GREEN ADELAIDE

Creature Features

Volume II

Government of South Australia

About this publication

Since 2013 Green Adelaide's Education team (previously called NRM Education) has produced a weekly digest distributed to teachers and other interested people subscribed to our email list. Most weeks we included a short creature feature that promoted a local plant, animal or fungus, usually connected to a season, environmental event or interesting date (for example Walk to School Day or Christmas).

Volume I is also available and it contains all the articles written up to the end of June 2020. This current volume brings together all of the articles written since July 2020.

As the articles were written to tie in with those seasons or events and they have been reproduced here with minimal edits, they may reference websites or other resources that are no longer available or to dates that have passed.

We hope you will find this resource useful and appreciate any comments. Visit our website for all contact details.

Contents

Creatures by Common Name

We do our best to check the toxicity of native plants featured in our Weekly Digest but please ensure you check the Department for Education Outdoor Learning Environments Standard for plants that are potentially poisonous, dangerous or that should be treated with caution, along with other references to determine if the plants are appropriate for your needs and conditions.

Insects, spiders, worms and other invertebrates

(L) Common Grass-blue and (R) Native Lilac, a great food source for this butterfly (Photos: Kelly Arbon & Jeremy Gramp)

The blue jewels of the garden

As you fossick around your garden, particularly on a warm spring day, you may notice butterflies flitting about your plants and flowers or basking in the sun. These butterflies will often be the ones easy to spot due to their showy patterns, colours and size. However, if you look a little closer you may discover an array of other species because the Adelaide region is home to a diversity of butterflies both large and small.

Butterflies from the Lycaenidae family are a great example. Although they are on the smaller end of the size spectrum, they come in vivid and iridescent hues of blue, green, purple and, in a few instances, intense oranges, reds and yellows. These butterflies are therefore aptly referred to as blues, coppers and even jewels. Many of the Australian blue butterflies form a symbiotic relationship with ants. The caterpillars of some species can secrete fluids from a honey gland which are then collected by ants for food. It is thought that these caterpillars receive some form of protection from having ants attend them; from predators or from potential parasites, including wasps.

The most common blue butterfly in the Adelaide region is the Common Grass-blue (*Zizina labradus labradus*). Being small, it is often overlooked but can be spotted in almost any open area or suburban garden, particularly in spring and summer. To help attract this butterfly to your garden you should include local native pea-flowering groundcovers and bushes and native grasses which serve as great caterpillar food and general habitat. In South Australia, many species of blue are under threat, primarily from habitat loss.

We can all take action in assisting with the long-term survival of these fascinating species by creating butterfly habitat. This could be simply by including the right sort of native food and habitat plants for both the caterpillars and butterflies in your garden.

References:

- Attracting Butterflies to your Garden - Butterfly Conservation South Australia
- Lycaenidae - CSIRO

A dragonfly resting with its wings extended and (inset) a damselfly with wings folded (Photos: Steve Walker)

The unfolding story of dragonflies

Dragonflies are flying insects that are found close to freshwater habitats. There are around 16 species found here in South Australia. They lay their eggs in or close to water and hatch about three weeks later. The juvenile or nymph stage lives in water and may last from several months up to several years depending on the species. Along with damselflies, they make up the order Odonata. Dragonflies and damselflies are in different families and can easily be differentiated. Adult dragonflies cannot tuck their wings back on their body and juveniles have internal gills, moving water over them using flaps on their body. Damselflies, however, can fold their wings and the juveniles have external gill appendages at the end of their body, which look like three paddles.

Dragonflies are ambush predators, with the adults catching and eating other insects including mosquitoes, while the juveniles eat other aquatic insects, tadpoles, and even small fish. Juvenile dragonflies catch their prey with an extendable ladle-shaped mouth structure called a labium.

Dragonflies can fly backwards as well as forwards and have been tracked at speeds of over 50km/h. The juveniles move using jet propulsion and have strong legs to cling onto underwater habitat.

This month features World Water Monitoring Day (18 Sept) and World Rivers Day (30 Sept). Aquatic invertebrates such as dragonflies can be used as biological indicators of water quality and waterway health. Whilst water chemistry is important to measure, it only gives us a snapshot of the quality at that moment in time. The aquatic invertebrate community, richness of species and abundance of individuals gives a broader look at the water quality over days or even months.

If you would like to find out more about dragonflies and other aquatic creatures in your local area, why not have a go at catching and observing them with your students? We have a range of identification charts and teacher resources online, or you can borrow equipment and other materials from our loan library.

Reference:

- Critter catalogue: a guide to the aquatic invertebrates of South Australian inland waters.

Common Spotted Ladybird (inserts: [L] eggs laid amongst an aphid colony, [R] a larva moulting) (Photos: Jeremy Gramp)

Is it a bird, bug or beetle?

One of the most well-known and appreciated insects to be found in our gardens is the lady bird...or are they lady bugs, or maybe even lady beetles? Common names sure can be confusing. The name that you use for these creatures will be influenced by where you are from. For example, in the US they are bugs, in the UK birds. The 'lady' part of their name is thought to be derived from the Virgin Mary, as outlined in this article. Although most people in Australia call them ladybirds, from a scientific perspective they are definitely beetles. Interestingly beetles make up 25% of all the known animal species on earth.

Beetles are relatively easy to distinguish from other types of insects because their first pair of wings, called forewings, are hardened and thickened to form wing cases. These serve as a shield to protect their second pair of wings, their delicate flying wings.

To slightly confuse things, there are also a few species of true bugs that have part of their forewing thickened, however the easy way to distinguish these is to look at their mouth parts. True bugs have a piercing mouthpart designed for sucking, while beetles have chewing mouthparts.

We are all familiar with the characteristic red/orange ladybird with black spots, however not all ladybirds are like this. It is thought that there are about 500 different species in Australia, most of which are brown. Some are even quite hairy.

Most species are predatory, they are best known for eating aphids, however they also target a broad range of other insects. As such they are brilliant pest controllers in our gardens and for the agricultural industry.

It is not just the adults that are predators, the larval stage also gets in on the act. As such many ladybird species lay their eggs directly amongst aphid or scale colonies. That way the emerging larvae, which are often described as looking like mini crocodiles, have a ready food source. As they grow, they need to moult, usually going through four larval stages, before they complete metamorphosis into the adult.

Now is the prime time for ladybirds, so have a look around your school or home garden and see how many types you can find.

Pale and blind, these creatures have never seen the light of day – (Photo: Dr Danny Tang)

These creatures are not Bore-ing

Stygofauna are aquatic organisms that are specifically adapted to and spend their entire lives underground. For example, in caves, bores, aquifers and groundwater. Historically, not much attention has been given to the ecosystems and life in groundwater environments as they were thought to be uninteresting. But scientists have now discovered that these environments are diverse and many of the creatures found in groundwater systems are endemic to those regions or individual caves, which makes the research into these creatures and the protection of groundwater systems very important.

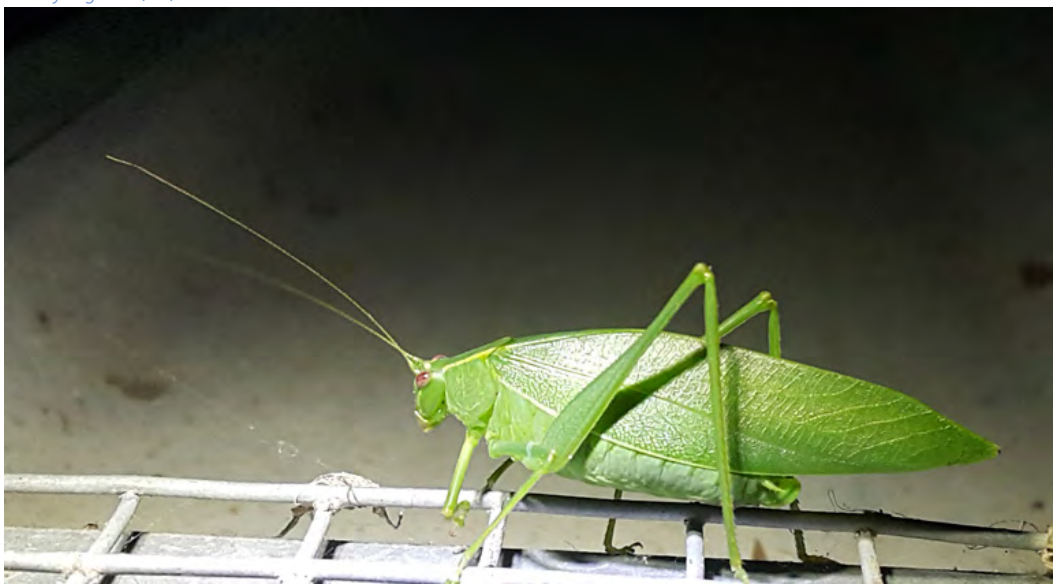
Stygofauna are typically small invertebrates, including crustaceans, beetles and worms, which are specially adapted to live in harsh conditions where there may be no light, no plants and sometimes low oxygen levels. Due to the low light, they are often very pale or translucent and usually blind. Stygofauna feed on plankton, bacteria and decaying plant matter that may filter down from ground level and are extremely energy efficient, which is an adaptation to their limited food supply.

Stygofauna are of interest because through research we are learning about the extent of their diversity and their importance in the ecosystem, which is not yet fully understood. Because many of the organisms are quite restricted in their distribution, with some having only been discovered in a single aquifer or cave, they are vulnerable to extinction. It is critical that this vulnerability is considered during environmental impact assessments, when applying for activities such as mining. Scientists collect stygofauna by lowering small cups into caves and groundwater bores, to sample the life that lives there.

If you would like to find out more about the aquatic invertebrates living above ground in your local area, why not have a go at catching and observing them with your students? We have a range of identification charts and teacher resources online, or you can borrow equipment and other materials from our loan library.

Reference:

- Subsurface groundwater ecosystems, Goonan, P et. al, EPA 2015



Common Garden Katydids closely resemble leaves (Photo: Steve Walker)

Who knows what Katydid?

Whilst on the face of it they may not appear anything special, Common Garden Katydids are extremely interesting insects. Closely related to locusts and grasshoppers, the katydid is a type of cricket in the family Tettigonioidea, which has evolved with an extreme camouflage, giving them a close resemblance to leaves. Their extremely long legs enable them to jump long distances, but they typically rely on their very effective camouflage and sluggish movements to avoid predators. Surprisingly, individuals in the nymph stages may be a brown, vibrant red-pink or bright yellow-green, which may seem at odds with the idea of blending in with their leafy surroundings, but can actually help when there are new shoots that are pink and brown on some plants.

The Common Garden Katydid is distributed throughout Australia and New Zealand and, as evident in its name, can be commonly found in foliage in our gardens. It occurs just about anywhere there are trees or shrubs, especially in well-established gardens and bushland. It is primarily a herbivore, feeding on young leaves, fruit, nectar, pollen, and flowers, but is also known to eat other insects, so it can be very beneficial in garden pest control. It is named katydid because many of them make a call that sounds like 'katy-did', although some call outside the range of human hearing. Weirdly, it has a set of 'eardrums' located in the front pair of legs, as well as additional eardrums along its thorax. Males attract females by rapidly rubbing a file that is on their left wing along a raised 'comb' on their right wing. Females lay large black eggs along the edges of leaves or branches. The eggs generally hatch in early summer.

Katydids have extremely long antenna, which often extended beyond the length of their bodies, so they are sometimes known as Long-horned Grasshoppers.

References:

- https://www.backyardbuddies.org.au/backyard-buddies/
- Zborowski, P. and Storey, R., 2003. A field guide to insects in Australia. 2nd ed. Chatswood, N.S.W.: New Holland Publishers.
- https://en.wikipedia.org/wiki/Caedicia_simplex

The Adelaide Firetail (Photo: © David Emery)

The Sounds of Summer

As we say goodbye to summer, we can hold onto the memories of those sweltering days, ice-cream in hand and the sound of buzzes and clicks filling the air. Some of these sounds belong to a group of insects called cicadas. Cicadas are described as the loudest insects in the world, with some reaching a deafening 120 decibels. The male cicadas often sing together to attract females and this clever chorus is also thought to deter predators by making individuals difficult to locate. Each species has its own distinctive call and is heard at different times during the summer months, with most diminishing by mid-February.

Over 200 species of cicada have been formally identified in Australia. However, scientists believe there could be up to 1,000. Species within the genus Yoyetta, commonly referred to as Firetails and Ambertails, are found within the Adelaide region. *Yoyetta aaede*, the Adelaide Firetail, can be found in the upper branches of eucalypt trees and has distinguishing orange colouration on the sides of its lower body, or tergum.

Their unusual life history is equally as unusual as their appearance. Many species lay their eggs in the bark of a tree and once the nymph cicadas hatch, they fall and tunnel themselves into the ground. It is here the cicada nymph will spend the majority of its life; several years depending on the species.

They are not hibernating below ground, but are quite actively feeding on plant roots. When the time is right, particularly after rain, they emerge to complete their lifecycle. This includes a moulting process which has described as a scene from a horror movie. The nymph freezes in place and then a split appears lengthways down its back from which a new head emerges before the cicada completely leaves its old nymphal skin behind. Click here for a short video.

They really are quite remarkable creatures that make up a part of our urban biodiversity and so much can be learnt from them; from sound engineering through to lifecycles and adaptations.

Be sure to check out Green Adelaide Education resources to discover different ways to learn in and from nature.

A common earthworm in the food garden at St Michaels College Beverley (Photo: Sam Ryan)

Global worming

Few people know that there are around 1000 species of earthworm native to Australia, in addition to another 80 species that have been introduced. Earthworms are famously associated with soil health, and well-known for their ability to improve the nutrient availability and structure of soil.

There is significant variety in Australian earthworms, with some reaching enormous sizes. A number of native species grow over 1m long, while some Karmai, also known as Giant Gippsland earthworms (*Megascolides australis*), have been recorded topping 3m.

Adelaide's native species of earthworms tend to be most abundant in undisturbed sites containing native vegetation, though some also appear in pasture and gardens. All earthworms prefer minimal soil disturbance and compaction, as well as moist soil with organic matter on the surface. In bushland this takes the form of leaf litter, and in garden situations can be various kinds of mulch.

The earthworm most people are familiar with is commonly found in compost piles or manure heaps. This is the Tiger Worm or Red Wriggler (*Eisenia fetida*) and is originally from the Northern Hemisphere. This worm is particularly well adapted to feasting on abundant organic matter, while another worm, the Common Earthworm (*Lumbricus terrestris*) is more likely to be found while digging or on the surface of the soil.

Regardless of the type of worm you find, they are some of the most important decomposers both in and outside of bins. See our factsheet for more information on setting up and maintaining a successful worm farm or compost bin.

Left: The metallic green thorax of a Homalictus bee. Right: Collecting pollen from a Wahlenbergia flower. (Photos Jeremy Gramp)

Two bee or not two bee?

Did you realise that Thursday last week was World Bee Day? It is not surprising if you didn't know, because it was only a few years ago that the United Nations declared 20 May as World Bee Day. The main purpose of the day is to spread awareness about the significance of bees and other pollinators. This gives us a perfect opportunity to highlight one group of local native bees - the Homalictus bees.

There are about 40 species of *Homalictus* bees living in Australia, occurring in every state and territory. Although they are relatively small, ranging from 5 - 8 mm in length, they are quite identifiable. That is because they come in an amazing array of colours, often a metallic green or blue with a dark brown abdomen. Other colours include coppery red through to gold.

They forage on a wide variety of native flowers, but focus on shallow flowers because they are a 'short-tongued bee'. They collect and carry pollen on soft and unusually long hairs under their abdomen, as well on their hind legs.

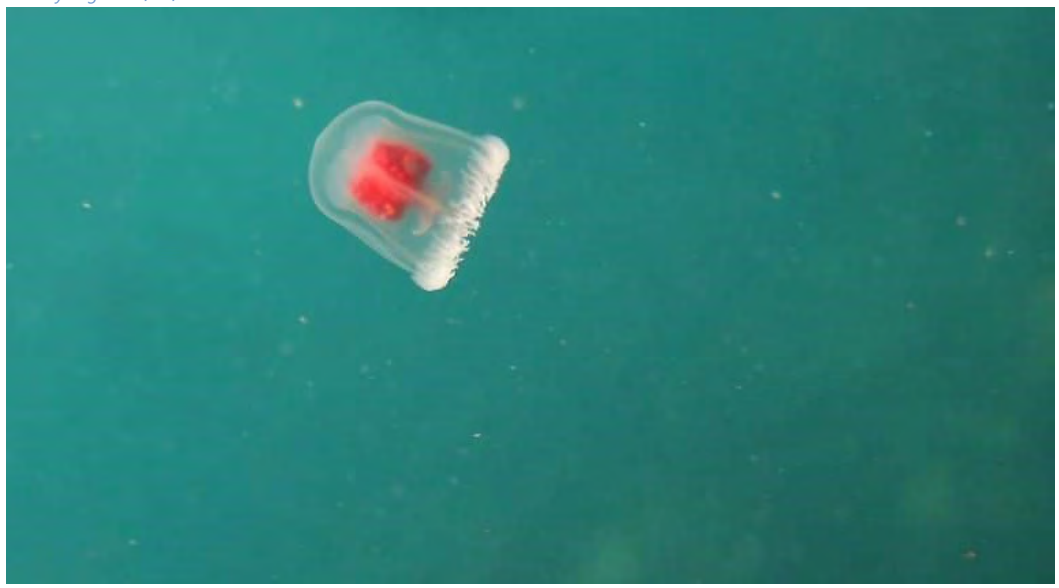
They are ground nesting bees, with females digging deep burrows using their jaws. Some species of *Homalictus* bees are solitary with each bee digging her own nest, whereas others are communal, sharing a single burrow where they lay their eggs. This behaviour should not to be confused with social bees, like the European Honey Bee, which has a single queen laying all of the eggs until she is too old to do so.

Coming into winter is of course not the ideal time to be searching for these native bees in your garden,but it is definitely a great time to be planting local native plants to provide food for them.

This document **provides a great source of information outlining relevant bee-attracting plants. As the weather eventually warms up make sure to get out in your garden to see if you can find any** *Homalictus* **bees.**

References:

- https://www.aussiebee.com.au/homalictus.html
- http://www.boic.org.au/files/Homalictus%20bee%20.pdf



Turritopsis spp. at Rapid Bay Jetty, South Australia (Photo: Alex Lea)

Forever young

The Immortal Jellyfish (*Turritopsis dohrnii*) is a tiny translucent jellyfish that is able to reverse its life cycle, transforming from an adult (a medusa) back into a polyp – like a butterfly turning back into a caterpillar! The process is called transdifferentiation and is extremely rare. In fact, their immortality was discovered over 100 years after they were first recorded by scientists.

If a medusa of this species is physically damaged, faces starvation or environmental stress, it shrinks in on itself by reabsorbing its tentacles, sinks to the seafloor and then develops into a new polyp. The new polyp is genetically identical to the original jellyfish and this life cycle reversal can be repeated, meaning these jellyfish may never die of old age. Of course, despite the ability to regenerate, it is not always possible to cheat death. Jellyfish are prey for other marine creatures such as fish and turtles, and polyps are preyed upon by sea slugs and crustaceans.

Adult medusas are bell-shaped, jelly-thin and their large stomach is bright red in colour. They are tiny, only about the size of the nail on your little finger, which makes it easy for them to spread through the oceans of the world via the ballast tanks of cargo ships or polyps attached to the hulls. Next time you're out for a snorkel, keep an eye out for these tiny incredible jellies.

Note: *Turritopsis* jellyfish can be found all over the world and differentiating between species is difficult. *Turritopsis rubra* is found in Australian waters but it is currently unclear whether this species is able to regenerate as observed in *T. dohrnii*.

If you're interested in our local coastal and marine environments and associated resources please click here and be sure to visit South Australia's marine and coastal website hub, The Rockpool.

References:

- https://www.abc.net.au/radionational/programs/greatmomentsinscience/the-strange-life-of-the-immortal-jellyfish-dr-karl-kruszelnicki/7666380
- Video of an Immortal Jellyfish at Rapid Bay, South Australia.

Australian Admirals (Photo: Jeremy Gramp) have caterpillars that feed on nettles (inset: Amy Blaylock)

Caterpillars admirably battle nettles or mimic them

Would you consider keeping a patch of nettles in your garden to support local butterflies?

The caterpillars of the Australian Admiral butterfly (*Vanessa itea*) rely on the soft parts of nettle plants for their food. Urban development, weed competition, and clearing of native vegetation around waterways and moist gullies means native nettles like *Urtica incisa* or Smooth-nettle (*Parietaria debilis*), are not commonly found around Adelaide now. Australian Admiral caterpillars are happy to eat the introduced Stinging Nettle of which there are reasonable populations in Adelaide.

Usually we like to avoid nettles, as their bristles can inject chemicals into our skin which results in a painful, burning sensation. Some caterpillars use the same adaptation to protect themselves, so look at but don't touch bristly or hairy-looking caterpillars on your wattles, gums, grasses and sennas. Several species of moth caterpillars also have urticating bristles that either inject venom or create mechanical irritation.

If you're interested in our local butterflies, you might like to download our butterfly identification chart. Our native plant identification chart can help you find species to add to your garden to support native butterflies and their caterpillars.

References:

- Butterfly Conservation SA
- eFlora of South Australia
- Department of Medical Entomology, University of Sydney
- Caterpillars, moths and their plants of southern Australia. 2019. Butterfly Conservation SA

A Two-tailed Spider waits patiently to catch its next meal (Photo: Steve Walker)

What has two tails and eight legs?

Difficult to see because of their bark-like camouflage, Two-tailed Spiders are small to medium-sized flat spiders which live on tree trunks. Fifty-five species, representing two genera, have been recorded throughout Australia. Another 150 or so species are known outside of Australia in the tropics and subtropics.

In reality they don't really have two tails, but their long spinnerets, the silk-spinning organs, may be as long as their abdomen so giving that illusion. Despite having these huge spinnerets, unlike most spiders they do not produce a large web. Instead, Two-tailed Spiders lay lines of thin thread across the bark. The spider then sits and waits, using its camouflage to hide in plain sight. When a thread is triggered by an insect or other prey item, the spider moves into action, rushing over and ambushing the unsuspecting prey, immobilising it with more silk. The spider is then free to feed on its meal when ready.

As well as the two 'tails', these spiders are characterised by particularly long sprawling legs, which give them the super speed to run across the tree trunks. Interestingly, their third pair of legs is much shorter than the others. What do you think the benefit of that particular adaptation might be?

Females grow to a maximum body size of about 2cm, with the males being a bit smaller (up to about 8mm body length). Of course, once you add in the legs and spinnerets their overall size increases significantly.

If you would like to see some of these incredible spiders in action, try visiting Tuttangga in the South Parklands (between Greenhill Road, Hutt Road, Fullarton Road and South Terrace). If you look very carefully, you should be able to see them hunting on the trunks of the Eucalypts, day or night.

The Western Dusky-blue is a small butterfly with a purple sheen on its wings (Photo: Rob Wallace)

Living with a Snotty-gobble parasite

The Western Dusky-blue, *Candalides hyacinthinus*, is a small butterfly with bright purple upper wings, edged with brown-grey and white. Underneath they are grey-brown and spotted with rings. The wingspan is up to 30 mm.

It lives mainly in eucalypt woodlands in the Mt Lofty Ranges around Adelaide where it is uncommon because the plant it relies on, Coarse Dodder-laurel, is usually removed by gardeners.

Coarse Dodder-laurel, *Cassytha melantha*, also known as Snotty-gobble, is a hemi-parasitic plant that gets nutrition from its host plant but also photosynthesises. Dodder-laurel doesn't have leaves so photosynthesis is through its green stems. It will strangle the host if fire isn't periodically used as a management tool in bushland, but killing the host does help open up the understorey to light. Dodder-laurel is spread by birds that eat the fruit and defecate the seed onto other plants. Western Dusky-blue caterpillars feed on the buds, flowers, fruits and soft stems of this plant.

One way you could help to provide suitable habitat for the butterfly is to collect seed of the Coarse Dodder-laurel and smear it on the stems of gum trees in your garden. You may have to remove the Coarse Dodder-laurel by pulling it off the host plant from time to time, so it doesn't suffocate it.

References:

- Museums Victoria
- Attracting Butterflies to your Garden

Check your pond samples for leaves and sticks that walk; they might contain caddisfly larvae (Photo: Bob Henricks)

Making a case for caddisfly

Caddisflies (*Tricoptera*) make up a diverse group of insects with terrestrial adults that fly and a larval stage that lives in freshwater. Nine families are found in South Australia. The diets of caddisfly larvae vary; some individuals scrape algae off rocks and others are predators which eat other invertebrates. They are commonly found in both flowing streams and temporary pools and are large enough to see without a microscope; varying in size between 1.5mm and 4mm.

Caddisfly larvae crawl along the bottom of a water body they are living in as they are not great swimmers. Several families construct elaborate cases to protect themselves from predators. The cases are made from silk produced from a gland next to their mouthparts and then covered and reinforced with various materials including sand, small twigs and bits of leaves.

Caddisfly larvae breathe through gills along their abdomens. Larvae that live in cases wriggle their bodies inside the case to draw oxygenated water in around them and over the gills. In water with low oxygen content, they must do a lot of wriggling.

When looking for invertebrates in your local pond or stream, carefully look for moving sticks and leaves to check if there are caddisfly larvae.

To find out more about local aquatic invertebrates, check out our aquatic macroinvertebrates identification chart.

References:

- Critter catalogue
- www.mdfrc.org.au/bugguide/display.asp?type=3&class=17&subclass=&Order=8&couplet=0
- www.researchgate.net/publication/271834854_Identification_keys_to_Australian_Families_and_Genera_of_caddis-fly_larvae_Trichoptera

The distinctive markings which give rise to its common name (Photo: Jeremy Gramp)

Check your toilet for spider friends…

Spring is often a time we like to embrace the environment by heading out for a nature walk or by working outside in the garden. On your outdoor adventures you are likely to see many small creatures also being active. One of these could be the Redback Spider (*Latrodectus hasselti*).

Redback Spiders can often be found in dry, sheltered places, such as garden sheds, garages, under logs, in junk-piles or even under toilet seats. November 19 is the United Nations World Toilet Day, so this is your reminder to check around your toilet for any spider friends that you may not want to share the seat with.

If you do see a Redback Spider, it is most likely to be a female. They are usually about 1cm long (approximately 2.5 times the body length of the male) and the red stripes on their backs are a lot bigger and brighter than those on males. After mating, the female can store sperm and use it over several batches of eggs for up to two years. Another difference between the male and female Redback Spiders is that the males do not produce a web. Instead, they wait for prey on the edge of the female's web. Redback Spider webs can capture insects and even small lizards. Large females have also been known to steal prey from other spiders' webs.

If you are bitten by a female Redback, be sure to seek medical help right away as the bite can cause illness or, very rarely, death. The good news is that antivenom can be administered and, because they have small jaws, the bite is often ineffective. Common symptoms of the venom are sweating, nausea, weakness and pain. There have been no reported deaths since the antivenom was released.

To find out more about another creature with many legs, check out our Ant identification chart.

References:

- https://www.australiangeographic.com.au/topics/wildlife/2012/08/australian-spiders-the-10-most-dangerous/
- https://australian.museum/learn/animals/spiders/redback-spider/

The unusual Mole Cricket (Photo: Jeremy Gramp)

Should you dig in? It's just not cricket.

Next Sunday is the United Nations World Soil Day. It is held annually on 5 December as a means to focus attention on the importance of healthy soil and to advocate for the sustainable management of soil resources.

There are many creatures in our local environment that help to improve the health of our soils, one such animal is the Mole Cricket. There are in fact a few different species of Mole Cricket that can be found in Adelaide, some are local natives while others are introduced from overseas. All of them however do an excellent job of aerating our soils.

Mole Crickets are strange-looking animals, often described as being built from the parts of a number of other animals. They have large shovel-like fore legs, beady eyes and a soft abdomen that looks very similar to the 'normal' crickets that most people are familiar with. Mole Crickets are brown in colour and can grow to about 5cm in length.

They use their strong fore legs to construct tunnels, spending most of the time underground. Although you may not have seen a Mole Cricket you will most likely have heard one. On wet nights the characteristic cricket sounds that you hear, especially at dusk, are Mole Crickets. If you stomp on the ground the chirping stops.

Although both the males and females call, it is the males that make the incredibly loud sound hoping to attract females. They rub their fore wings together to make the noise, using their tunnels to amplify their calls. They do this by sitting in the entrance of their burrow with their head poking inwards and sticking their abdomen out.

They are most active during the summer months, so the next time you are out at dusk have a listen for the Mole Crickets in your area.

A Jewel Spider constructs its web to catch a meal (Photo: Steve Walker)

Christmas jewels

The Australian Jewel Spider (*Austracantha minax*) is a perfectly named orb-weaving spider that is mostly encountered in summer months and therefore sometimes known as the Christmas Spider. It is the only species in the genus *Austracantha*, which is derived from Latin words meaning 'southern thorn'. The species name *minax* means 'projecting', so its scientific name describes the six spines projecting from its abdomen.

They are small spiders, with the larger females only growing to about 12mm, but their distinctive shiny black, white, yellow and orange bodies make them easy to identify, and give them the appearance of jewels decorating the shrubs and trees in which they construct their webs.

Jewel Spiders have some interesting web-building behaviours: They are social spiders, frequently building communal webs that lace together and blanket the vegetation. Unlike many spiders, the Jewel Spider does not deconstruct the web each day and it spends most of its time sitting on the web rather than retreating into a hide off to one side. The spider also adds white silk tufts along the web and support lines, which may help to increase the visibility of the web to larger animals and prevent them accidentally colliding with and damaging the web. Other than these tufts, the web is almost invisible.

Why are they seen predominantly near Christmas and not at other times of the year? Jewel Spiders have a short lifespan. Once reaching adulthood they only live a few months. However, the spiderlings spend the winter inside egg sacs, which the females attach to vegetation near the web, emerging in autumn. They are smaller and less colourful than the adults but will eventually undertake the final moult into adulthood during spring.

As we're approaching Christmas, why not see if you can find any of these little jewels in your garden?

Adult Ant Lion Lacewing on Keeled Hakea (Hakea carinata) (Photo: Rob Wallace)

A lion that wears lace

Unknown to many of us there are strange creatures living at the bottom of mini volcanoes in our gardens, parks and local bushland. These insects are Ant Lion Lacewings.

Their larvae, known as Ant Lions, build conical traps in the soil in sheltered, dry places in crumbly, loose soil that often has a sandy texture. They feed on prey that falls to the bottom of the trap where the buried Ant Lion is waiting for its meal. When the prey falls in, the loose sandy sides of the trap prevent it from escaping. The Ant Lion larvae also flick sand at the struggling prey, which includes ants, spiders and other small invertebrates. Most Ant Lions have tubular mouth parts to suck the body fluids out of their prey. The larvae have an oval or disc shaped abdomen. Many have two large spiked pincers at the front for grabbing prey.

Ant Lion Lacewings are part of an ancient and diverse order of insects called Neuroptera. The wingless Ant Lion larvae are ugly ducklings in comparison to their attractive winged adult Lacewing form which is not unlike a dragonfly to look at.

Most adult Lacewings are carnivorous, but some feed on plants or nectar. They are nocturnal.

Lacewings lay their eggs on vegetation or in sand. The eggs are stalked and either laid singly or in groups. Some are patterned. Many Lacewings emit a smell when handled which is probably a defensive mechanism.

Next time you go down to the bottom of your garden keep an eye out for little volcanoes and the myriad of other invertebrates we have in the Green Adelaide area.

To find out more about other local invertebrate species, check out our resources on the Green Adelaide website.

References:

- Smith, J. 2016. Wildlife of Greater Adelaide. Axiom
- Australian Museum: Lacewings and Antlions: Order Neuroptera

Fiddler Beetle (Photo: Sophie Rogers)

A not-so-musical fiddler

This 2 to 2.5cm long 'bug', *Chlorobapta frontalis*, is famously called the Fiddler Beetle because the distinct markings on its back resemble f-holes on a violin. It is a beautiful beetle, being black with vivid aqua, green and yellow markings. In the photo you can also see that their hind legs have spines along them.

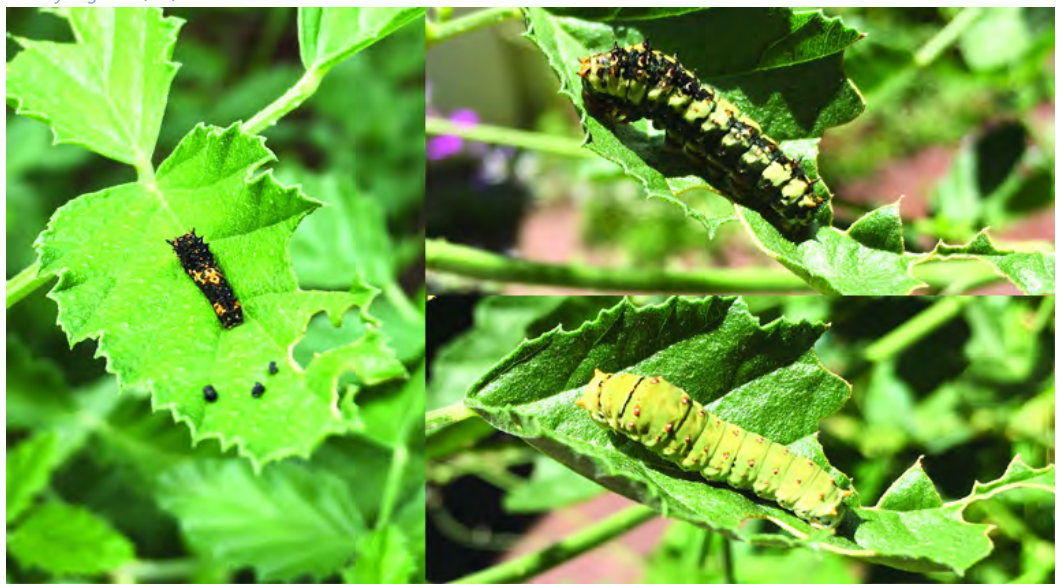
These beetles can be found in open forests, woodlands, golf courses, urban parks and gardens in Australia, but are less common in Adelaide, so it's a real treat when you find one. They are also known as Scarabs or flower chafers, of which there are many species with flattened bodies.

The adults emerge from the soil in early summer to feed on nectar and pollen. This means that they are a pollinator and help spread pollen from flower to flower.

Female Fiddler Beetles lay their eggs in hollow Eucalypts where the larvae hatch and grow. Once the eggs hatch, the larvae feed on dead and decaying wood.

Reference:

- Smith, J. 2016. Wildlife of Greater Adelaide. Axiom



Growing, growing, gone - three stages of the Chequered Swallowtail butterfly (Photos: Amy Blaylock)

Now you see me, now you don't

A large black and cream butterfly floated past my kitchen window onto the scurf pea bush (*Cullen australasicum*). It settled on a leaf for a few seconds, then moved onto the next, and the next, and then it was gone.

As the biggest butterfly I'd ever seen in my garden, I hopped online and identified it as a Chequered Swallowtail (*Papilio demoleus*), wingspan to 75mm, whose caterpillars feed on *Cullen*.

The next day I went out and checked where it had landed and found a pale egg about 1mm in diameter on the underside of each leaf it had visited. A few days later I noticed tiny black and yellow caterpillars busily feeding. These steadily grew larger but remained in plain sight, their colour a warning of toxicity or a clever mimic of bird poo.

Just over a week later I took the top right photo of one sitting on a leaf. Imagine my surprise when I walked past the bush that afternoon and found it had changed colour to a light green! This marked the transformation from the fourth to the fifth instar or stage.

The next day I couldn't find it all; it had likely moved elsewhere on the plant to form its chrysalis, green and ingeniously leaf-shaped. In a few weeks or even months, it will emerge as an adult and seek out more scurf peas, either here in Adelaide or further north.

To identify some common butterfly species in your garden, check out our Butterflies of the Adelaide region identification chart or find a plant that's perfect for their caterpillars in this Adelaide garden guide.

References:

- Butterfly Conservation SA - Butterfly Identification Chart no. 3
- Butterfly Conservation SA – Chequered Swallowtail
- Coffs Harbour Butterfly House

Orange Potter Wasps on a Twiggy Daisy Bush during mating season (Photo: Amy Blaylock)

Calm potter is a calculated caterpillar killer

Imagine you're a caterpillar, feeding away on a leaf, when suddenly you're grabbed by an Orange Potter Wasp (*Delta latreillei*). Injected with paralysing venom, you're flown to a nest carefully constructed under the eaves of a house. All around you lie other motionless caterpillars. The female wasp lays eggs in amongst you, then seals the nest shut with fresh mud. In the darkness, as the eggs develop into larvae, you know the worst is yet to come. While this everyday event is a horror story for hapless caterpillars, Orange Potter Wasps are not aggressive to humans, and females will only use their sting if they are handled.

Their foraging of caterpillars reduces the pressure on our favourite garden plants without the use of pesticides, and we're not the only ones who can benefit. A study published by Matthews and Matthews in 2018 tracked 12 nests in the Northern Territory and found that chrysidid wasps sneak into the open nest and lay their own eggs while the female is out foraging. Luckily the Orange Potter female does regular inspections before sealing up the nest, giving her the chance to destroy intruder eggs and larvae, and replace escaped prey that were not fully paralysed. These large orange and black wasps with their skinny 'waists' are common around Australia and are solitary except during the mating season. They are great pollinators because they feed on nectar and pollen in our gardens and forests, so please don't destroy their nests.

If you're interested in the diversity of pollinators of our native orchids (including wasps), check out our Native Orchids of the Adelaide Hills ID chart.

References:

- Orange-tailed Potter Wasp - iNaturalist Australia
- Great photos of a potter wasp larder - Ausemade
- Nesting biology of an Australian potter wasp - Researchgate
- Mud Wasps - Backyard Buddies
- Slender mud-dauber wasps - Western Australian Museum

The Southern Blue Ringed Octopus will show its true colours when disturbed (Photo: Alex Lea)

Tiny but oh so deadly!

The Southern Blue Ringed Octopus (*Hapalochlaena maculosa*) is small compared to other octopuses but is the largest of the four known Blue Ringed Octopus species.

At just 20 cm from arm to arm, and usually a dull yellow brown colour, they hide away easily on the bottom of our oceans. They typically hide under rocks and in crevices along our rocky reefs, including in rock pools.

Blue Ringed Octopuses are typically very passive and would rather hide and escape undetected if disturbed. However, when provoked they will flash iridescent blue rings across their body. An octopus typically has 60 rings.

These octopuses eat lobsters, crabs, small shellfish such as prawns, and sometimes small fish. They kill their prey using a very toxic venom. They can inject their venom through their beaks which paralyse their prey and often kill it. They can also spray their venom into the water, which will immobilise the prey as it swims through the venom. The octopus then catches the prey to eat it.

Blue Ringed Octopus venom is fatal to humans and there is no known antivenom. Most people are bitten by a Blue Ringed Octopus after standing on them by mistake in shallow water. These octopuses will only bite if threatened, so if you see one when looking in rockpools, wish the octopus a 'Good Day" and leave it well alone.

If you're interested in our marine environment, you might like to look at The Rockpool, a hub of marine resources, or download our Beachcombing ID chart for the next time you are at the beach.

References:

- https://en.wikipedia.org/wiki/Southern_blue-ringed_octopus
- https://reeflifesurvey.com/species/hapalochlaena-maculosa/

Chequered Copper butterfly and (inset) it's host plant, the Native Sorrel (Photos: John Slaney/Brent Miller)

A rare butterfly's relationship with ants

If you see a butterfly that has orange in the centre with dark brown borders or you catch a glimpse of the whitish underside of some wings with small brown and orange spots, you may have spotted a species of the Lycaenidae family. The Chequered Copper butterfly (*Lucia limbaria*) resides in urban Adelaide, the Mt Lofty, Flinders Ranges and Southeast Regions. It's preferred habitat of open grasslands is under threat due to introduced grass species and land clearing, so this butterfly has become rare.

Though small, with a wingspan of just 2.5cm, the Chequered Copper lays 2 to 20 eggs on the leafy underside of the Native Sorrel (*Oxalis perennans*) hostplant. This plant has been specifically chosen by the butterfly as it provides food for the caterpillar, which hatches in 13 days.

The tiny 3mm caterpillar is immediately found by ants (small black *Iridomyrmex*) and taken to live in their nest. Protecting the Chequered Copper caterpillar is important to the ants because they feed from the caterpillar's nectary glands. The ants herd the caterpillars from the nest and push and pull them onto the upper parts of the stems of the Native Sorrel with more foliage. If the caterpillar gets tangled in a web, the ants will free it. In return, the ants are rewarded with a supply of honey dew which they collect from the rear of the caterpillar.

You can help this threatened butterfly species by growing a patch of Native Sorrel in your garden. Planting native grasses with open spaces around the plants will encourage ants to your patch. Here are 6 steps to make your garden butterfly-friendly. If you're interested in our local native butterflies, you might like to download our Butterfly ID Chart.

Reference:

- Attracting Butterflies To Your Garden | Butterfly Conservation SA Inc
- https://www.flickr.com/photos/52748818@N07/5135320426/
- https://www.flickr.com/photos/foliosus/5129254007

An assortment of Adelaide spider burrow entrances (Photos: Amy Blaylock)

Digging the underground scene

If you take a wander around Adelaide's forests, grasslands or urban gardens, you're likely to have stepped on and over spider burrows. You might have noticed small holes in the ground which on closer inspection are silk-lined burrows, with or without leaves, twigs and grass stems woven into the entrance. It is likely you missed those with a trapdoor, which camouflages the burrow and it's resident spider. Burrow-building spiders around Adelaide include wolf spiders, mouse spiders and the group of spiders known as trapdoor spiders.

All burrow types provide protection to spiders and their eggs from weather events and predators, such as birds, reptiles, bandicoots, insects and other spiders. For wolf spiders they are a daytime shelter which they leave at night to go hunting, whereas trapdoors and some mouse spiders will ambush their prey from within their burrow.

Spider burrows are elaborate constructions that can include side chambers, escape tunnels and blocking devices. With burrows reaching up to half a metre deep, and spiders needing to widen their burrows and trapdoors as they grow, the work is never ending! But a 2011 American study of wolf spiders meticulously calculated the energy cost of building a burrow and found the benefits of having a burrow far outweigh the effort.

Next time you go for a walk, take the opportunity to look down and wonder at the engineering feats that lie beneath our feet.

References:

- https://australian.museum/learn/animals/spiders/
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3281395/

A Sand Wasp in an area with soil suitable for digging a nest (Photo: Rob Wallace)

A wasp that wouldn't hurt a fly, or would it?

If you are on a track or in a sandy or gravelly area and see several insects flying low and buzzing around an area on the ground, there's a fair chance they could be Sand Wasps. Sand Wasps (*Bembix* species) are common throughout Australia in urban areas, woodlands, heath and forests. They are a medium-sized wasp with black and yellow on their thorax and black and white wavy or broken striping on their abdomen. Their legs are yellow with darker colouring at the joints.

Sand Wasps feed on flower nectar but catch flies on the wing, which they paralyse with their venom mid-air and take back to their nest as food for their hatching larvae, which are meat eaters. The females use their legs, which have spines on, to dig a shallow hole as a nest where they lay their eggs and store the paralysed flies for the hatching larvae.

While flying they make a buzzing noise not unlike a fly. They are solitary, but females excavate their burrows near each other in suitable soil for burrowing, making a loose colony. This attracts parasitizing flies and wasps, but sometimes the Sand Wasps prey on these parasites.

Their sting is painful; however, they rarely sting people unless their nest is disturbed.

To find out more about other local invertebrate species, check out our resources at https://www.greenadelaide.sa.gov.au/get-involved/for-teachers/teacher-resources

References:

- https://australian.museum/learn/animals/insects/sand-wasps/
- https://www.jungledragon.com/specie/22521/yellow_sand_wasp.html

Saint Vincent's Nudibranch: a local example of the extraordinary adaptations of sea slugs (Photo: Vivien Matson-Larkin)

Naked, super-powered sea slugs

Named for the visibility of their organs outside of their bodies, nudibranchs (naked sea slugs) also display an array of colours and patterns. As if surviving with external lungs and stomachs is not already amazing enough, they can also absorb the defensive stings of sea anemones and the solar-powers of algae. Some sea slugs can even drop their own bodies and survive just as a head! No doubt, they would be an awesome aquatic comic book hero with these evolved superpowers. Pictured above, the Saint Vincent's nudibranch (*Hypselodoris saintvincentia*) is found in the rocky reefs of Port Noarlunga and nearby areas. In the Dorid group, these nudibranchs are well known for their colours, and the retractable and colourful cluster of feathery gills on their backs. Loved by divers, you can understand why nudibranchs are referred to as the butterflies of the ocean. The Aeolids, cousins to the Dorids, carry tentacle-like structures on their backs called cerata. Cerata act as a lung stomach from which they both breathe and digest food. When they eat things with stinging cells, like anemones, they will transport these cells into their cerata to use defensively, like swinging stinging swords. The Sacoglossan group of sea slugs has the means to harness the power of plants. They harvest the chloroplast cells in algae to photosynthesise and can go a long time without eating. This is known as kleptoplasty. If this wasn't bizarre enough, how about the fact they can drop their bodies in a defensive move like a lizard dropping its tail? This was first observed in a Japanese lab in 2021. How does the head survive without essential organs such as the heart, lung or stomach? The theory is that these sap-sucking body-dropping slugs have the energy to regrow because of their kleptoplasty superpower. Nudibranchs' bizarre, alien-like adaptations are considered responses to the dynamic, harsh world underwater. Sea slugs can be found in inter-tidal zones as well as deep in the ocean and their short life-span and specific food requirements also makes them great bio-indicators. They're being studied to monitor the influence of human impacts, including climate change. Which of these amazing super-powered sea slugs can be found in our coastal waters?

To look at some jaw-dropping pictures and to get involved in contributing to the science on sea slugs visit Sea slugs of South Australia and Sea Slug Census.

Reference: Sea slugs of the Port River South Australia

Colonial ascidians underwater and as you may see them washed up on the beach (Photos: Alex Lea and Jeremy Gramp)

A colony that siphons together stays together

If you are walking along the beach, you may find these creatures washed up on a high tide or after a storm. Colonial Ascidians, are also known as 'sea squirts' due to them expelling water from their siphons when removed from the water. With their texture and holes, they look a bit like a sponge, but these marine invertebrates are individual creatures that live together in one jelly-like mass. Individuals are called Zooids and they grow physically attached together. They can be found living encrusted on rocks, sea grass, kelp and on structures such as jetty pylons. Colonial ascidians grow at faster rates than solitary ascidians and can keep growing if part of them is eaten by a predator, meaning they can keep covering a large area.

Ascidians typically have a tough outer casing that may feel leathery to touch; they can be many different colours including purple, yellow, orange and pink. Some of them are even transparent. Colonial ascidians often have attractive daisy chain like patterns across their surface and around the many siphon holes in the surface.

Ascidians are filter feeders that move water through their bodies between two siphons catching plankton in small projections (cilia). They reproduce by broadcasting larvae into the water column that then find suitable substrates to settle on and anchor to.

Scientists find sea squirts fascinating to study because they have the most basic form of a nervous system and show an evolutionary step towards developing a central nervous system. In fact, despite being classed as invertebrates because they have no backbone, they are part of the phylum Chordata, which includes vertebrates such as birds, reptiles and mammals.

Have a look next time you are walking along the beach for washed up sea squirts. Ascidians and other common items found along our beaches can be found on our Beachcombing chart. Find the beachcombing and other ID charts on the Green Adelaide website.

Green Lacewings have exceptionally long antennae (Photo: Jeremy Gramp)

On lacewing and a preyer

The Green Lacewing (*Mallada signatus*) is a flying insect with long antennae and prominent eyes found in most parts of Australia, including our urban backyards across Adelaide. They have two pairs of delicate transparent lace-like wings, much longer than their body. Green Lacewings feed on honeydew, nectar and pollen. They tend to be more active at night than the Brown Lacewing, which is active during the day.

Green Lacewings only live for about four weeks. They lay white, globular eggs that are suspended on silk stalks for protection. After hatching, the larvae undergo three moults over a fortnight before pupating inside a silken cocoon. Adults emerge nine days later and will start laying eggs after seven days.

Green Lacewing larvae have large piercing mandibles for capturing prey. These useful predators feast on common garden pests including mites, caterpillars, aphids and thrips. They are sometimes called 'junk bugs' because they impale the carcasses of their deceased prey on small spines on their back for camouflage.

Local research has discovered that Green Lacewings are commonly found on Christmas Bush, Prickly Tea-tree and Wallaby Grass during spring and summer. Some wine and food producers are increasingly using these plants to attract and support healthy populations of lacewings to protect their crops from common pests.

Do you have a home or school food garden? Why not experiment with these native plants to increase your beneficial bug workforce?

References:

- https://australian.museum/learn/animals/insects/lacewings-and-antlions-order-neuroptera/
- https://cdn.environment.sa.gov.au/landscape/docs/hf/96554-LSA-HF-Key-predator-of-vineyard-pests-document-FIN-V3-web.pdf
- https://pir.sa.gov.au/research/services/reports_and_newsletters/pestfacts_newsletter/pestfacts_map

Garden Orb-weaver in its web at night (Photo: Rob Wallace)

Night Weaving

Garden Orb-weaving spiders, also known as Orb-weavers, are a large group of spiders with over a hundred species in Australia. The Australian Garden Orb-weaver (*Eriophora transmarina*) is one of the most common species of Orb-weavers in Australia. It is found commonly throughout southern and eastern Australia and less commonly in northern and central Australia.

It is a spider with a large abdomen and varies in shape, size and colour from off white through to black, with or without striping on the legs. The body and legs are covered in scattered hairs. The male is 15 to 17 mm in length and the female, 20 to 25 mm.

Garden Orb-weavers spin their wheel-shaped web at night, in an open area between and attached to trees or shrubs to trap flying insects. They hang upside down in the centre of the web waiting for prey, which they sense through vibrations in the web. The Garden Orb-weaver quickly runs to cover its prey in silken thread with its shorter middle legs, before biting and injecting its deadly venom. Once the insect has died the Garden Orb-weaver takes it back to the centre of the web to devour. They dismantle their webs each morning. If a spider is disturbed it will drop to the ground and play dead. Their main predators are honeyeaters.

Females lay eggs in summer through to autumn. Young spiderlings hatch out from autumn on and disperse by ballooning out of trees and bushes in the breeze.

While the Garden Orb-weaver's poison is deadly to insects, it rarely bites humans and the venom usually causes little or no pain. Occasionally it can cause swelling, numbness and other issues. If this happens see a doctor.

References:

- Garden Orb-weaving Spiders: Australian Museum
- Australian garden orb weaver spider: Wikipedia

A Blue-banded Bee enters its burrow (Photo: Jenny Thynne)

Wasp the problem? Don't bee afraid!

It's common for children and adults alike to be a little apprehensive about finding a bee or wasp nest in their backyard or school grounds, but what many people don't realise is that our native bees and wasps are much less likely to sting than their European counterparts. In fact, they are vital to the health of our natural environment. That's why we should all be encouraging these important pollinators, rather than trying to get rid of them. We have around 2000 species of native bee in Australia and most of them are solitary; meaning they live and travel alone and the females often leave once their eggs are laid, so their offspring have to fend for themselves. Some species lay their eggs in the holes in tree branches or trunks made by borer insects. The bees use resin from the tree to seal the eggs in so they are protected against natural predators. These are the species you can attract by creating a bee hotel. Check out the Green Adelaide website to find out how.

However, up to 70% of native bees (and many species of wasp) actually nest in burrows in the ground. They need some open soil and will drill into the earth to create protective tunnels underground. They create a series of cells at the bottom of the burrow, then deposit a ball of pollen mixed with a small amount of nectar before laying their eggs. When the young bees hatch, they feed on the pollen ball before digging their way out of the burrow and getting ready to mate and lay their own eggs the following spring. Each species has different nesting habits, with some nesting together in groups of a dozen or more; while others are solitary with the females inhabiting a burrow all to themselves. Likewise, the depth of burrows ranges from a few centimetres to over a metre. Often there will be a noticeable cone or mound of earth above the nest, but sometimes they will be harder to spot and simply consist of a series of small holes in the ground. So next time you notice these holes, spare a thought for all the life going on just below the ground.

References:

- Native Bee Buzz - Fact Sheets - Gardening Australia
- Wasp photos and ID - aussiebee.com.au
- Burrowing bees - Bush Heritage Australia
- Can you beelieve?! Our guide to native bees – CSIROscope

Sponge crabs are camouflaged from predators by carrying colourful sponges on their backs (Photo: Fiona McQueen)

Who can be crabby with an invisibility cloak?

Most crabs use their hard shells and pincers for protection, but Sponge Crabs take a different approach, preferring to use a sponge as an invisibility cloak. The Dromiidae Sponge Crab family is characterised by having adapted to carrying sponges or ascidians to help camouflage themselves from predators. Their last two pairs of legs hold the sponge in place and the crab uses its pincers to trim the sponge to the correct size and shape.

Carrying the sponge creates a disguise from predators in multiple ways; predators are unable to both see and smell the crab because the chemicals that the sponge produces provides further camouflage for the crab. Many of the sponges produce chemicals that make them taste extremely unpleasant, so even if a predator was to try to eat the crab it would be put off by the taste.

Some species of Sponge Crabs are very selective about the sponges they use for their cloaks, but others will use a variety of materials, including ascidians. The sponges and ascidians on their backs remain living but it is not known if they receive any benefit from the interaction.

Like most crabs, Sponge Crabs are omnivores, feeding on plants and small animals like shrimp. They live in crevices and caves and can be found on reefs around the coast of Adelaide.

Find our beachcombing ID chart and other ID charts on the Green Adelaide website.

Brown-winged Villa Bee Fly resting on a leaf (Photo: Rob Wallace)

Is it a bee or a fly? No, it's a bee fly with a hairy jacket

If you are wandering about your garden and see a bee-like creature that doesn't quite look like a European Bee, it could be one of two types of fly. The first, which is introduced and has a dark brown and orange striped body with the top two stripes being joined in the middle, is a Drone Fly.

The second is the native Brown-winged Villa Bee Fly. They are about the same size as a bee and have a rounded striped abdomen. The stripes are dark and blackish, alternating with grey and light brown, all made up of dense hair. The wings, which sit open at 45 degrees when they are resting, are heavily veined and transparent with a browny tinge. You will see them on flowers, dead leaves on the ground or often on rocks in the sun. They can often be seen in warmer weather on tracks in bushland.

While they are not uncommon there isn't a great deal of information on our local native species. It is in the genus *Villa* and belongs in the bee-fly family (Bombyliidae). There are about 270 species of *Villa* worldwide, being present on every continent except Antarctica. Many species are important pollinators of flowers, having a long proboscis to feed on nectar and pollen. Our local species does not have a long proboscis but does feed on flowers.

Typically, bee flies are from 5 to 17 mm in length and have rounded heads with large, rounded eyes. The local Villa Bee Fly has red brown eyes. Typically, the larvae are parasitic on bees, wasps and other insects in the ground.

So next time you are out in your garden or local bushland, keep an eye out for the bee that isn't.

References:

- Queensland University, Christine Lambkin. Bee Flies
- Villa (fly): Wikipedia
- The Humble Bee Fly (Family Bombyliidae —Order Diptera) - John Lenagan

Slaters roll into a ball as a defence mechanism (Photo: Andy Reago & Chrissy McClarren; inset: Katya)

The roly-poly crustacean: a superb composter

What are these bugs even called? Well, they might look like an insect, but with 7 pairs of legs they are not. They are actually crustaceans - related to crabs, prawns and lobsters. They have lots of common names, including slaters, roly-polies, pill bugs and wood Lice. Slaters are recognisable from their oval-shaped flat segmented body and can be 7 to 20 mm in length. There are Australian native slaters, but the most commonly encountered slaters were introduced from Europe and are now found all over Australia. The Common Slater, *Porcellio scaber*, is a dull grey colour and the Pill Bug, *Armadillidium vulgare*, is dark brown to black. Two unusual features of these species are their breathing with gills and using specialised navigation equipment called 'uropods' to get around.

Slaters hatch from eggs laid in the female's pouch and are born with just 6 pairs of legs and 6 body segments. They moult their exoskeleton many times as they grow larger, eventually developing a seventh body segment and another pair of legs. In the moulting process, they are vulnerable, with half their exoskeleton falling off and then the other half a few days later. Their defence mechanism is to roll into a ball, with their armoured bodies protecting their undersides from exposure. Head out to your garden and lift up a pot plant or a rock and you might be lucky to find some of these curious slaters underneath. You'll find them hiding there because they like moist, damp conditions. They are great for your garden and with their favourite snack being decaying organic matter; they really are superb composters, returning nutrients to the soil helps keep your plants healthy. If slaters do start getting a bit too keen on your young seedlings, you can distract them with traps made from half an orange or punnets of potato peelings. See how many of these superb composters you can find in your garden this weekend.

References:

- Slaters: Backyard Buddies
- Terrestrial Isopods: Armadillidium vulgare and Porcellio scaber

A male Scorpionfly waiting for prey to wander by (Photo: Rob Wallace)

Wine, dine and romance...well maybe not the wine

Scorpionflies are insects in the order Mecoptera. Their two pairs of wings distinguish them from the true flies (order Diptera), which have one wing pair. They are a relatively ancient order that undergoes complete metamorphosis. Their first stage, hatching from cubed shaped eggs dropped in moist soil by the female, is as a larva. Larvae feed on dead invertebrates in the soil. They then pupate in the soil before emerging as the adult form pictured.

Scorpionflies get their name from some species which curl their abdomen forward over their body and vaguely resemble scorpions. Their other common name, Hanging Fly, is probably more appropriate, as the males hang on stems of plants by their front legs waiting to catch passing invertebrate prey with their long dangling hind legs, which are strong and have opposing claws at the last joint.

Scorpionflies are between 20 and 30 mm in length, have long legs, wings folded back on their body and are coloured black and orange through to brown. They have long chewing mouth parts and could easily be mistaken for a wasp at first glance.

Males attract females by offering up prey they have caught, which is consumed by the female as they mate. As well as eating invertebrates they feed on pollen, nectar and fruit.

While they aren't common in the Adelaide area, keep an eye out for the Scorpionfly (*Harpobittacus australis*), pictured above, as these colourful creatures can be found hanging on bushes in your garden or local bushland waiting for prey.

References:

- Harpobittacus australis Museums Victoria Collection
- Scorpion Flies, Hanging Flies - Order Mecoptera
- Wildlife of Greater Adelaide, James ID Smith.

Fishes

Southern Blue Devil in front of its spot on the reef (Photo: Chelsea Haebich)

Hey there, Mr Grumpy Gills!

The Southern Blue Devil (*Paraplesiops meleagris*) is a grumpy looking blue coloured fish found from Port Phillip Bay in Victoria to Exmouth in WA. Here in South Australia, Southern Blue Devils are commonly found at Seacliff Reef and Second Valley.

They typically have bright blue spots all over their body, which can range in colour from a grey/brown to a dark deep blue. They have large pectoral and anal fins. The blue spots and markings are unique to each fish, so can be used to identify individuals.

Southern Blue Devils live in caves and under ledges on our rocky reefs, and once they have found a suitable spot to live, will live there for the long term, not venturing far from home.

These fish are long-lived; it is very common for them to live for more than 40 years, with the oldest one being 59 years old. With World Fisheries Day on 21 November, it is important to remember how important our marine life is and how long-lived some of these creatures are.

Whilst the Southern Blue Devil is not a fish that is caught for eating, its long life makes it an important indicator of reef and ecosystem health. Next time you are snorkelling or diving in the sea enjoying our marine life see if you can spot one of these under a ledge.

If you are interested in learning more about our local marine life, dive into the Rockpool; a great coastal and marine hub with lots of resources. For land-based beachcombing, have a look at our ID chart to identify common items found on the beach.

Reference:

- https://fishesofaustralia.net.au/home/species/3245

A Harlequin Fish sits and waits to ambush its next meal (Photo: Anthony Brady)

Celebrate our colourful ocean life!

This week we celebrate World Ocean Day (8 June). Oceans cover more than 70% of the Earth's surface and are responsible for creating more than half of the oxygen we breath and absorbing more carbon dioxide than the rainforests. They circulate water from the equator to the poles and have a big impact on regulating our climate.

Marine parks help to protect these ecosystems and their wildlife, keeping our oceans healthy and functioning. Large fish, such as the Harlequin Fish (*Orthos dentex*) which live along the shallow rocky reefs from South Australia to Western Australia, benefit from this protection. These fish are thought to be site attached, meaning once they find a home they will live in that area for the rest of their life. This makes them vulnerable to fishing and damage to their habitat, so marine protected areas provide safety from these threats.

Harlequin Fish are ambush predators that will sit and wait to catch other smaller fish and crustaceans. Their large teeth can be seen even when their mouths are closed. They grow up to 86cm long and can live more than 40 years. Harlequin Fish are very colourful fish which come in many variations of colour, from brown/red to pink and orange. They have yellow or green spots along their sides, and juveniles and females have blue spots on the underside.

Why not visit our local beaches and take along our beachcombing chart to see what else you find, or dive into the Rockpool, a great coastal and marine online hub?

A Purple Spotted Gudgeon in a breeding tank (Photo: Jeremy Gramp)

Endangered fish to make a splash

The Purple Spotted Gudgeon (*Mogurnda adspersa*) very nearly became extinct. It hadn't been seen in South Australia since the 1970s, but in 2004 it was rediscovered at a single wetland on the River Murray.

Since then, numbers have increased through a captive breeding program and its introduction to several sites, including Urrbrae Wetland. It will be introduced into Oaklands Wetlands in 2021.

It is a striking, but small fish, around 6-12cm with brown spots and iridescent purple patches along its sides. It is a carnivore, feasting on aquatic macroinvertebrates, small fish, tadpoles and yabbies.

Studies have found Purple Spotted Gudgeons do best in slow-flowing streams and wetlands, and are most often found in areas with clear water. This means they are unlikely to occur in areas with high populations of predatory European Carp and Redfin, as these fish stir up the sediment, making it difficult for the Purple Spotted Gudgeons to find food and lay their eggs.

Given Purple Spotted Gudgeons rely on aquatic macroinvertebrates as a food source, you might like to investigate the abundance and diversity of aquatic macroinvertebrates in a wetland near you as part of an investigation with your class. Green Adelaide Education has lots of resources, such as teacher packs for multiple year levels, as well as ID charts and loan macroinvertebrate testing kits.

Water resources and wetlands is one of seven key priorities of Green Adelaide.

These small prickly fish would rather swim away and hide than balloon up (Photo: Alex Lea)

Around the globefish for World Fisheries Day

Globefish or Slender-spined Porcupine fish (*Diodon nicthemerus*) are shy, medium-sized fish with large eyes, dark stripes on the back and sides, a white belly and long yellow or white spines. They are one of the smaller species of porcupine fish in the world, growing to a maximum of 30cm. They can be found along our rocky reefs, preferring to hide under ledges and in rocky crevices.

Globefish feed on benthic (bottom-swelling) invertebrates including small crustaceans and molluscs. They have a small mouth with teeth fused together to form a beak to crush up shells.

They are commonly called porcupine fish because of the 5 cm long spines along their body that are used to deter predators. When stressed or defending themselves, they will rapidly inflate themselves to become spherical. Inflating themselves makes the spines stick out, so it is very difficult for predators to attack them. This defensive mechanism is a last resort because it is stressful to do and very difficult for them to swim when they are inflated. They would much rather swim away into a crevice or hole and hide. Next time you are snorkelling, keep an eye out for these delightful fish.

If you're interested in our marine environment, you might like to look at The Rockpool, a hub of marine resources, or download our Beachcombing ID chart for next time you are at the beach.

References:

- https://fishesofaustralia.net.au/home/species/921
- https://en.wikipedia.org/wiki/Slender-spined_porcupine_fish
- https://seaworld.org/animals/facts/bony-fish/pufferfish-porcupinefish/

A school of Silver Drummer off the coast of Adelaide (photo: Jeremy Gramp)

What's the beat on the Silver Drummer?

One of our local fish species, found in the south-eastern Indian Ocean and the south-western Pacific Ocean off Australia and New Zealand, is the Silver Drummer. Its distribution in Australia is from Shark Bay in Western Australia, along the southern coast and around to Fraser Island in Queensland.

It is mainly found around shallow reefs exposed to rough seas and in tidal channels of large estuaries to a depth of 30 metres. These fish can be found as solitary individuals, in small groups or sometimes in large schools, particularly in Western Australia.

It is a powerful fish, with a robust oval-shaped body, growing to about 80 cm in length and weighing up to 12 kg. It is silvery grey, with the top half of the body being slightly darker and a black outer section of the tail. Another distinguishing feature is a dark horizontal stripe from the corner of the mouth.

Silver Drummers are herbivores, feeding on algae. Their preferences are for red or brown algae such as Common Kelp.

If you are interested in seeing Silver Drummer, some of the hot spots in our region include Port Noarlunga Reef and Snapper Point at Aldinga Beach, but they are likely to be found at any of the local rocky reefs.

Having said that it's probably a little too cold at the moment for most people to be snorkelling, but when the weather eventually warms up make sure you keep an eye out for Silver Drummer as you explore our nearshore reefs.

References:

- Atlas of Living Australia - Kyphosus sydneyanus Silver Drummer
- Fishes of Australia's Southern Coast. (2008). Martin F. Gomon, Dianne J. Bray and Rudie Herman Kuiter

Wobbegongs are camouflaged with a pattern across their rough skin (Photo: Rick Stuart-Smith / Reef Life Survey)

That shaggy carpet looks like a shark!

Wobbegongs are one of the many sharks we find in South Australian waters. There are actually four species of Wobbegong found in South Australia, and these sharks from the Orectolobidae family are also known as Carpet Sharks because they are commonly found lounging on the sea floor, under ledges and in crevices on our reefs.

However, you may not spot them because they are really good at hiding, have camouflage patterns across their rough skin to help them blend in with their surroundings, and are nocturnal; coming out to feed on fish and shellfish at night.

Wobbegongs have poor eyesight and use tasselled barbels around their mouths to help them find food. It makes them look like they have a shaggy moustache!

Whilst these sharks, which can grow to over 1.5m long, are not typically aggressive and you can swim past them at a distance with no problems, there have been occurrences of people being bitten by these sharks. Especially people catching lobsters and other shellfish, as they are inquisitive creatures. They are also extremely flexible and some of the only sharks that can bend all the way round to bite their own tail, which some people find out the hard way.

These attractive sharks are important in our marine ecosystem and should be admired from a safe distance. Keep an eye out when you are next out snorkelling.

Check out our Beachcombing ID chart and other ID charts for all your nature explorations around our beaches and on land. They can be found on the Green Adelaide website.

Amphibians

Bulky and strong, the Eastern Banjo Frog is distinguishable by the large oval gland on the dorsal surface of the tibia (Photo: Steve Walker)

Was that a Pobblebonk or three?

The Eastern Banjo Frog, also known as the Bullfrog, Pobblebonk or 'bonking' frog, due to the loud 'bonk' call that the male frog makes during breeding season, could be fooling you!

It may sound like the 'pobblebonk' call comes from just one frog but in fact it is likely several males calling, one after the other, bouncing around the waterbody like a Mexican wave. The deeper the call, the more likely the male is to attract a female, so they go to great lengths to find the right nook or cranny from which to project the deepest sound. It's quite an experience to listen to a full chorus.

During breeding, with the male on her back, the female Eastern Banjo Frog will use webbing on her fingers to push pockets of air under her body to her rear and mix them with the eggs. This provides the eggs with a bubble of air for protection and to oxygenate them, appearing as a collection of white foam-like bubbles on the surface of the water.

Breeding will typically finish around October in Adelaide and the Mt Lofty Ranges with a breeding pair laying around 4000 eggs! Tadpoles hatch in about a week and can take anywhere from four to 15 months to complete development.

The frogs congregate around large bodies of water, especially dams and wetlands, emerging from underground burrows towards the end of winter or early spring to breed.

Over to you, it's time to head out and see if you can locate some Pobblebonks. To find out more about other local frog species, check out FrogWatch SA or our identification chart.

Reptiles

Eastern Striped Skink in rocky, hilly habitat at Morialta (Photo: Rob Wallace)

A lizard that carries its comb in its ear

The Eastern Striped Skink, Ctenotus robustus, is a diurnal, medium sized solid skink growing to 123 mm, snout to vent. It is a striking lizard with dark brown/black and light-coloured stripes on its back, and mottled spots along a side stripe and on the lower side of the body. Its belly is white.

The Ctenotus genus, or comb-eared skink, is the largest genus of lizards in Australia with close to 100 species. It is estimated they make up between 10 and 25 per cent of our lizard fauna.

Eastern Striped Skinks are found across south-eastern, eastern and northern Australia, living in a wide range of habitats including forest, woodlands, sandy heath and rocky outcrops usually in undisturbed areas. While they are a common lizard they are not often seen.

Ctenotus means comb ear. If you look at the image you will notice comb-like projections along the front of the ear. Robustus means robust and refers to the stocky body. They lay an average of six eggs, which are soft, are laid in late winter and spring, and take about two months to hatch.

Some reptiles are oviparous or egg laying while others are viviparous or bear live young.

They shelter under rocks, logs, groundcover and leaf litter and make burrows under rocks where they hibernate and nest.

They feed on invertebrates and occasionally, young lizards. They in turn are preyed upon by cats and snakes.

The biggest threats to this species are cats and clearing of habitat. The best way you can support Eastern Striped Skinks if you have them on your property is to leave habitat and fallen timber undisturbed.

Currently the Eastern Striped Skink is a common species, with a wide distribution and can be found in the hills in the Green Adelaide area.

White's Skink heading into its burrow (Photo: Rob Wallace)

A lesson on how to move the kids out of home

Known as White's Skink or White's Rock Skink (*Liopholis* (formerly *Egernia*) *whitii*), it is a common, widespread and slow-growing medium-sized skink found in south eastern Australia in forest, woodland and Mallee in rocky habitats. Its length is up to 30cm, including the tail, which is about two thirds of its total length.

The species varies from grey to brown with few markings, to a more common patterned form with a rusty coloured back stripe, flanked by two darker spotted stripes. Their flanks can be plain or covered with leopard style spots. Their belly is cream to grey and the legs are brown.

White's Skink can live for up to eight years and it is an omnivore, feeding on invertebrates, fruits and flowers. Females give birth to up to five live young in summer. The species is polygynous, with one male per group of up to five females, living in temporary family groups in complex burrows. The females sometimes mate with males outside of the family group.

Adults are highly aggressive towards White's Skinks from outside the group, and juveniles to other juveniles within the group from an early age. Juveniles will stay in the group until they are half grown, when the adults will chase them away.

References:

- Museums Victoria Collection Liopholis whitii (Lacepède, 1804), White's Skink
- Reptile Database
- Smith, J. 2016. Wildlife of Greater Adelaide. Axiom
- White's skink (Liopholis whitii) Atlas of Living Australia

Birds

The elegant but unusual looking Australian Pratincole (Photo: Steve Walker)

Skinny as a beanpole

The Australian Pratincole, *Stiltia isabella*, is a most unusual bird. The genus name *Stiltia* comes from the Middle English *stilt*, which of course refers to the length of the legs. With those long skinny legs, a slim body, upright gait, and habit of chasing insects, spiders, centipedes and other invertebrate prey along the ground, it is not surprising that it is also known as the Roadrunner.

The upper body feathers are sandy olive, the chest a deep chestnut brown and the flanks and wing tips are black. During breeding season, the base of the bill changes from black to a bright red with a black tip.

The Australian Pratincole is mainly found in inland Australia and the northern coasts, as well as some of the offshore islands and Papua New Guinea but migrates to the south to breed during spring and summer.

It is typically found in arid or semi-arid areas with little or very low vegetation, such as grasslands, open woodland, stony plains and claypans, most commonly close to waterbodies such as wetlands, lagoons, creeks, and riverbeds. The chicks shelter and hide in shrubs, so breeding sites with scattered low shrubland are preferred.

They are not very common around Adelaide but historically they have been found along the River Torrens and the coast, with more recent records of them at some of the larger wetlands such as Greenfields. So, it is well worth a visit there to try spot them. They forage throughout the day, but peak periods occur at dawn and dusk.

Two eggs are laid on bare ground, with the parents taking turns to incubate, brood and feed the eggs and hatchlings. The young develop very rapidly; feathers start to appear at just 10 days and by three weeks they are fully feathered and look just like a non-breeding adult. By five weeks they can fly and are no longer cared for by the parents.

If you're interested in our visiting our local wetlands to go bird watching, you might like to download our wetland birds identification chart and teacher information pack.

As the name suggests, the Crested Shrike-tit can be easily recognised by its feathered mohawk (Photo: Steve Walker)

Black and white and yellow all over

Have you ever tried to identify a bird as it's flying quickly overhead or hiding in the trees? You will find it can be quite difficult, but having striking colours and unique features can make it an easier task. The features of the Crested Shrike-tit (*Falcunculus frontatus*) with its bright belly, black and white striped head, and feathered mohawk make this small-medium bird easier to identify.

The three subspecies of this bird are endemic to mainland Australia. They can be found in eucalyptus woodlands, forested gullies and rivers, and in parks and gardens. Between August and January, you may see both the male and female building the cone-shaped nest and incubating the eggs in the fork of a eucalyptus tree.

If you fancy yourself as a bit of a bird spotter/watcher, why not participate in the Aussie Backyard Bird Count, from 19-25 October? To participate you need to spend 20 minutes in your backyard (whether that's your home backyard, local park, on a main road, or down near the beach) counting the birds and species you see. The aim is to help BirdLife Australia understand more about the birds that live where people live.

If you would like to find out more about native birds in your local area, why not have a go at identifying them with your students? We have a range of identification charts and teacher resources online, or you can borrow equipment and other materials from our loan library.

References:

- https://www.birdlife.org.au/bird-profile/crested-shrike-tit
- https://australian.museum/learn/animals/birds/crested-shrike-tit/

Little Raven: a type of crow found around Adelaide (Photo: Steve Walker)

Something to crow about

What's in a name? Most people would consider the Lion (*Panthera leo*), Cougar (*Puma concolor*), Bobcat (*Lynx rufus*), Caracal (*Caracal caracal*) and the Domestic Cat (*Felis catus*) to all be cats, even though they are in different genera, because all are members of the family Felidae.

Why then do people insist on differentiating crows and ravens? All of the world's crows and ravens, plus rooks and jackdaws, are in a single genus, *Corvus*, in the family Corvidae. Other members of the family include choughs, jays and the European, Asian and American magpies (but not Australian Magpies).

The genus name *Corvus* is the Latin word for raven, which has come from the Indo-European word '*ker*', which describes the guttural noise these birds make. This is, of course, related to the word '*crow*', which also describes a loud noise birds make (as in a crowing rooster). Therefore, crows and ravens are members of the same genus, so much more closely related to each other than the different cats are, and their common names both describe the loud calls they make.

Some corvids have black feathers with a grey base, some black feathers with a black base, some are black and white, but there is no consistent distinction to separate the common names crow and raven. Crow is typically, but not always, assigned to the smaller species, and raven to the larger ones. However, the Little Raven is the same size (40-50cm) as the American Crow but smaller than the Hooded Crow (48-52cm). Yet you are still likely to hear people argue that the only crows we have in Adelaide are in the football team. It's enough to drive you raven mad!

There are roughly 45 different species of Corvus throughout the world. In Australia, there are five native species: Torresian Crow, Little Crow, Australian Raven, Forest Raven and the above mentioned Little Raven. All can be found in South Australia, but a 2012 study reported in South Australian Ornithologist states that due to the incorrect use of features to identify them, and the extreme difficulty in seeing the correct diagnostic features in the field, there is realistically only one species likely to be found in and around Adelaide, the Little Raven (*Corvus mellori*).

So while we don't have Torresian or Little Crows in Adelaide, we do have crows; Little Ravens!

Olive-backed Oriole (Photo: Steve Walker)

This ventriloquist is no dummy

The Olive-backed Oriole is a medium-sized bird with olive-green feathers above, a streaked chest and belly, a long pink beak and red eyes. Males and females look similar, although females have a slightly paler beak, duller-green back and the streaks on the chest extend up to the beak.

Its distribution extends all the way from the Kimberley region of Western Australia, along the coastal areas of the northern and eastern states, then into Adelaide, the hills and Kangaroo Island. Despite this wide distribution, it is considered rare in South Australia and is usually a summer visitor more than a resident.

The Olive-backed Oriole is definitely a bird to watch out for though because it is an excellent mimic of other birds. In fact, it is often easier to hear its noisy call than it is to see; the olive feathers make excellent camouflage, enabling it to blend into vegetation and stay out of sight. Olive-backed Orioles have also been described as ventriloquists, able to throw their voices so that they appear to be calling from a different location.

They live in forests and woodland, also making use of well-vegetated urban parks, gardens and reserves, especially those with trees bearing berries and other fruits. They also forage in the canopy for invertebrates.

Although they are occasionally seen in small groups, they are most commonly found alone or in pairs. The female builds a cup-shaped nest out of bark and grass, bound with a spider's web, attached by the rim to a horizontal branch. Two to four eggs are laid, which the female incubates for about 18 days. The male helps to feed the young after hatching.

References:

- http://www.birdsinbackyards.net/species/Oriolus-sagittatus
- https://bie.ala.org.au/species/urn:lsid:biodiversity.org.au:afd.taxon:ae69de14-4a33-4aa4-aeaf-1c01277bce6e

Peregrine Falcon perching in a tree high up a cliff face (Photo: Rob Wallace)

Was that a Mexican Free-tail, a White-throated Needletail?

No, it's a Peregrine!

The Peregrine Falcon is a bird of prey. The adult has a masked head and wings that are both slaty grey with horizontal barring on the breast and belly. Its legs and feet are yellow.

The Peregrine Falcon is the fastest bird in the sky and has been clocked at 320 km/hr in a dive and 110 km/hr at horizontal speed. Two faster animals at horizontal speed, between 160 and 170 km/hr, are the White-throated Needletail (a bird) and the Mexican Free-tailed Bat.

Peregrine Falcons are widespread throughout Australia and the rest of the world. They typically nest on ledges of cliffs but it is not uncommon to see them nesting on ledges on high buildings in cities. They also sometimes nest in tree hollows or other birds' nests.

Pairs mate for life and breed from August to December, laying two to four eggs, which take a month to incubate. The offspring spend another 35 days at the nest site till fledging.

Pairs have a home range up to 30 km square and often hunt together, with the male scattering flocks of birds while the female swoops on an individual. They feed on birds, rabbits, other smaller mammals and larger insects.

The biggest threat to their survival is habitat loss.

References:

- Fastest animals
- List of birds by flight speed
- Peregrine Falcon - Australian Museum
- Peregrine Falcon - BirdLife Australia

Southern Boobook adult with juveniles. (Photo: Liz Milner, Friends of Black Hill & Morialta)

Stealth hunters

The Southern Boobook owl is the smallest (up to 25cm), most common and widespread (geographically) owl found in Australia.

Boobooks are nocturnal animals. The Boobook, like most owls, breeds in tree hollows or will utilise owl nesting boxes. They use the hollows, lined with decaying wood, for rearing their young. Baby Boobooks are adorable white fluff balls with brown rings around their eyes. They grow up to be quite round and are brown with white speckles.

The owl has a distinctive 'boo-book' or 'mo-poke' call. Hence their common names of Boobook or Mopoke. Boobooks are particularly vocal during their breeding season and can call for hours at night-time.

Feeding mostly occurs at night but sometimes they are seen hunting in the late afternoon or early morning on a dull day. They will swoop down on flying prey such as moths and small bats and catch them mid-air, or pounce on ground-dwelling prey. Owls are part of the raptor family and often eat their prey whole. They will then vomit up the non-nutritious parts of their prey several hours later as a pellet from their gizzard.

They are great hunters because their wings make no noise when they fly. This is because their feathers are shaped to reduce the amount of air movement around their wings, and the velvety surface absorbs some of the flapping sound. They also have particularly good eyesight and hearing. Having forward facing eyes gives them excellent depth perception. They can also turn their heads almost the whole way around - up to 270 degrees. Some owls' ears are asymmetrical. This means sound reaches their ears at different times and helps them to pinpoint the exact direction of noise, which is important for hunting.

References:

- https://faunature.com.au/product/owl-nesting-box/
- https://australianmuseum.net.au/learn/animals/birds/southern-boobook-owl/
- https://www.bushheritage.org.au/species/owls

A White-plumed Honeyeater showing its distinct white neck band (Photo: Steve Walker)

Banding together against the bullies

If you live near River Red Gums, you may have awoken to a melodious "chick-o-wee" call belonging to a White-plumed Honeyeater (*Lichenostomus penicillatus*). These birds are medium-sized honeyeaters, yellow-grey in colour above, paler below, and with a distinct white neck band from which they get their name.

Their special honeyeater characteristic, a brush-tipped tongue, enables them to mop up nectar from flowers. In addition to nectar, their diet consists of insects, fruit and seeds.

White-plumed Honeyeaters are social birds, commonly found in groups. They are however particularly territorial. They commonly raise a distinctive "pee-pee-pee" alarm identifying predators and defend their territories in groups. This somewhat aggressive mob behaviour has even been observed against birds larger than themselves, such as Australian Magpies and Laughing Kookaburras.

White-Plumed Honeyeaters are common throughout most of South Australia, typically found along watercourses where River Red Gums are located, but also in open forests, woodlands and swamps. The species typically breeds in spring, and the females weave small nests from spider webs and grass in tree crowns up to 20 metres off the ground, and line them with wool, hair or feathers.

To find out more about birds in our local area, check out our Common Urban Birds identification chart.

References:

- birdlife.org.au/bird-profile/white-plumed-honeyeater
- birdsinbackyards.net/birds/featured/Honeyeaters

If observed at the correct angle, the coloured speculum feathers are particularly beautiful (Photo: Steve Walker)

What colour is the Pacific Black Duck?

Don't be fooled by the name, the Pacific Black Duck (*Anas superciliosa*), isn't really black at all.

These ducks have mottled dark brown feathers, a distinctive cream and black stripe across the head (the species name *superciliosa* refers to the eyebrow area) and a metallic green or purple panel (speculum feathers) on their wings, particularly visible in flight.

Pacific Black Ducks are found throughout South Australia in wetlands, ponds, lakes, dams and rivers, dispersing in drought years to find wetter areas. Their ideal habitat is one with low salinity and lots of vegetation because they are primarily vegetarians, feeding on aquatic plants, but also eating molluscs, aquatic insects and their larvae.

The Pacific Black Duck is one of the most common ducks in Australia and, while humans often share their food with them, it's important to remember that our processed foods are of no nutritional value to the species and can actually have detrimental effects to their health and growth. So, let's keep those cakes, biscuits and bread to ourselves!

They can be found nesting in tree hollows as well as adopting other waterbirds' nests for themselves. Pacific Black Ducks breed between June and February in South Australia, and sometimes breed with the similar introduced Mallard species, resulting in hybrid ducks.

To find out more about other local bird species, check out our Wetland Birds of South Australia identification chart.

References:

- birdlife.org.au/bird-profile/pacific-black-duck
- ebird.org/species/pabduc1?siteLanguage=en_AU
- australian.museum/learn/animals/birds/pacific-black-duck
- greeningaustralia.org.au/wp-content/uploads/2017/11/GUAH-Black-Duck-Fact-Sheet.pdf

Owlet-nightjars breed in hollows and adapt readily to nest boxes (Photos: Rob Wallace)

When is an owl not an owl? When it's a night-jar!

The Australian Owlet-nightjar, *Aegotheles cristatus*, is the smallest of Australia's nocturnal birds. They are rarely seen at night but can be seen during the day because they are easily disturbed and fly from hollow roosts. They are widespread and common, and their distribution extends across most of Australia and into southern New Guinea, from rainforest to inland arid areas. They are found in a variety of habitats with trees containing hollows, including rainforest, eucalypt forests, woodland, arid open woodland including Mallee, and along watercourses.

Owlet-nightjars are medium-sized birds, growing to 24 cm. They are grey-brown to rufous, have pink legs and feet, an owl-like head with lateral brown stripes coming down through the eyes and whiskers around and above the beak. The breast is dark, belly white and the tail has grey-brown and white bars.

Owlet-nightjars feed at night, either on the wing, or by jumping on prey in trees or on the ground. Their wide gape (mouth) surrounded by whiskers assists with catching prey on the wing.

Owlet-nightjars breed in hollows and occasionally rock-crevices, and adapt readily to nest boxes. They line hollows with green leaves. Both parents build the nest, incubate the brood and raise the chicks. They have one brood each season, usually containing three to five white eggs.

They have a number of roost or bolt holes, so they can escape from one to another if disturbed. They are usually resident in the same area and use the same hollows for many years.

References:

- Birds in Backyards – Australian Owlet-nightjar
- Graham Chapman – Australian birds. Australian Owlet-nightjar
- Pizzey and Knight, Field Guide to the Birds of Australia

Hoodie looking for food in the shallows (Photo: Rob Wallace)

A Hoodie getting a bad rap from humans

Hooded Plovers (*Thinornis rubricollis*), or Hoodies as they are affectionately called, are medium-sized shore birds with a black head, white nape, black-tipped red beak and red eye rings. They have a black shoulder band, sandy-brown back, white belly and a black-tipped tail. Their legs are yellow to pink in colour. Hooded Plovers feed on range of invertebrates.

Hoodies are listed as vulnerable nationally, which according to the International Union for Conservation of Nature red list means they are threatened with extinction. There are only 800 in SA, with around 29 breeding pairs on the Fleurieu.

Their biggest threats are in urban areas through coastal development, and human and pest animal activity. Climate change is also a potential impact. Hoodies nest on Adelaide's beaches in scrapes in the sand, usually at the foot of dunes, from spring through to summer when human activity, including walking dogs, is at its peak. Foxes also predate eggs.

Hoodies lay two to three speckled eggs and will abandon eggs and chicks if persistently disturbed by dogs and foxes, or humans in vehicles and on foot.

There are a number of things you can you do to make sure you don't disturb them during breeding and other times: don't drive on beach or dune areas; move away when you see Hooded Plovers; walk below the high tide mark during breeding season; keep your dog on a leash at the beach, especially during breeding season; and get students to research about Hoodies to see how they can help.

While Hooded Plovers aren't a migratory species you might want to also find out about the threats that our migratory birds face along the East Asia/Australasia Flyway.

Outer tail feathers are slightly shorter in the female (Photo: Steve Walker)

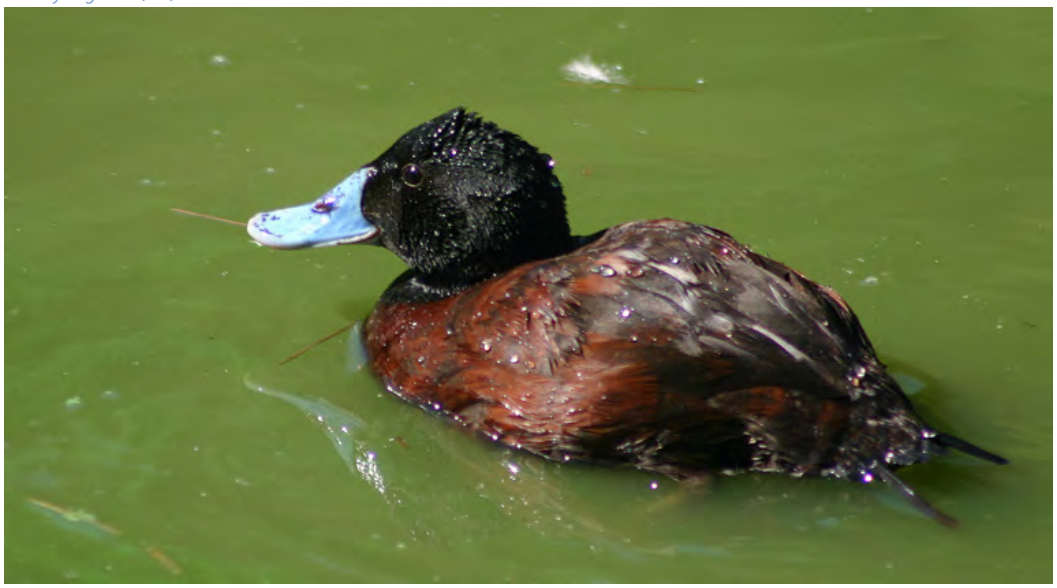
Welcome, swallow!

The Welcome Swallow (*Hirundo neoxena*) is Australia's most abundant swallow species; found in every state and territory. The origin of the 'welcome' in their name is disputed. Some sources say it refers to sailor's excitement at seeing the birds because it meant land was not far away. Other sources report that the migratory arrival of these birds was an indication to people living in southern Australia that spring was coming, a welcome sight after winter.

The Welcome Swallows are agile fliers, able to catch insects on the wing as they glide in graceful arcs. Bristles at the corner of their mouths are a useful adaptation that helps guide prey into their beaks. They can be found hunting in open areas; grasslands, parks, open woodland, around water bodies and along the coast. It can be difficult to see these birds clearly as they fly because they are so fast but two clear identifying features are their forked tails and metallic blue-black feathers on their backs.

Their preference for building mud and grass nests in sheltered positions, like eaves and roof beams, brings them into close contact with people. These nests are often used to raise two broods per year, and can be reused for multiple years.

Will Welcome Swallows be on the list of birds you observe during this week's annual Aussie Backyard Bird Count**? See our** bird ID charts **to help you identify some of the birds near you.**



A male showing the distinctive blue bill that gives rise to its common name (Photo: Steve Walker)

Why so blue?

One of two species of stiff-tailed diving ducks in Australia – the other being the larger Musk Duck – the Blue-billed Duck, as its name suggests, is easily identified by a sky-blue beak. However, it is only the male's that is blue, and usually only in breeding season (November to March). Outside breeding season, the bill often changes to grey or dark green. His head is glossy black and the body chestnut (dark grey when non-breeding). Females have a brown bill, and the feathers are dark brown with light brown bands.

Both males and females have stiff tail feathers that are normally held flat on the surface of the water but may be raised in a defensive posture when alarmed. Males also hold the tail erect during courtship displays.

Found in the temperate wetlands of southern Australia, Blue-billed Ducks are normally quite solitary and very rarely venture on land, preferring to stay far from shore, but may congregate in their hundreds outside of breeding season, forming large rafts in open water.

They are omnivorous, diving under water or down to the mud at the bottom to catch or filter out aquatic invertebrates, such as insects and crustaceans, as well as seeds, leaves and other vegetation.

Some Blue-billed Ducks are sedentary, staying within a small range year-round, whilst others move vast distances to breed during spring and summer. They are considered rare in South Australia but can be seen in some of the larger wetlands around Adelaide and the Mt Lofty Ranges.

To find out more about our local wetland birds, check out our Wetland Birds of South Australia identification chart and teacher information pack.

References:

- https://www.swifft.net.au/cb_pages/sp_blue-billed_duck.php
- https://birdssa.asn.au/birddirectory/blue-billed-duck/
- https://australian.museum/learn/animals/birds/blue-billed-duck/

Crested Pigeons are easily recognised by their distinctive headwear (Photo: Jeremy Gramp)

Riding high on the crest of an urban wave

Urbanisation of our environment often has a detrimental effect on our native plants and animals, but some species benefit from the modifications that humans make to the landscape. One such creature is the Crested Pigeon.

These pigeons were originally restricted to arid and semi-arid zones of inland Australia. As land was cleared for agriculture and urban development, they significantly expanded their range. They now can be found across much of Australia, except for dense scrub and forest. They are very common throughout the Green Adelaide region. In fact, Adelaide was the first major city that they colonised.

As their name suggests, the Crested Pigeon has a distinctive erect black crest. This feature makes them easily distinguished from the other pigeon species found in Adelaide. Most of their plumage is grey-brown, with their wings having black bars and patches of glossy green and purple.

Another characteristic feature is the whistling sound that is created if the Crested Pigeon is startled and takes flight. This sound is caused by air passing over a modified feather in their wing. When they land, they swing their tail high in the air.

Crested Pigeons feed mostly on seeds from native plants, as well as introduced crops and weeds. They have to drink every day so are usually found in the vicinity of water.

Their nests consist of a frail platform of sticks in dense foliage usually below 5m high. They lay one to two eggs, normally from August to March, and both parents build the nest, incubate and care for the young.

If you would like to learn more about native birds found in our region visit the teacher resources page of our website. We have a variety of identification charts, teacher packs and games.

References:

- Birdlife Australia - Crested Pigeon
- Smith, J. 2016. Wildlife of Greater Adelaide. Axiom

Males have an all-black head; females have a white ring around the eye (Photos: Steve Walker)

Does it have a familiar ring to it?

The Australian Shelduck is quite unmistakable. It is our largest duck species, growing to about 74cm long, and has a somewhat patchwork assortment of markings; copper breast, black upper parts, dark brown under parts, black and brown wings with a metallic-green speculum, dark green/black head, and white band around the neck.

You may not have paid close attention, but the females can easily be distinguished by a narrower neck band and a white ring around the eye. Females also have a white ring around the base of the bill, but this is also occasionally seen in the males.

Australian Shelducks live in swamps, lakes, wetlands, dams and surrounding open areas in the south-west and south-east of Australia, preferring freshwater over saline habitat, and are occasional visitors to central and north-western Australia.

Due to their preference for open areas near water, Australian Shelducks have been happy to adopt the cropland and pastures that have been cleared for agriculture, particularly around farm dams, which has led to an increased local population size in some areas.

They feed almost exclusively on vegetation, grazing on grass and a wide range of wetland plants, but will also eat insects and molluscs.

Australian Shelducks typically nest in large tree hollows that have been well-lined with down, but they have also been recorded making use of rabbit burrows, shallow caves, and crevices in riverbanks and cliff faces. The female lays between 5 and 15 eggs, which she incubates for about 33 days. Whilst she tends the eggs, the male aggressively guards the surrounding territory.

To find out more about other local bird species, check out our Wetland Birds of South Australia identification chart and teacher pack.

Females have brown eyes and males have white eyes (Photo: Steve Walker)

Diving in hardhead first

The Hardhead (*Aythya australis*) is a chocolate-brown coloured duck with white under the tail. When in flight, you can see their white breast patch and white underwings outlined in brown. They are distinguishable by the white or yellow eyes of the male, which gives rise to their other common name 'White-eyed Duck'. Females, however, have brown eyes.

Despite the name Hardhead, these ducks don't actually have a particularly hard head. The name comes from the early taxidermists finding it the most difficult part of the duck to process.

Hardheads are found across Australia in freshwater well-vegetated swamps, wetlands and deep-water lakes, spending most of their time in the water. They sometimes eat fish but are primarily vegetarian, feeding on grasses, sedges and other aquatic vegetation. They are considered the only true diving ducks in Australia. As such they dive much deeper for their food than other Australian species.

Made from reeds, sedges and other plant materials, their nests are concealed in dense vegetation, with the females both building the nests and incubating the eggs alone. The breeding season is during spring and early summer, when wetlands have plentiful vegetation.

To find out more about other local bird species, check out our Wetland Birds of South Australia identification chart and teacher pack.

References:

- birdssa.asn.au/birddirectory/bd-hardhead/
- birdlife.org.au/bird-profile/hardhead
- ebird.org/species/wheduc1

The distinctive breeding plumage and (inset) hunting technique of the Royal Spoonbill (Photos: Steve Walker)

A spoon full of fish

The Royal Spoonbill (*Platalea regia*) is an easily recognisable, snowy-white waterbird. As the name suggests, it has a distinctive black, spoon-shaped bill, as well as black facial skin, legs and feet.

While both sexes are very similar, the males are slightly larger with longer legs and bills. During breeding season, both sexes develop a long and untidy crest on the back of their head, a yellow wash over their chest and across their lower neck, a yellow patch above their eyes, and a red patch in the middle of their forehead.

Royal Spoonbills primarily eat fish, but also consume shrimp, aquatic insects, molluscs and plants. They have a distinctive way of foraging for food, submerging and sweeping their bills from side to side in shallow water, either individually or in flocks. Inside their bill are papillae, vibration detectors which help them to feel for prey in the dark or in muddy water. When they catch the food, they then toss back their heads so that it falls down their throat.

These waterbirds are typically spotted in shallow freshwater and saltwater wetlands, as well as wet grasslands and intertidal mud flats. Breeding season is typically from September to November, and they usually nest in pairs among the noisy breeding colonies of other waterbirds. The nests are constructed in small trees over water using sticks and twigs, lined with soft vegetation.

Have you spotted them inyour local wetland? Find out more about our local waterbirds in our Wetland Birds of South Australia identification chart and teacher information pack.

References:

- birdssa.asn.au/birddirectory/royal-spoonbill/
- birdlife.org.au/bird-profile/royal-spoonbill
- ebird.org/australia/species/royspo1/AU-VIC-GGE

Male Crescent Honeyeater calling in Stringybark Woodland (Photo: Rob Wallace)

A honeyeater with fancy lapels

If you are walking through a Brown Stringybark woodland in the hills and hear a bird loudly calling eegypt or a sharp jik sound but can't manage to find it, there's a good chance it's a Crescent Honeyeater, *Phylidonyris pyrrhopterus*.

When calling, Crescent Honeyeaters have a habit of staying very still, hidden amongst the leaves in the canopy of Stringybarks and Pink Gums.

Crescent Honeyeaters are found in hilly, mountainous, and coastal woodlands and forests in south-eastern Australia but they move into lower areas in winter, so you might be lucky enough to see one in your garden. They can be seen alone or in small noisy groups moving quickly from plant to plant.

They are small to medium sized honeyeaters and have the same yellow and blackish wing patches as the closely related New Holland Honeyeater, but with crescent-shaped markings that look like lapels on the breast and white lines below the crescent and above the dark eye patch.

Their eyes are red and their downward curved beak is ideal for getting nectar from tubular flowers, like those on the Common Heath and Flame Heath. Males are dark grey above and a lighter grey below. Females are darker brown above and lighter brown below. The males have white tips on their tail feathers.

As well feeding on nectar from flowers, they feed on honeydew on Eucalypts and forage for invertebrates under bark or catch them while on the wing.

References:

- Crescent Honeyeater. Birdlife Australia
- Menkhorst, P et al. The Australian Bird Guide, CSIRO.

This female Red-capped Plover, photographed in September 2021, was banded in 2015 (Photo: Steve Walker)

Little red resident

September 16 is Plover Appreciation Day, when we celebrate these ground nesting birds that typically live along our coastlines, wetlands and lakes.

Australia's smallest plover is the Red-capped Plover and, unlike migratory shorebirds, this little bird spends its entire life in Australia. It has a wide distribution, being found all around Australia's coast, as well as in many inland areas, including wetlands, mudflats and salt lakes.

As their name so clearly describes, these birds are characterised by the rust-coloured crown and nape, which is brighter on the male than the female. As well as the red-cap, males have a dark band running from the base of the beak, through the eye to the cap, then down the edge of the neck to the breast. Both sexes have a brown back (red-brown in males, grey-brown in females) and a white belly.

They feed upon insects, snails, worms, crustaceans, and other invertebrates, foraging along the beaches, mudflats and saltmarshes with a delightful run-and-peck technique, assisted by their large eyes which locate prey. Head down to your local beach with a pair of binoculars and you might get a chance to watch them in action.

Although they are widespread and abundant, monitoring during biennial beach-nesting birds counts shows that they do suffer the same problems as other beach-dwelling species. Given that they lay eggs in shallow but exposed depressions in the sand or pebbles, they are open to predation and harassment by cats, dogs, foxes, gulls and other birds; susceptible to damage and flooding during high tides and storm surges; trampled by people and vehicles on beaches; and impacted by the presence of aerial drones and invasive weed species.

So, when at the beach, please keep your pets on a leash, stick to the designated walking areas and avoid getting too close.

The spectacular White-winged Fairy-wren (Photo: JJ Harrison)

I'm a survivor

The White-winged Fairy-wren (*Malurus* leucopterus) is defying the odds and persisting in coastal saltmarshes and small pockets of remnant shrubland in the Cities of Salisbury and Playford in the northern suburbs of Adelaide.

The shrubland habitat for this striking bird is under threat from development, but a significant pressure is also placed on them from well-meaning tree planting projects. The introduction of trees to open shrubland areas where the fairy-wrens live has the unintended consequence of creating habitat for bird predators such as Magpies, Kookaburras and Grey Currawongs, as well as shading out their preferred shrub habitat. Foxes and cats are also predators of the White-winged Fairy-wren.

Recent shrubland surveys undertaken for Green Adelaide have highlighted the need to protect this unique declining habitat, which is often viewed as a barren landscape in need of trees, but where the low shrubs provide cover for small birds.

Those lucky enough to see a White-winged Fairy-wren during breeding season in spring and summer, will marvel at the males with their bright cobalt-blue feathers and contrasting white wings. Like other fairy-wrens, the females, juveniles and non-breeding males are mostly light brown or pale grey in colour. They are typically seen and photographed when they perch on the very tops of the sparsely distributed bushes.

These resourceful birds build domed nests close to the ground from grasses, roots, wool and spider webs. The nest has a small entrance to one side and three or four white eggs, finely spotted with red-brown and purple, are laid, hatching after about 14 days.

White-winged Fairy-wrens are mainly insectivorous, feeding on a range of small beetles, moths, caterpillars, spiders and other bugs, but will supplement their diet with seeds and small berries.

Spotless Crakes can be spotted in some of our local wetlands (Photo: Steve Walker)

Have you ever spotted this crake?

If you have, consider yourself lucky. Despite having an extremely large range throughout the Pacific region, which includes the Philippines, Indonesia, Australia and New Zealand, this cryptic and unassuming bird is considered rare in South Australia.

However, Spotless Crakes have been seen at numerous wetlands in Greater Adelaide, where they will feed on vegetation and aquatic invertebrates. They forage in muddy areas amongst the thick reedbeds or in shallow water, wading or climbing over floating vegetation but rarely spending much time out in the open during daylight hours. If disturbed, they will quickly run back to the vegetation to hide.

Spotless Crakes do not get their name because they are very clean or rarely seen, but instead because of the absence of the contrasting markings that are present on the feathers of their relatives, such as Australian Spotted Crakes and Baillon's Crakes.

Spotless Crakes have a bluish slate-grey head, neck and breast, with reddish-brown back and wings, becoming darker at the rear. The eyes are deep red, the bill black and legs reddish pink.

Breeding season is between late August and early January, with a clutch of two to five eggs being laid in a nest of woven reeds and other grasses, constructed above the water in sedges. Both parents incubate the eggs, which hatch after about 20 days. The young are very well-developed on hatching, being able to catch their own prey after just three days, although they remain with their parents for up to five months.

With a little luck and lots of patience, you might just be able to spot one yourself.

To find out more about other local bird species, check out our Wetland Birds of South Australia identification chart**.**

References:

- Spotless Crake – Threatened species profile
- https://nzbirdsonline.org.nz/species/spotless-crake

Mammals

Chocolate Wattled Bat (Photo: Michael Pennay)

Going out to bat for the little guys

If you ask most people in Adelaide to name their favourite native mammals, bats tend to be fairly low on the list. However, there are many reasons to admire these amazing animals and the important part they play in our urban ecosystems. We are lucky enough to have nine species of microbat here in metropolitan Adelaide, which is the same number as 200 years ago – a strong indication that microbats are remarkably adaptable. While the number of species has not declined, unfortunately microbats are much less abundant than they once were due to lower food availability and habitat clearance.

One such local microbat is the Chocolate Wattled Bat (*Chalinolobus morio*), named for its milk-chocolate coloured fur and the fleshy lobes around its mouth; also known as wattles (the same reason that Red Wattlebirds have wattle in their name). This species is very small at around 6 cm long and it weighs just 9 grams – the same as a $1 coin.

Despite their small size, Chocolate Wattled Bats are extremely agile flyers, eating around half their body weight in insects every night, which they catch in mid-air. Agriculturalists and home gardeners are starting to recognise the importance of microbats like the Chocolate Wattled Bat in natural pest control, as they eat many insects that affect fruit trees and vegetables. They also as eat mosquitoes.

In order to protect and encourage microbats, we need to retain hollow-bearing trees, which provide roosting sites for many hundreds of individuals, and plant plants that are native to the local area. This will encourage a greater biodiversity of insect species (food for bats). We should avoid the use of pesticides which kill insects that are a bat food source.

Bats, including the Grey-Headed Flying Fox, have recently received attention as potential vectors of disease, so you should never handle a living or dead bat. Despite this, bats are not a problem in your backyard because they will avoid human contact.

If you have any concerns in relation to bats please call Fauna Rescue SA's Bat Rescue Hotline on 0475 132 093.

With external ear flaps and thick fur, this Long-nosed Fur Seal is in the same family as sea lions (Photo: Bernard Spragg)

This seal is not a true seal

The Long-nosed Fur Seal (*Arctocephalus forsteri*) is also known as the New Zealand Fur Seal, because that was where they were first described. Fur seals are in the eared seal family (Otariidae) not the true or earless seal family (Phocidae). True seals have no externally visible ear flaps and have blubber and thin fur, whereas fur seals and sea lions have small visible ear flaps, thick fur to keep warm and less blubber.

While some commercial and recreational fishers consider them pests, Long-nosed Fur Seals are actually native to South Australia and our population makes up over 80% of the total world population. Long-nosed Fur Seals mainly eat fish and cephalopods (squid and octopus) and they were almost hunted to extinction in the 19th century. Since a ban on hunting, their numbers are increasing each year. All seals and sea lions are protected in South Australia under both State and Commonwealth laws.

Long-nosed Fur Seals breed and give birth on land, often hauling themselves out on rocks or beaches. Their gestation time is 9 months and they give birth to one pup around December. Pups will stay with their mothers for 9 months and then disperse.

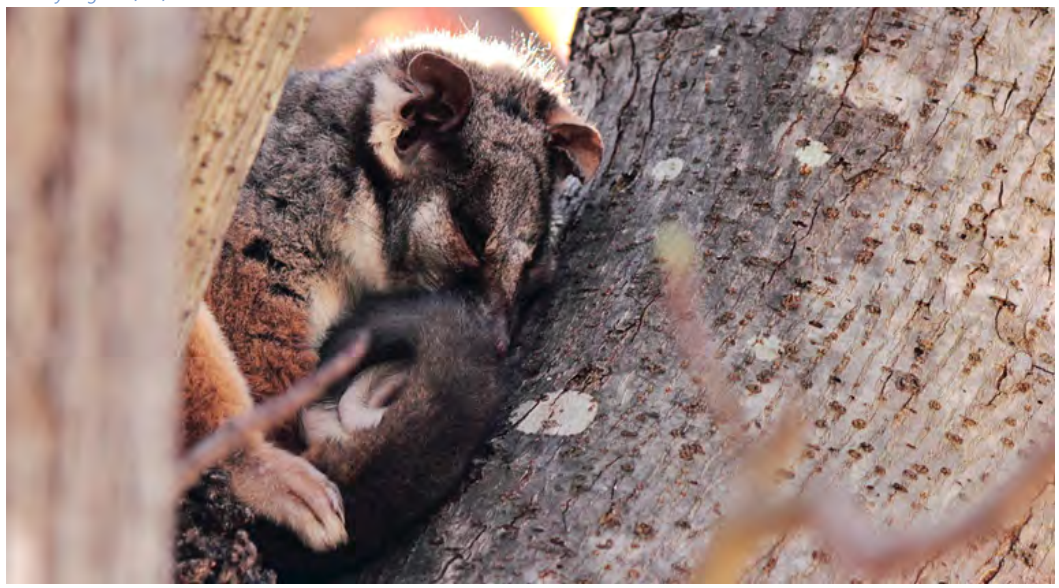
Long-nosed Fur Seals can commonly be seen in the Gulf, sometimes in shallow waters along the metro coast, but also on Kangaroo Island and resting on rocks around the coast of South Australia, where you may also see other Pinnipeds including Australian Fur Seals (*Arctocephalus pusillus doriferus*) and the endangered Australian Sealion (*Neophoca cinerea*).

Fur seals can often be seen, especially in summer, with a single flipper out of the water as they rest at the surface. This is done to regulate their body temperature, both to warm up and cool down using the sun and wind.

If you are interested in visiting our local beaches to look for fur seals take along our beachcombing guide or ID chart to see what else you find, or else dive into the Rockpool, a great coastal and marine online hub.

Reference:

- https://www.environment.sa.gov.au/topics/plants-and-animals/Living_with_wildlife/seals



The perfectly named Ringtail Possum and its distinctive tail (Photo: Peter Kerrawn)

With a familiar ring to it

There are two native possums that are commonly found in the Adelaide region. The Common Brushtail Possum (*Trichosurus vulpecula*) and the Common Ringtail Possum (*Pseudocheirus peregrinus*).

The most obvious differences are that the Common Brushtail Possum is much larger (1.5–4.5kg) with a bushy black tail, whereas the Ringtail Possum is smaller (<1kg) with a thin brown, white-tipped tail. Brushtails are also solitary and will come to the ground for food, whereas Ringtails are social and arboreal (meaning they live in the trees).

The arboreal lifestyle of the Ringtails means that they get their food from leaves (primarily eucalyptus), flowers, nectar and fruit (from a variety of trees). They also create a circular nest called a drey, which is made from branches, twigs, grass, bark and leaves in the fork of trees or tree hollows. Ringtails rest in their nest during the day with their small family group.

The "ring tail" is prehensile, so it helps the possum with gripping, climbing, and carrying nesting materials.

The biggest threats to these furry friends are habitat clearance and fragmentation, as well as vehicles and predators such as cats, foxes and dogs. Pet owners can help reduce threats to possums by keeping cats and dogs in secure runs or inside at night when the possums are most active.

To find out more about possums, check out our Sharing the garden with possums fact sheet.

References:

- www.wildlifesa.org.au/possums/
- www.adelaidezoo.com.au/animals/common-ringtail-possum/

This Western Pygmy Possum's photo was taken during a population sampling and weighing exercise (Photo: G. Kondo)

Friends of the littlest possums

September 7 was National Threatened Species Day. It's a time to consider the vulnerability of our flora and fauna, like the Tasmanian Tiger that went extinct on the same day in 1936. Luckily, we have a dedicated team of ecologists, rangers and volunteers who are trying to make sure the Western Pygmy Possum (*Cercartetus concinnus*) doesn't meet the same fate. The Western Pygmy Possum is considered threatened in the Adelaide and Mount Lofty Region. Average adults weigh only 13 grams and their bodies measure around 8 cm (plus a tail almost as equally long!). In fact, it is the size, nocturnal habits and cryptic behaviour of this tree-dwelling marsupial that makes them hard to track according to Green Adelaide's Urban Ecologist, Dr Elisa Sparrow.

There have been few sightings across the Fleurieu Peninsula and Mount Lofty Ranges over the decades. However, Elisa and her team have been quick to respond to sightings and set up nesting boxes and monitor populations. Habitat loss (including hollows), predation by cats and mistaken identity as rodents are causes for decline. In addition, as they rely on pollen and nectar from native plants as a food source, these pollinators can also be impacted by fire frequencies and intensities caused by human impacts. They are even known to travel up to 4 km a night in search for food! No wonder they're hard to pin down. Luckily, Elisa's work in Newland Head Conservation Park has led to a growing body of knowledge about possum health and population viability, especially within different sections of the park that have been exposed to fire. Building from this success, new monitoring stations have been set up in Aldinga Scrub Conservation Park in the Green Adelaide region. The fabulous Friends Group of Aldinga Scrub Conservation Park is on hand to monitor the nesting boxes and report back on any activity. Perhaps your local Friends Group is also involved in such important research. Find out more at Friends of Parks SA.

Special mention: the photo above was taken during a past survey. A Wildlife Ethics Permit was required for this survey to enable handling of the possums.

References:

- Know your native wildlife
- Department for Environment and Heritage
- Australian Geographic
- Regional Conservation Assessment

White-striped Free-tailed Bats have distinctive white stripes along the sides of the belly (Photo: Michael Pennay)

Coming your way this summer

Chances are you have heard the squeaking tink tink sound of a small animal at as it flies around Adelaide on warm summer nights, but you probably haven't seen more than the briefest glimpse of its silhouette in the moon or streetlight. What you've encountered is none other than a White Striped Free-tailed Bat, *Austronomous australis*.

This small mammal is one of a select few microbats with an echolocation call that can be heard by humans. It uses echolocation to find food, and despite having small eyes, has great eyesight.

White Striped Free-tailed Bats have chocolate or dark brown fur, paler on the belly, with distinctive white stripes along the sides of the belly and onto the wings. They are one of the largest microbats measuring around 8 to 10cm from head to tail and weighing 30 to 40 grams.

Typically roosting in tree hollows and buildings, they have been observed moving to a new roost every 10 days. They tend to fly up to 50 metres above the ground and largely feed on moths, beetles and grasshoppers. They are known to be either solitary or cluster in small groups of around 10, which can increase to 300 in maternity colonies.

They are preyed on by goannas, hawks and owls and while not endangered, their numbers have decreased due to loss of tree hollows, land clearing and wildfire.

Reference:

- Roost Fidelity and Fission–Fusion Dynamics of White-Striped Free-Tailed Bats (Tadarida australis) | Journal of Mammalogy | Oxford Academic (oup.com)

Fungi and symbiotes

The highly attractive Dyeball Fungus fruits in summer (Photo: Steve Walker)

Eyeball the Dyeball

As soil moisture decreases at the beginning of summer, many fungi avoid sending their spores out into the world. A fungus is mostly made up of mycelium; thread-like structures that spread through soil or other materials to extract carbohydrates and nutrients. The mushrooms we normally associate with fungi are the fruiting bodies which have evolved to spread spores, akin to an apple being just the fruit of the apple tree.

One local genus of fungi that bucks this trend of autumn or winter fruiting is *Pisolithus*, or Dyeball Fungus, as it tends to grow and release its spores during summer. This genus is found all over the world, including Adelaide and its surrounds. Many species in this genus have interesting common names such as Horse Dung or Dog Turd Fungus. They are often yellowish-brown ovals, usually around 5-10cm across, and push up from the soil in mid to late summer.

Unlike many mushrooms that have a cap with the spores hiding underneath, dyeballs are a mass of powdery spores inside a leathery dome that are slowly released as the skin cracks open. They are extremely drought tolerant, often growing in association with gum trees and wattles in challenging environments.

As their name suggests, dyeballs have traditionally been used for dying clothes; imparting a golden to red-brown colour, depending on the preparation method. Another interesting characteristic relates to their symbiotic relationship with plants. Mycorrhizal fungi like dyeballs can interact with plant roots, giving nutrients and water in exchange for sugars that the plants produce through photosynthesis. Many species of trees grow much taller and faster in the presence of mycorrhizal fungi.

To find out more about our amazing local mushrooms, see the Fungi of the Adelaide Hills ID chart.

The Emperor has spectacular purple mushrooms (Photo: Christina Suttner)

Purple reign

You could almost be forgiven for thinking that *Cortinarius archeri*, commonly called the Emperor Cortinar or more simply the Emperor, is straight out of the pages of a Lewis Carrol fantasy. However, this fungus is more fact that fiction.

Commonly found during autumn in Eucalypt or mixed forests, such as those in the Mount Lofty Ranges, these spectacular and distinctive mushrooms have slimy bright purple to violet caps, which fade to brown as they age. The cap can grow up to 10cm wide and is initially convex in shape, before flattening out at maturity. The stipe (stem) is typically 6-8cm long, cylindrical and swollen at the base. The gills are mauve in colour when young, changing to a "rusty" brown as the spores mature.

This species is symbiotic, forming a mycorrhizal association by colonising the roots of Eucalypts. This type of relationship plays and important role in plant nutrition, soil biology and chemistry, because the eucalypt and fungus exchange water, sugars and other nutrients through the soil.

The Emperor grows singly or in small clusters of two to three, growing up through bark and leaf litter and thriving in recently burnt-out forests. It can also be found in suburbia poking up through lawns.

Unlike the fungi in the much-adored adventures of Alice in Wonderland, which possibly alludes to those fungi containing psychedelics, many species of Cortinarius instead contain orellanine, a well-known nephrotoxin. So, the Emperor is also considered unsafe to eat.

With this in mind, when it comes to eating mushrooms, "*my darling, this is not Wonderland and you are not Alice*".

Reference:

- Cortinarius archeri, Wikipedia
- Cortinarius archeri, Australian Fungi
- Cortinarius archeri, FungiOz
- Emperor Cortinar (Cortinarius archeri), iNaturalist

If soil is moist and sticky, you may be transporting Phytophthora cinnamoni (Photo: eatonab12 from Pixabay)

Coming your way this summer

With World Soil Day (Monday 5 December) and International Mountain Day (Sunday 11 December) just around the corner, it is fitting to dig a little deeper and shine a light on a common South Australian soil borne pathogen, *Phytophthora cinnamoni*.

Native to Southeast Asia, the microscopic fungus-like organism is known for its devastating effects on susceptible South Australian native plants, as well as fruits, vegetables, and garden plants.

An effective killer, the pathogen attacks the roots and stem of a plant causing it to rot, in turn preventing the plant from accessing vital water and nutrients. The leaves of the affected plant may begin to yellow or turn red leading to eventual dieback.

Arriving in South Australia in the 1970s from infected berries, it has since thrived in acidic to neutral soils in areas where the average annual rainfall is greater than 400m. Since its introduction ithas spread through the Mt Lofty Ranges, Lower Southeast, Fleurieu Peninsula and Kangaroo Island.

It is very efficient at reproducing, spreading via mycelia (filament-like threads) when plants come into contact with infected plant material in water or warm, moist soil, and via spores (fruiting bodies).

With the seasonal warmer weather and rainfall, a few key actions will help protect our ecological communities and prevent further spread of this incurable disease. Please avoid soil disturbance in wet and sticky areas, keep to designated roads and tracks, brush down vehicles and equipment, and use wash down and hygiene stations when provided to clean your equipment before and after your visit. Enjoy the great outdoors and help educate others about the impact of *Phytophthora cinnamoni*.

Stringybark and Grass Trees are some of many native species affected by *Phytophthora*.

References:

- Government of South Australia, Department for Environment and Heritage, Phytopthora is killing our plants! 2009
- Landscape South Australia, Kangaroo Island, Preventing the spread of Phytophthora 2022

Couch spreads via horizontal stems that can form new roots wherever they touch the ground (Photo: Sam Ryan)

Grasses, algae and other water plants

Don't just sit on the couch

Most gardeners are aware of the invasive and fast-growing grass species commonly known as Couch (rhymes with pooch). Couch, *Cynodon dactylon*, is a drought-tolerant introduced grass that is commonly found as lawn, but also invades other areas of gardens and bushland if given the opportunity. For this reason, it is considered an environmental weed. Couch spreads via its stolons, which are horizontal stems that can form new roots wherever they touch the ground. It has a deep root system, commonly penetrating around 60cm in soil, but with the ability to dive 2 metres in some conditions. This makes it extremely good at spreading - both from an established plant, but also when cut sections are dumped or transported via stormwater.

Removing couch and other weeds is not a quick or easy task, but is possible. This can be a rewarding way to improve a property or local native bushland. February 11 celebrates Women and Girls in Science, and two pioneering scientists in the field of bush regeneration are the Bradley sisters, Eileen and Joan. They developed principles in the 1960s that are commonly referred to as 'the Bradley method' and still used by many people today. The first principle is to work from the best areas first that have low numbers of weeds. By removing these weeds, your best area is improved, and it also doesn't take very long before you can concentrate elsewhere. By contrast, if you start in the worst affected area, it is likely you will run out of time to remove the weeds in your best areas, so those become worse over time.

The second principle is to disturb the soil as little as possible. Many weeds are stimulated by ground disturbance so minimising digging helps reduce the conditions that favour weeds.

The third principle is to avoid over clearing, as nature abhors a vacuum and barren areas will soon be colonised by other plants, which may be weeds. If weeds are taken out, consider replacing them with local native plants or mulch from on the site. The caveat to this principle is in native bushland; the soil may should have a native vegetation seedbank that will allow the bush to regenerate, as long as weeds continue to be removed, thereby cutting down competition for light, moisture and nutrients.

Now is a great time to remove weeds that may be flowering and setting seed. As the old saying goes, one year's seeding is seven years weeding.

Sargassum macro algae with a Southern Pygmy Leatherjacket using it for shelter (Photo: Julian Finn, Museums Victoria)

Why did the ocean blush? Because the seaweed!

When walking along the beach after a storm or large high tide you may see many different types of marine algae or seaweed washed up. The marine ecosystem around South Australia is macroalgae dominated with more than 1500 species found along our coastline.

Macroalgae play a very important role in the marine ecosystem, providing food, habitat, structure and oxygen. *Sargassum* is one of the genera of marine algae that grow around Adelaide. *Sargassum longifolium* is the most common species found along our coastline, but there are several other species that may be found underwater, in rockpools or washed up on our beaches.

Sargassum is a brown alga that grows up to 1m tall from an anchor point on rocks. It typically has small leaves and may vary in colour from dark brown to green. *Sargassum* is often identified from the spherical vesicles that look like berries which grow on the plant. These are filled with gas to help the plant float in the water column.

Sargassum in combination with other seaweeds provides important habitat for small invertebrates such an snails and anchor points for creatures such as seahorses and pygmy leatherjackets. Macroalgae also photosynthesise like land plants, providing the water with oxygen.They trap sediment from the water, acting as a 'biofilter'. Once seaweed is washed up on the beach the decomposing wrack recycles nutrients into the ecosystem and provides food for bacteria and small amphipods.

If you are interested in learning about more about our local marine life dive into the Rockpool, a great coastal and marine hub with lots of resources. Or for land-based beachcombing, have a look at our ID chart to identify common items found on the beach.

Reference:

- https://www.environment.sa.gov.au/files/sharedassets/marine_parks/fact_sheets/snorkelers-guide-to-plants-and-animals-gen.pdf

Asparagopsis taxiformis among green algae (Photo: Papahānaumokuākea Marine National Monument)

Seaweed that is helping to save our climate

Asparagopsis taxiformis, also known as Red Weed, is found in our South Australian coastal waters. The name *Asparagopsis* refers to how similar the seaweed looks to asparagus, and *taxiformis* to its similarity to the Yew tree. Red Weed is found in varying shades of pink, grey and light brown. The pink colour is usually most prominent at the base of the plant.

Asparagopsis has the potential to have a huge impact on our greenhouse gas emissions. CSIRO scientists announced in 2020 that *Asparagopsis taxiformis* and *Asparagopis armata* mixed with regular cattle feed at a rate of 100 grams per cow per day reduced methane production by 90%. When *Asparagopsis* is fed to livestock, a bioactive compound called bromoform is produced, which prevents the formation of methane by inhibiting a specific enzyme in the gut during digestion. This is particularly significant as agricultural production accounted for one quarter of South Australia's greenhouse gas emissions in 2018. Much of these emissions were from cattle and sheep which produce the greenhouse gas methane, primarily when they burp. If one tenth of the world's livestock farmers fed their livestock *Asparagopsis*, it would have the same impact for our climate as removing 100 million cars from the world's roads!

This research is already starting to be put in action in South Australia. In January last year two licenses were granted to allow a commercial seaweed farm to be established on Yorke Peninsula. The production leases and licences for 10 hectares within the east Point Pearce intertidal aquaculture zone, and 30 hectares within the west zone have been granted to the Narungga Nation Aboriginal Corporation to specifically cultivate *Asparagopsis* for including in livestock feed.

References:

- https://www.blue-ecosystems.com/racheliSeaWeed/English/Asparagopsis-taxiformis-(Delile)-Trevisan
- https://www.csiro.au/en/research/animals/livestock/futurefeed
- https://pir.sa.gov.au/alerts_news_events/news/ministerial_releases/seaweed_industry_to_continue_to_grow_in_sa

Groundcovers

Gazanias invading West Beach sand dunes (Photo: Amy Blaylock)

Stop the 'perfect' garden plant becoming a coastal nightmare

Imagine finding a plant with brightly coloured flowers that grows in most places, requires very little water, readily reproduces itself and is hard to kill. The perfect plant, right?

South African Gazanias might seem perfect for the home garden, but for all of the reasons above they are a nightmare for natural ecosystems across our region, especially coastal dunes. They are a declared plant in South Australia, which means their sale and movement is banned, other than for three sterile cultivars.

Whether from dumping of garden waste, deliberate planting or introduction by seed or runners, their movement from gardens into local natural areas results in native ground cover plants being outcompeted. Prevention is much better than the cure because if you pull them up, pieces of the plant left behind can regrow. Their waxy, hairy leaves that prevent moisture loss and sun damage mean you will need to add a wetting agent to your herbicide to get it to stick.

If you want hardy groundcovers or small shrubs with colourful flowers or fruits, try landscaping with local coastal plants such as native or Round-leaf Pigface, Common or Clustered Everlasting, Sweet Apple Berry, Ruby Saltbush, Running Postman or Cushion Fan Flower.

As well as being low maintenance and drought tolerant, these plants provide food and habitat for native bees, butterflies, birds and small lizards.

References:

- Coastal Gardens: a planting guide
- Grow Me Instead
- PIRSA Gazania policy

One-year post-burn, a thallose liverwort and moss (Photo: Amy Blaylock)

A post-fire soil protector, worts and all

When a fire moves through the landscape, soil may be left completely bare, leaving it vulnerable to erosion by wind or water. Subsequent colonisation by mosses, liverworts or hornworts protects the soil crust from damage. You might have seen a liverwort growing in a damp, shady area and mistaken the flattened green blobs or tiny leaves for a lichen or a moss.

However, a liverwort is a non-vascular plant in a group called bryophytes, which also includes mosses and hornworts. These are quite separate from lichens, which are grouped with fungi.

Liverworts, named for the liver-shaped lobes of some species, are descendants of some of the first land plants. The ancestral form is a flattened mass of tissue called a thallus, so these types of leafless liverworts are called thallose. More advanced liverworts grow leaves along upright stems.

Wind or water help liverworts and other bryophytes reproduce, by moving their spores or their gemmae. On close inspection of some thallose liverworts, the lumps and bumps reveal intricate crescents or cups filled with gemmae.

Gemmae are pieces of tissue made up of a single cell or multiple cells which contain the genetic material required for growing a new plant via a process called fragmentation. Drops of rain wash the gemmae out of the cups and transport them to new sites to start growing a whole new liverwort!

References:

- Australian National Botanic Gardens
- Science Direct
- Mosses of South Australia

Orchids

Many people consider the Large Green-comb Spider-orchid to be the king of spider-orchids (Photos: Steve Walker)

The art of seduction, perfected by orchids

There are over 200 species of orchids in Australia but the Large Green-comb Spider-orchid, *Caladenia tentaculata*, is one of the easiest to identify in the Adelaide region. Their large and brightly coloured spidery-looking flowers appear over spring and summer, and can be up to 12cm in width. They are found in open woodland, heathland and forest.

Sadly, the Large Green-comb Spider-orchid and many other native orchids are in decline. Key threats include vegetation clearance, climate change, weed invasion, herbivory/grazing, in-breeding, recreational activities and lack of pollinators.

A lack of pollinators spells particularly bad news for orchids because the Australian orchids are the queens of deception. They deceive male insects – mostly wasps – into believing that they've found a female mate by releasing a chemical copy of the female wasp's pheromones. The orchid flower also mimics the female wasp visually, which further deceives the male. When a male wasp lands on the flower, the shape ensures the male is in the right position to make contact with the pollen (to deposit or pick up). Most Australian orchids that mimic female insects are pollinated by male Thynnine wasps. These are highly specific relationships with each orchid being adapted for pollination by a single species of wasp pollinator. Habitat conservation and restoration is vital to ensure the survival of both pollinators and the orchids that rely on them.

If you're interested in orchids, you might like to download our Native orchids of the Adelaide Hills identification chart. To learn more about your local biodiversity and what you can do to take action, please visit the Land Based Environments section of our website.

References:

- https://www.anbg.gov.au/cpbr/cd-keys/orchidkey/html/genera/Arachnorchis.htm
- https://www.australiangeographic.com.au/topics/science-environment

The Pink Hyacinth Orchid flowers from November to February (Photos: Robert Lawrence)

Pink jewels

The Pink Hyacinth Orchid, *Dipodium roseum*, is currently in bloom, flowering from November to February. The flower spike can have 15-50 flowers from pink to white in colour with mauve blotches. It is often confused with the Spotted Hyacinth Orchid, *Dipodium pardalinum*, however the Pink Hyacinth Orchid has pink stripes on the labellum (tongue). The flower spike can grow up to one metre and is green or brown.

Pink Hyacinth Orchids grow under the shade of the stringybark trees. Interestingly, the orchid does not have leaves or photosynthesise. Instead, it is a saprophyte and lives off decaying material. Many orchid species are saprophytes at the seedling stage, so the evolution to a completely saprophytic species is not surprising. Since it is very difficult to grow these plants in your own garden, they are jewels when you find them in the bush.

For more information about native orchids in the Adelaide Hills check out our ID chart.

References:

- https://www.yarraranges.vic.gov.au/PlantDirectory/Orchids/Dipodium-roseum
- https://www.britannica.com/plant/orchid/Characteristic-morphological-features

Emerging as a small rosette of green and purple red strappy leaves, the flower stem of Disa bracteata can reach 50cm (Photo: Amy Blaylock)

Disa not welcome in our woodlands

Rainfall sufficient to break the season is a welcome relief to those of us in temperate climates who have tired of the heat and the parched landscape. In the remnants of the original woodlands across Adelaide's parks and suburbs, autumn marks a major shift in the vegetation. Rain seeping down through the soil profile triggers a whole range of plants to start actively growing from bulbs, tubers and tussocks. While some plants like the Garland Lily send their flower stems up first, most plants put their stored energy into leaf growth. A flush of orchids, grasses and lilies cover the ground in a carpet of greens.

One unwelcome returnee is the South African Weed Orchid, *Disa bracteata*. From the early 1990s onwards, renowned Adelaide botanist and conservationist Enid Robertson, worked tirelessly with the community to try and eradicate this weed so that the already threatened native understorey plants could be protected from its invasion. Unfortunately, it is now so widespread that some consider it to be naturalised. Dust-like seeds spread easily, and within a few years new plants can produce their own flowers from the previous year's tuber. However, with a bit of practice, the strappy green leaves with purple-red on the underside can easily be distinguished before the flower spike even begins to form in spring, and the tubers dug out and destroyed. There are a lot of plants in our gardens that can become bushland weeds. By knowing what you have in your garden, you can eradicate pest plants before they spread. Local councils have some great guides with colour photographs to help you identify plants and instructions on how best to remove them from your garden.

Some plants are declared which means you have a legal responsibility to control them on your property – you can find out more in the Weed Control handbook or app.

References:

- Weeds in Adelaide
- Native Orchid Society of South Australia
- Images of flower stem
- Campbelltown & Tea Tree Gully weed guide.

Rough Halgania blooms most profusely in spring and summer, but can flower throughout the year (Photo: Amy Blaylock)

Mallee Blue-flower not rough on native bees

Native bees only live for a few weeks and need sources of pollen and nectar to reproduce. But we often unwittingly create food deserts in our gardens, favour European Honeybees with our flower choices, or provide flowers for only a limited part of the year.

To support our native bees, we need to aim for a smorgasbord of native flowers over the whole year. Rough Halgania, or Mallee Blue-flower, (*Halgania cyanea*) has bright blue flowers which offer pollen. It is a small shrub that grows on a variety of soil types but prefers well-drained soils in a sunny spot. In South Australia it is common in some areas like Eyre Peninsula and the Flinders Ranges, but is rare across much of Adelaide.

Make sure you complement it in your garden with sources of nectar so that our bees get a complete meal.

If you're interested in other local native plants that can provide food sources for birds, bees and butterflies, you might like to download our Native plants of the Adelaide plains identification chart.

References:

- Atlas of Living Australia
- Australian Native Plant Society (Australia)
- Seeds of South Australia

False Boobialla is often found growing on coastal dunes (Photo: Jeremy Gramp)

Wattle it be?

Since 1992, 1 September has been officially recognised as National Wattle Day, so it is a great time to learn about and celebrate this wonderful genus of plants. Wattle is the common term for plants in the Acacia genus, and we have over 900 species of them in Australia, making them even more diverse than Eucalypts!

Many Acacias flower in late winter and spring, including the False Boobialla, also known as Coastal Wattle (*Acacia longifolia* ssp. *sophorae*). This shrub is often found growing on coastal dunes or within a few kilometres of the beach. Its size is highly variable, with individuals on the foreshore reaching up to three metres high, while those in more sheltered positions grow as tall as seven metres, and spread nearly as wide.

Unlike most other Acacias that have round fluffy pompom flower clusters, Coastal Wattle produces abundant flower clusters that are fluffy, tubular and yellow. These are an important source of nectar and pollen for many species of insects and birds. The flowers are followed by pods that contain hard black seeds, which have been used as a source of protein and carbohydrate by Aboriginal nations from the east coast to the Nullarbor.

With so many kinds of Acacia, why not see if you can identify the ones growing near you? We've got ID charts on some of our local native plants to help you get started.

Clematis clambering up a fence at Redeemer Lutheran ELC, Nuriootpa (Inset: close up of the wreath stepladder woven out of vine canes)

Old Man's Beard is a Social Climber

The Adelaide region is blessed with several native climbers, which given the chance will use other plants as a stepladder in order survive and thrive. Old Man's Beard, *Clematis microphylla*, is one such climber with its delicate foliage and showy seed clusters with their fluffy white feathers.

Increasingly, our local native plants are being used in landscape design. To design effectively, it is important to look at how one plant complements another aesthetically, but also the conditions in which a plant will thrive.

In the wild, *Clematis* is fond of clambering up shrubs/small trees (eg Native Apricot, P*ittosporum angustifolium*) and, to give it a helping hand to get started, Barossa winemaker Andrew Seppelt has created an upcycled wreath which functions as a stepladder, woven out of cut vine canes (see photo above). Simply plant the climber within 15cm of the intended host shrub, then place the cane wreath at its base and the Old Man's Beard stalks can be wound through the canes to get it started on its journey to shrubby stardom.

So why not get creative and weave your own upcycled wreath stepladder out of natural materials such as vine canes, bamboo or reeds to fully realise Old Man's Beard's stunning potential?

Ideally Old Man's Beard prefers some shade/dappled sunlight rather than full sun, as its natural home is in the understorey with overhead canopy cover. An advantage of using this species is that it will not completely smother its host in the process.

Why not learn more about our local native plants via the Native Plants of the Adelaide Plains ID Chart?

Australian Buttercups are generally found in moist environments (Photo: Steve Walker)

Build me up buttercup

We all know how important it is to use local, native plants in our gardens and community. If you are trying to attract native bees to your gardens it is important to include blue, purple and yellow flowers. A native flower that offers one of these colours to the bees is the Australian Buttercup (*Ranunculus lappaceus*). Otherwise known as the Common Buttercup or the Native Buttercup, this plant produces beautiful bright yellow flowers from July to December.

Plants grow to 70 cm high, with two to 10 flowers on singular or branched stems. Flowers are 2 cm to 3.5 cm wide, with leaves divided into three broad triangles, with soft hairs.

The genus name, *Ranunculus*, is Latin for tadpole, deriving from the Latin word *rana*, meaning frog. It is suspected that this refers to the swampy habitat most species are found in, as they prefer moist, non-stagnant soils. That makes this plant ideal for use around the edges of frog ponds and in rockeries where it gets part to full sun.

If you do bring an Australian Buttercup into your garden space, be mindful that many buttercups can be poisonous. This particular species can cause colic and inflammation in animals, and may cause blindness in horses, but generally animals will avoid eating it due to its yucky taste.

References:

- www.flora.sa.gov.au/cgi-bin/speciesfacts_display.cgi?form=speciesfacts&name=Ranunculus_lappaceus
- www.abc.net.au/local/stories/2010/10/22/3042519.htm
- www.herbiguide.com.au/Descriptions/hg_Australian_Buttercup.htm
- www.victoriannativeseed.com.au/?product=australian-buttercup

Cone-bush at Aldinga Scrub Conservation Park (Photo: Sophie Rogers)

This prickly bush isn't rotten to the core

At first glance Cone-bush, *Isopogon ceratophyllus*, may seem a somewhat unwelcoming looking plant with prickly leaves (hence the species name) and a dead flower head that looks like a pine cone. However, the yellow flowers provide food for birds and insects such as ants, which also help with pollination.

Cone-bush is found growing in sandy soil, and is part of the Proteacea family. It grows to a maximum height of 50 cm and following a fire may re-sprout from a woody lignotuber; a swelling at the base of the stem that stores starches and dormant buds.

Unfortunately, the Cone-bush is particularly vulnerable to root rot, *Phytophthora cinnamomi*, a water-borne slime mould that stops the plant taking up water and nutrients.

There is currently no cure for root rot, so the best approach to controlling it is to try to prevent its spread.

Therefore, it is very important to use shoe cleaning stations found in bushland areas and at park entrances when walking. It is also important to clean vehicle tyres when leaving areas known to have *Phytophthora*.

Beaked Hakea has curved fruit (Photo: Jeremy Gramp)

Beaked Hakea for beaked friends

It is important to select local native plants if you want to attract local wildlife to your backyard or school garden. The Beaked Hakea, *Hakea rostrata*, is a great option as it provides food, habitat and refuge.

The plants grow to dense shrubs, 1-5 metres tall. Their prickly, needle-like leaves help make them an excellent refuge for birds and lizards to hide from predators. Hakea species are also an important food source for birds including honeyeaters and the threatened Yellow-tailed Black Cockatoo, as well as some native butterflies using them for nectar.

In addition to the wildlife attracting qualities, Beaked Hakea is hardy once established, making it suitable for low-maintenance gardens. Its spiny leaves, density and spread, make it a useful barrier plant to direct foot traffic. it is tolerant of full sun or shady areas, prefers well-drained soil and can grow under trees or in the open. It produces white flowers from July to November.

The common name, Beaked Hakea, is derived from the Latin word '*rostrata*', meaning beaked or curved, describing the shape of the plant's fruit.

To find more suitable plants for your garden, check out our Native Plants of the Adelaide Plains identification chart and Creating a Wildlife-friendly Garden resources.

References:

- plantselector.botanicgardens.sa.gov.au/Plants/Details/3377
- australianplants.com/plants.aspx?id=1294
- ahc.sa.gov.au/ahc-resident/Documents/Environmental/Native%20Habitat%20Landscaping%20and%20Gardening.pdf

The Leek Lily is a showy, yellow spring-flowering herb (Photo: Rob Wallace)

Bulbine by name but not nature

The Leek Lily, *Bulbine semibarbata*, which grows along coastal cliffs, in the mallee and in rocky gorges in the Green Adelaide area, is rated as a vulnerable plant species. It is found scattered across South Australia but is more common in the central part, especially on Eyre Peninsula, as well as Queensland, Western Australia, New South Wales, Tasmania and Victoria.

Bulbine means bulb and *semibarbata* means half-bearded, referring to the filaments of the anthers, of which three out of six are bearded. It is an annual with fleshy leaves growing from a base that resemble leek leaves. The yellow flowers, which come out between September and November and grow on stems to 30cm, are six 'petaled' (three petals and three coloured sepals). While the genus name suggests a bulb or tuber, this species has neither.

Leek Lilies make great understorey clumping plants with lots of colour for a native garden and are easy to grow. They readily throw viable seed that will germinate the following season. Being an annual, they die at the end of the flowering season. They tolerate full shade to full sun.

In the arid regions, stock will eat Leek Lilies but there is debate on whether they are poisonous.

So next time you are thinking about a showy, yellow spring-flowering herb, why not consider the Leek Lily?

If you live in the Mt Lofty Ranges, the closely related Golden Lily, *Bulbine bulbosa*, is the plant for your area. *Bulbine bulbosa* produces a tuber that Kaurna people ate. The tuber has been described as 'bland and starchy', but also 'the sweetest of all the native lilies'. A bit confusing!

References:

- Cunningham, G. (1992) Plants of Western New South Wales.
- Prescott, A. 2012. It's blue with five petals.
- Seeds SA - Bulbine semibarbata
- VicFlora - Bulbine semibarbata

Coast Twinleaf is so named because of its branching, succulent leaves (Photo: Jeremy Gramp)

Water a Flower Day

Around the world May 30 is celebrated as Water a Flower Day. However, most of Adelaide's native plants are not usually blooming at this time of year, so this makes us (and other animals) appreciate even more the ones that are in bloom. Creating and caring for our local native gardens is important work as it is therapeutic and healthy for us to get outside and connect with nature, while also being vital to the local creatures that we share the land with.

One flower that you might see on this day is the Coast Twinleaf, *Zygophyllum billardierei*. This shrubby perennial is a scrambling plant which grows along our coastal areas and is very important for helping to stabilise sand dunes. It has bright yellow flowers, which are only about 1cm long, and the distinctive y-shaped fleshy leaves giving rise to its common name.

Being a succulent plant, it is quite drought tolerant, but it does tend to be a short-lived species. Instead, it relies on being able to produce large numbers of seeds to ensure continued populations. Following flowering, it produces fleshy, 4-sided seeds pods each containing four brown, triangular seeds. The seeds have a gelatinous coating which helps glue them to the soil when wet, assisting germination.

Which other local native plants have you seen flowering recently? Don't forget to post your photos of them on social media and use the hashtag #wateraflowerday

If you're interested in our local native plants, you might like to download our native plants of the Adelaide plains identification chart.

References:

- www.understorey-network.org.au/family-index.html?species=Zygophyllum%20billardierei
- scnaturesearch.com.au/plant/Coast%20Twin%20Leaf

The flowers of the Common Eutaxia are yellow-orange with red veins (Photo: Rob Wallace)

X marks the spot

Common Eutaxia (*Eutaxia* microphylla), sometimes also called the Small-leaved Bush-pea, is a small shrub growing to approximately knee height. It can be found throughout the southern part of South Australia, growing in mallee, heath and woodland communities. It's also found in New South Wales, Victoria and Tasmania. It is an important understorey plant in the areas where it grows.

As you can see in the photo above, Common Eutaxia produces an abundance of attractive yellow and red pea flowers, with the flowering season usually occurring between August and November.

A characteristic of this species of *Eutaxia* is the short spiny ends of the branches and also its tiny leaves. These leaves are less than a centimeter long and between 0.5 to 3 mm wide.

The leaves grow in pairs on opposite sides of the stem. As you move up or down the stem each successive pair of leaves is at right angles, in other words they are rotated 90 degrees around the stem. When viewed from above this forms an X pattern which is known as 'decussate'. In Latin the Roman numeral for ten, *deca*, is an uppercase 'X'.

If you are looking to increase the variety of animals in your garden then the Common Eutaxia is a great option. All sorts of insects make use of different parts of the plant. Native bees collect pollen and nectar from the flowers; caterpillars of the Fringed Heath-blue butterfly eat the buds, flowers and occasionally the young leaves; ants eat the part of the seed called the aril; and some beetles lay eggs on the seed and when they hatch, drill into the seed to eat the protein rich contents. In addition to all those insects, honeyeater birds are also attracted to the flowers.

If you would like to learn more about some of our other local native plants then check out our Native plants of the Adelaide Plains identification chart.

References:

- South Australian Seed Conservation Centre
- Bonney, Neville. (1994). What seed is that?

Unfortunately, this pretty flower is a highly invasive weed (Photo: Steve Walker)

It's coming up roses...unfortunately!

Guildford Grass, *Romulea rosea*, also known as Onion Grass (but a different plant from Onion Weed), is a relatively small South African iris that was introduced into Australia because it was considered an attractive ornamental garden plant. Like many South African garden plants, it has since established itself as a major weed in many parts of Australia.

It is highly invasive and difficult to control due to its ability to spread by seed and through its corms. These brown fleshy underground stems store food so that the plant can survive difficult conditions, such as harsh winters and summer droughts. In addition, Guildford Grass has slender but extremely fibrous leaves that can easily damage the blades of lawn mowers and other grass cutters. These fibres are also a problem for livestock because they are not readily digestible.

The species name rosea describes the rosy colouration of the flowers, which are typically pink, pale violet or lilac, with a yellow centre surrounded by a white band. The flowers grow singly on a short stem 3 to 12cm long and the leaves, which grow 8 to 65cm long but are only a few millimetres wide, are clustered together at the base of the plant. Flowering usually occurs during spring.

The flowers produce a fruit which consists of a small cylindrical capsule filled with numerous reddish-brown seeds. These capsules split open when mature, releasing the seeds, which can then be dispersed by water or when the area is mowed or slashed. They have become established in the California and other parts of the United States following the importation of contaminated clover seed from Australia.

So, while some people may find them attractive plants to have in the garden, they pose a significant threat to our ecosystems and agriculture. See the Adelaide gardens – a planting guide for native grasses, groundcovers and herbs that are just as attractive, if not more so.

These native species will enhance the biodiversity value of your garden by providing food and shelter for butterflies, birds and other wildlife.

These purple flowers smell sweet like chocolate and are a food source for native bees (Photo: Jeremy Gramp)

Chocolate gives our native pollinators a buzz

Whilst walking through many of our parks and other areas with native vegetation, you may see tall stems (20 to 30 cm tall) with delicate purple pink flowers. If you pause to smell the flowers you may find they smell sweet like vanilla, caramel or chocolate. The Chocolate-lily (*Arthropodium strictum*) or Nodding Chocolate-lily (*Arthropodium fibriatum*) can both be found in open areas with herbaceous understorey in many of our local open spaces.

These native plants in the lily family are coming to the end of their flowering season (September to November). Whilst on the surface the sweet-smelling flowers may be gone, below the soil surface these plants have juicy tubers that can be roasted with a pinch of salt or eaten raw. These tubers are a food source known to have been eaten by Aboriginal people.

The plants are also great for our native bees because they provide essential pollen. They need to be pollinated by buzz pollinators, such as the blue banded bee, so a great choice to attract and feed native bees in your garden.

These lilies are easy to grow at home. They need well-draining soil, 20cm deep so the tubers can develop, and are suitable in a full sun or partly shaded area of the garden. Have a look at your local native plant nursery to add some native sweet-smelling flowers to your garden.

References:

- Hogendoorn, K. (2019) Food for native bees
- https://tuckerbush.com.au/chocolate-lily-arthropodium-strictum
- https://en.wikipedia.org/wiki/Dichopogon_strictus

Mountain Daisy (Photo: Rob Wallace)

Flower Power

March 12 is Plant a Flower Day. An excellent local native flowering plant to consider growing at home is the Mountain Daisy (*Ixodia achillaeoides*). It is a small perennial shrub up to 2 metres tall that grows in most soils in Adelaide. You can grow this plant at home in a rockery, as a background shrub or in a container. It prefers well-drained, moist soil in a sunny position. You can easily grow the plant from a cutting, and it responds well to a hard prune after flowering. From Spring to Summer, the Mountain Daisy produces many clusters of papery white daisy flowers.

The Mountain Daisy has become increasingly popular in the flower market industry over the last 20 years. Like many wildflowers, cultivation began from natural reserves. Fortunately, this is now widely recognised as unsustainable so they are now grown specifically for cultivation.

In 2001, the South Australian Research and Development Institute researched the potential for the Mountain Daisy to become a popular national and international variety in the cut and dried flower industry. They tested species from South Australia and Victoria for samples that had a longer stem and were more robust; important features for florists and in transportation.

They also researched the risks for disease problems. Like many monoculture (one variety) crops, they are susceptible to disease problems, so growing your own local native flowers in a mixed garden to put in your vase at home, or simply admiring them growing undisturbed in the bush are the most sustainable options.

References:

- https://www.agrifutures.com.au/wp-content/uploads/publications/00-186.pdf
- http://anpsa.org.au/i-ach.html

Native bee collecting pollen from a Grassy Bindweed flower. For scale, the flower is 2.5cm wide (Photo: Amy Blaylock)

Provide support for this delicate climber

Grassy Bindweed (*Convolvulus remotus*) is a small native climber with pale to pink flowers and lance-shaped leaves. Climbers are plants that grow up the stems of other plants or structures, meaning they can get more sunlight without having to expend the energy of growing a stem sturdy enough to hold up the weight of all their stems, leaves and flowers. Some climbers use tendrils to aid their climbing, like you see on snow peas or cucumbers using a trellis, or have a particular habit, like ivy burrowing into the cracks of tree bark or buildings to brace for further upward growth.

Grassy Bindweed often twists and grows around its own stems while growing along the ground or up another plant, which reflects the genus name which comes from the Latin *convolvulere* meaning 'to intertwine'. Originally growing across Adelaide and the foothills in tussock grasslands and Mallee Box, Grey box, Blue Gum and Red gum woodlands, grazing, clearing and urbanization have now restricted this plant to protected areas in reserves and parks like Belair and Para Wirra, the recovering grassland on the southern side of Victoria Park racecourse and some private land. These locations also suit another species of bindweed, *Convolvulus erubescens*, which can easily be distinguished by its multi-lobed leaves.

The delicate Grassy Bindweed flowers throughout the year, though mainly in spring, making it a valuable source of pollen for insects. Try adding some to your garden – they don't take up much space.

If you're interested in growing local native plants like Grassy Bindweed in your garden, here's more information about what to buy and nursery options.

References:

- eFlora of SA fact sheet – Convolvulus remotus
- Free dictionary
- It's blue with five petals. 1988. Ann Prescott
- Mangroves to Mallee: The complete guide to the vegetation of temperate South Australia. 2009. Todd Berkinshaw

Common Fringe-myrtle provides nectar and pollen for animals such as this silk bee (Photo: Jeremy Gramp)

It might be common, but it's still a star!

Having just celebrated Australian Pollinator Week, now is a great time to be thinking about how you can increase the number and variety of pollinators in your garden.

One of our local native plants that you might like to consider is the Common Fringe-myrtle, *Calytrix tetragona*.

It is a bushy shrub growing to 3 metres tall, though usually less. It has small, thin leaves that have a spicy fragrance when crushed, however the star of the show is its flowers. From late winter through spring, it produces masses of white to pink star-shaped flowers approximately 1 cm in diameter. There are often so many flowers that it is difficult to see the leaves.

These flowers attract a range of insect pollinators, including native bees, flies, beetles and moths.

A key identifying characteristic of this plant, which is very obvious after the petals have dropped, is the long fine red bristles of the sepals. Sepals are modified leaves which are part of the flower, protecting the petals when the flower is a bud.

Common Fringe-myrtle, as the name suggests, is common throughout southern South Australia and also other states from Western Australia all the way round to southern Queensland.

It is found in a wide range of habitats including heath, mallee and open forest. It's relatively easy to grow, so well worth considering for your garden. You might also like to check out our Plants of the Adelaide Plains ID chart to discover other suitable local native plants.

Reference:

- Prescott, Ann (2012) It's Blue with Five Petals - Wildflowers of the Adelaide Region

Trees

Mountain White Gums growing near Norton Summit (Photo: Jeremy Gramp)

High altitude, high rainfall, highly engaging

This Friday 31 July we celebrate Schools Tree Day, where students across Australia plant seedlings and restore thousands of hectares of unique Australian landscape. It is a great way to inspire your students to learn about the local environment while playing an active role in their community.

In recent years two schools in the Adelaide Hills have been focussing their efforts on one of the rarer trees in our region, the Mountain White Gum (*Eucalyptus dalrympleana*). In South Australia it is only found in higher parts of the Mount Lofty Ranges, growing in pockets of fertile soil in areas receiving high rainfall. Although it is rare in South Australia it is more common in New South Wales, Victoria and Tasmania.

It is a majestic tree, with a very straight trunk covered in smooth white bark. The flowers are white, appearing in autumn. In South Australia it can reach heights of 10-43m, while in the eastern states it reaches 60m tall. Because of this it is not really suitable for home gardens, however the schools mentioned above have been active in trying to restore the Mountain White Gum throughout their communities. They have collected seed and propagated seedlings to provide to local landholders to assist their revegetation efforts. One of the schools is also revegetating a site on their school property with Mountain White Gums.

Have you thought about how your school might celebrate Schools Tree Day? Planet Ark has developed a range of lesson plans and activities to inspire you.

If you are interested in learning more about the trees throughout our region, we have a series of identification charts available for you to download. There are specific eucalypt charts as well as general tree charts, covering areas including Grey box woodlands, Mallee box woodlands, Manna gum woodlands and Stringybark forests. All the charts can be found on the local native plants section of our website.

Reference:

- Nicolle, D. 2013. Native Eucalypts of South Australia

Cup Gum is well-suited to gardens in high rainfall areas (Photo: Paul Asman and Jill Lenoble)

My Cup Gum runneth over

Schools' Tree Day is on Friday 30 July, and whether it's possible to get outdoors and do some planting or not, there's plenty of learning to be done about some of the amazing plant species native to South Australia and why they are so important.

This week, to celebrate the occasion we wanted to feature one such plant - the Cup Gum or *Eucalyptus cosmophylla*. This is an eye-catching tree, deriving its species name from the Greek *cosmos* (meaning "ornament") and *phyllion* ("leaf") due to its large, tapered leaves which are considered quite ornamental. It has cream flowers that rarely age to pink, produce large amounts of nectar and attract bees and birds, which are of course vital to our urban landscape and play a key role in pollination for many plants.

If you are planning to add to your garden, this species can a good choice of tree because, apart from attracting pollinators and a variety of native birds, it's a smaller species of eucalypt which only grows to between three and eight metres tall, so it won't crowd out your understorey plants. It also spreads to form a reasonably sized canopy about 5-10 metres across, which can help provide shade where it's needed.

Do make sure to check with your local nursery before you select it though, because it isn't a particularly drought-tolerant tree, so it will do best in areas with high rainfall. As an idea, in our region this species is most commonly found around the southern Mt Lofty Ranges.

References:

- https://dn.com.au/Native_Eucalypts_of_South_Australia_pages/Native_Eucalypts_of_South_Australia_Eucalyptus_cosmophylla.html
- https://www.gardensonline.com.au/GardenShed/PlantFinder/Show_3266.aspx
- https://spapps.environment.sa.gov.au/SeedsOfSA/speciesinformation.html?rid=1808
- https://www.tandfonline.com/doi/pdf/10.1080/0028825X.1979.10432566

The distinctive Brown Stringybark, gumnuts and a White-throated Treecreeper foraging for insects. (Photos: Rob Wallace, Jeremy Gramp)

What's brown and stringy?

Friday 29 July is Schools Tree Day. Each year, more than 3000 schools participate nationwide in environmental activities including tree planting, seed collection, bush regeneration or site maintenance. The day can also include a visit to a previous planting site to carry out mulching, watering and weeding.

One of the more identifiable trees in our region is the Brown Stringybark, *Eucalyptus baxteri*. As the name suggests, this tree is covered in rough, coarse, stringy bark.

It is restricted to higher rainfall areas, such as the Mount Lofty Ranges; growing on well drained, fairly poor soils that are sandy or gravelly. It can grow to 15m tall, however on really exposed sites it can be more shrub-like only reaching about 2m in height. The trunk is often multi-stemmed.

Brown Stringybarks are sometimes confused with the other species of stringybark that we have in our region, the Messmate Stringybark. A great way to tell them apart is to look at the fruits; commonly called gumnuts. Messmate Stringybarks have a wine glass shaped fruit, while Brown Stringybark fruits are rounded with a protruding four-sided cross-shape on top. It looks like the slot for a Phillips head screwdriver.

Stringybark forests and woodlands are important habitats for a number of animal species, including the endangered Southern Brown Bandicoot which uses the dense understorey of the woodland. Another animal that you might be lucky enough to see on the Brown Stringybark is the White-throated Treecreeper. They seek out ants and other invertebrates in the fissures in the stringy bark. They forage by spiralling up the trunks and larger branches, and when they reach the top, they head to the base of a nearby tree and start again.

How are you planning on celebrating National Tree Day this year? Planet Ark has developed a series of free resources to get you started, including lesson plans and activity sheets.

Reference:

- Nicolle, D. 2013. Native Eucalypts of South Australia

Ecosystem processes

White-bellied Sea Eagle: Endangered in SA but not listed nationally (Photo: Steve Walker)

Threatened Species

Did you know that Monday 7 September is National Threatened Species Day? There is so much to know about threatened species and so many opportunities for students to inquire about and research this incredibly important topic. After all, the more we understand about threatened species, the more we can do to help protect them.

One of the first things to note is the definition of a threatened species. The internationally recognised IUCN Redlist defines seven conservation statuses, from Extinct through to Least Concern. Any species falling into the three categories of Critically Endangered, Endangered or Vulnerable is considered to be a threatened species. You can find out more about this on the IUCN website.

When a species is listed as threatened at a state level, it means it's protected under state legislation (in South Australia this is the National Parks and Wildlife Act 1972). Nationally threatened species are listed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. There are numerous reasons for listing a species, including population size and geographic range.

Interestingly, a single species might be listed as threatened nationally, but not at a state or regional level, and the same is true in reverse. For example, the White-bellied Sea Eagle (Haliaeetus leucogaster) is listed as Endangered in SA; however, in most other states its population is more secure and therefore at a national level it is not listed.

So, what can we take away from all this? The key message is that every ecosystem is different and the species within it all have a role to play. Removing just one species can have far-reaching impacts on the whole system, so it is up to all of us to look after our native biodiversity as best we can. Protecting threatened plants can be undertaken in a number of ways, including through revegetation and conservation, while protecting animal species also involves creating and preserving habitat. We also need to control pest plants and animals that might compete with our precious natives for resources like food, shelter, sun and water.

Learning about which species are threatened and why is the first step in taking action to conserve them. So, why not start now?

Peppermint Box Grassy Woodland (Photo: Ben Simon, Goolwa Wellington Local Action Planning Group)

Communities under threat

September 7 each year marks National Threatened Species Day. It's a time to reflect on the species we've lost and an opportunity to learn about what's threatened around us and how we can protect what remains. We often think about individual plants and animals as being threatened, but did you know that entire ecological communities can be listed under the Environment Protection and Biodiversity Conservation Act 1999? In SA, we sadly have 11 ecological communities listed as threatened. One of these, Peppermint Box Grassy Woodlands (PBGW), is found in the Green Adelaide region and is listed as critically endangered due to a significant decline in area and integrity.

Endemic to South Australia, PBGW are characterised by open to dense woodlands with a tree canopy of low trees. The understorey is dominated by native grasses and herbs with scattered shrubs. Mosses, lichens, leaf litter and bare ground are common and important features of the ground layer. Many plants and animals of the ecological community are grassy habitat specialists or woodland-dependent species. For this reason, previously undisturbed sites are important refuges for species sensitive to cultivation and fertilizers; such as orchids, and soil-dwelling invertebrates, reptiles and amphibians. Historically, PBGW were cleared for cropping and used for grazing. Key threats to the ecological community include clearing, grazing and weed invasion. Other threats include road and rail maintenance activities, recreational activities, impacts of climate change and the effects of habitat fragmentation.

So, what can be done to protect these important sites? Landowners, both private and public, are working together to stop further decline and restore recoverable areas. Recovery actions can include protecting remnant sites, weed control, removal of pest animals and excluding continuous grazing from remnants to allow for natural regeneration from soil-stored seed. Regeneration and revegetation of areas around remnant Peppermint Box Grassy Woodlands can expand and connect existing remnant areas.

Do you know what other species and ecological communities are threatened in South Australia? If you're interested in your local plants and animals and how you can help protect them, you might like to view our plants and animals resources.

Green Adelaide is funded by the landscape levy through the *Landscape South Australia Act 2019*

GREEN ADELAIDE

Follow us