

Spring 2022

Angair Quarterly

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



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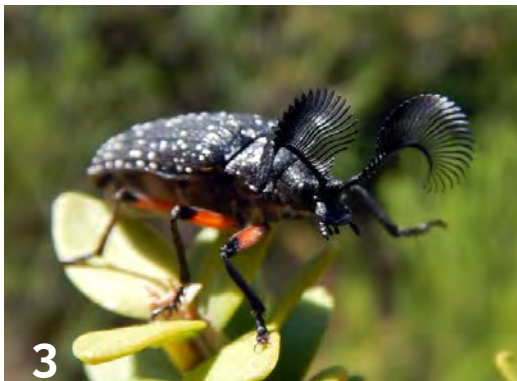
Angair

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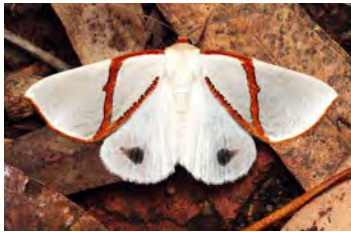
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Little Creatures in Starring Role

Sally White. Images: John Lenagan

The often ignored but essential denizens of our environment – the insects – are featured in several aspects of this year’s Wildflower & Art Weekend. The poster features half a dozen native Hover Flies, on a murnong flower. Twenty-one different insects – from butterflies to bugs – adorn the banner that is now a traditional element of the show. The children’s competition will be a Name The Bug exercise and the late John Landy’s historical collection of local butterflies and insects will be on rare display to the public.



Blotched Satin Moth



Painted Lady Butterfly

But why insects? Because we could not do without them. They are arguably the busiest labourers in our environment and essential for maintaining healthy ecosystems.

Their role as pollinators is well-known, although honey bees tend to get most of the credit because of human reliance on horticultural crops. But many other pollinators, such as native flies, butterflies and moths, are almost as important for crop pollination as well as pollinating many other plant species. Think of the exclusive pollination relationships thought to have formed between individual species of native wasp with the eight species of Spider Orchids that grow in the Surf Coast, for example.



Golden SpiderWasp



Robber Fly

Insects provide food for other insects. The Golden Spider Wasp eats Huntsman Spiders and the larvae of the native Hover Fly gobble aphids for which gardeners are grateful. Yet as Angair’s insect advocate and photographer, John Lenagan, says in defence of aphids, ‘There is no such thing as a bad insect. They all play a role in the environment’. Even the mosquito filters water as its larvae eat algae and other microorganisms.

Insect appetites can also help deal with plants that we regard as weeds. The Longicorn Beetle’s larvae, for instance, eat Boneseed leaves. The grubs of one type of Cossid Moth burrow into Sallow Wattle trunks, eventually killing the tree. And then the Black-tailed Cockatoos eat the grubs.



Longicorn Beetle

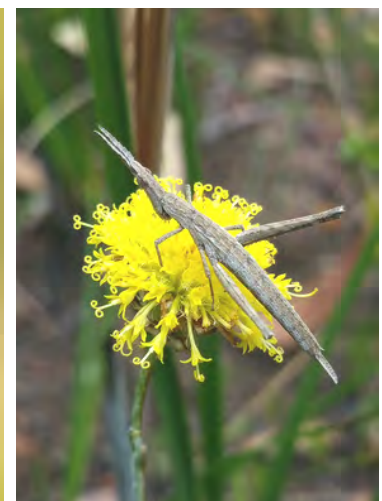


Fan-horned Beetle

Birds and many animals would starve if there weren’t plenty of insects about. Eggs, larvae, pupae or adult insects are food for creatures such as our local bandicoots, the echidnas and antechinus. Many of the smaller bird species, such as the flycatchers, wrens and fantails, subsist on insects. Frogs eat mosquito larvae.



Gumtree Hopper and Ants



Mottled Matchstick Grasshopper

It is insects' roles as waste disposal workers, recyclers and soil improvers that are underappreciated by most people. Many insect species feed on dead or dying plant material, helping it to decay quickly to create humus. Others, such as ants, flies and wasps, are carrion eaters tidying up after the bigger birds and animals have had their fill. Then there are the coprophages, or faeces eaters, like dung beetles and a number of fly species. Much insect activity ensures that nutrients are added to the soil which is aerated by tunnelling and burying organic matter.

The list of insect uses goes on and on: dyes like cochineal, silk, shellac and in age-old medical applications such as maggots used for wound cleaning. And, for many cultures in the world, insects provide an excellent source of protein, mineral and vitamins. They certainly deserve to be stars of the show.

ANGAIR WILDFLOWER & ART WEEKEND



17 & 18 September 2022

10 am – 4 pm

Anglesea Memorial Hall
McMillan Street, Anglesea

Entry cash only: Adult \$5; Student & Pensioner \$2; children free

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Decades of Protecting and Restoring the Coastal Reserve at Anglesea

Carl Rayner and Richard Harding

In June 2022, Angair's Anglesea Coastal Group was disbanded due to a lack of volunteers. The group was initially formed in 1995 as Roadknight Coast Action (later Anglesea Coast Action) after a public meeting sponsored by the State Government's Environment Department as part of their Coast Action/Coastcare initiative. For 27 years we, and other volunteers, have worked on the coastal reserve at Anglesea protecting and restoring the indigenous vegetation. In 1995 a substantial amount of the coastal vegetation between Anglesea Main Beach and Point Roadknight was engulfed with environmental weeds as a result of neglect and the major disturbance caused by the 1983 Ash Wednesday fires. What did the group achieve and was the effort worthwhile? Here we will attempt to answer these questions by describing some of the major projects we carried out.

Heathland Garden, Melba Pde, Point Roadknight

The group's first major project was the revegetation of a barren car park where excess clay and sandy soil from the construction of roads at Point Roadknight had been dumped. Environmental weeds including Sallow Wattle and kikuyu grass were removed and loads of soil spread, followed by planting and mulching. As well as beautifying the site, we planted a diverse range of heathland plants to showcase our local flora. The garden was officially opened in 1998 and the plants have continued to grow well. In 2009 an arsonist set light to the garden and 60 per cent of it was burnt. After the fire, extensive natural regeneration occurred, particularly of Prickly Tea tree. Substantial planting, mulching and weeding have been undertaken during the last five years. Although the garden has areas of annual grassy weeds the cover of vegetation is good and the project has benefited the local community and wildlife.

Revegetation of Coastal Moonah Woodland near the Anglesea Surf Life Saving Club car park.

Immediately east of the car park at the SLSC, thickets of environmental weeds including blackberries had engulfed the site by 2003. Storm water from a drain off the Great Ocean Road had regularly flooded the site causing massive growth of environmental weeds.

A new open drain, lined with geotextile material and rocks, was constructed with the help of a mixed group of university students during Orientation Week.

They certainly did a fabulous job carting wheelbarrow loads of rock as a 30 m long drain was constructed in only two hours! The site was planted out with indigenous plants including Moonah, *Melaleuca lanceolata*, which has grown very well. Today a delightful track passes along the edge of the revegetated area and then through the mature stand of Moonah. This project has protected an important remnant stand of Coastal Moonah Woodland which is listed as an endangered community under the State Government Flora and Fauna Guarantee Act.



Carl and dense Coast Tea tree above SLSC in 2006

Area above the Anglesea SLSC, ocean side of the Great Ocean Road

After the 1983 fires, this area of hillside became covered in environmental weeds. By 2007 thickets of weeds along this section were up to three metres high in some places. Some indigenous plants were still alive as an understorey but most were stunted. Over four years all the environmental weeds were removed in a collaborative project between Anglesea Coast Action, Angair and students from the St Bernards College campus at Santa Monica. Almost immediately an amazing transformation took place and within six months the vestiges of a diverse heathland had occurred. Without woody weeds the bare soil became moist and warmer and a mass germination of heathland plants emerged. Today it is hard to believe that this pristine heathland has not always been in place (see photos below taken 2008-2011).



above SLSC Peg 10 north June 2008



above SLSC Peg 10 north Nov 2009



above SLSC Peg 10 north Dec 2010



above SLSC Peg 10 north Dec 2011

Walking Track from Heathland Garden to Anglesea SLSC

Anglesea Coast Action saw the need for a walking track connecting Point Roadknight to Anglesea.

Beginning in the mid-1990s the group repeatedly advocated for, and was eventually successful with, grants to develop a walking track from the Heathland Garden to the pull-over lookout on the Great Ocean Road. When the Great Ocean Road Coast Committee (GORCC) was formed in 2004 they redeveloped the track and extended it to the SLSC.

The walking track has been very popular with tourists and local residents as they can now walk safely between Anglesea and Point Roadknight without walking on the Great Ocean Road. It now forms a popular section of the Surfcoast Walk and is frequently included as part of trail-running routes.



Soapy Rocks Revegetation

In 2012 Anglesea Coast Action disbanded and joined Angair as Anglesea Coastal Group.

The Soapy Rocks site had been impacted by a major landslide in the 1970s covering the site with a clay subsoil. By 2012 environmental weeds, which were mainly Australian natives, covered the site. Some had been intentionally planted. Our project (2012-2018) was only achieved through the help of St Bernards students who were able to drag cut environmental weeds 200 m uphill to Melba Pde for mulching, as well as help with the planting. Considering the poor subsoil, the revegetation project has been very successful including the mass natural regeneration of indigenous sedges. The reason that plants have grown so well in such poor soil may be due to organic matter shed by 40 years of environmental weed growth.



Planting at Soapy Rocks



Revegetation Anglesea Main Beach dunes, land side

In 2010 with the help of St Bernards students a large thicket of the environmental weed, Coast Tea tree, was removed from the rear of the sand dunes at the Main Beach. Volunteers from Quicksilver and Torquay Landcare together with Anglesea Coast Action volunteers planted and mulched 1500 plants in 2010 and 1400 in 2011. The growth of plants including some natural regeneration of Sword Sedge, *Lepidosperma gladiatum*, has been excellent.



Removal of Coast Tea tree at Main Beach



Planting of Main Beach dunes

Concluding Comments

We believe that our volunteer efforts have transformed the Anglesea to Point Roadknight coastal reserve to a mostly indigenous woodland/heathland. Unfortunately, our coastal reserve abuts urban residential development, which causes the continual transfer of environmental weeds from urban gardens to the coastal reserve via wind and bird droppings. As outlined above, our group of volunteers has enhanced many parts of the coastal environment between Anglesea and Point Roadknight. From now on, in the absence of a dedicated coastal group, the survival of these indigenous plant communities is now going to depend upon maintenance undertaken by the new Great Ocean Road Coast and Parks Authority.

The Very Dear Cost of Deer

Sally White

The costs of failing to control the impacts of feral deer in Victoria could cost between \$1.5 and \$2.2 billion over the next 30 years, according to an independent report commissioned by the Invasive Species Council. The estimated number of deer in the state is one million. With deer numbers increasing in the Otways in the west to the Ironbark Basin in the east, the threat is coming closer to home.

The council's deer project officer, Peter Jacobs, said that acting now to reduce deer numbers could deliver benefits exceeding the cost of control by at least four times. He pointed out that the report only considered the economic costs of lost agricultural and forest production, vehicle accidents and reductions to the recreational value of national and state parks. It did not factor in the environmental impacts on biodiversity or indigenous cultural values that would be likely to impose more significant costs.

While the Victorian Government was investing \$18.25 million over four years for feral deer control, these investments were at odds with the state's Wildlife Act which continued to protect feral deer as game for hunting, he said.



A Bird's Eye View – Sensing the Environment

Rob Shepherd

We have a very egotistical view of the world, placing ourselves above all other lifeforms. We often simplify or underestimate other creatures' capabilities. An example, familiar to all keen birdwatchers, is the use of the derogatory term 'bird-brain'. Slang for 'stupid person,' its origins go back to the 1600s. However, anyone that has observed avian behaviour will appreciate that birds have sophisticated brains with abilities previously thought to be uniquely human, such as sophisticated navigation, mental time travel, self-recognition, empathy, problem solving, imagination, and insight. In this article we meet the avian view of the world through their senses.

Birds rely on their senses to aid in their survival, including foraging, migration, predator avoidance, mating, song and flight. Sensory systems have evolved to detect change in an animal's environment: the rapid movement of a predator, the smell of a potential mate, the call of a prey species. The avian central nervous system analyses sensory input in a way similar to that performed in mammals, via specialised sensory pathways within their central nervous system. The respective size of these centres within the brain provides important clues to their relative significance for a particular species. For example, the visual region of the avian brain is significantly larger than the olfactory region devoted to the sense of smell, reflecting the importance of vision over smell in birds.

Vision

Vision is the critical sense for most birds. Their eyes are proportionally the largest relative to the body of all animals. In some owls, the eyes comprise up to one third of the total weight of the head. In humans, eyes account for about one per cent of head weight. Birds of prey have their eyes spaced widely providing improved depth perception. Non-prey species typically have eyes located on the side of their heads giving improved detection of movement from all angles, although this comes at the cost of poor depth perception.

Although the general structure of the avian eye is similar to that of mammals, there are some important functional differences. Birds have the ability to focus much faster than other animals. This is an important consideration when flying at speed through trees. The retina is the sensitive layer of the eye that absorbs the incoming light, senses it, and sends the information to the brain.

The avian retina is thicker than that of mammals and the rods and cones – the specialised cells that detect light – are more abundant. Cones are colour detectors while rods are required for black and white and dim light detection. The distribution, density and proportion of rods and cones varies between species. Diurnal birds have retinas dominated by cones while nocturnal birds have mostly rods. The area containing the most densely packed retinal cells is the fovea which is the site of maximum visual resolution. Both birds and mammals have a fovea.



Figure 1.

Image: Rob Shepherd

The massive eyes of this Barking Owl highlight the importance of vision to an avian predator particularly one that hunts in a low light environment. The broad head also allows both the eyes and ears to be widely spaced, improving both depth perception (eyes) and sound localisation (ears) for hunting.

However, some birds – including hawks, eagles, terns, parrots, swallows and doves – possess two which provide improved judgement of speed and distance when flying and excellent detection of movement when still. Because of species' variation in the proportion of rods and cones, colour vision also varies. Not all birds see colour. Those that do are thought to have improved colour resolution compared with humans. These birds see a wider range of colours including part of the ultraviolet spectrum.

While there is a lot written about the most suitable colours for successful bird watching, those that blend in with the local habitat are considered best. Significantly, however, it is movement that birds most often initially detect. It's no secret that keeping still, or even hidden, and letting birds come to you is the most successful strategy for bird watching.

Hearing

The ability to hear is very important to a wild bird's survival, especially since they often rely on communication between flock members to warn of predators. Birds hear a narrower range of frequencies than humans. They are particularly restricted in the high frequencies above 8 kHz; in contrast humans can hear up to about 20 kHz. However, birds can distinguish rapid fluctuations in pitch and intensity required to detect sophisticated bird calls.

The avian ear differs from that of mammals. Birds have no external ear, or pinna, but instead have specialised feathers, or auriculars, that surround and protect the ear opening without blocking the sound. Their middle ear contains a single middle ear bone whereas a defining feature of mammals is that they have three middle ear bones, or ossicles. Finally, the avian inner ear, or cochlea, is shorter and less specialised than the mammalian cochlea resulting in a more limited frequency range.

The ability to localise a sound, important in both prey detection and predator avoidance, is governed by differences in both the time and the intensity of the sound arriving at the two ears. Sound localisation improves with larger head size and greater distance between the two ears. Despite a relatively small head size, most birds show an impressive ability to locate a particular sound.

Owls have evolved very large and relatively widely spaced ear flaps which significantly improve their sound localisation ability (Check Figure 1 again). They can detect prey in total darkness with an error of only one degree in the horizontal and vertical plane. Several owl species have evolved bilaterally asymmetrical ears (unique among vertebrates) to further improve sound localisation.

Finally, a few birds use echolocation to navigate but not for catching prey, although there is some evidence that penguins can locate prey underwater via echolocation.



Figure 2.

Image: Rob Shepherd

Birds do not have an external ear but feathers that cover the ear opening called auriculars. These specialised feathers are more evident in some species such as this Diamond Dove, than in other species.



Figure 3 Image: Glenn Pure (birdlifephotography.org.au)

The Grey Headed Albatross is an example of a small group of sea birds that possess a good sense of smell.

Smell

Birds are thought to have a poorly developed sense of smell relative to mammals. However, smell, or olfaction, is critical to many species for routine tasks such as navigation, feeding and mating. For example, albatross, skuas, and petrels are able to detect meat or offal on the sea's surface. The nocturnal Kiwi, which has poor vision, is the only bird with nostrils at the end of the beak, enabling it to smell during foraging, while the African Honeyguide can locate beehives by the odour of the beeswax. It would come as no surprise if nectar feeders such as honeyeaters could detect nectar through olfaction, although to date this has not been tested.

Taste

Like mammals, avian species contain taste buds which are concentrated on the back part of the tongue and floor of the pharynx although the number of taste buds is fewer than that found in mammals. The sense of taste is important as it may be used to help avoid harmful foods. Many bird species demonstrate taste preferences. Some, including parrots and fruit and nectar feeders such as honeyeaters, show interest in sugary/sweet tastes. In contrast, seed eaters such as finches show no preference for sweet or sour. There is a variety of salt discrimination levels across species. Sea birds, as expected, have a high tolerance for salt water. They can excrete excess salt through their nasal glands although they prefer to drink fresh water if given the choice.

Touch

Like mammals, avian skin possesses sensory nerve endings that detect heat, cold, pressure, and pain. Unique to birds are filoplumes: tiny feathers connected to sensory cells in the skin that are thought to provide information about wind, air pressure and feather movement necessary for efficient flight. In addition, many birds, particularly shorebirds, possess sensory cells in their bills that are very sensitive to pressure, allowing the bird to detect prey in turbid water.

Conclusion

While the ancestry of birds can be traced back to the age of dinosaurs, it is a mistake to think of our feathered friends as 'bird brained'. They possess sophisticated behavioural traits and many live in complex social environments. They possess highly evolved sensory systems that enable many species to flourish. Their biggest threat, of course, is human activity, in particular the destruction of natural habitat.

References:

Emery, Nathan. *Bird Brain: An Exploration of Avian Intelligence*, Princeton Uni. Press, 2016.

National Geographic Website

<https://avianenrichment.com>

<https://birdlifephotography.org.au>

<https://ornithology.com>



Figure 4 Image: Rob Shepherd

This Silvereye is eating a ripe Kangaroo Apple. It uses its vision and taste senses to determine that the fruit is ripe, as unripened Kangaroo Apples are toxic.

The Orchids of Early Spring

Margaret MacDonald

With spring just around the corner, the terrestrial orchids are indicating a good flowering season.

Greenhood orchids have flourished during the last few weeks of winter. Colonies of Nodding Greenhoods, *Pterostylis nutans*, are now flowering in large numbers although many have shorter stems than usual. Trim Greenhoods, *P. concinna*, and a few Banded Greenhoods, *P. sanguinea*, have continued to flower. These have now been joined by Dwarf Greenhoods, *P. nana*, Maroonhoods, *P. pedunculata*, Blunt Greenhoods, *P. curta*, and Tall Greenhoods, *P. melagramma*. Many of the Tall Greenhoods are short in stature this year with few flowers, but some very impressive specimens have also been observed.



Dwarf Greenhoods



Tall Greenhood



Blunt Greenhood

We have not managed to find the rare Green-striped Greenhood, *P. chlorogramma*, where it has been observed in former years, but we will continue to search.

Both species of **Gnat orchids** – Small Gnat Orchids, *Cyrtostylis reniformis*, and Robust Gnat Orchids, *C. robusta*, are in full flower. The Robust Gnats look delightful as they nestle amongst the mosses where they like to grow. Mayfly Orchids, *Acianthus caudatus*, are now showing their distinctive dark reddish-purple insect-like flowers.



Small Gnat Orchid



Robust Gnat Orchid

This is such a great time for our **helmet orchids**. Veined Helmet Orchids, *Corybas diemenicus*, are still flowering, with their delightful dark reddish flowers, with a flared labellum, being held on top of a short stem. They are now being joined by the more common Slaty Helmet Orchid, *C. incurvus*, which can be found in various areas. So many leaves, but you have to look closely to find the few tiny red flowers with an incurved labellum. The flowers appear to be sitting on the rounded green leaves but observant eyes will notice that there is a very short flower stem.



Slaty Helmet Orchids

The first of our Leopard Orchids, *Diuris pardina*, was recorded in the first week of August. This is always an exciting discovery as the flowers are so colourful and bright. The yellow flowers are heavily blotched with dark red-brown markings. These orchids should appear in good numbers in the next few weeks.



Leaves and buds of Waxlips, Spider Orchids, Sun Orchids, and Flying Duck Orchids can be seen throughout the district giving hope for a good spring flowering.

Please make sure you let us know of any unusual sightings you may come across.

All our orchids are documented and photographed in *Orchids of the Anglesea District*. The new edition will hopefully be available in the near future.

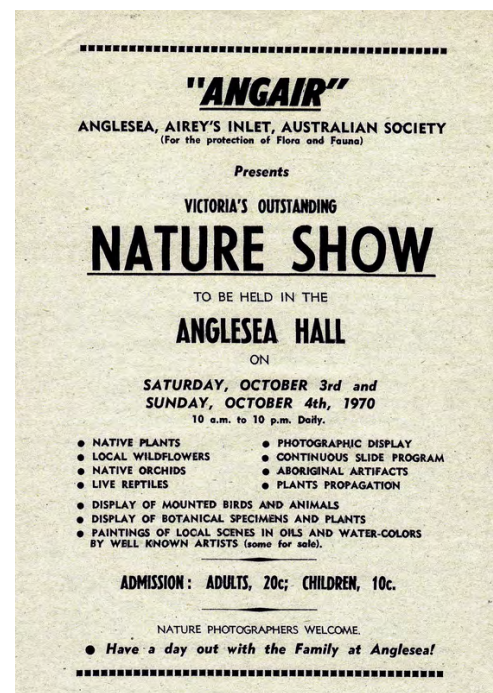
Back to the Future

Ann Feilding

The first Angair weekend show in 1970 had many features that have been restored 52 years later. The art component included photography, back again this year, and the plants and orchids on display were all indigenous. However, in 1978, Angair sent local plant specimens to the Australian Heritage Festival in Townsville which returned the favour by sending a batch of Queensland natives for display. The growing popularity of Australian native plants in general made them a regular part of the show until now.

The one thing we can't reprise today is the admission price. In 1970 adult tickets were 20 cents.

Reference: Gibson, Roslyn (2019) *ANGAIR: the first 50 years*, ANGAIR Inc., Anglesea.



Strategic Fuel Break Plant Survey Report

Gail Slykhuis August 2022

Sections of roadside vegetation along the Great Ocean Road in the vicinity of Anglesea and Aireys Inlet changed dramatically during autumn 2021.

These Strategic Fuel Breaks (SFB) works were carried out by Forest Fire Management Victoria, as part of the Otway's Strategic Fuel Break project with the aim of significantly reducing fuel loads close to towns and key assets through the creation of Grassy Woodlands. The initial SFB was achieved through mulching, a mechanical fuel reduction technique.

Since the formation of the fuel breaks, members of Angair's Flora and Fauna Interest Group (FFIG) have carried out three plant surveys and photo point monitoring, in an area north east of the Eumeralla entrance.

The plant survey results presented in the table below, show an increase in species recorded during each survey. This is encouraging although only 50 per cent of the approximate 100 species previously recorded in close proximity to the area, have been noted so far.

The three photo point images included provide a picture of the slow regeneration rate of many plant species within this area.

What is also interesting, but not surprising, is the impact of deep drifts of mulch on the rate of regeneration; in the majority of these areas there is little/no colonisation of species, in others it is primarily Thatch Saw-sedge.

Flora and Fauna interest Group members will continue to survey the area into the future.

The table below indicates the presence of species recorded post Strategic Fuel Break.



Eumeralla photo point monitoring site 3 June 2021



Eumeralla photo point monitoring site 3 October 2021

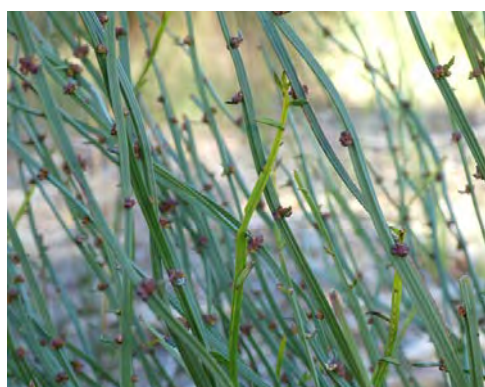


Eumeralla photo point monitoring site 3 July 2022

Angair Quarterly-Spring 2022



Screw fern
Lindsaea linearis



Broom Spurge
Amperea xiphioclada var. *xiphioclada*



Climbing Sundew
Drosera macrantha subsp. *planchonii*



Bent Goodenia
Goodenia geniculata

Common Name	14.06.21	18.10.21	20.07.22
Screw Fern	√	√	√
Hairy Rice-grass			√
Wallaby Grass			√
Tassle Rope-rush	√	√	√
Clustered Sword-sedge			√
Thatch Saw-sedge	√	√	√
Milkmaids		√	
Blue Squill	√	√	√
Flax-lily	√	√	√
Wattle Mat-rush		√	√
Small Purple-flag			√
Austral Grass-tree	√	√	√
Sun Orchid	√		
Hare Orchid	√		
Mosquito Orchid			√
Golden Wattle	√	√	√
Sweet Wattle			√
Honey-pots	√	√	√
Broom Spurge		√	√
Silver Banksia	√	√	√
Common Apple-berry		√	
Button Everlasting	√	√	√
Leafless Bitter-pea			√
Grey Parrot-pea			√
Climbing Sundew	√		√
Tall Sundew		√	√
Common Heath			√
Brown Stringybark	√	√	√
Messmate Stringybark	√	√	√
Common Raspwort	√		√
Bent Goodenia		√	√
Trailing Goodenia			√
Erect Guinea-flower		√	√
Silky Guinea-flower	√	√	√
Bundled Guinea-flower			√
Horny Cone-bush		√	√
Ixodia			√
Running Postman	√	√	√
Prickly Teatree	√	√	√
Silky Teatree		√	√
Common Beard-heath	√		
Cypress Daisy-bush			√
Common Rice-flower			√
Woolly Rice-flower			√
Slender Rice-flower			√
Common Flat-pea	√	√	√
Globe Pea			√
Dusty Miller			√
Pink Bells			√
Hidden Violet	√		√
Number of species	22	25	45

What's in a Name?

Macropodidae-named Grasses

Text and illustrations by Neville Millen

Macropodidae is the family of marsupials which includes kangaroos and wallabies. The grasses discussed here are local species selected by the Angair Propagation Group. Grown in swathes in gardens, Kangaroo and Wallaby grasses add interest to rockeries and verges and provide food for their namesake macropods, as well as wombats, smaller marsupials and rodents, seed-eating birds like parrots and finches, moth caterpillars and small reptiles such as skinks. The four grasses listed are attractive additions to any garden and continue to survive well in extended dry conditions.

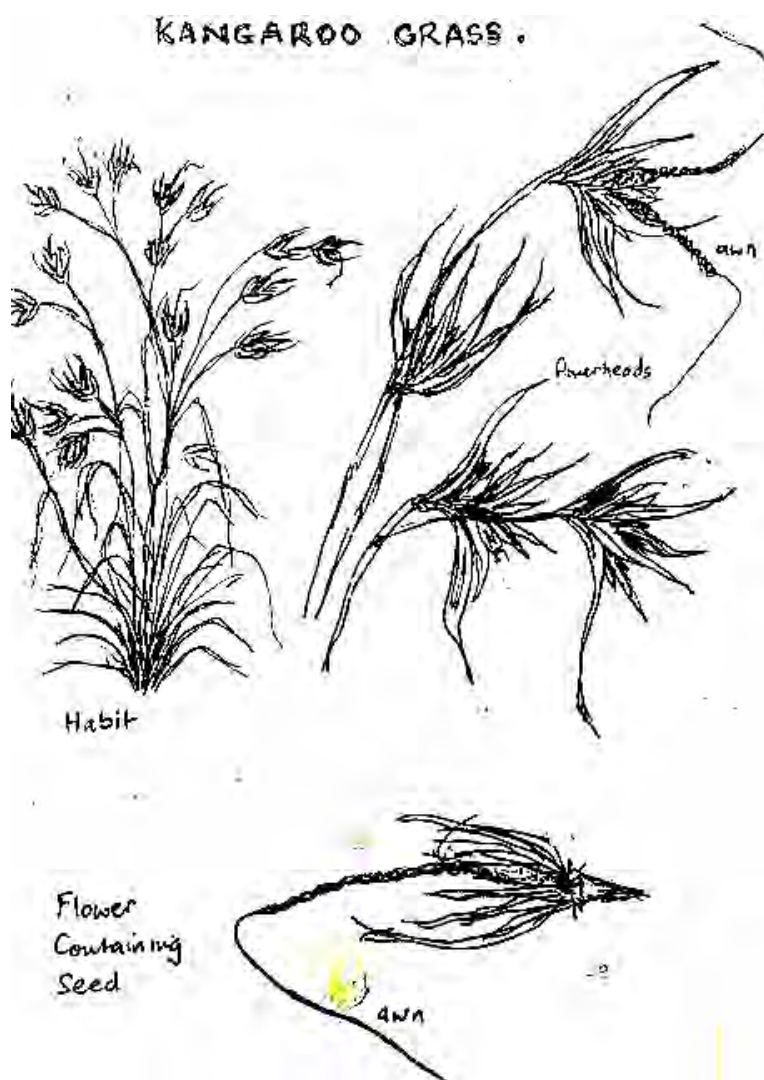
Ellis Stones, an influential landscape architect and author in Victoria in the 1960-1970s, pioneered naturalistic rock-work in his 'Australian' landscapes, and created large commercial and public gardens. He stated that no Australian garden was complete without an area of well-placed embedded rocks or boulders interposed with clusters of indigenous grasses. I encourage members to try these iconic grasses in their gardens.

Kangaroo Grass, *Themeda triandra*, named from the Arabic word *thaemed*, meaning saucer of water, referring to the genus growing after rain in areas that dry out; species from the Greek *treis*, meaning three and Greek *andros*, meaning male, referring to the three anthers of the flowers.

Kangaroo Grass is a tufted perennial common across all states of Australia. On a recent trip to Mission Beach in Queensland I saw Kangaroo Grass growing among basalt boulders just beyond the shore line. It is similar to a species that grows in South Africa, where it is called red oat grass. It grows to 1-1.5 m tall and 0.5 m wide with grey to green, narrow-bladed leaves up to 50 cm long that change to brown in summer. Its distinctive triangular spathes of florets can range in colour from greenish-purple to reddish-green, drying out to a burnished red-brown.

The florets occur from December to February and fertile seeds set black with a 4-7 cm twisted awn. I sowed fresh seed in early January half a centimetre deep in trays of half potting mix and vermiculite and had a 70 per cent strike rate.

Seeds are highly nutritious and it is claimed Aboriginal people made damper cakes from the seed flour. However, making enough flour from the small seeds would have been a laborious task even in a hunter-gatherer group. It is a distinctive graceful grass.



Wallaby Grass.

There are 40 species of Wallaby Grass in Australia with all species growing most commonly below the 32nd parallel of latitude across from New South Wales to Western Australia where more moist conditions prevail. However, most species can tolerate dry conditions further north as well.

Common Wallaby Grass, *Rytidosperma caespitosum*, is named from Latin words meaning wrinkled seed; the species from Latin *caespes* meaning tuft and *osa* meaning abundant, referring to the masses of small tufted flower heads.

This small tussock grass is quite variable in stalk colour from straw yellow to blue-green, 30-60 cm tall and 20-40 cm wide, with masses of oblong, hairy flower heads 3-8 cm long. The fertile florets are purple-green and those that set seed have an awn of 2-3 cm with 10 or more twists. The seed sets from October to February. A hardy, handsome grass that tolerates dry soils and full sun, it is relatively easy to propagate and trays of seed sown at the propagation unit are usually overflowing with seedlings. A very attractive coastal variant from Anglesea (also occurring at Frankston and South Gippsland) has blue-green foliage and is common at Soapy Rocks.

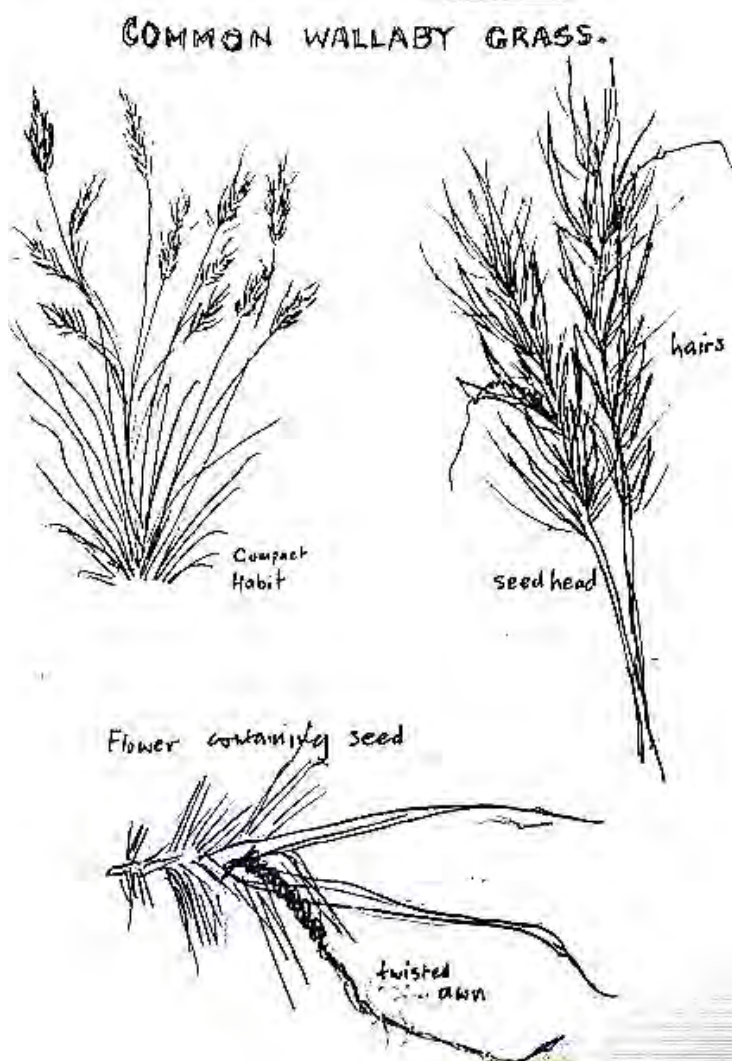
Bristly Wallaby Grass, *Rytidosperma setaceum*, is named from Latin *seta* meaning bristle, referring to the distinctive stiff bristle hairs on the small florets. This species also has narrow, hairless in-rolled leaves, stiff to the touch, to 20 cm long, and dense 40 cm stiff stalks with a display of silvery-purple seed heads, 3-8 cm long. The florets have long fine awns up to 2.5 cm and contain the seed. It flowers between October and January. A tough grass for tough conditions, it is a relatively new addition to our grasses for sale.

Kneed Wallaby Grass, *Rytidosperma geniculatum*, named from Latin *genus* meaning knee, referring to the species' distinctive stalks. It is a dainty, slender tufted grass to 25-30 cm tall with erect flower stems producing dense fluffy flower heads of a purple-green colour.

Several of the stalks are bent like a knee or elbow at a junction called a ligule (from Latin *ligula* meaning strap) on the stalk, giving the grass its characteristic name.

The fertile florets set seed that have a relatively small awn. It flowers from October to December and is very adaptable, growing in both moist and dry soils in full sun or semi-shade. A beautiful small grass and highly recommended, it could make a suitable drought-resistant lawn in the local coastal area.

References: Ellis Stones, 1971 *Australian Garden Design: Mid Century Gardens*, MacMillan.



Grass Flower Structure

Neville Millen

(With valuable notes from Carl Rayner)

Grass flowers, unlike most flowers, hide in plain sight. Yet their structure is very similar. The following notes and illustrations I hope will be instructive.

We see grass waving in the breeze on stalks. At the end of the stalks are the flower heads or *florets*, which are encased in tight *spikelets*. The spikelets are supported on the stalks by stiff bracts called *glumes*. Each floret, when ripe, opens and contains an *ovary* and *stamens*, supported by two long external *lemma* bracts and a shorter inner *palea* bract. In many species of grass the lemma lobes are covered in *hairs* or *bristles* to entangle pollinating insects and – despite flowers being self-fertilising – to collect external wind-blown pollen from neighbouring flowers. When an ovary is fertilised it sets a *seed* that sits snug against the palea and as the seed matures it grows a twisted *awn* that extends outwards, often beyond the lemma lobes.

The diagrams (r) show:

1. The typical flower head with multiple spikelets
2. The spikelet enlarged showing the glumes and the florets (up to nine for Wallaby Grass)
3. The floret enlarged showing the internal sexual parts and supporting lobes of the flower
4. A fertile floret showing rows of bristles on the lemma lobes and the contained seed with developed awn.

Reference for diagrams – Harry and Carol Rose, 2012, *Grasses of Coastal New South Wales* NSW Department of Primary Industry.

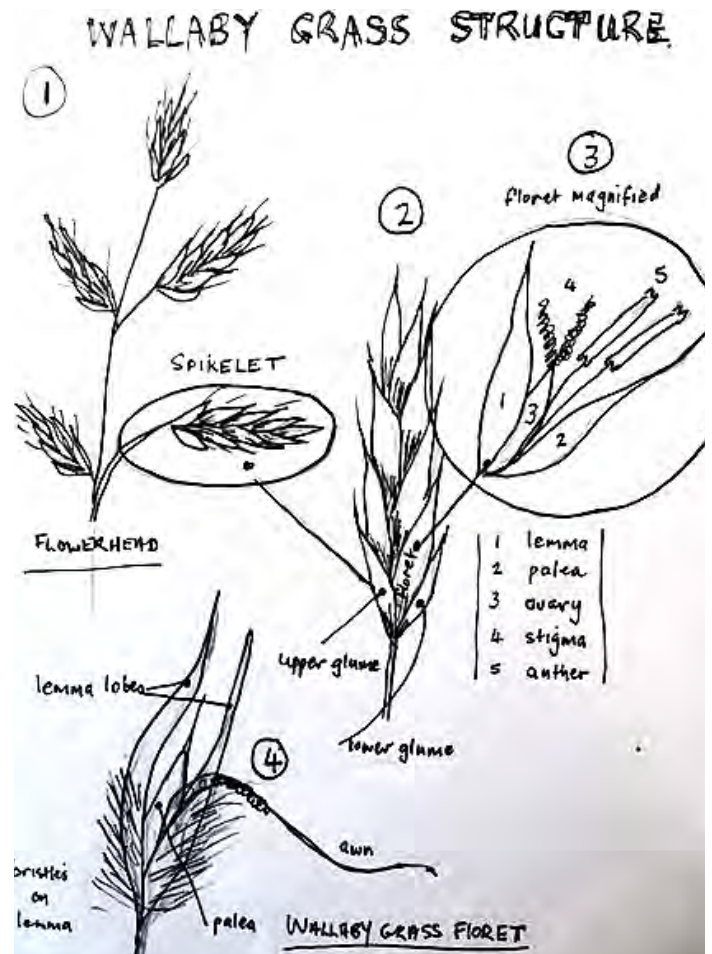


Illustration: Neville Millen



Kangaroo grass
(Image courtesy of Trees for Life)



Common Wallaby-grass
(Image courtesy of Agriculture Victoria)



Knead Wallaby-grass
(Image courtesy of A. Chapman I naturalist)

Distinguishing Our Local Parrot-peas

Gail Slykhuis. Images: Margaret MacDonald.

Each spring during our regular nature rambles, much discussion arises over the differences between our four local Parrot-pea species and which botanical features to look for when separating the species.

The following summary indicates particular botanical features to look for during your springtime Parrot-pea identification quest.

Step one is to distinguish Parrot-peas, *Dillwynia* species, from other members within the Pea family, Fabaceae.

All Parrot-peas will have these distinguishing features:

- The flower has a distinctive posterior petal known as a standard which is much broader than it is high.
- The leaves appear to be cylindrical with a noticeable groove along the upper surface.

Grey Parrot-pea, *Dillwynia cinerascens*

The first of the parrot-peas to flower in late winter or early spring, this widespread pea grows to approximately one metre high.

The linear leaves are grey-green, 3-30 mm in length, appearing crowded on the stem. The leaf tips are slightly recurved. The presence of soft hairs, closely pressed to the stem, add to the overall greyness of this plant as well as providing a useful identification feature: *cinerascens* – greyish, or becoming grey.

The orange and yellow flowers are found in clusters at the end of the stems and in the leaf axils, the posterior petal being noticeably broader than it is high.



Showy Parrot-pea, *Dillwynia sericea*

As the common name suggests, this is generally the brightest of our parrot-peas, flowering in spring and reaching approximately 90 cm in height.

The specific name, *sericea*, suggests the presence of silky long hairs and these may be present on the linear leaves but will be noticeable on the stems where they are particularly dense. A hand lens will enable you to see these hairs and clarify identification.

The showy flowers are arranged in pairs, creating a dense spike which may vary in colour from more commonly yellow or orange but red and apricot are also possible.

Unfortunately, flower colour is not a reliable tool when identifying the Showy Parrot-pea.

Red Parrot-pea, *Dillwynia hispida*

Growing to 60 cm, this is the smallest of our Parrot-pea plants, the beautiful red flowers appearing towards the middle of spring.

The specific name, *hispida*, refers to the stiff hairs covering the small leaves. These leaves are between 3-13 mm in length.

Although the stiff leaf hairs are useful for identification, the standout identification feature for the Red Parrot-pea is the flowers which are borne in clusters on wiry flower stems at the end of the branches. These flower stems may be up to 4 cm in length. The posterior petal (standard) is also obvious.



Smooth Parrot-pea displaying the typical identification characteristics of the *Dillwynia* species, broad posterior petal (standard) and cylindrical leaves, longitudinal groove not visible.

Smooth Parrot-pea, *Dillwynia glaberrima*

Flowering from mid-spring into early summer this graceful shrub can grow to a height of one metre.

The specific name, *glaberrima*, refers to the smooth, hairless nature of the leaves, stems and outer floral parts. The smooth leaf surface combined with the recurved leaf tip are useful identification features. Once again the use of a hand lens is most rewarding.

The yellow and red flowers are found in clusters towards the ends of stems or in the upper leaf axils, usually on flower stems up to 2 cm in length.



Step one is to distinguish Parrot-peas, *Dillwynia* species, from other members within the Pea family, Fabaceae.



References

- Mayfield Enid, 2013. *Flora of the Otway Plain & Ranges 2*, CSIRO Publishing, Collingwood Australia.
MacDonald Margaret, 2009. *Flowers of Anglesea and Aireys Inlet*, Inverted Logic, Melbourne.

Observations on Farm Biodiversity

Peter and Christine Forster

Christine and I moved to a family farm south of Ararat in 1982 in the middle of a severe drought. The farm environment was hostile with constant dust blowing off overgrazed paddocks. We knew that post-drought we had to better manage the farm to conserve soil and protect the sheep (sustainable farming) as well as creating a more biodiverse landscape.

The farm is situated on the Victorian Volcanic Plain and the original vegetation was native grasses, silver tussocks/rushes and a few redgums on Captains Creek. Years of farming had removed most of the native grasses and drainage works in low-lying areas – combined with rabbit damage and particular soil conditions – triggered massive gully erosion. Captains Creek which was once a discontinuous waterway became a very large actively-eroding gully (see photos below).

Our repair work started with creating narrow windbreaks for stock protection. Any tree was considered good as there were no local indigenous plant nurseries. We began propagating 3000 plants per year in large pots. We also moved to wider windbreaks (first 10 m, then 20 m), local native species only and we trialled direct seeding.

Three kilometres of creek frontage was progressively fenced to exclude stock and revegetated, starting at the upstream end as we had a kilometre of gorse to control at the downstream end. The fencing for stock exclusion had an immediate effect of reducing erosion on the gully sides and heads. Later stony rises were landclass fenced – landclass fencing refers to fencing farm areas based upon best or suitable use according to soil type, topography etc. – and grassy woodlands were created on these non-arable areas. Providing a mid-storey of acacias, bursarias and melaleucas along the creek has greatly increased bird life for small and medium-sized birds. Species such as Hedge Wattle provide safe refuge and nesting sites. They also provide habitat for ground dwelling reptiles and other species such as marsupial mice and Swamp Rats. When the creek has water the frog noise is almost deafening.



Wildlife responded quickly to the changing local environment. Swamp Rats proliferated in the long grass along the creek. We didn't know they were on the property! Swamp Wallabies moved into wind breaks and then the creek as landcare work continued. Kangaroos took up residence and are now numerous. They were a very rare and exciting event if seen on farmland in my youth.

Bird life has increased in diversity and population numbers. In 1982 the number of the most common bird species was 18 with some of them finding shelter in the old Red Gums on the creek. Today another 37 species plus 11 raptor species are resident, regular or occasional visitors (see lists below).

The lists don't end there. Less common to very rare sightings include one Spotted Nightjar, one Rufous Fantail, Golden-headed Cisticolas, Yellow-tufted Honeyeaters, Varied Sittellas, White-faced and Red-capped Robins and a Painted Button-quail. It is of interest that there are no Noisy Miners even though they are common on some nearby farms with Sugar Gum plantations.

Spring visitors can be regular and irregular: Rufous Whistlers, Brown and Rufous Songlarks, Horsfield's Bronze-Cuckoos and Singing Bushlarks are more regular visitors while the White-winged Trillers come irregularly.

When the creek is running we have observed Sacred Kingfishers, Yellow-billed Spoonbills, various egrets, herons and Night Herons. Flocks of Straw-necked and White Ibis often search the paddocks for grubs.

Occasionally we have a massive influx of Black-tailed Native-hens. Their movements are hard to predict but overnight they arrive in their hundreds, very likely to breed and then suddenly move on. Mixed species flocks of woodswallows are also likely to arrive in great numbers with a strong weather front in spring and sometimes stay on to nest along the creek.

Raptor diversity has increased over the years with 11 species observed including nesting Wedge-tailed Eagles (see list). The nocturnal hunters, Southern Boobooks and Barn Owls, are regular visitors.

Farm dams attract many duck species with Masked Lapwings and dotterels around the edge. Banded Plovers prefer cultivated paddocks and visit occasionally.

In summary, all farms can be managed to dramatically improve native biodiversity values (and carbon stores) sometimes with simple management changes like fencing wetlands and appropriately managing stock to allow breeding events to occur, protecting old paddock trees especially those with hollows, connecting remnant bits of vegetation with corridors of new vegetation, resting paddocks to allow grassbirds to breed and creating woodlots to sequester carbon and gain dryland salinity benefits by lowering water tables.

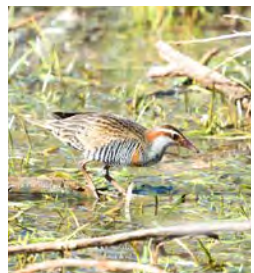


Birds found on the farm

Common bird species in 1982	Today's resident, regular or occasional visitors (not listed in article)	Today's raptor species (not listed in article)
<p>Australasian Pipit Brown Skylark Yellow-rumped Thornbill Australian Magpie Brown Falcon Australian Raven Long-billed Corella Stubble Quail Fairy Martin Welcome Swallow Galah Scarlet Robin Flame Robin White-fronted Chat White-plumed Honeyeater Eastern Rosella Red-rumped Parrot Willy Wagtail</p>	<p>Eastern Yellow Robin White-browed Babbler White-winged Chough Brown-headed Honeyeater White-plumed Honeyeater, New Holland Honeyeater Yellow-faced Honeyeater Black-chinned Honeyeater White-naped Honeyeater Singing Honeyeater Eastern Spinebill Red Wattlebird Silvereye Striated Thornbill Yellow Thornbill Superb Fairy-wren Buff-banded Rail Kookaburra Common Bronzewing Crested Pigeon Yellow-tailed Black Cockatoo Sulphur-crested Cockatoo Musk Lorikeet Purple-crowned Lorikeet Little Lorikeet Crimson Rosella Blue-winged Parrot Elegant Parrot Magpie-lark Grey Shrike-thrush Restless Flycatcher Jacky Winter Leaden Flycatcher Crested Shrike-tit Grey Fantails Black-faced Cuckoo-shrike</p>	<p>Collared Sparrowhawk Black-shouldered Kite Whistling Kite Black Kite Nankeen Kestrel Peregrine Falcon Black Falcon Australian Hobby Spotted Harrier Swamp Harrier</p>



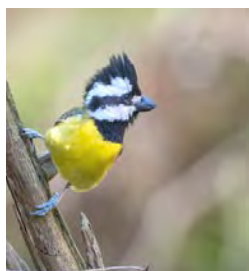
Eastern Spinebill
Image: Jordan Ayton



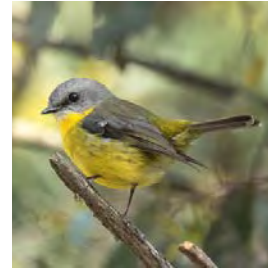
Buff-banded Rail
Image: Margaret Lacey



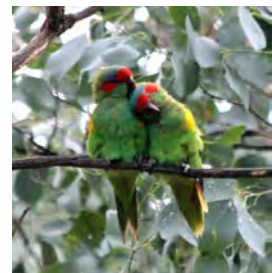
Scarlet Robin
Image: Margaret Lacey



Crested Shrike-tit
Image: Margaret Lacey



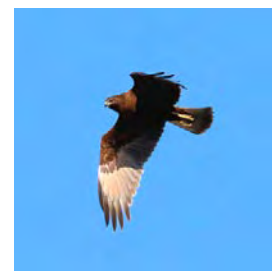
Eastern Yellow Robin
Image: Margaret Lacey



Purple-crowned Lorikeet
Image: John Lenagan



Grey Fantail
(Photo Margaret Lacey)



Swamp Harrier
Image: Jordan Ayton

Make Disa Disappear

Sally White.

The African Weed Orchid, *Disa bracteata*, is a native of South Africa which somehow hitched a ride to Western Australia back in 1944. It flew east, arriving in South Australia in 1988 and then on to Victoria's west where it was officially recognised at Bacchus Marsh in 1991. By the time it was discovered near Fraser Ave in Anglesea a few years later, many botanists regarded it as a 'naturalised alien' as it had been found in more than 50 localities in the state.



But people who love our indigenous flora think *Disa* is a weed that should be rooted out whenever it is found and destroyed.

Unfortunately, it is an unusually resilient orchid, having formed a relationship with a large number of fungi to help develop its prolific seeds. Estimates put the number of fine, dust-like seeds at 2.5 million per plant per year which means a breath of wind can disperse millions of potential plants. It appears to be self-pollinating so does not have to rely on specific insect pollinators. It also responds to disturbed and degraded habitat. All techniques for survival.

Images: Richard Hartland

Fortunately, *Disa* is also relatively easy to identify. It grows from a basal rosette of sharply pointed narrow leaves, dark green on top and purple-red on the underside. The 30-50 cm flower stem is thick and fleshy and covered with a tight spiral of up to 50 small pinkish-brown flowers with a yellow labellum. The first leaves appear in early spring and the flowers from October to early December.'

Try to get rid of *Disa* before the flowers mature. Dig up the entire plant – tubers, roots, leaves and flower stems – and seal tightly in a black plastic bag. There will be a plump tuber about the size of a 20-cent piece as well as possibly one or more withered specimens from the previous seasons. Put the bag in full sun to 'cook' for at least a week before putting it in the hard garbage.

If you haven't time or tools for digging, remove the whole flower head before the bottom row of flowers has withered. Bag and 'cook' as above. While this will not kill the plant, it will prevent seeding for a year – and that's possibly cutting off millions of undesirable aliens!



The Plant Hunters

Neville Millen

They came in tall ships to these wondrous shores,
Amidst salt spray, cut through the surf with oars.
Onto wild, foreign beaches, heading bravely inland,
Their mission to discover, collect what's at hand.

Flinders, Brown, Bauer and Good all with one aim,
To advance science, gain fortune and personal fame.
The Slender Velvet Bush now bears the name of Bauer,
Known for its shaggy habit and velvety-pink flower.

The solitary Brunonia, Blue Pincushion, named for Brown,
The most famous botanist throughout Old London-town.
Horticulturalist Good, found Goodia, Golden-tip,
Stored botanical booty on Investigator, flimsy ship

On their heels the French, La Perouse and Labillardiere,
The pursuit of New Holland flora no 'lay down misere'.
I walk beaches and explore tracks of the Otway Coast,
Thinking on brave collectors of whom their countrymen
boast.

Far from home on distant shores they did not only plod,
They strode many beaches, not one beach endlessly trod.
They scoured dunes, plains and hills for plants not known,
From discoveries recorded legends have grown.

I note collectors' names and reflect on their travails,
Salute those adventurers in ships with sails.



Lasiopetalum Baueri
Image: Ellinor Campbell



Brunonia Australis
Image: Ellinor Campbell



Goodia lotifolia (Golden-tip)
Image: Margaret MacDonald

Angair Camping Weekend

Date 21-23 October

Third time lucky or is it the fourth? We are inviting all interested Angair members to join us for a camping weekend away in the Southern Grampians on the fourth weekend in October.

We will be camping on a beautiful Red Gum property near Walker Swamp, owned by Andrew Taylor and Kylie Rose. There is room for some camper vans and trailers; however cars will need to be disconnected once unloaded and parked not far away on the road outside the property. There is plenty of room for tents and lots of accommodation in Dunkeld for those not interested in camping.

There will be a choice of two walks on Saturday, one easy and one moderate to challenging (Signal Peak). On Sunday, we hope to hear from the Glenelg Nature Trust about their rehabilitation of Walker Swamp, explore Andrew and Kylie's beautiful property and possibly help them out for an hour with some African Weed Orchid eradication. Tools will be provided.

The usual arrangements apply for campers: Bring a curry or casserole to share Friday night, meat for a barbecue on Saturday and a salad or sweet to share. We hope the non-campers will join us Saturday night for the barbecue. Contact Janet Stephens, 0417 325 971 or stephens.janet@gmail.com to register.



Angair (Anglesea, Aireys Inlet Society for the Preservation of Flora and Fauna) is dedicated to protecting 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 and the Gadubanud of the 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 respect to their elders past, present and future who continue to care for this place.

Next issue:

Our next issue will be published in December 2022 and will be the summer edition. We welcome any contributions of local, seasonal or general environmental interest. Send your contributions to angair.communication@gmail.com by mid-November and clearly label them 'for Angair Quarterly'.