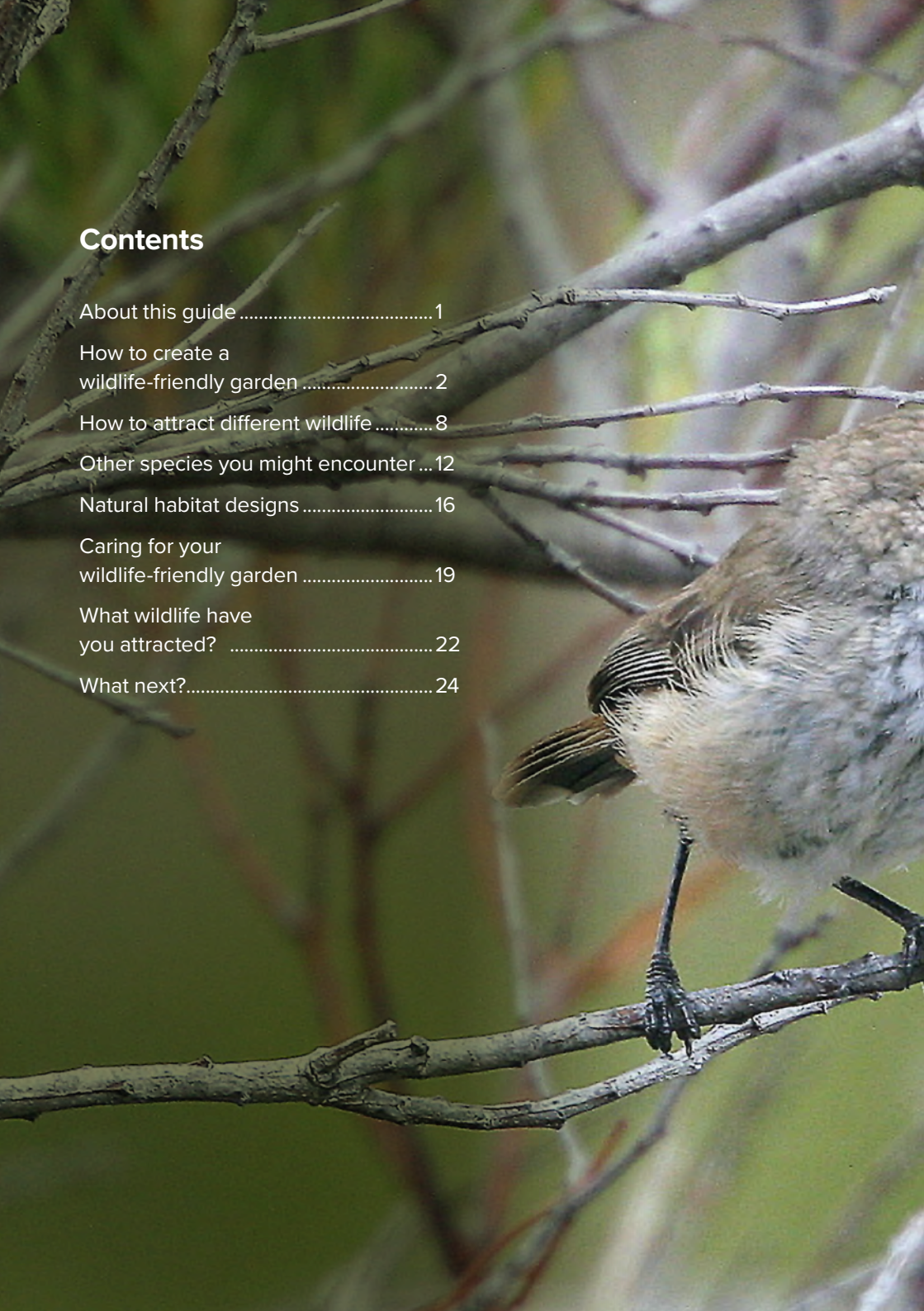
Wildlife-friendly gardens

A guide

GREEN ADELAIDE



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About this guide

WIldlife-friendly gardens is part of a series of guides produced by Green Adelaide.

The other guides are:

- Coastal gardens – a planting guide
- Adelaide gardens – a planting guide

Creating a wildlife friendly garden can:

- reduce your garden maintenance costs
- decrease gardening time commitments
- conserve local native plants and animals
- make our urban areas more ecologically sustainable.

Read on and discover how to create a natural habitat garden and attract wildlife to your own backyard!

How to create a wildlife-friendly garden

Simple steps to attract wildlife

You can support native wildlife into your garden by creating natural habitats that offer shelter, breeding sites and food throughout the year.

Some of the simple steps you can take include:

- planting for flowers throughout the year
- creating garden layers
- choosing the right landscaping features.

Adelaide's original bushland

The Adelaide Plains were one of the most biologically diverse regions in South Australia. From red gum forests, to grey box woodlands, heathy shrub lands, grasslands, swamps and wetlands as well as coastal sand dunes and mangrove forests - diverse environments supported First Nations people through a wide variety of native plants and animals.

Much of this diversity has been lost in clearing for agriculture and urban development. Of the approximately 1500 or so native plant species in the region, around 35% are considered threatened.

Protecting areas of remnant native vegetation is essential to preserving and maintaining biodiversity.

Thomasia petalocalyx (paperflower). Photo: Ben Moulton

Growing local native plants

Planting local natives is one way you can create a natural habitat garden. These plants will help to recreate the connections that originally existed between plants and local native wildlife. These species will also be naturally adapted to the soils, rainfall and temperatures for your area, meaning they will be hardy and drought tolerant in your garden.

There is a local native species to suit every garden situation across greater Adelaide. These species come in a large variety of forms, shapes, flower colours and foliage types.

Looking for ideas? Learn more on the Green Adelaide website, or head to a local nursery to talk about options for your garden.

You can also visit State Flora to investigate plants: **stateflora.sa.gov.au**

Eucalyptus microcarpa. Photo: Peter Watton

Flowers throughout the year

No matter what the season, there is always something flowering in the bush. This habitat feature provides a food source for wildlife all year round. By mimicking nature and choosing native plants that flower across the seasons you can encourage local wildlife to visit your garden throughout the year.

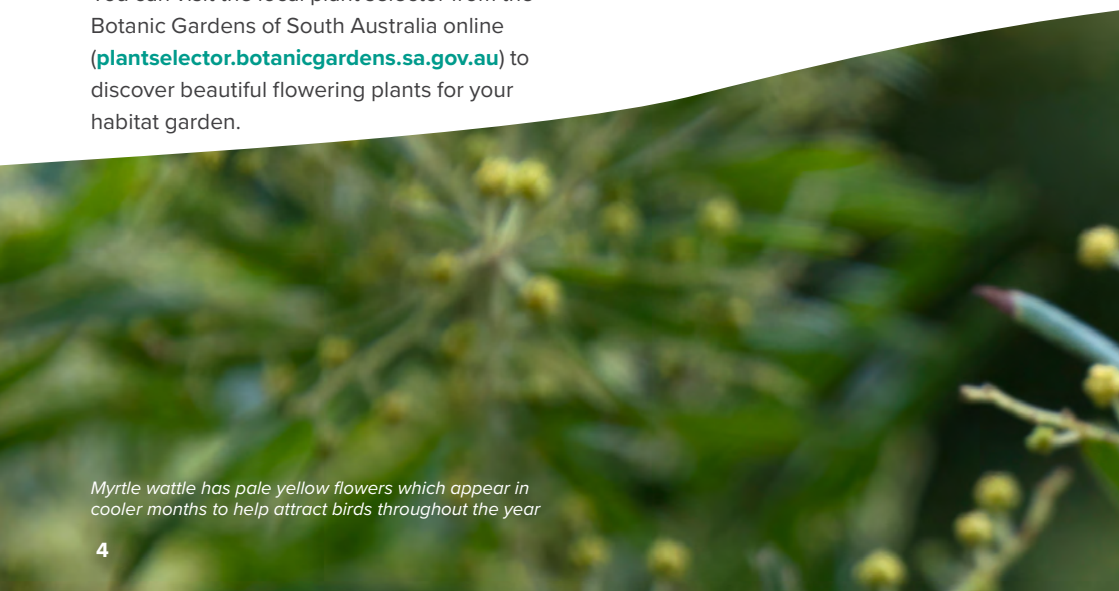
Autumn and winter-flowering plants are often missing from our gardens, so try to include some of these in your plant selection. A key to a balanced garden is to have several nectar-producing species located around your house block. But watch out for 'bird-friendly' cultivars (varieties) or high volume, nectar producing non-natives as these can create an imbalance in the garden and attract large numbers of aggressive or loud bird species.

You can visit the local plant selector from the Botanic Gardens of South Australia online (**plantselector.botanicgardens.sa.gov.au**) to discover beautiful flowering plants for your habitat garden.

Garden layers

In natural bushland there are five main structural layers (or storeys) where wildlife feed, shelter or breed. Four of the layers comprise vegetation cover and the fifth is the leaf litter, logs and rocks found on the ground. In developing your natural habitat garden, try to mimic these different layers.

Leave some leaf litter around your garden. This can provide important habitat - and can save you time in raking!



Myrtle wattle has pale yellow flowers which appear in cooler months to help attract birds throughout the year

Garden layers table

Layer	Description	Examples
Upper storey	tall trees (> 5 m)	eucalypts, large wattles (acacias)
Middle storey	smaller trees and tall shrubs (to 5 m)	wattles, banksias, sheoaks, tea trees, bottlebrushes, native pines
Understorey	shrubs (0.5 to 1 m)	low wattles, correas, hop-bushes, hakeas, bush peas
Ground	small shrubs and herbs (< 0.5 m)	sedges, rushes, lilies, grasses, creepers, groundcovers, orchids, saltbushes, ferns, fungi, lichen
Litter	ground elements that provide habitat and where animals can forage or shelter	leaf litter, twigs, fallen branches, logs and rocks

Landscaping features

There are a number of landscaping elements which can increase the range of wildlife that will use your habitat garden. Remember that food, water and shelter are critical for all animals.

Rocks, logs and mulch

Hollow or rotten logs, rocks and branches are important in bushland and provide a refuge for frogs, reptiles and insects. Adding logs and rocks to your garden is a great way to create habitat and encourage wildlife to visit. Surface mulch will ensure that there are plenty of worms and soil insects to provide food for native birds and other animals.

Always obtain your logs, mulch and rocks from a reputable supplier. They should not be sourced from bushland areas where they are already providing habitat.

Water sources

Artificial watering points, such as birdbaths, can increase the spread of diseases to wildlife if not properly cleaned and disinfected.

As tempting as it may be to provide food and water for your feathered friends, birds are capable of finding water sources. So, birdbaths and feeders are not recommended, to reduce the potential spread of diseases from infected birds coming into contact with otherwise healthy birds.

Ponds can help entice wildlife into your yard, and support a range of local aquatic and semi-aquatic native plants. These plants will remain green all year round and provide habitat for frogs and invertebrates.

Ponds can be big or small and are a great addition for that slightly boggy area of your yard. A solar pump can add movement to your pond.

Hollows, logs, rocks and branches provide important habitat for our local wildlife

Nesting boxes

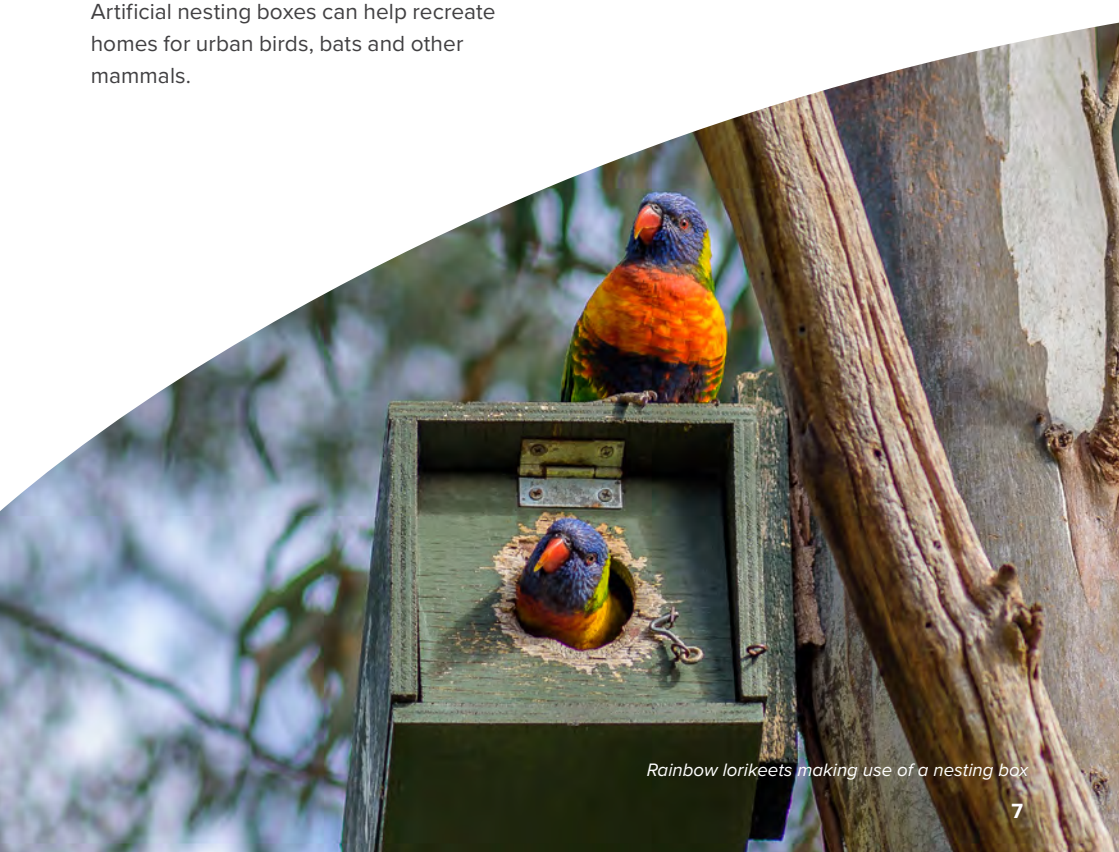
The removal of mature trees, logs and fallen limbs from suburban areas has resulted in the loss of natural hollows. This has affected many bird, possum, bat and reptile species that rely on hollows for shelter and breeding.

Australia's wildlife has the highest rate of hollow dependency in the world, with twice the number of native bird species nesting in hollows compared to Europe, southern Africa and North America. Every attempt should be made to conserve existing hollows, as new ones take many decades to form.

Artificial nesting boxes can help recreate homes for urban birds, bats and other mammals.

When installing a nest box always locate it high above the ground (4 m to 8 m) to avoid predation by dogs, cats, rats and foxes. The box entrance should be positioned to avoid the heat, wind and wet (in greater Adelaide a north-easterly direction is preferable).

Nesting boxes should be checked occasionally to make sure they have not been occupied by introduced species including non-native bees, common starlings or sparrows.



Rainbow lorikeets making use of a nesting box

How to attract different wildlife

Creating natural habitats is a great way to attract native wildlife to your garden. Let's explore what this involves for different species.

Remember, it is best not to artificially feed native wildlife as they may become sick from inappropriate food sources or become dependent on you as a food source. An artificial diet may not provide the nutrients native wildlife require, but planting a variety of native plants can provide them with adequate food and habitat resources.

Birds

Over 270 bird species have been recorded in the Adelaide region and 76 of these have conservation significance (meaning they are rare, endangered or threatened). By meeting the habitat needs for local birds you will be rewarded with their presence and help in their conservation.

Your garden could include a variety of plants with different structures to meet a range of habitat requirements. Each bird species has specific dietary needs, so incorporating a variety of local native plants can provide an assortment of foods. Nesting boxes can also help recreate homes for hollow-nesting birds when natural hollows are not present.

Ringtail possum and baby. Photo: Martin Stokes

Butterflies

Butterflies enhance any landscape with movement and colour. They play an important role in the local ecosystem as a pollinator. About 20 butterfly species are common in suburban gardens.

Specific native plants play key roles in the different stages of a butterfly's lifecycle. You can attract butterflies by incorporating food plants for the larvae (caterpillars) and nectar for the adult butterfly. Also provide them with a water source such as a boggy area with wet sand or mud. Do not spray pesticides when caterpillars or butterflies are around.

Bees

Native bees play an important role in the environment. There are some plants that honey bees cannot pollinate, but native bees are able to buzz pollinate, and it is this type of pollination that is required for our native plants. Native bees can even help with your vegetable garden, in fact they are better at pollinating tomatoes than honey bees.

There is a lot you can do to entice native bees to your garden. This includes choosing native flowers, avoiding use of insecticides and giving native bees somewhere to live.

Giving bees somewhere to live could be as simple as leaving sound bare ground for some native bees who like to burrow, or creating crevices or smaller spaces within wood or rocks.

Musk Lorikeet

Grass Dart butterfly

Blue banded bee. Photo: Martin Stokes

Brown tree frog. Photo: Martin Stokes

Lesser long-eared bat. Photo: Martin Stokes

Frogs

Frog populations are in decline and human activities are thought to be largely responsible. Frogs are highly sensitive to chemicals and pollutants that make their way into the environment. The use of insecticides and herbicides, the loss of suitable habitat through the drainage of wetland areas and the degradation of watercourses have all negatively affected frog populations.

Native frogs can be attracted to your backyard by building a pond where they can feed and breed. Ponds do not need to be large, as frogs only use them as a place to lay their eggs and will spend a lot of their time hiding in your garden. Provide a mulched or densely planted area to keep the frogs moist and attract insects for food.

Once you've created a frog area in your garden, be patient. Don't be tempted with buying frogs or tadpoles that aren't native to your area, as they can cause big environmental problems. If frogs are slow to arrive, wait for a hot, humid night and play a recording of frog calls. Once one arrives, others will quickly follow!

Bats

Greater Adelaide has 9 insectivorous bat species that are nocturnal (active at night) or crepuscular (active during twilight hours at dawn or dusk). Under natural conditions, bats seek shelter in tree hollows or under bark.

Bat boxes are specially designed with a landing pad and entry slot along the bottom of the box to accommodate roosting. Attracting bats will reward you with an environmentally-friendly and natural measure for insect control.

You might even attract microbats, tiny flying mammals who weigh just 3-150grams that can eat up to half their body weight of insects each night. That is around 500 mozzies per hour!

You can help encourage microbats into your area, so they can help naturally control bugs in your garden. This can be done by supporting healthy populations of insects by planting shrubby native plant species and minimising your use of insecticides.

Pale Spotted Gudgeon

Sleepy lizard. Photo: Martin Stokes

Native fish

Greater Adelaide is home to 25 species of native freshwater fish. Some native fish species you may find in natural watercourses include Murray-Darling rainbowfish (*Melanotaenia fluviatilis*) and purple-spotted gudgeons (*Mogurnda adspersa*).

If you have a watercourse that runs through your backyard, reduce chemical use around your home and make sure that no run-off containing pollutants – like from compost bins or where you use fertilisers – will get into the water.

Lizards

A rustling in your garden probably means that a reptile is about, looking for a sunny spot or foraging for food. Species commonly found include eastern blue-tongued and sleepy lizards as well as smaller species such as skinks and geckos.

By providing food and habitat (especially cover) you will encourage lizards to visit your garden. Cover includes leaf mulch, hollow logs, bark, rocks, and vegetation such as groundcovers or small shrubs where lizards can forage for food and retreat from predators.

For a lizard-friendly garden avoid using pesticides that will kill insects, snails and slugs (lizards may also be killed if they consume snail bait or through eating prey affected by such chemicals).

Other species you might encounter

There are many native animal species you may encounter in your backyard. Learning to live with them and protecting their habitat is key to promoting their survival. Here are a few you might see.

Possums

Possums are the only native marsupials that have adapted to our urban environment. Originally 4 types of possum were present in Adelaide, however today only 2 species are common – the common brushtail and common ringtail possums. It is their arboreal (tree-living) habit and their adaptability that has made this transition possible.

Most people do not deliberately attract possums to their garden, so how do we live with them? Possums have most of their food, water and shelter requirements met by their tree-based territories. Common brushtails will occasionally venture to the ground to feed, however common ringtails rarely move down from the safety of the tree. Both are principally leaf eaters in the wild, but suburban gardens have allowed them to significantly expand their foods to include fruits, vegetables and ornamental shrubs (e.g. roses).

Their feeding habits can bring possums (particularly brushtails) into conflict with suburban residents. To live well with possums:

- do not deliberately feed possums
- restrict access to rubbish bins or discarded organic waste
- plant native species preferred by possums to reduce impact on garden plants
- install nest boxes to reduce the likelihood of them taking up residence in your roof.

Ringtail possum baby. Photo: Martin Stokes

Snakes

Depending on where you live you may find your garden attracting snakes. How do we learn to safely live with them and at the same time protect their habitat?

The species you are most likely to see around Adelaide are the red-bellied black snake and the eastern brown snake.

Black snakes are generally associated with streams and swamps, while brown snakes occur more widely. Both species feed on small animals, including frogs, introduced mice and rats. They are naturally timid animals and are rarely aggressive unless threatened. Your best protection from snakes is to be aware and observant at all times when you are in your garden, long grass or in the bush.

To live well with snakes:

- be on the lookout in long grasses or areas where snakes might be about
- keep dense undergrowth and building materials away from where children play
- undertake vermin (mouse and rat) control especially if you have aviaries, chickens or caged animals
- contact a licensed snake control company if you do have a problem with a snake.

Red bellied black snake. Photo: Martin Stokes

Other species

You might even spot a short-beaked echidna, koala or kangaroo in your garden, as these animals are encountered on the margins of our urban areas. How do we learn to live with them and at the same time protect their habitat?

Short-beaked echidnas largely lead solitary lives within a home range of about 50 hectares. They are generally active during the day, but during hot weather are more active in the cooler evening.

Historically in South Australia, koalas only occurred in the south-east but in the 1920s fears of their demise led to their introduction to other areas, including the Adelaide Hills. Koalas have adapted well and their numbers have been steadily increasing. If a koala turns up in your garden enjoy the unique encounter that some people travel across the globe to experience.

Kangaroos are becoming more common in some outer areas of Adelaide.

Western grey kangaroos are grazing animals with a preference for grasses and herbs, but they will also browse on leaves from bushes and trees. Whilst not being strictly nocturnal they will spend most daylight hours sheltering in the bush only moving out into open grazing areas in the late afternoon through to early morning. This is when they run the risk of being hit by vehicles as they cross roads or feed along roadsides.

How do we live with echidnas, koalas and kangaroos?

- Do not attempt to handle or approach these animals if you see them in the wild or your backyard.
- Protect remnant habitat and plant native vegetation to help these animals remain part of our urban environment.
- Take care when driving in areas where these animals might be present.
- Practice responsible pet management.

Echidna

Bandicoots

Eight species of bandicoots once occurred in South Australia. Of these, only the southern brown bandicoot remains in the wild. This species lives mainlyin stringybark eucalypt forests where there is very dense understorey.

Southern brown bandicoots forage for food mainly by digging in the leaf litter and soil to find insects, fungi, plant root nodules and bulbs. They will also eat fruit, seeds and other plant material found above ground. They are active during the day and night.

The biggest threat is the loss or modification of their habitat due to urban and agricultural development. Clearance and modification of dense vegetation has exposed them to introduced predators, such as foxes, as well as feral and domestic cats and dogs. If you live close to a population of bandicoots you can contribute to the well-being of this species by not letting your cats or dogs roam in native bushland.

Southern brown bandicoot. Photo: Martin Stokes

Western Grey Kangaroo. Photo: Martin Stokes

Natural habitat designs

Water wise and drought-tolerant gardens

Using native plants, that have adapted to our dry conditions, can help to drought proof your garden, save water and attract local wildlife.

You can also reduce the amount of concrete around your home, use permeable pavers and create raingardens to help slow the movement of rain.

Keeping more water on your land for longer helps your garden and local wildlife.

Native plants

Native plants are local to different areas. Certain species have formed over many millennia to adapt to local conditions. In fact, some native plant species are even considered a pest in certain areas.

You might be able to find plants which are local to your area when planning your garden. This is called local provenance, and has benefits in creating a seed bank and conserving local genes for future generations.

Chat to the staff at your local nursery to learn more.

Planning your garden

Creating a variety of plantings – for example a shrubby area, a grassland area and a wetland area – adds potential habitat to your garden. A patch of densely planted prickly shrubs is great for wildlife to shelter in or under. This is particularly important for small birds. However, if there is minimal space in your own garden for different plantings, remember that you are part of the bigger landscape, and those reserves, council trees and your neighbours' gardens are also providing habitat for urban wildlife.

Many native plants are sensitive to water logging, so putting the right plants in the right places is essential for a successful garden. Determine where your soil drains freely or poorly and locate plants accordingly. For example, place your pond or wetland features in a naturally damper area of the garden where sedges, rushes and pond plants would thrive. Clump other plants with similar watering needs together to reduce water use.

To achieve a natural look, avoid planting in neat rows, mix different species together and, on occasions, clump some plants of the same species together. This will look more natural and has greater habitat value. However, you can use local native plants to create any look and feel you are going for in a home garden – from cottage to formal and bush to courtyards. The next section has some great garden design ideas.

Native species to consider

Bushes and trees

- Local wattles (Acacia species) e.g. golden wattle (A. pycnantha)
- Native apricot (Pittosporum phylliraeoides var. microcarpa)
- Southern Cypress pine (Callitris gracilis)

Shrubs

- Mallee peas (Eutaxia species)
- River bottlebrush (Callistemon sieberi)
- Senna (Senna artemisioides)
- Small local wattles (Acacia species) e.g. round-leaved wattle (A. acinacea)
- Twiggy daisy-bush (Olearia ramulosa)

Trailing plants

- Bindweeds (Convolvulus species) not common bindweed (C. avensis) a weed from Eurasia
- Native holly (Platylobium obtusangulum)
- Native lilac (Hardenbergia violacea)
- Native pigface (Carpobrotus species) not hottentot fig (C. edulis) a weed from South Africa
- Old man's beard (Clematis microphylla)

Grasses and tussock plants

- Kangaroo grass (Themeda triandra)
- Knobby club-rush (Ficinia nodosa)
- Mat-rushes (Lomandra species)
- Rushes (Juncus species) not weedy Juncus species
- Tussock grasses (Poa species)
- Windmill grass (Chloris truncata)
- Yacca or grass tree (Xanthorrhoea species)

Flowering herbs

- Bluebell (Wahlenbergia species)
- Fan-flower (Scaevola species)
- Flax-lily (Dianella species)
- Native flax (Linum marginale)

When purchasing your plants, you don't have to go for the more expensive and established varieties. In fact, the smaller tubestocks (little square-potted plants) can generally establish themselves quite successfully and are an efficient way to purchase plants.

Caring for your wildlife-friendly garden

Here are some simple things you can do to improve your local environment and encourage wildlife into your garden.

Responsible pet management

It is estimated that over 60% of Australian households have one or more pets. Whilst pets are great companions we should be mindful that they can disturb or kill our native wildlife. If you own a dog or cat make sure that it is not a predator in your garden or neighbourhood.

Cats and dogs are natural hunters and even those that are well fed are capable, when allowed to roam, of killing large numbers of birds, lizards, frogs, small mammals and insects.

When taking your dog out, be mindful that they can also chase ground- and water-birds away from their nests, disturb wildlife, introduce weed seeds (attached to their coats) and their droppings can introduce nutrients that encourage the growth of weed species.

You can help by only walking your dog on a lead in designated areas, keeping to tracks and picking up its droppings (this is required under the Dog and Cat Management Act 1995). You can also contact your local council to find out if they have a designated dog park for you to visit in your area.

You can also help by getting your pets de-sexed to avoid unwanted litters and not feeding strays. Keeping your pet indoors, confined to a cage (e.g. cat run/aviary) or a fenced off outdoor area is recommended, for the safety of native wildlife as well as your pet.

Safe chemical use

If chemical sprays (herbicides, pesticides and fungicides) are not used with due care they can have deadly effects on organisms other than those you wish to control. This is known as off-target damage. Many beneficial predatory insects can be affected as well as sensitive species like frogs.

To use chemicals safely:

- read and understand the label, taking special note of the rate of application, preparation instructions and safety directions
- do not use any chemical for purposes other than for which it is legally registered (as stated on the label); also check Safety Data Sheet online at www.safeworkaustralia.gov.au
- do not spray in adverse weather conditions, e.g. on very hot and/or windy days
- avoid spraying when fatigued to ensure careful and purposeful application
- be particularly careful when using chemicals near waterways or stormwater drains to prevent run-off and harmful contamination
- take appropriate personal safety precautions
- store in a dry, cool shed or cupboard dedicated to that purpose.

Chemicals must be kept in sound original containers that are fully labelled and tightly sealed.

Seeking alternatives

There are alternative means for controlling weeds and other pests, including a range of ‘eco-friendly’ sprays on the market. Other non-chemical approaches to weed control are the use of:

- hand weeding
- plant competition
- mulching
- biological control agents
- hoeing, cultivation or other mechanical methods
- rotation of garden beds
- grazing, mowing or slashing
- quarantine or sanitation practices (e.g. pruning to prevent seed set)
- organic weed control alternatives.

Controlling weeds

A weed is any plant growing in an area where it does not naturally occur and is not wanted. Weeds compete with native plants for water, light and nutrients. Most have few natural pests or diseases that would have kept them under control in their natural environment. Many of South Australia's weeds originated from areas with a similar climate such as southern Africa, Central America and the Mediterranean. However, not all of our weed species are from overseas; some are from other parts of Australia.

Many bushland weeds are species that have escaped from suburban gardens. Weeds are one of the most significant threats facing Australia's biodiversity; they invade bushland and displace native species thus depriving native fauna of a source of food and habitat.

They also require costly control programs.

What you can do

You can:

- avoid purchasing species known to be environmental weeds
- avoid planting introduced species that have berries or fruits readily distributed by birds
- dispose of garden weeds by placing them in a green waste or compost bin
- find out if any of your garden plants are environmental weeds and replace them with attractive local native species.

What wildlife have you attracted?

What native plants, insects, birds and other animals can you find in your backyard?

You can help researchers understand what native plants and animals are found in different parts of Adelaide by taking photos and recording your observations.

This is called 'citizen science' which is science performed by you – the public.

Citizen science has helped identify new species of animals never seen before so you never know what you might find!

Many of the citizen science apps and sites have a process for experts to identify your observation – so it's a great way to connect with nature, learn more species names and help biodiversity research at the same time.

Tips

- Record common plants and animals too, not just ones you haven't seen in your area before.
- Make sure you get a clear photograph that helps experts to accurately identify your sighting.
- Include as much information as you can, including what environment or habitat you made your sighting in.
- Add a location to your sighting to help attach the species you have spotted to a particular area.

There are a number of ways you can get involved with citizen science projects to help collect data on local animal and plant species.

Several citizen science initiatives are accessible via a website or app where you can input your sightings or data.

To record your sightings of general observations, head to:

- iNaturalist
  inaturalist.ala.org.au

There are also specific initiatives you can get involved with. A few species specific platforms include:

- FrogWatch SA
  frogwatchsa.com.au
- Wild Orchid Watch
  wildorchidwatch.org
- Echidna CSI – Download the app via your smartphone

What next?

Still looking for more information?

Discover more about wildlife friendly gardens at:
greenadelaide.sa.gov.au

Or have you started your planting journey?

Share it with us at:

Green Adelaide

GreenAdelaideSA

Green Adelaide SA

Southern Boobook Owl

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Green Adelaide was established by the South Australian Government to help manage urban densification and climate change impacts on metropolitan Adelaide. Green Adelaide will work to create a cooler, greener, wilder and climate-resilient city by partnering, funding and supporting aligned organisations and communities.

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