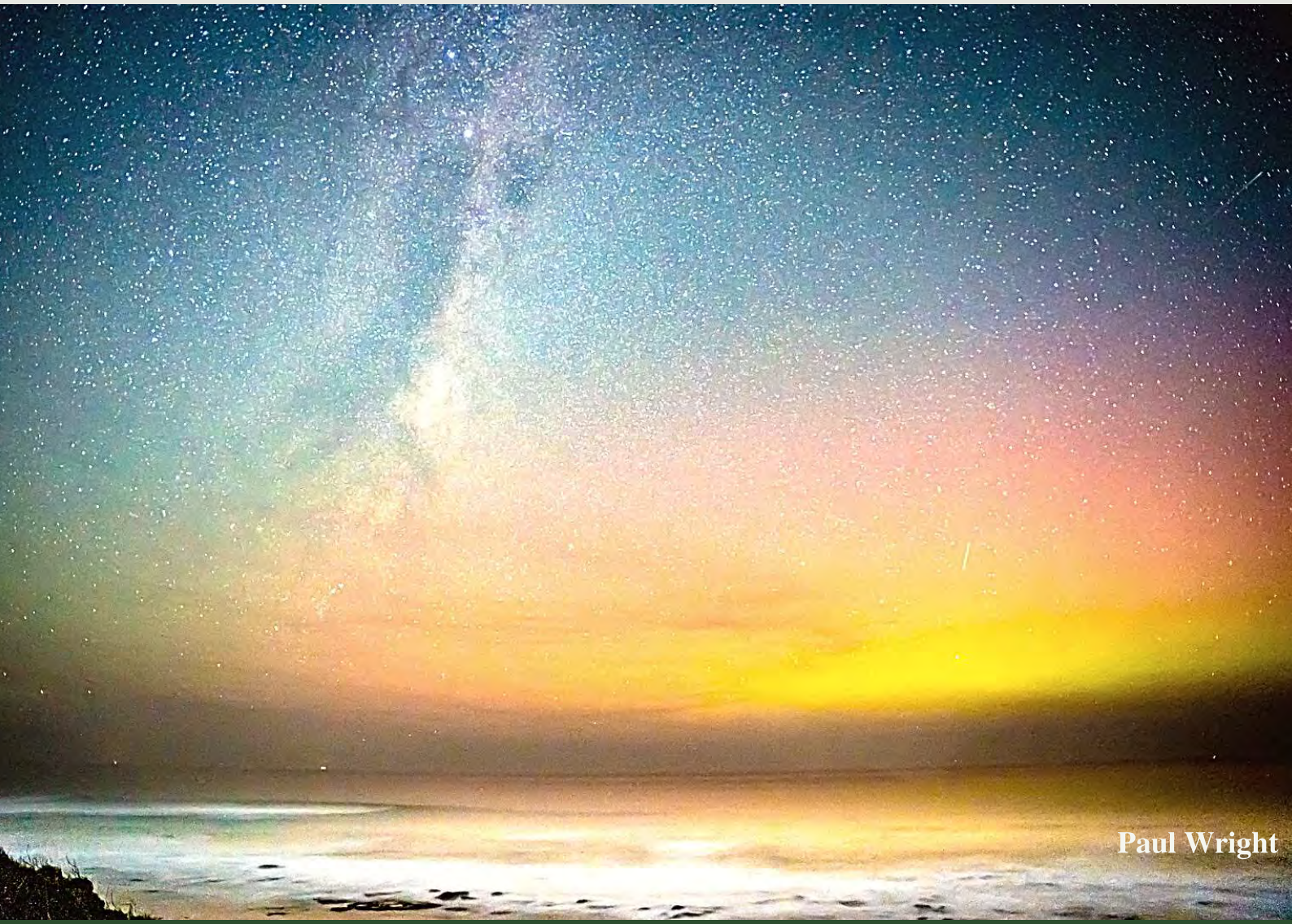
Winter 2023

Angair Quarterly

Bringing you stories from the Anglesea, Aireys Inlet Society for the Protection of Flora and Fauna.



What's inside?

Angair

Angair Quarterly

Winter 2023

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Winter's amazing fungi

John Lenagan - Text and images

It is that time of year again when many may think twice about trudging through a damp wet forest, but I hope to re-ignite the quest to seek out and discover more of the season's amazing fungi.

Alison Pouliot, one of our leading mycologists who wrote *The Allure of Fungi*, stated that many fungi are primary enablers for most of the terrestrial plants on the planet. The fungi's mycelium tendrils (hyphae) continually expand out, penetrating into and through barren and impenetrable substrates that many plants cannot pierce. The plant's roots can then follow the tracks made by the mycelium's microscopic tendrils. The tendrils also assist in converting minerals and sugars into nutrients which the plants can then absorb.

Alison's description of how the fungal mycelium works reminded me so much of the film, *Avatar,* where the avatars traced the neural web and communication pathways underground through which the forests' trees and plants constantly communicated.

While it is well understood that fungi are saprobic deriving nourishment from breaking down dead and rotting trees, manure and organic matter – which in turn enables the many other forest bugs and critters to continue the composting cycle – their role as a crucial enabler working symbiotically with plants to provide seasonal subsoil regeneration and assist with the nutrient transfer and take-up which most plants require after Australia's tough baking summers is less known.

As a conservation photographer I am especially fascinated with fungi's various structural forms, each with their own inherent beauty. Of course the forms you see are just their spore-carrying fruiting bodies and the larger more expansive mycelium are hidden from our view. This article reviews some fungi from our local forests.

The Ghost Fungus, *Omphalotus nidiformis*, starts off with dark caps with white gills extending down onto the stem; however, as they grow they are found often clumping with their caps fading to a lighter fawn colour. On dark nights their very faint bioluminescent glow can be seen. This ghostly glow fades with age, so is best observed when fresh. The illuminating photograph is a two-minute exposure accentuating the glowing feature.



The Splitgill Mushroom, *Schizophyllum commune*, is often found on smaller branches, looking like they have fallen from the tree above. They can grow out of bark fissures or attach to the underside of the branch. The gill pattern can radiate concentrically or asymmetrically depending on the fungi's form as seen above. The top side of the cap is rough and furry with a tessellated edge.


We recommend buying your fungi from reputable retailers as many mushrooms look very similar yet can be deliciously deadly. It is also important to note that too much fungi – even safe ones – at any one time can be gastronomically overwhelming as they are fundamentally made up of lignin which is indigestible. I can testify to this as it causes a nasty cramping stomach ache. Often hospital visits for possible consumption of a deadly mushroom turn out to be a case of too many mushrooms having been consumed in one sitting.

A few bracket and shelf fungi, from the order Polyporales, can be found in our local forest. While some of these species can damage living trees and others do not, I consider the Polyporales to be a crucial player in the overall ecology of the forest – they are often a food source for other animals.

Southern Cinnabar Polypore, *Trametes coccinea*

White Punk, *Laetiporus portentosus*

Strawberry Bracket, *Aurantiporus pulcherrimus*

Southern Bracket, *Ganoderma australe*

One of the agarics, *Psathyrella echinata*, is typically found directly on fallen timber or clumping on the bark of trees in particularly wet forests. The early fruiting bodies have a unique spiky hairdo which eventually gets pulled back into a smoother dark cap as they mature.

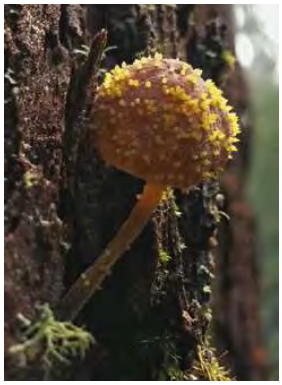
While all fungi are considered saprobic, the Coprophilous fungi specifically decompose and feed on animal dung. To digest it, they secrete enzymes that quickly break it down back into the nutrient cycle. They release their spores to the surrounding vegetation which is then eaten by herbivores. The spores pass through the animal's intestines and are finally defecated. The fungi then again grow on the dung producing more fruiting bodies.

All of these illustrated fungi can be found on Eastern Grey Kangaroo dung.

Psilocybe alutacea

Dung Button, *Poronia erici*

Psilocybe sp.



Neobarya agaricicola are the yellow spots

Mycena corticola, Bark Mycena

Fungi in the Neobarya family are parasitic fungi that feed off other fungi. In this case, the *N. agaricicola* is feeding off one of the local Bark Mycena. Typically Bark Mycena fruit among the moss on the bark of the trees in the wetter forests and are short lived. I consider them to be some of the daintier fungi to be found.

> Many fungi are primary enablers for most of the terrestrial plants on the planet.

The Pagoda Fungi is in the family Amylocorticiaceae and the species *Podoserpula* produces fruit bodies consisting of up to a dozen caps arranged in overlapping shelves, attached to a central column.

Pagoda fungus *Podoserpula pusioa*

Capturing an aurora in Anglesea

Paul Wright

Every now and then the Aurora Australis can be seen from Anglesea, and it is possible to photograph it.

Auroras are a result of sunspot activity. The surface of the sun has regular sunspot cycles and the sunspot activity is increasing at the moment. Auroras will be more common and brighter over the next couple of years.

When the surface of the sun has sunspots, solar flares occur, ejecting huge streams of charged particles high above the sun. Most of the material falls back into the sun, but some is ejected and thrown off as plasma into space – it takes about two days for the plasma to reach the Earth.

Most plasma ejections pass us by, but sometimes the plasma collides with our planet. When the plasma reaches Earth, its magnetic field deflects the charges to the North or South Poles, where they hit the atmosphere at high speed. Most colours in the aurora occur when these high-speed charged particles hit nitrogen and oxygen atoms.

If you want to see an aurora, keep your eye out for specific conditions in the forecasts of the weather, the moon and the solar flares:

- Weather – the sky should be clear, with no cloud and little mist or fog.
- Moon – the dark sky before the moon rises is best.
- Solar flares – watch out for forecasts of plasma storms hitting the Earth.

If forecasts indicate an aurora is likely, then you should make plans to go to a vantage point away from any town or city lights where you can see the southern horizon. Scope out your vantage point in the daytime, so that you can return there safely in the dark.

From Anglesea most auroras will appear as a lighter patch of the sky reaching above the southern horizon. It may look like the moon rising, but in the wrong direction.

Occasionally colours can be seen with the naked eye, but these are the exception. The various colours are present, but our eyes are not good at seeing them at low light levels. Our eyes are designed with two sets of cells that can detect light: rods and cones. The rods provide colour vision when there is lots of light around, but when the light levels are low it is still vital for us to be able to see so then the cones take over and everything appears in various shades of grey.

With a camera we can make up for the low light levels by using a long exposure and the sensor will gather more light over a longer period of time and capture the colours.

Auroras are ephemeral, varying greatly through the night. On the night of 24 April the aurora was most spectacular from about 8.00 pm until 10.00 pm and at around 5.00 am the next morning. Photos of the aurora were captured in Anglesea, Grampians, Stawell and other places in Victoria, but the best lights were seen in the south of Tasmania. The further south, the better the display.

At our latitude the best way to capture the colours is to use a camera with an extended exposure. Put your camera on a tripod and use an exposure of around 30 seconds, with the widest aperture possible and ISO of about 3200. The colours will be visible on the screen of your camera when you look at the image.

cont.

The photo for this article was taken on the night of 24 April at 8.20 pm from the top of the walkway over the sand dunes at 12th Avenue. The image shows the colours of the aurora and the Milky Way. Incidental sightings in the image include a satellite in polar orbit and a possible small meteor as well as a ship on the horizon.

Sometimes I am asked ‘What is the best time to see an aurora?’ Unfortunately, the best viewing time is usually about 15 minutes after you have given up looking and gone to bed.

Paul Wright aims for another great shot at the Landmannalugar waterfalls, Iceland

The dietary habits of Yellow-tailed Black Cockatoos

Rob Shepherd

The Yellow-tailed Black Cockatoo, *Zanda funerea,* is an iconic avian visitor to the Surf Coast and Otway Ranges. They are a large bird measuring up to 60 cm in length and can weigh up to 900 g. Their relaxed flight and characteristic wail – both in flight and when perched – are as conspicuous as their impressive appearance.

Although their range includes large areas of eastern and southeastern Australia, including Tasmania, close observation reveals a partially nomadic behaviour. They are commonly observed in Anglesea and Aireys Inlet from mid-September to mid-April as they search for appropriate tree hollows, breed and raise their young. In the cooler months they are rarely seen in our environment, tending to wander nomadically in parties of 10–20 birds. Although their distribution during this time is poorly understood, their nomadic lifestyle revolves around feeding opportunities, including the cones of exotic *Pinus radiata* plantations.

Figure 1. Female Yellow-tailed Black Cockatoo perched in *Hakea salicifolia*

Their presence here during the breeding season provides a chance to study their varied dietary habits. Yellow-tailed Black Cockatoos generally feed in pairs or small family groups and are very wary of potential predators – including humans – while feeding. Fortunately they are rather noisy and messy feeders and it is relatively easy to hear or see a group popping seeds or tearing apart eucalyptus and acacia saplings. Sitting quietly with a pair of binoculars reveals some interesting food preferences.

Yellow-tailed Black Cockatoos feed on both seeds of native trees, including casuarina, banksia, eucalyptus and acacia, as well as insect larvae from infested eucalyptus and acacia saplings. While I have observed them feeding on *Pinus radiata* cones and *Banksia marginata* seeds, they target *Hakea salicifolia* in our backyard.

Figure 2. Male Yellow-tailed Black Cockatoo eating a *Hakea salicifolia* nut

Feeding is a precise activity; new growth containing nuts are stripped from the tree, the hakea nut is opened by a single bite to the distal end to reveal the seed, which is then carefully removed and eaten. Typical of all cockatoos, the debris from this activity is dropped to the ground revealing their presence to curious observers. The hakea seed is tiny – all this effort for such a small seed is quite impressive as is their dexterity in removing the seed with their large, powerful beaks. No wonder these birds spend hours feeding from one tree.

Figure 3. Sequence of images illustrating access to the Hakea seed, its removal and the actual seed size. Hakea nut (a) unopened; (b) opened; (c) opened nut with seed in situ (arrow); (d) opened nut after the seed has been removed by the cockatoo (arrow); (e) the seed (arrow) is tiny.

An important second source of food for Yellow-tailed Black Cockatoos is insect larvae. Although they eat larvae of some gall-wasps and non-boring insects, they primarily target wood boring larvae from infested eucalyptus and acacia saplings. They use their powerful beaks to rip into the wood searching for cossid moth larvae, commonly known as Witchetty Grubs, that bore deep into smooth-barked trees. These larvae are large, growing up to 18 cm in length and are therefore an important food source for the bird. It is thought that the bird looks for small holes on the surface of the tree through which larvae droppings (frass) appear. They excavate the hole and if sufficiently large continue their search for the larvae. The vigour in which they attack the tree is impressive. They can cause damage in pine and eucalyptus plantations by weakening stems to extract the larvae and were shot in some districts as pests until the 1940s!

Figure 4 and 5. Examples of Yellow-tailed Black Cockatoos in search of cossid moth larvae (Left: female; Right: male).

Figure 6. Cossid moth larvae

Although the conservation status of these majestic birds is of least concern, they appear to be declining in numbers in Victoria and South Australia due to habitat reduction and the loss of large trees used for breeding hollows. Given that a hollow can be up to two metres deep and 0.25–0.5 metres wide, the requirement for large eucalyptus trees with multiple hollows, emphasises the important role old growth forests play in nurturing our indigenous fauna.

References:

Beruldsen G (2003), *Australian Birds: Their Nests and Eggs*.

McInnes RS and PB Carne (1978) *Predation of Cossid Moth Larvae by Yellow-Tailed Black Cockatoos Causing Losses in Plantations of Eucalyptus Grandis in North Coastal New South Wales*, Wildlife Research 5, 101-121.

eBird
Wikipedia

Image credits: Figures 1-4 Rob Shepherd; Figure 5 www.brisbaneinsects.com

Winter wonderland in the pinks

Ellinor Campbell



We are fortunate to have some plants which bloom right through the winter, which, combined with well-watered green foliage, makes our forests and heathlands so different from the bleakness of European winter vegetation. The colourful flowers of our iconic Common Heath, *Epacris impressa*, really stand out amongst the overall greenness. The pale pink form was proclaimed the floral emblem of Victoria on 11 November 1958, and Victoria was the first Australian State to give official recognition to such an emblem. In most areas of Victoria the species presents in a limited colour range, but here we have all possible colours from white to deep pink, and there seems to be some in flower all year round.

Spring is the peak time for massed flowering of Common Heath, and a large framed photo in Angair, which was taken in the 70s, is the best example of this which I have seen.

In winter the deep pink form, in particular, forms an appealing contrast to the other main plant in flower, Sweet Wattle, *Acacia suaveolens*. These small shrubs, the first of our wattles to flower, also brighten up our bush with their clusters of globular creamy-yellow aromatic flowers. The widely-spaced, long, narrow, grey leaflike phyllodes are a distinctive feature which aids in their identification.

Less obvious are the low compact bushes of Prickly Cryptandra, *Cryptandra tomentosa* var.*1*, with their tiny white tubular flowers, and short prickly foliage. The flowers are quite magical to see when magnified, as the petals are actually inside the outer sepals, and form a tiny hood over the stamens. Hence the name *kryptos*=hidden, and *andros*=man. Towards the end of the winter the flowers turn pink.

Later in the winter several of our carnivorous sundews, Drosera, should be in flower. Scented Sundew, *Drosera whittakeri* subsp. *aberrans*, has a small, round, flat, ground-hugging rosette of green, bronze or red spoon-shaped leaves, with shiny sticky tentacles or hairs which shine in the sun, and contain enzymes which digest their insectivorous prey. The single, large, white, perfumed flowers can look quite spectacular, especially after fires. It is worth getting right down to them for a smell. With changing weather patterns there can also be quite unexpected plants in flower; keep a lookout and you may be surprised at what you see.

Tracking the Mountain Bike Trail plans

Peter Forster and Tony Smales

Many Angair members are concerned about the spread of illegal mountain bike trails yet many are mountain bike users and enjoy riding through bush settings.

There are two reasons Angair's Committee of Management is actively involved in the recently restarted Mountain Bike Stakeholder Group meetings:

- Angair would like to see a rationalisation of existing trails to provide a network of higher quality approved trails, and
- the closure of the many illegal trails which are causing damage to our fragile environment.

The Surfcoast Mountain Bike Trail Group is convening the stakeholder meetings to promote the development of a local MTB trail network. The meetings were originally convened by Parks Victoria in pre-COVID times. Organisations participating in the group include Surfcoast Mountain Bike Club, Angair, Friends of Eastern Otways, the Great Ocean Road Coast and Parks Authority (GORCAPA), Anglesea Scouts, Business Anglesea, Parks Victoria, Department of Environment, Energy and Climate Action (DEECA), Great Ocean Road Regional Tourism, Surf Coast Shire (SCS), and the Anglesea Bike Park Committee.

The plan is to have a network of connecting well-maintained and sustainable trails from Torquay to Aireys Inlet. There is already an approved track at Aireys Inlet called the Currawong Falls Trail and other official trails between Torquay and Aireys Inlet. The plan fits with Surf Coast Shire's Anglesea Mountain Bike Trails Network Concept Plan which was completed in April 2021 after many years of consultation and research. Anglesea Trails Opportunity Prospectus is a Surf Coast Shire paper which is seeking about $3 million of funding to create 36 trails totalling 107 km from Torquay to Aireys Inlet. Most of the 107 km of trails are already in place. Some are formalised (e.g. the Hurst Rd trails) whilst others do not have any formal status. The plan would require only 10 km of new trail. SCS has already committed $60,000 to the project and is actively seeking more funding. While there may be some new trails created, there are also some current MTB trails that would be closed and remediated as a part of this process.

At a recent stakeholder meeting Gerard McHugh, a Geelong local who works for one of the world's leading trail consultancy firms, outlined the characteristics of a successful mountain bike trail network. It is usually based at a tourist town with existing basic facilities, close to a major population centre such as Melbourne and has suitable land close to the hub with land management support for the trails. Anglesea fits most of these criteria. The Anglesea topography which is characterised by fairly gentle slopes would suit a family-based trail network rather than a gravity (more extreme) design.

Outcomes of the project include protecting, conserving and restoring the unique Anglesea environment, enhancing Anglesea's reputation as an outdoor adventure destination, creating quality trails, encouraging outdoor healthy activity and improving business opportunities in the region.

At the same time GORCAPA, funded by DEECA, is working on a Regional Trails Management Strategy. The area covered by the strategy is from Anglesea to Warrnambool and inland to Camperdown and Forrest. There are many independent organisations with land manager status in this area which is why an overall strategy is required. The strategy objectives include providing coordination, consistency and connectivity, advocacy, involvement of Traditional Owners, brand identity and protection of environmental and cultural values. The guiding principles would be First Nations inclusion, trails and associated infrastructure to be world class, a range of users and abilities supported across the trail network, connectivity and understanding and respect for nature and culture.

The strategy will prioritise trail development and classify the trail elements into signature trails, regional trails and local trails. A regional reference group will develop standards of best practice which will include trail quality and associated environmental issues. A high level audit of existing trails has been completed. The strategy aims to release a final report in June /July.

Peter Forster is a member of the Angair Committee of Management and Tony Smales is chair of the Surfcoast Mountain Bike Trail Group.

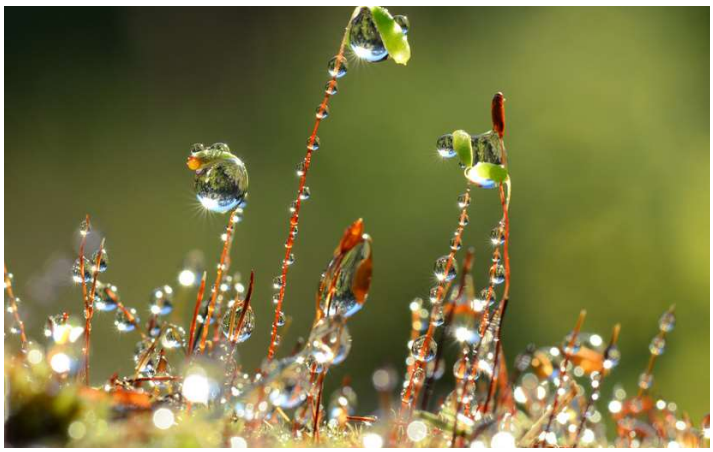
The tiny world of mosses

Wendy Cook

Patches of lush green moss can be found on rocks, soil, fallen branches, shaded tree trunks, between garden pavers and mixed with short grass. Winter is their time of year, when the world is moist. A magnifying glass may be useful to have a close look at them. They are miniature plants with tiny leaves growing in clusters, rosettes or along crowded stems. They have root-like structures known as rhizoids, that hang onto rock, wood or soil, but do not collect water or nutrients.

Although they are plants, mosses do not have flowers or seeds. Each moss creates eggs or sperm or both. The sperm travel in water to reach an egg. When combined, they grow into a stalk with a green capsule held high above the leaves. These can be easily seen, especially when they dry out and turn orange or brown. As each capsule dries, it opens to release spores, which are blown by the wind and may land in a suitable place to grow a new moss. Mosses can also reproduce asexually, sometimes by tubers, or by broken-off stems or specially grown buds.

The leaves of mosses are only one cell thick, so they dehydrate easily. Some have a mid-vein for support and water storage, but they cannot move food and water within the plant. Their thin leaves absorb all their needs from their surroundings. They collect dew, raindrops or water flowing down a tree trunk or a rock and hold these drops in spaces between the leaves and stems, or within the mid-vein.



Some mosses form mats or cushions that hold water allowing them to grow in drier environments. They may have long leaf tips growing upwards to slow the air current above the plants, so that less water is lost to the wind. Mosses growing in dry habitats may become crunchy and olive-brown over the summer, but a shower of rain will cause them to unshrivel and become soft and green again.

Many mosses have adaptations that are suited to a particular lifestyle. Mosses on the ground may grow tall to avoid being buried by falling leaves, or form a mat from which leaf litter is deflected. Some mosses grow on newly exposed patches of soil, wood or rock and may be short-lived, while others that grow on trees can survive for many years, particularly if the bark is rarely shed. Some species are found on only one substrate while others grow on several. A few, often found in gardens, are introduced weeds.

Mosses may have quite precise growing requirements. While to us, a rock or a log may appear fairly uniform, it has many microhabitats. A slight dip can hold more water, while sunshine will cause warmer, drier spots on the north side and top. Lack of it will lead to shadier places on the south side and lower parts. Each of these slight variations may suit a different species of moss, so one log or rock can be home to several with different shades of green and leaf shapes. Over time, some may grow more vigorously and overrun the space of others, or an attractive mix of several species may survive together.

The following websites contain more moss information:
https://www.anbg.gov.au/bryophyte/what-is-moss.html
https://www.anbg.gov.au/bryophyte/splash-cups.html
https://www.anbg.gov.au/bryophyte/photos-captions/polytrichum-commune-171.html
https://www.anbg.gov.au/bryophyte/vegetative-reproduction.html

These mossy places may appear insignificant, but they play an important role in the environment. Moss growing on soil will help to stabilise it and reduce evaporation. It will slow the flow of water and when it decomposes, it will add nutrients to the soil. Beds of moss are important to other species, forming habitat for tiny invertebrates, which are hunted by spiders and lizards. Scratching birds, such as White-winged Choughs, turn over moss looking for a meal. Patches of moss provide a moist place for fungi to grow and seeds to germinate. Over time, moss will break down to form soil. In this place a plant can grow. Its leaf litter will create further earth and opportunities for other living things. An area of moss can be a tiny world on its own, and may also be the beginning of far bigger things.

“An area of moss can be a tiny world on its own, and may also be the beginning of far bigger things.”

Rains and sunshine promise a good orchid season

Margaret MacDonald and Alison Watson

With the autumn rains late in the season followed by the warm sunshine, the Anglesea heathlands are showing every promise of a good orchid season both for our winter and spring orchids.

The Fringed Hare Orchids, *Leporella fimbriata*, that we reported flowering in the second week of April are continuing to impress us with their attractive flowers. It is interesting to note that some colonies flower earlier than others. While the ones in the Alcoa Conservation Reserve have finished flowering, there are still some to see in other sites. As we said last month it is a matter of searching amongst the vegetation and treading carefully so as not to damage the orchids, many of which will often grow in the middle of bush tracks. We were thrilled to find some that had been pollinated, so it is exciting to know that the male winged ants, *Myrmeciua urens*, which are the recognised pollinator of the species, are active in our district. Colonies of ground-hugging, red-veined ovate leaves are appearing in the late flowering stage.

Greenhoods are a feature of the Anglesea district with 20 species recorded in the area. The Brown-tipped Greenhood, *Pterostylis clivosa*, that was documented in last month's report has continued to flower with many fine specimens observed in mid-May. The Tiny Greenhood, *P. parviflora*, is not as common and not many flowers have been observed although there were plenty growing in loose colonies in the Fairhaven area. These two species often grow in close proximity and you need to look carefully to notice the different features as sometimes the Tiny Greenhood can be tinged with brown especially when it is finishing flowering.

One of our special species, the Striped Greenhood, *P. striata*, is flowering very well on the Anglesea heathlands. We have just one known colony on public land of this attractive greenhood that has 3 to 6 leaves up the stem. Flowering plants do not have rosettes while non-flowering plants have a ground-hugging rosette of 4 to 10 small leaves.

Fringed Hare Orchid

Brown tipped Greenhood

Tiny Greenhood

Striped Greenhood

Another eye-catching greenhood is the Banded Greenhood, *P. sanguinea*, and we were pleased to find some in full flower in mid-May, with many just at the bud stage. The reddish-brown nodding flowers ensure that this greenhood is not confused with any other.

Banded Greenhood

Again it is the non-flowering plants that produce the rosettes. Trim Greenhoods, P. *concinna*, seem to have been just so grateful for the autumn rains, and very large colonies with tiny buds just starting to form have been observed, while carpets of the familiar Nodding Greenhood rosettes, *P. nutans*, are appearing throughout the district. It should be a spectacular flowering season for them.Tall Greenhoods, *P. melagramma*, are also putting up quite well-developed flowering stems ready for flowering in winter and spring.

Striped Greenhood with rosettes

Small Mosquito Orchids, *Acianthus pusillus*, are appearing in large numbers with their small insect-like flowers looking quite beautiful especially if they catch the sunlight. A small hand lens allows you to see the features of the tiny flowers. The orchid forms large colonies of heart-shaped leaves, green on top, purplish below.

Mosquito Orchid

Leaves of other orchids are also starting to appear: Gnat Orchids, *Cyrtostylis* sp., Wax-lips, *Glossodia major*, and sun orchids, *Thelymitra* sp. The hairy leaves of our spider orchids are also sure to be making their presence known.

Winter is the time for our Helmet Orchids, *Corybas* sp., to flower, with the first ones Small Helmet Orchid, *Corybas unguiculatus*, usually appearing in June, followed by Veined Helmet Orchids, *C. diemenicus*, and then the Slaty Helmet Orchids, *C. incurvus*.

Please let us know of any of your orchid discoveries. We are always keen to know where our orchids are growing.

The new edition of Orchids of the Anglesea District is available from the Angair Natural History Centre on Monday and Thursday mornings, online through the Angair website www.angair.org.au and from Anglesea News & Lotto and Great Escape Books in Aireys Inlet.

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Invaders are extinction's top cause

Sally White

The Invasive Species Council (ISC) released a report for World Diversity Day last month showing that invasive species were responsible for 17 of the estimated extinction of 23 animal species in Australia in the past 60 years.

Biologist Tim Low, lead author of *GONE: Australian animals extinct since the 1960s*, said that the drivers of extinction and the animal species being lost were becoming more diverse although invasive species remained the top cause.

Up to 1960 the main causes were cats and foxes preying on mammals, and rats (and human hunters) preying on island birds. Since then, the invasive exterminators have included chytrid fungus affecting frogs, wolf snakes and brown trout, he said.

Despite an increase in funding for biosecurity in the recent federal budget, the ISC said there needed to be a focus on preventing biosecurity threats to wildlife to prevent extinction as well as protecting agriculture.

Land clearing and climate change are also becoming more important drivers. Habitat loss is seen as the reason for the decline of koalas and the federal government's listing of the species as endangered in NSW, Queensland and the ACT.

Tim Low said that although there was only one creature, the Bramble Cay melomys, acknowledged as having become extinct because of climate change, a recent Australian study had shown that an estimated 13 species of frog were at some level of risk of climate extinction.

Source: https://invasives.org.au

From butchers to twitchers: How pet cats can live in harmony with nature

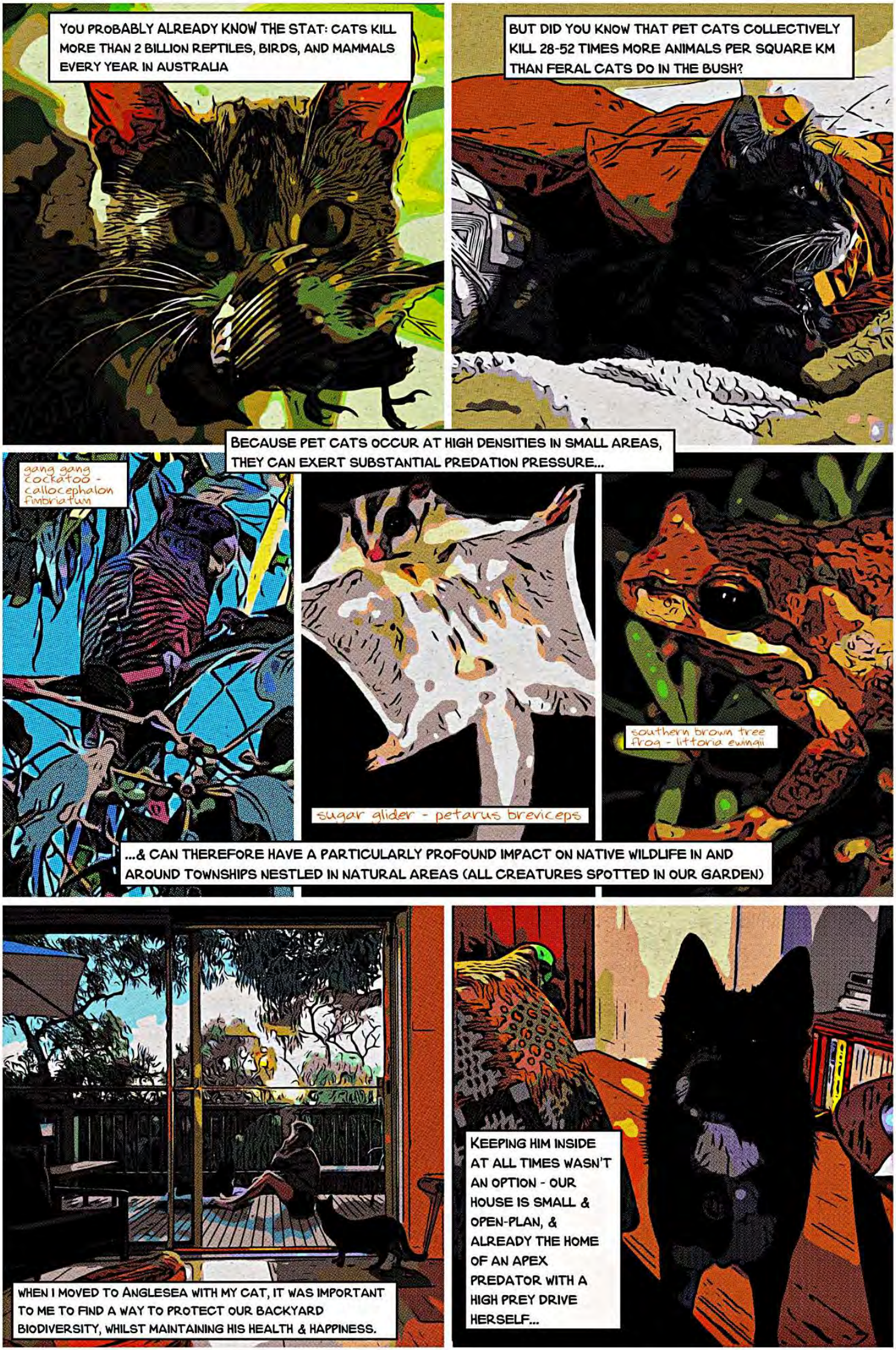
Erin Nash

The Surf Coast Shire's 24-hour cat curfew comes into force on 30 September. When Erin Nash moved to the coast recently with Cadi, her four-and-a-half year-old cat, she had to find a way for the household to be good neighbours. Erin's solution was to build a cat coop. Visit her building project overleaf.

But Erin says Cadi's coop is not the only way to enable you to meet the requirement of the curfew.
Check out the RSPCA's guide on keeping your cat safe and happy at home for more ideas:
https://safe and happy cats.com.au

Statistics in panels one and two are from:

- Woinarski, Legge & Dickman (2019) *Cats in Australia: Companion and Killer*. CSIRO Publishing
- Legge et al. (2020). *We need to worry about Bella and Charlie: The impacts of pet cats on Australian wildlife*. Wildlife Research, 47(8), 523-539.

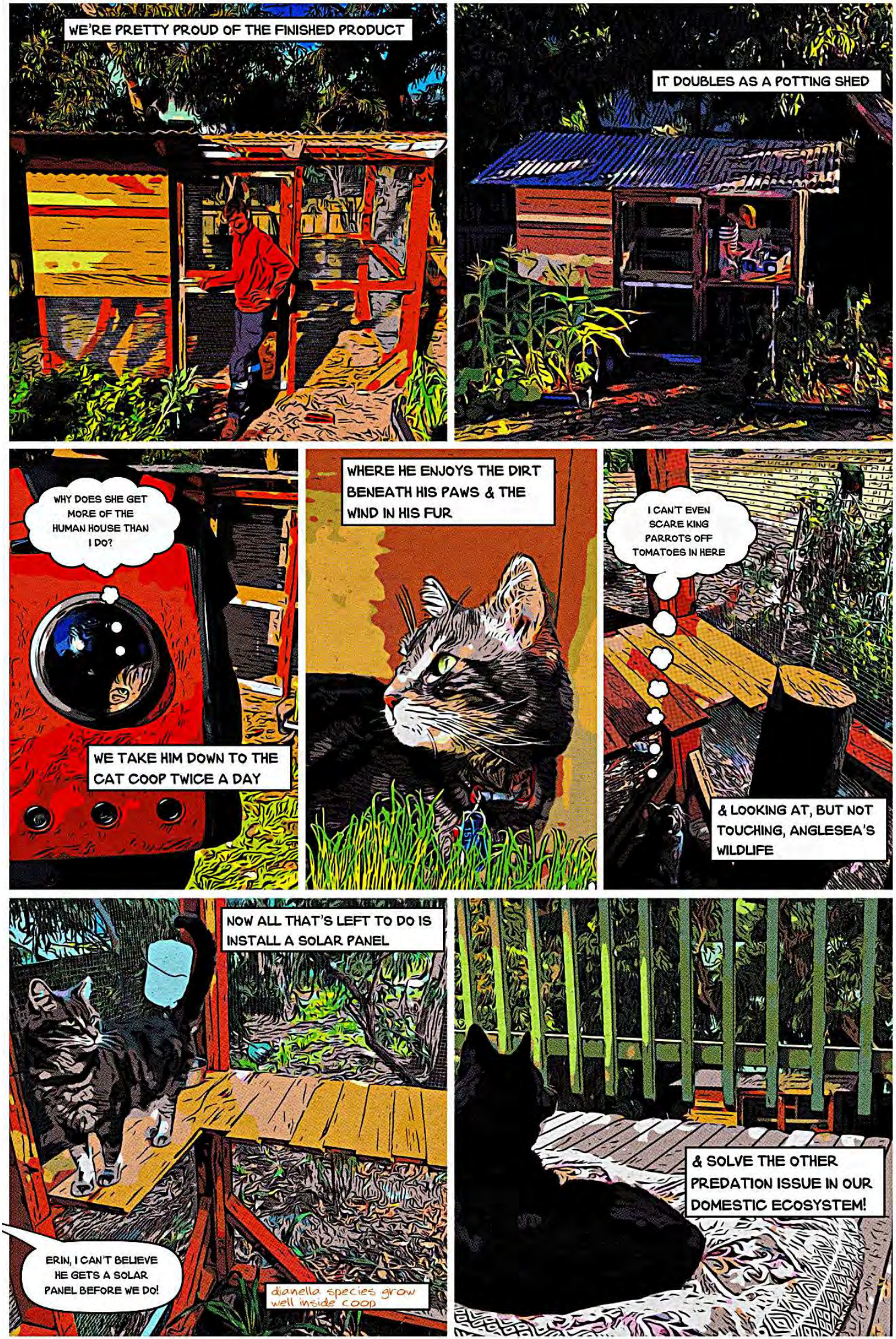

YOU PROBABLY ALREADY KNOW THE STAT: CATS KILL MORE THAN 2 BILLION REPTILES, BIRDS, AND MAMMALS EVERY YEAR IN AUSTRALIA
BUT DID YOU KNOW THAT PET CATS COLLECTIVELY KILL 28-52 TIMES MORE ANIMALS PER SQUARE KM THAN FERAL CATS DO IN THE BUSH?
BECAUSE PET CATS OCCUR AT HIGH DENSITIES IN SMALL AREAS, THEY CAN EXERT SUBSTANTIAL PREDATION PRESSURE...
gang gang cockatoo - callocephalon fimbriatum
sugar glider - petarus breviceps
southern brown tree frog - litoria ewingii
...& CAN THEREFORE HAVE A PARTICULARLY PROFOUND IMPACT ON NATIVE WILDLIFE IN AND AROUND TOWNSHIPS NESTLED IN NATURAL AREAS (ALL CREATURES SPOTTED IN OUR GARDEN)
WHEN I MOVED TO ANGLESEA WITH MY CAT, IT WAS IMPORTANT TO ME TO FIND A WAY TO PROTECT OUR BACKYARD BIODIVERSITY, WHILST MAINTAINING HIS HEALTH & HAPPINESS.
KEEPING HIM INSIDE AT ALL TIMES WASN'T AN OPTION - OUR HOUSE IS SMALL & OPEN-PLAN, & ALREADY THE HOME OF AN APEX PREDATOR WITH A HIGH PREY DRIVE HERSELF...

So we decided to build him a place outside where he could spend part of his day.

The Garden Coop

chicken coop construction plan

While this project took us many weeks...


WE'RE PRETTY PROUD OF THE FINISHED PRODUCT
IT DOUBLES AS A POTTING SHED
WHY DOES SHE GET MORE OF THE HUMAN HOUSE THAN I DO?
WE TAKE HIM DOWN TO THE CAT COOP TWICE A DAY
WHERE HE ENJOYS THE DIRT BENEATH HIS PAWS & THE WIND IN HIS FUR
I CAN'T EVEN SCARE KING PARROTS OFF TOMATOES IN HERE
& LOOKING AT, BUT NOT TOUCHING, ANGLESEA'S WILDLIFE
NOW ALL THAT'S LEFT TO DO IS INSTALL A SOLAR PANEL
ERIN, I CAN'T BELIEVE HE GETS A SOLAR PANEL BEFORE WE DO!
dianella species grow well inside coop
& SOLVE THE OTHER PREDATION ISSUE IN OUR DOMESTIC ECOSYSTEM!

What's in a name

Neville Millen

Eremophila – from the Greek word, *eremos*, meaning desert and *phileo* meaning to love. Truly desert-loving arid zone plants.

On a recent road trip through South Australia, I called into the Australian Arid Lands Botanic Garden (AALBG) on the Stuart Highway, a few kilometres north-west of Port Augusta. I last visited the Garden 15 years ago and the change is remarkable, with over 150 families of plants showcased throughout several themed courtyard gardens and a wide outer desert landscape of rolling ochre hillocks. The garden of 110 hectares features plants that grow in a climate zone of less than 300 millimetres of rain a year.

Among the aims of the AALBG was to showcase native plants for gardens that require limited water, yet provide excellent habitat and food for native birds and animals. In drought conditions these plants survive and thrive.

There are in the collection beautiful Mallee eucalypts (*Eucalyptus kruseana, E. youngiana*), iconic acacias (*A.aneura, Mulga, A.peuce,* Waddy-wood, the hardest wood known, cypress pine, casuarina, hakea, and more unusual genuses such as *Crotalaria* (Rattlepod), *Triodia* (tussock grasses) and *Petalostylis* (Butterfly Bush). Plants are well-labelled throughout and four hours ambling seemed too short to take it all in on one visit

I concentrated on a genus of my favourite arid zone plants that have their own special garden, *Eremophila*. It is an endemic genus to Australia with over 200 species. There are over 100 species grown at AALBG, of all habits, ranging from trees to shrubs to prostrate plants. A few are mentioned here.

Eremophila longifolia, Weeping Emu Bush. The species name comes from Latin, meaning long leaf. A small tree with grey-green leaves, 14 cm long and one cm wide. Flowers have large recurved petals one cm long and are dusty-pink in colour. A widespread plant living on sand hills, that suckers, creating dense thickets in the wild. It was a medicinal tree for Aboriginal people and branches were used in burial rites as the wood is aromatic.

Eremophila longifolia, Weeping Emu Bush

Eremophila bignoniiflora, Bignonia Emu Bush or Creek Wilga. The species gets its name because the flowers are similar to the *Bignoniacea* family of plants that have large tubular flowers such as the South American trumpet creeper. It was named by Baron von Mueller in 1859 from specimens collected at Cooper Creek in South Australia. It is a weeping tree to seven metres. The branches are smooth and sticky with long strap-like leaves. The tubular flowers are creamy-white with mauve spots in the throat and are the largest of the genus. A spectacular specimen tree. The one shown here is a grey form with pale flowers.

Eremophila bignoniiflora, Bignonia Emu Bush or Creek Wilga

Eremophila glabra ssp. glabra, Tar Brush. The species name is from Latin *glabra* meaning hairless or shiny. It is one of the most widespread species across southern Australia. Usually a shrub up to two metres high and wide, but often regressing to prostrate form. The ones I saw at AALBG had bright green lanceolate leaves and profuse red tubular flowers, but some bushes have orange and yellow flowers. There is also a grey-leaf hybrid form. A great bird attractant, it was first identified by English botanist Robert Brown in 1810.

Eremophila glabra ssp. glabra, Tar Brush

Eremophila glabra ssp. glabra, Grey leaf form

Eremophila maculata, Spotted Emu Bush. The species name, *maculata,* means spotted, referring to the spotted throat of the flowers. It is the most widespread of the *eremophila* species, first named by Ferdinand von Mueller in 1859 on an expedition to NW South Australia. It is a flower with a long tube with the anthers protruding. It is usually a low spreading shrub to 2.5 metres. Its leaves are shiny, bright green and narrow. The flowers have a long tube with the anthers protruding prominently. The throat of the flowers are spotted and covered in fine hairs. The flowers vary through red to mauve and purple. Some hybrids are golden yellow and orange. At the AALBG the plants were predominantly red, but a prostrate form was golden yellow.

It was a hybrid with *E. alternifolia* called *aurea*. It was stated that the species will grow in any soil but should be protected from strong winds. In nature plants are found in the leeward-side of gullies. They are good for coastal areas and salt tolerant.

Eremophila maculata, Spotted Emu Bush

Eremophila Macdonnellii, Macdonnell's Emu Bush or Desert Fuchsia. Species named after Richard MacDonnell, Governor of South Australia from 1855-1862. A small tangled shrub to one metre with green-grey foliage covered in fine hairs giving it a hoary appearance. It has contrasting deep purple flowers (sometimes pink). It is widespread in central Australia, frost tolerant and can create its own microclimate by trapping moisture.

Eremophila Macdonnellii, Macdonnell's Emu Bush or Desert Fuchsia

Eremophila can be 'touchy' plants in coastal areas of Victoria. They typically will do best in full sun and require limited watering once established. They like a sandy soil mix and should be mulched with pea gravel to mimic their arid country origins by reflecting heat up under the plant to restrict mould.

The 2023 Wildflower & Art Weekend

Ann Feilding

Preparations have already begun for this year's Wildflower & Art Weekend on 16 and 17 September.
As Angair's signature event, the show needs a lot of effort from a lot of people. Show convenor Wendy Crebbin says that volunteers are needed for a variety of jobs. She would like members to sign up for the following tasks.

- Thursday 14 September – setting up tables and equipment for displays in the Memorial Hall (morning) and for the artworks in the Community House (afternoon). Needs some physical stamina.
- Friday 15 September – setting up the flower display and merchandise including the second-hand nature books stall. Not so physical but very busy.
- Saturday 16 September – staffing stalls and entrance, answering questions from visitors, helping with guided walks. Needs stamina and can need some plant knowledge.
- Sunday 17 September – as for Saturday, with the end of the day needing a vast pack-up of the displays and equipment.

Wendy would like to know as soon as possible which days and tasks you can give to the effort.
Email admin@angair.org.au with your details and preferences.

Angair (Anglesea, Aireys Inlet Society for the Protection of Flora and Fauna) is dedicated to preserving our indigenous flora and fauna, and to maintaining the natural beauty of Anglesea and Aireys Inlet and their local environments.
www.angair.org.au

We acknowledge the Wadawurrung of the Kulin Nation and the Gadubanud of the Eastern Maar People as the Traditional Owners and protectors of this place.

We also acknowledge their ancestors who cared for the land, water and marine areas and all its biodiversity for thousands of years. We pay our respects to their Elders past, present and future who continue to care for this place.

This issue:

Editor: Sally White.
Production: Olivia Clarke, Bill Clarke, Mirai Kirsanovs

Next issue:

Our next issue will be published in September 2023 and will be the spring edition. We welcome any contributions of local, seasonal or general environmental interest. Send your contributions to angair.communication@gmail.com by mid-August and clearly label them 'for Angair Quarterly'.