

Teacher's Guide to a Biodiversity Blitz



What is a Biodiversity Blitz?

In Greater Dandenong, we define a Biodiversity Blitz as a citizen science project where the public can actively participate to record their sightings of nature through the [iNaturalist app](#).

September is Biodiversity Month and also the month we run our Biodiversity Blitz. We encourage you to record as many observations as you can during September.

Why a Biodiversity Blitz?

Biodiversity Blitzes are an amazing mix of science and outdoor recreation – a way for families to engage in science at their pace. Through your contribution to the Biodiversity Blitz, communities can together create a significant resource of biodiversity data in their local area and across Australia.

Bio = life

Blitz = to do something quickly and intensively.

A **'Biodiversity Blitz'** is a concerted effort to discover and record as many living things as possible within a set location over a limited time period (usually 24 to 36 hours).

Source: 'Australian Guide to Running a BioBlitz'

Tread Lightly

Please respect our plants and wildlife when taking photos. Be mindful of nesting season for birds (spring) and flowering times for many orchids and herbs and try not to damage or disturb our plants or animals.

If you see young birds on the ground, please leave them unless they are obviously injured. They are fledging the nest and learning to fly, and their parents will be close by. **If you come across injured wildlife, please contact Wildlife Victoria on (03) 8400 7300.**

What do you need?

- Outdoors
- smartphone
- an eager eye

Head into your local nature reserve, or even your own schoolyard and see how many species you can photograph. Use the *iNaturalist* app to upload your pictures and try to identify the species you find!

Step 1 Download the free *iNaturalist* app and register

Step 2 Join the Biodiversity Blitz 2022 – City of

Greater Dandenong project online at

<https://www.inaturalist.org/projects/biodiversity-blitz-2022-city-of-greater-dandenong> to participate

Step 3 Take photos of all the wild species you can find and upload them to *iNaturalist*.

Citizen science = scientific projects where the public actively participate with scientists to conduct research and record their findings.

Up for the challenge? See if you can find...

- ✓ Seven different things with wings
- ✓ Three types of mushroom
- ✓ Six different coloured flowers
- ✓ Nine different types of trees
- ✓ Two creepy crawlies
- ✓ Something smaller than your fingernail
- ✓ Something that swims
- ✓ A plant with fuzzy leaves
- ✓ A plant with long leaves
- ✓ Something scaly



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Activities around water

Freshwater Macro-invertebrates

Macro = seen with the naked eye

Invertebrate = no backbone

Exploring the hidden world in our freshwater bodies can be very interesting. The small creatures that are visible to the human eye living in this environment can indicate whether the water quality is good or bad.



This is a great lunchtime activity that can be prepared prior. Collect the water sample the morning of, swishing the net in the water and also stirring up the bottom to get some of the species that live in the leaf litter and pond dirt.

All you need is:

- Small net
- Bucket
- Plastic spoons
- Plastic white ice cube tray or similar tray
- Identification guide for freshwater macro-invertebrates (if you can print off and laminate for ongoing use). **Resources below:**

<https://www.melbournewater.com.au/water-data-and-education/learning-resources/browse-resources-year-level/waterbug-identification>



Frog Listening

Frogs are great at hiding, particularly during the day and when it is dry. In fact some of our frogs bury themselves underground during the dry season. But when it rains, they find their voices and sing very loudly – crick crick, bonk bonk!

Wet weather is a great time to record frog calls and learning your frog calls makes it a whole lot easier to identify which frog you are listening to.

Download the Melbourne Water Frog Census app <https://www.melbournewater.com.au/community-and-education/waterwatch-programs/frog-census> to identify the frogs by their calls.



The **five key species of frogs** found in South East Melbourne are listed below - but we encourage you to find one not on this list:

- **Striped Marsh Frog** *Limnodynastes peronii*
- **Spotted Marsh Frog** *Limnodynastes tasmaniensis*
- **Common Froglet** *Crinia signifera*
- **Southern Brown Tree Frog** *Litoria ewingii*
- **Pobblebonk** *Limnodynastes dumerillii*



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Use this to guide the design of your frog bog

Much of Greater Dandenong's swampy areas have been cleared and drained. Building a shallow pond for frogs is a great way to attract them to your school and also to provide much needed habitat for these amazing creatures.

Frog calls bring nature back to your schoolyard.

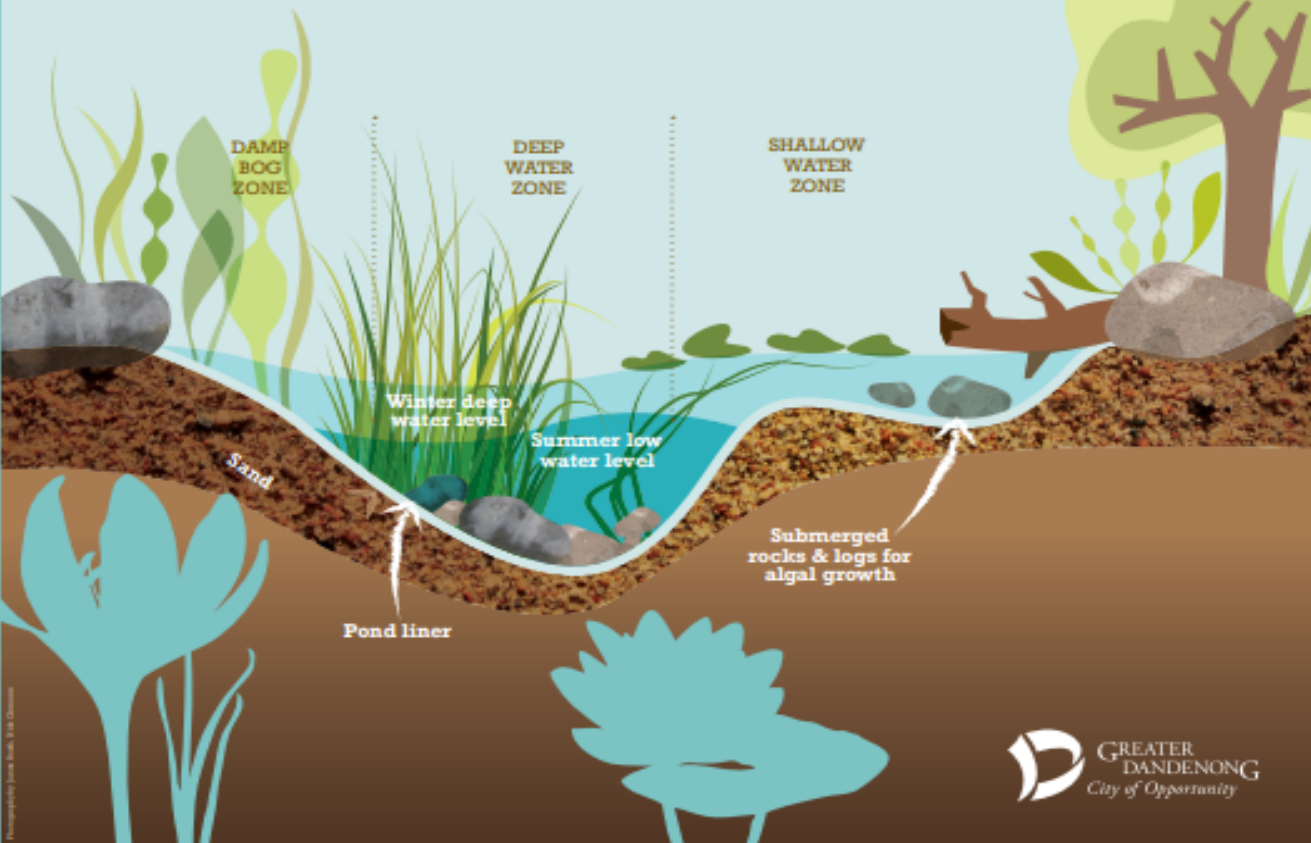
For more information on attracting wildlife to your school grounds visit: <https://www.greaterdandenong.vic.gov.au/biodiversity-nature-and-wildlife/growing-biodiversity>



A chorus of native frogs calling through the evening is a welcome announcement that spring is in the air. Frogs need a sheltered well-vegetated pond (free from fish) for the egg and tadpole stages of their life cycle. Breeding time is when you hear frogs calling. During the non-breeding season they are quiet and live away from the water. Tadpoles feed on algae, decaying plants and tiny water bugs while adult frogs eat larger insects.

RECIPE FOR A FROG POND:

- Locate your pond in a low-lying section of your garden that has 70% shade.
- Avoid locating your frog pond under trees which may drop leaves.
- Ensure your pond includes shallow entry points and deeper sections for potted aquatic plants.
- Add rocks and logs and cover the bottom with gravel.
- Fill with rainwater or tap water (chlorinated tap water needs to stand for 5 days).
- Add a variety of indigenous and semi-aquatic plants, as well as plants that thrive in moist soil.
- Practice natural pest control.
- Prevent cats from entering your pond surround.

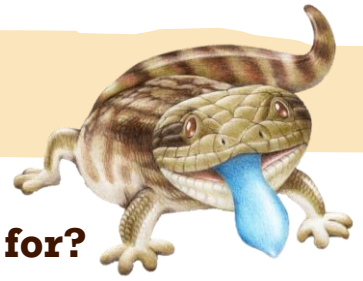


The diagram illustrates a frog bog pond with three distinct zones: a **DAMP BOG ZONE** on the left with tall reeds, a **DEEP WATER ZONE** in the center with a 'Winter deep water level' and 'Summer low water level', and a **SHALLOW WATER ZONE** on the right with lily pads. The pond is lined with a **Pond liner** and contains **Sand** and **Submerged rocks & logs for algal growth**. The background shows a tree and a lily pad.

GREATER DANDENONG
City of Opportunity



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Rakali Factsheet

One of our more secretive animals in Greater Dandenong is the Rakali – the largest of Australia's rodents – about the size of a platypus fully grown.

This native animal is often fondly referred to it as an Australian otter because of its aquatic nature (it is an aquatic predator) and big webbed hands and feet.

What does it look like?

The white tip to the tail is the most obvious identifying feature of the water-rat, whether the animal is in the water or on land.



Carolyn Hall

- **Muzzle** is blunt with a dense whiskers
- **Hind feet** are big, partly webbed and paddle-like
- **Tail** is well-furred and thick to help serve as a rudder when swimming
- **Body** is elongated and streamlined
- **Ears** are small and can be folded flat against the head for a streamlined profile
- **Fur** is soft and lustrous, drying quickly and helping to keep the animal warm in the water



Con Boekel

What to look for?

- ✓ Rakali can be found in all types of water including **wetlands, dams, creeks** and **drains**
- ✓ Look for them where the water is calm so you can see the **ripples** made by them swimming or diving
- ✓ Having **binoculars** can help – Rakali can look like a turtle or a water bird when it is in the water and some distance away. Look for the long black and white tail
- ✓ If you are lucky, you may see one on the **bank grooming** – they are surprisingly large and won't be mistaken for a rat
- ✓ The best time of the year to look out for Rakali is in **autumn** – they can often be sighted swimming in the middle of the day at this time.

Did you know?

Platypus and Rakali live in the same habitat. Unfortunately, we no longer have platypus in our creeks in Greater Dandenong. Rakali have been spotted in the Dandenong Creek.



Rakali in Greater Dandenong

Rakali are becoming very rare due to habitat destruction, pollution, predation and poisoning (they are often mistaken for introduced rats). They play a very important role in our ecosystems and are a key predator in our waterways. Identifying areas that support Rakali is a step in the right direction for improving our stream habitats for platypus.

For more information visit: <https://platypus.asn.au/>



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Activities around the bush

Logs and Leaf litter

Logs, along with fallen branches, sticks and leaves provide shelter and food for a range of mammals, reptiles, amphibians and invertebrates.



A fallen tree that has been left to decay on the forest floor will be a food source for insects, spiders, centipedes, slugs and snails which in turn provide food for lizards, birds and marsupials.



Logs become homes for echidnas and basking places for blue tongue lizard. The crevices provide protection from predators and are also a damp refuge for frogs during the day.

Invertebrate = has no backbone

Mollusks (snails, and slugs)

Annelids (worms)

Arthropods (such as insects, spiders, and yabbies)



Vertebrate = has a backbone

Mammals = warm blooded, has hair/fur, feeds milk to young, gives birth to young

Bird = warm-blooded egg-laying animal with feathers

Reptile = cold blooded, scales, mostly lays egg but can give birth to young

Amphibian = cold blooded, aquatic larval stage, terrestrial adult

Fish = a limbless cold-blooded animal with gills and fins

Leaf litter are wonderful places to look for macro-invertebrates - slaters, pin-bugs, snails and millipedes. Pick up a stick and gently turn the leaves over. It will smell damp and like compost – and it is thanks to these small creatures that the dead leaves are composted and broken down into nutrients for the soil.

Who digs the holes?

Many creatures live under ground, in specially dug holes. Animals that do this include spiders, yabbies, native bees, burrowing wasps. Cicadas emerge from holes in the ground and attach to a tree, before they emerge as noisy, flying adults. Echidnas dig shallow open burrows to sleep in. Foxes dig large deep tunnels that extend for up to 2m under the ground. Do some investigation. Watch and observe, **BUT** don't put your fingers in the hole.

Special equipment

No special equipment is needed.

Skinks and lizards love to sun themselves on a log but are very quick to scurry away so approaching quietly and watching carefully is a good trick. Different seasons will reveal different animals and lifecycles.



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Activities around the bush

Branches and Hollows

Tree hollows are holes and spaces that form in older trees.



As a tree ages, it is exposed to wind, temperature extremes, lightning, rain, and attacks from insects such as beetles and termites and fungi and bacteria. These forces, along with the dropping of limbs all work to create a weakness in the tree that will eventually form a hollow.



A hollow large enough for a parrot to nest in can take more than 100 years to form but Galahs and other parrots are very good at chewing out the wood to make larger hollows.

Spring is the best time to observe birds that nest in hollows. Sometimes you need to sit quietly and observe for:

- signs of chewing outside the hollow
- birds climbing into/out of the hollow.

Up to **80% of Australia's native wildlife use hollows** for breeding or shelter. See if you can spot the following animals or their hollows:

- ✓ **Microbats** (dusk on warm nights)
- ✓ **Possums** (nocturnal)
- ✓ **Gliders** (nocturnal)
- ✓ **Owls** (nocturnal)
- ✓ **Yellow-tailed Black Cockatoo**
- ✓ **Sulphur Crested Cockatoo**
- ✓ **Rainbow Lorikeet**
- ✓ **Galah**
- ✓ **Corella**
- ✓ **Australian Wood Duck**
- ✓ **Kookaburra**
- ✓ **Pardalote** (hollows in dirt and stream banks)

Nest boxes



Dandenong Council has a nest box program where we identify areas to put up nest boxes for parrots, Kookaburras, Wood Ducks, possums and bats. These are also good places to sit and observe. You may see nibble marks on the box or even a furry tail hanging out.



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Birdwatching

Birdwatching is an activity that is loved by many different people – no matter what your age. It can be as simple as walking through your local bushland and observing the various birds that live there. Or you can get all the gear – books, binoculars and survey sheets and go all out.



Using the iNaturalist app to record birds is the easiest way to record your findings and the data on local birds helps Council to make decisions around their care and conservation. The iNaturalist community will also help you identify those birds that you might not know.



See if you can you find...

- ✓ Yellow-tailed Black Cockatoo
- ✓ Silvereeye
- ✓ Superb Fairy-wren
- ✓ Eastern Yellow Robin
- ✓ Straited Thornbill
- ✓ Eastern Spinebill
- ✓ New Holland Honeyeater
- ✓ Red Wattlebird
- ✓ Eastern Rosella
- ✓ Red-rumped Parrot
- ✓ Tawny Frogmouth
- ✓ Kookaburra

List of Reserves

There are many fantastic bushland parks to visit in our Council. Below are some special reserves that may be within walking distance from your school and what you might spot when you visit:

- **Tirahtuan Park** – Kriegel Way, Dandenong – Latham's Snipe, wetland birds, bushland birds
- **Dandenong Wetlands** – Stud Road, Dandenong - wetland birds
- **Dandenong Creek Reserve** – Brady Road, Dandenong - Pollinator Observatories, wrens, thornbills, robins, Rakali
- **Falkiner Reserve** – Falkiner Crescent, Dandenong - wrens, Latham's Snipe, migrating Swift Parrot and other parrots
- **Fotheringham Reserve** – Alexander Parade, Dandenong – Kookaburras, Butcher Birds, Tawny Frogmouths, pardalote, Australian Wood Ducks
- **Frank Pellicano Reserve** – National Drive Dandenong South – Owls (including Powerful Owl), ibis, storks, spoonbills, Willy Wagtails, birds of prey, Kookaburras
- **Tattersson Park and surrounds** – Keysborough – wetland birds including Blue-billed Duck, ducks, Black Swans, Pelicans, parrots
- **Pencil Park-Hidden Grove Reserve** – Hidden Grove Boulevard, Keysborough – birds of prey, wetland birds including ducks, swans, grebes, Moorhens, coots, Australian Wood Ducks, Purple Swamp Hens, wrens, Willy Wagtails, Silvereeye, robins
- **Roth Hetherington Park** – Woollahra Avenue, Keysborough – parrots, wattlebirds, Tawny Frogmouths, Silvereeye
- **Coomoora Flora and Fauna Woodland Reserve** – Serpentine Avenue, Springvale South - parrots, wattlebirds, Tawny Frogmouths, Silvereeye, birds of prey
- **Alex Wilkie Nature Reserve** – Mackay Street, Springvale South – Yellow-tailed Black Cockatoo, Galah, parrots, wattlebirds
- **Amersham Reserve** – Amersham Avenue, Springvale South – nesting parrots, Australian Wood Ducks, Pollinator Observatories
- **Fotheringham Reserve** – Alexander Avenue, Dandenong – Kookaburras, Butcher Birds, Tawny Frogmouths, pardalote, Australian Wood Ducks



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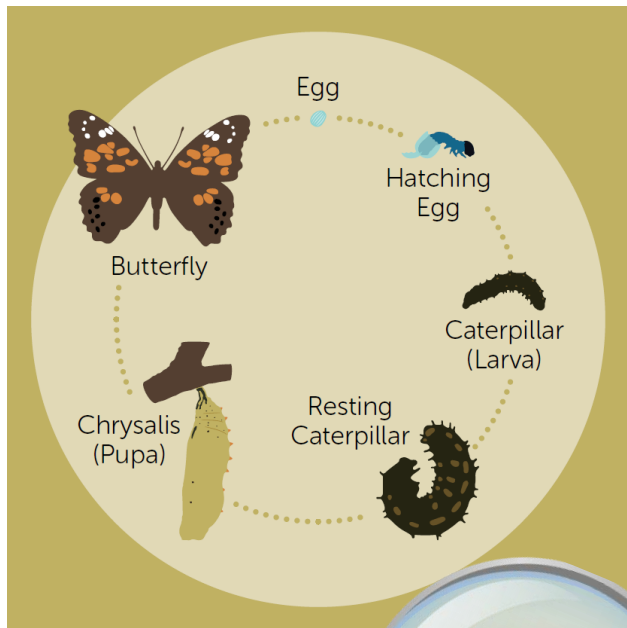
Butterflies

Yellows, browns, blues, coppers – we like to identify butterflies by their colours, which can be very bright or very camouflaged. Butterflies can be seasonal, becoming harder to see in the colder months and then very active from spring through to autumn.



The best place to find butterflies are around their caterpillar host plants and flowers – which is almost anywhere.

Butterfly lifecycle



Help us record more species through the Biodiversity Blitz



Common Butterflies List for Greater Dandenong

Hesperiidae (Skippers)

Southern Grass-dart Butterfly *Ocybadistes walkeri*
Donnysa Skipper Butterfly *Hesperilla donnysa*
Splendid Ochre Butterfly *Trapezites symmokus*
Bright Shield-skipper - Butterfly *Signeta flammeata*
Spotted Sedge-skipper Butterfly *Hesperilla ornata*
Doubleday's Skipper Butterfly *Toxidia doubledayi*
Flame Sedge-skipper Butterfly *Hesperilla idothea*
Mottled Grass-skipper *Anisynta cynone*
Phigalia Skipper *Trapezites phigalia*

Lycaenida (Blues and Coppers)

Dull-purple Azure Butterfly *Ogyris olane*
Large Ant Blue Butterfly *Acrodipsas brisbanensis*
Common Grass Blue *Zizina labradus*
Long-tailed Pea-blue *Lampides boeticus*

Nymphalidae (Nyphs, Browns & Danaids)

Australian Painted Lady *Vanessa kershawi*
Australian Admiral Butterfly *Vanessa itea*
Common Brown Butterfly *Heteronympha merope*
Meadow Argus Butterfly *Junonia villida*
Varied Swordgrass Brown *Tisiphone abeona*
Shouldered Brown Butterfly *Heteronympha penelope*
Common Xenica *Geitoneura klugii*
Ringed Xenica *Geitoneura acantha*
Forest Brown Butterfly *Argynnis cyrila*

Papilionidae (Swallowtails)

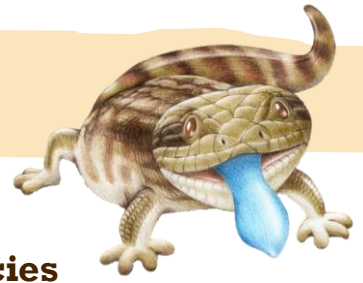
Chequered Swallowtail *Papilio demoleus sthenelus*
Dainty Swallowtail *Papilio anactus*

Pieridae (Whites and Yellows)

Caper White Butterfly *Belenois java*
Red-spotted Jezebel Butterfly *Delias aganippe*

Remember that butterflies start their lives as small eggs which hatch out as caterpillars and then they form chrysalises. Caterpillar and chrysalis spotting is another way of recording butterfly species and because they are not flying around they are easier to photograph and often identify.

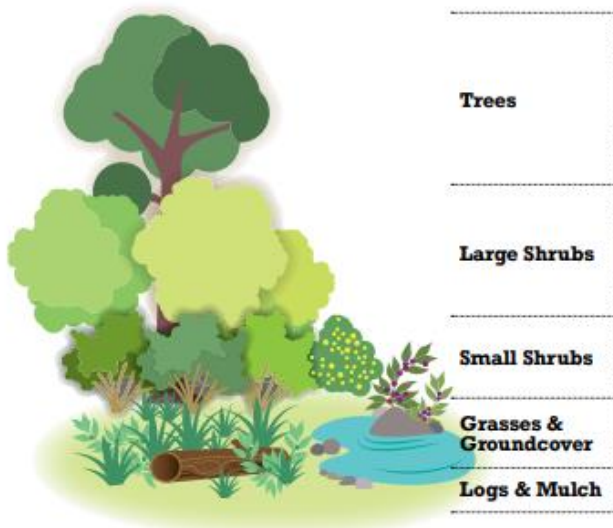




Planting for Pollinators

The great thing about planting for pollinators is that you will attract a range of birds, possums and insects to your school yard and increase the diversity of plants and animals in amazing ways.

Try to plant in layers with flowering trees/shrubs, small shrubs and then herbs and grasses. These layers provide shelter and protection for animals. If you are interested in a frog pond, include this here as the water will provide habitat for dragonflies and mayflies, as well as providing a water source for other animals.



Pollinator Observatories – places to sit and observe pollinators

What are Pollinator Observatories?

Pollinator Observatories are a place where we deliberately grow plants that are known to be food sources for a range of local pollinators. These observatories are great places for children to sit quietly and watch which insects or birds are visiting the flowers.

How to use Pollinator Observatories?

Ensure that you have logs or seating situated about 1.5m from the pollinator garden for children to sit and observe. Often our presence can scare away insects but when we sit quietly and focus on the space, we can observe better so ensure the logs/seating is not too close, but close enough for the children to be able to spot insect or bird visitors. It is a great way to incorporate mindfulness into a lesson.

What plant species good for attracting insect pollinators?

Pollinators are attracted to all flowers, but certain flowers are the preferred choice of certain pollinator species. The species below have been planted in our local parks to specifically attract butterflies, hoverflies, flower wasps and Blue Banded Bees:

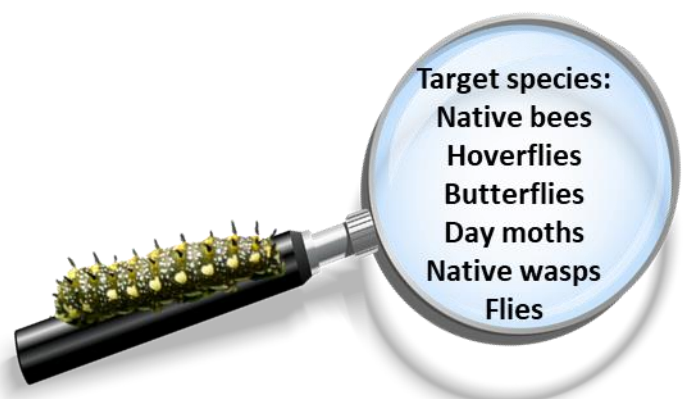
- **Common Cassinia** *Cassinia arculeata*
- **Kangaroo Apple** *Solanum laciniatum*
- **Bracelet Honey-Myrtle** *Melaleuca armillaris*
- **Clustered Everlasting** *Chirocephalid semipapposum*
- **Hop Goodenia** *Goodenia ovata*
- **Austral Storksbill** *Pelargonium australe*
- **Bulbine Lily** *Bulbine bulbosa*
- **White Correa** *Correa alba*
- **Finger Lime** *Citrus australasica*
- **Fairy Fan Flower** *Scaevola aemula*

Get involved in other ways

Australia has lots of wild pollinator insects that are overlooked and not well understood. Australia has around 2,000 native bee species along with thousands of butterfly, wasp, fly, moth, beetle, thrips and ant species. Unfortunately, we don't have a lot of information on the ecology of many of these insects.

The Wild Pollinator Count is a way you can help build a database on wild pollinator activity. There are also resources to assist with insect identification.

Visit: <https://wildpollinatorcount.com/>



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Nocturnal Biodiversity Blitz

Many of our native animals are nocturnal – which means that they are hidden away during the day, catching up on sleep and only come out as the sun sets. This doesn't mean we can't count them in the Biodiversity Blitz – we just need to be a bit more creative.



Here is a list of the nocturnal animals in our area:

- ✓ **Tawny Frogmouth** (this can be spotted during the day with very keen eyes)
- ✓ **Brush-tailed Possum** and **Ring-tailed Possum** (look for possum nests – 'dreys' made out of sticks and leaves in the trees)
- ✓ **Owls** – **Barn Owl**, **Boobook Owl** and **Powerful Owl**
- ✓ **Microbats**
- ✓ **Grey Headed Flying Fox**
- ✓ **Echidna** (warm nights)
- ✓ **Kangaroos**
- ✓ **Marbled Gecko**
- ✓ **Lowland Copperhead Snake** (warm nights)
- ✓ **Fox**

Special equipment

- Torch
- Appropriate clothing for the weather – closed toe shoes and long sleeves and pants to avoid mosquito bites

Do a bit of research on the preferred habitat of each of these animals for a better chance of spotting them on your night walk.

Microbats

Microbats are a group of small, insectivorous bats measuring 4 to 16 centimetres. People are not usually aware of them as they come out just as night falls, they are small and fast, and they emit ultrasonic calls which are generally inaudible to the human ear. Some species can be heard by children and sound like a soft clicking noise. Most sightings are thought to be large moths rather than these small mammals.

They live in our bushland and wetland areas and can even be found hunting for insects in your backyard. A little-known fact about these creatures is that they are actually quite common evening foragers and help control mosquitos and other pest insects. During the day they will roost in hollows and underneath bark in large old trees.

Microbat species recorded in Greater Dandenong

- White-striped Freetail Bat
- Yellow-bellied Sheathtail Bat
- Southern Freetail bat
- Chocolate Wattlebat
- Gould's Wattlebat
- Large Forest Bat
- Eastern Falsistrellus
- Little Forest Bat
- Long-eared Bat
- Forest Bat species



Grey Headed Flying Foxes

The Grey-headed Flying-fox is the largest flying-fox (also known as a fruit bat) species in Australia and one of Greater Melbourne's bat colonies is situated just across the Dandenong Creek in Doveton. A great way to get involved in their conservation is to sign up for the Melbourne Mega Bat Count and participate.

<https://megabatcount.wordpress.com/>

