Backyard Biodiversity

CAMPBELLTOWN
CITY COUNCIL

Plant Grow Enhance Conserve

Contents

What is biodiversity?

Biological diversity, or biodiversity, is the variety of all living things - the different plants, animals and micro-organisms, the genes they contain and the ecosystem of which they form a part.

An ecosystem refers to the complex networks formed by the interaction of animals and plants with each other and with their environment.

Biodiversity is considered at three distinct levels:

- **genetic diversity**
  natural variation within and between species
- **species diversity**
  the variety of organisms on earth
- **ecosystem diversity**
  the variety of habitats, communities and ecological processes

"…biodiversity is like a library - each species is a book full of genetic information that may be of use to humans now or in the future, only a small number of these have been read."
Conserving Adelaide's Biodiversity: Resources

The importance of biodiversity

Biodiversity is the web of life. It is essential to our health and survival. Biodiversity provides:

- ecosystem services such as clean air to breathe
- biological resources such as food and medicines
- social benefits such as recreation and aesthetics

"…somewhere along the way biodiversity figures in everything we need and do. We breathe oxygen produced by living plants, and plants take up carbon dioxide produced by industry and motor vehicles. Tiny microbes break down our waste, and our agricultural crops are protected from pests by foraging birds and insects."
Conserving Adelaide's Biodiversity: Resources

Biodiversity of the Campbelltown Council area

Our environments are very different from those once occupied by the Aboriginal people of the Kaurna nation. Much of the indigenous biodiversity first encountered by European settlers in the late 1830s has been lost. This occurred as we made way for agricultural pursuits and later residential developments.

Within the Campbelltown Council area the remaining biodiversity is largely restricted to small fragments in Council reserves and roadsides.

However, rich and diverse flora can still be found along the western foothills of the Mount Lofty Ranges. This is particularly true of the native vegetation found at the base of Black Hill, near Athelstone, and contained in Wadmore Park.

Remnant vegetation also persists along the margins of Fifth Creek and the riparian reserves of Fourth Creek. Less original biodiversity exists along Third Creek although some significant tree species remain.

For further information on the indigenous biodiversity of the Campbelltown Council area contact Council or visit your local library for a copy of Pre-European Vegetation of Adelaide: A Survey from the Gawler River to Hallett Cove by Darrell Kraehenbuehl.

The importance of urban biodiversity

Within Adelaide only around 10% of the original habitat remains and a large amount of biodiversity has been lost. However, within these remaining areas, species that are of national and state significance still occur. This makes our remnant habitats extremely important to conserve.

One of the key threats to remaining biodiversity is the loss of habitat. Creating a garden with plants from the local area will help to increase habitat for local animals and insects.

Weeds – many of which are garden escapees - also threaten our remnant habitats. By removing potential weeds from our gardens, we can reduce the threat of weed invasion.

Creating biodiversity in your backyard

Whether you have a large garden or courtyard home there are lots of things that can be done to help protect biodiversity.

By following eight simple steps you will be well on your way to having a backyard teaming with biodiversity.

By increasing the biodiversity in your backyard you can:

- reduce garden maintenance
- help to conserve native plants
- provide habitat, food and protection for native animals
- reduce weeds
- save water
- minimise chemical use

STEP 1 Getting the right plants

There are plants that are native to Australia (native), plants that are native to South Australia (indigenous), and plants that are native to your local area (local provenance). When planting for biodiversity it is best to select species with local provenance.

These plants would have existed in your area prior to European settlement and will help to preserve the original relationship with native animals and surrounding bushland.

Local provenance plants are essential in preserving genetic diversity. The plants that are found in your area may be the same species that are found elsewhere in the state, but only local provenance plants will have the local genetic composition.

This is extremely important as local provenance plants are suited to the soil, rainfall and temperature in your suburb. This makes for a successful garden!

Refer to pages 11-30 in this booklet for some of the species you may wish to consider planting at home.

Further information on selecting appropriate plant species is available from Trees for Life, Greening Australia, and the SA Urban Forest Biodiversity Program. Or visit your local library for a copy of Pre-European Vegetation of Adelaide: A Survey from the Gawler River to Hallett Cove by Darrell Kraehenbuehl.

STEP 2 Planting in layers

While we rarely think of bushland as having any structure, this is not the case. Before planting an indigenous garden you should consider the types of vegetation associations that once existed.

Bushland is characterised by:

- tall trees (upper storey)
- small trees and tall shrubs (middle storey)
- shrub layer (0.5 - 1 metre in height)
- small shrubs, herbs and grasses (ground or under storey)
- litter layer (leaf litter, fallen branches, logs and rocks)

Vegetation of different layers will provide a variety of habitats, food supplies, and shelter for native animals. The more variety you provide in plant height, the more animals you are likely to attract.

If you want to attract a specific type of animal into your garden, consider its requirements. A specific bird may feed in one vegetation layer and shelter or nest in another. Some animal species will also have special requirements, for example native frogs and fish will need a supply of water.

Butterflies will be attracted to gardens with flowers that are grown in clusters, compared with gardens where flowering plants are spread throughout.

Photo: Painted Lady (*Vanessa kershawi*)

To encourage biodiversity in your backyard, include the following:

- At least three different types of local native flowering bushes of different heights
- A highly visible, safe place for birds to drink and bathe, such as water in a pond or bird bath
- At least one tree over 2.5 metres tall. If the tree doesn't have hollows you could consider installing a nest box
- An area with leaf litter, mulch, stones and wood where birds and lizards can forage for insects and worms
- An area of indigenous grass and low-growing plants
- A sunny spot with a rock surface for small lizards and butterflies
- Dense and prickly shrubs for bird shelter
- Plants with nectar for butterflies, and host plants for butterfly larvae

STEP 3
Flowers for all seasons

Bushland comprises a range of habitats such as open forests, woodlands and grasslands. Plants within the various habitats often flower at different times of the year, and create a year round food source for native wildlife.
To attract native animals to your garden, select a variety of plant species that will flower at different times of the year. Often urban gardens lack plants that flower during autumn and winter, so try to include some of these species when planning your garden.

Photo: Rainbow Lorikeet (*Trichoglossus haematodus*)

STEP 4
Dealing with weeds and pests

Biodiversity includes insects and other species that we may typically think of as pests in the garden. Insect species play an important role in backyard biodiversity and may attract birds and other native animals to your garden. Some insects may even prey on other unwanted pests.

If you are using chemicals in your garden, be careful not to affect organisms other than those that you are trying to control. Select chemicals that are less toxic, and use direct application methods in favour of sprays. It may be possible to use non-chemical approaches to pest control.

Non-chemical approaches include:

- using alternatives to poison, such as white oil, which smother pests and have no ill affects on humans (child friendly)
- growing plants that repel the pest species
- using organic methods/techniques
- hand-weeding
- hoeing, cultivation and other mechanical methods
- grazing, mowing and slashing
- mulching (will also save water)
- rotation of garden beds

For further information on non-chemical approaches to pest control, please refer to the ABC Gardening Website (www.abc.net.au) or contact an officer of the SA Urban Forest Biodiversity Program.

STEP 5
Keeping pets under control

While pets can be our best friends they are not necessarily good for biodiversity. Cats can kill large numbers of birds, lizards, frogs and insects. Dogs are capable of killing lizards and snakes and may chase birds away from nesting sites.

Dogs can also cause disturbance in bushland. If allowed to run free they may damage native plants, particularly small species such as lilies and orchids, and can disturb native animals.

Dogs may also carry weed seeds in their coats which can infest bushland, and their droppings increase nutrient levels which will promote weed growth.

Keeping your pets under control is easy, just follow these simple tips:

- keep pets indoors at night
- walk your dog on a lead
- stick to designated tracks when bush-walking
- pick up after your dog

Further information on responsible pet management is available from the Dog and Cat Management Board, National Parks and Wildlife Service or by contacting Council.

STEP 6
Saving water

More than half of all mains water consumed by Australians is used in the garden. Permanent water conservation measures are already in place that determine when and how we can use water at home. The real aim of being water efficient in the garden is to use as little tap water as possible. By growing local indigenous plants, your garden will be suited to natural rainfall levels.

To save water, try these other useful tips:

- grow plants with similar water requirements together
- water in the cool of the morning or evening
- water longer but less frequently to encourage deep plant roots
- work with the natural features of your garden and plant according to natural drainage, sun and shade
- water high parts of your garden first so that run-off will soak into lower parts of your garden and not be wasted
- plan your garden so that you only need to irrigate patches
- use a woody mulch around plants to reduce evaporation, lower soil temperature and to prevent weeds - woody mulches release fewer nutrients and are suited to indigenous gardens
- irrigate efficiently by using drip irrigation systems only, where required
- plant windbreaks around boundaries and fences to reduce the evaporative effects of hot winds
- collect your own water in a rainwater tank or divert stormwater into your garden

Photo: rainwater tanks can be used to water the garden - they are also great to plumb into the bathroom and laundry to save water inside your home.

For more information on permanent water conservation measures and saving water at home please contact SA Water.

STEP 7
Compost the way to grow

Almost half of the domestic waste going into landfill is organic material (food and garden waste), which could be used for compost. Home composting saves landfill space and helps to reduce the costs of rubbish disposal for the community. Plus, composting is good for your garden - and it's free.

Composting is nature's own way of recycling. Compost can be used for fertiliser, conditioning soil, improving drainage, conserving water, improving plant health and resistance to disease, and encouraging worms and soil fauna into your garden.

It's easy, just give these four steps a try:

1. Choose a shady spot in the garden for your compost bin/heap. Some sunshine is good but too much sun will dry out your compost.
2. To be effective, composting needs air, water and food. Include a diverse range of food materials in your compost. You can organise food scraps, garden clippings and paper into layers. This will help build up heat and speed up the composting process. Layering is not necessary if your compost is maintained regularly as per step 3.
3. Keep your compost slightly moist and mix or turn it fortnightly, or at least once a month.
4. Use your compost when it is dark and crumbly. Dig it into garden beds or spread it on top of your garden as mulch.

Compost is produced from natural materials and contains a variety of living organisms.

When dealing with compost take necessary health precautions: wear gloves, protect broken skin, wear a mask if you suffer from allergies, and wash your hands thoroughly after handling compost.

Council sells Gedye Compost Bins at cost price to Campbelltown Council residents. You can also make your own compost container. Why not try building a compost heap reusing materials you have at home?

STEP 8
Hints to grow your garden

Local indigenous plants can be established in your garden in the same way as other plants. Once they are established, indigenous plants require less in the way of water, fertilisers and pesticides.

To get your garden growing:

- know your soil type and soil pH before selecting plant species - soils vary depending on where you live (for more information on soils, refer to the next section, 'Planning your garden')
- remove weeds before planting so they don't compete with your plants for moisture or sunlight. Keep weeds away, particularly while your plants are getting established
- plant when the ground is moist and rain is expected, in autumn or winter
- dig a hole at least twice as wide and slightly deeper than the plant's pot
- plant deeply enough to allow a saucer-shaped depression to be made around the plant to capture and retain moisture
- you will generally need to water your plants now and again for them to establish

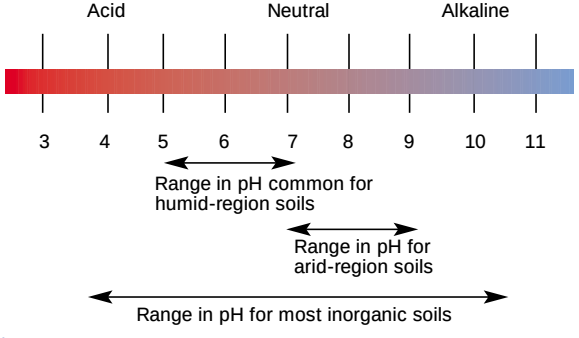
Planning your garden

When selecting plants for your garden, there are a number of elements that increase biodiversity. These ideas have been discussed in more detail in earlier sections of this booklet, and include:

- choosing indigenous plants with local provenance
- having different layers of vegetation
- planting species that flower at different times of the year
- designing your garden according to watering requirements and natural drainage

Other factors that are important to consider when planning your garden are soil type, size of garden, area available for planting, and shade. Try to match the natural requirements of your plants to the area in your garden they will be planted. For example, plants naturally found along watercourses and in wet conditions should be planted in an area of your garden that is naturally moist.

When selecting plants for your garden you should also be mindful of their size and root systems. Plant trees a safe distance from fence-lines, buildings, drainage and power-lines to prevent damage to infrastructure.










Knowing your soil type and soil pH

Over thousands of years, rocks are eroded by natural weathering processes such as rain, ice, wind and temperature changes. The result is smaller and smaller pieces of rock that eventually become sands, silts and clays - the mineral components of soil. The breakdown of organic material like leaves, dead plants, insects and animals, add complex molecules that mix with the mineral components, to form soil.

Because rocks contain different types of minerals, they create different types of soils. Soils also vary in structure, texture and pH.

Soil pH is a measure of how acidic or basic (alkaline) a soil is. It is measured on a scale of 0-14, with acidic soils having a pH between 0-7 and basic soils ranging in pH from 7-14. Soils that are neutral have a pH of 7. Soil pH determines the nutrients available for plants to grow and survive.

The unique properties of soils determine their ability to trap water and nutrients (nitrogen, potassium and phosphorus) - essential for plant survival.

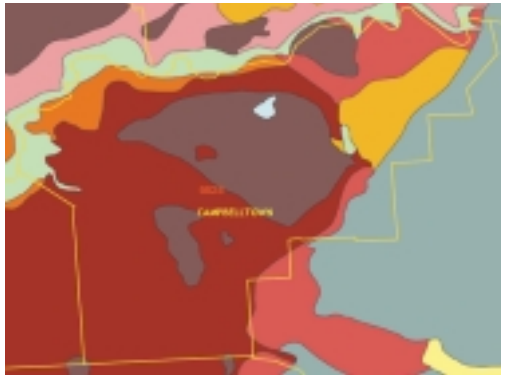
Sandy soils have large soil particles and are limited in nutrients because water is rapidly lost from pore spaces between the sand grains. Silts have medium-sized particles and are capable of storing water and nutrients. Clay-based soils have tiny particles that restrict air and water movement. Clay soils will swell and stick together when wet, and then shrink and crack as they dry out.

Simple tests for your soil:

- add some water to a sample of your soil and squeeze it together - sandy soils tend to be gritty, silts tend to be soft and silky, and clay soils tend to be sticky and hard to squeeze
- low cost pH testing kits can be purchased from most hardware stores

The majority of soils within the Campbelltown Council area are clay soils with high pH (alkaline). Non-alkaline soils tend to be more concentrated in the foothills.

Contact the CSIRO Land and Water division for more information on soils and pH, or visit their website at www.clw.csiro.au



- AL: Layered stream alluvium-silts, sands and gravels
- BE: Black to dark grey clay soils with coarse blocky structure over brown or mottled clay, variable lime, Cracking soil.
- RB3: Heavy red-brown clay soils with prismatic or blocky structure over clay with variable lime.
- RB1: Shallow stony red-brown clay soils overlying bedrock
- RB2: Red-brown sandy clay soils with granular structure
- P1: Grey sand topsoils over mottled sandy clays with blocky structure on sandstone

Planting Guide

The plants in this booklet have been categorised as Upper Storey Plants (trees), Middle Storey Plants (tall shrubs), Shrub Layer (small shrubs), Ground or Under Storey Plants (grasses) and Ground or Under Storey Plants (ground layer). The following symbols are used to help you to decide whether a plant species is suitable for your garden.

Key (symbols)

Height and Spread

Food

Habitat

Aesthetics

Planting Distance from House

Water Conservation

Growth Difficulty Rating

Upper Storey Plants (trees)

Allocasuarina verticillata
Drooping Sheoak

Photo: Grieg, D. Australian National Botanic Gardens

Description - evergreen, small to medium sized tree with grey-green foliage and drooping branches.

In the garden - low maintenance, quick growing tree that provides good shade. Suitable for medium to large blocks only.

Soil type - grows in a wide range of soils. Responds to full sun or part shade in well drained to dry conditions.

Flowering time - male and female flowers occur on separate trees and appear from autumn to winter. Male flowers are brown and yellow, and female flowers are red.

Callitris preissii
Southern Cypress-pine

Photo: Friends of Morialta and Blackhill Conservation Park

Description - broad conical tree with minute leaves and soft, green foliage.

In the garden - hardy tree, suitable for large blocks only.

Soil type - grows in deep sandy soils and shallow limestone soils. Suitable for well drained to dry conditions.

Flowering time - spring to early summer.

Conservation status - uncommon in Southern Lofty.

Eucalyptus odorata
Peppermint Box

Photo: Brooker & Kleinig, Australian National Botanic Gardens

Description - tree with multi or single trunk, and coarse rough bark towards its base. Sheds long strips of bark in the upper branches. Leaves are dull, blue-green when new, maturing to glossy and green.

In the garden - Eucalypts have large root systems and are suitable for large blocks only.

Soil type – grows in a wide range of soils, including heavy clay soils around river beds.

Flowering time - flowers are small, white and grow in bundles. Flowers appear in autumn to mid-spring.

Conservation status - rare within the Campbelltown Council area.

Middle Storey Plants (tall shrubs)

Acacia paradoxa
Kangaroo Thorn

Photo: Smith, J. Onkaparinga Catchment Water Management Board

Description - very prickly, medium to large spreading shrub. The plant is an ideal refuge species for small native birds. Kangaroo Thorn could also be used to restrict both human and animal traffic.

In the garden - hardy, low maintenance, drought tolerant shrub. Can be used as a hedge or screening plant.

Soil type - responds to sunny, reasonably well drained positions in most soils.

Flowering time - flowers are bright yellow and round (globular), and appear in late winter to mid-spring.

Acacia pycnantha
Golden Wattle

Photo: Grieg, D. Australian National Botanic Gardens

Description - tall shrub to small tree with broad leaves that are bright green in colour.

In the garden - fast growing shrub that may be used as a feature plant. The yellow, fragrant flowers of the Golden Wattle make it a popular choice for the garden.

Soil type - responds to a lightly shaded or open, well drained position in most soils.

Flowering time - flowers are golden yellow and round (globular), and appear in late winter to mid-spring.

Acacia retinodes var. *retinodes*
Wirilda (Swamp Wattle)

Photo: McWhirter, A. Australian National Botanic Gardens

Description - tall open shrub to small tree with green-grey leaves.

In the garden - hardy, low maintenance shrub that requires adequate moisture for growth and survival. May require additional watering over summer.

Soil type – responds well to sunny, reasonably well drained positions in most soils.

Flowering time - flowers are pale yellow and round (globular), and appear at irregular periods throughout the year, but usually during summer months.

Conservation status - endangered in the Campbelltown Council area.

Middle Storey Plants (tall shrubs)

Allocasuarina muelleriana ssp. muelleriana
Common Oakbush

Description - shrub to small tree. Needle like branchlets with minute leaf teeth on branchlets.

In the garden - hardy and low maintenance shrub.

Soil type - grows in well drained soils including loams and poor sandy soils. Lime sensitive.

Flowering time - autumn to early winter.

Photo: Friends of Morialta and Blackhill Conservation Park

Banksia marginata
Silver Banksia

Description - shrub to small tree. Leaves are green on the upper surface and whitish beneath.

In the garden - hardy, low maintenance shrub that responds to light pruning.

Soil type - responds well to full sun and well drained or sandy soils, and is lime sensitive.

Flowering time - flowers are yellow and cylindrical in shape, growing 5-10cm in length. Flowers appear throughout the year but more in late summer to winter.

Photo: Smith, J. Onkaparinga Catchment Water Management Board

Bursaria spinosa
Sweet Bursaria

Description - medium to tall shrub through to tree. Dark green, shiny leaves.

In the garden - a very hardy plant that will grow in almost any situation. May act as a host plant for butterfly larvae.

Soil type - grows in a wide range of well drained soils.

Flowering time - masses of flowers cover the shrub in late spring and early summer.

Photo: Fagg, M. Australian National Botanic Gardens

Middle Storey Plants (tall shrubs)

Callistemon sieberi
River Bottlebrush

Description - medium to tall shrub with wiry branches and narrow needle-like leaves.

In the garden - fast growing, hardy shrub that may be used for screening, hedges, and pond edges. Requires adequate moisture for growth and will absorb moisture in boggy sites. Prune severely to prevent straggly growth. Remove old flower-heads to promote flowering and bushiness. May require additional watering over summer.

Soil type - responds to a sheltered, sunny, well drained position. Grows well in moist soils including soils along watercourses and dried rock-river beds.

Flowering time - flowers are brush-like and may be cream or pink and grow to 8cm in length. Flowers appear in late spring to early autumn.

Conservation status - uncommon on the Southern Lofty and rare within the Campbelltown Council area.

Photo: Thaler, K. Australian National Botanic Gardens

Cullen australasicum
Native Scurf-pea

Description - an erect or semi-erect perennial, soft-wooded, medium sized shrub. Leaves are 2-10cm in length.

In the garden - fast growing shrub. Attractive when grown in small groups or clumps. May attract butterflies.

Soil type - mainly heavy clay soils or rocky soils.

Flowering time - flowers are pink, purplish or bluish and grow 4-8mm in length.

Conservation status - threatened within the Campbelltown Council area.

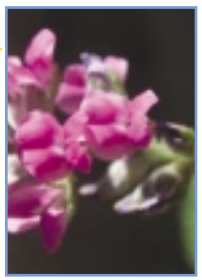


Photo: Friends of Morialta and Blackhill Conservation Park

Middle Storey Plants (tall shrubs)

Dodonaea viscosa ssp. *spatulata*
Sticky Hop-bush

Photo: Friends of Scott Creek Conservation Park

Description - erect, medium sized shrub. Leaves are shiny or sticky, bright green, and variable in shape.

In the garden - reasonably hardy, low maintenance shrub. Will respond to light pruning. May require additional watering over summer.

Soil type - responds well to full sun or part shade in well drained positions. Will grow in rocky areas.

Flowering time - flowers are small, 3mm in size, and grow in clusters during spring to early summer.

Hakea carinata
Erect Hakea

Photo: Fagg, M. Australian National Botanic Gardens

Description - medium to tall, erect shrub. Stiff, narrow, leathery leaves that are variable in shape, with a prominent mid-vein.

In the garden - hardy to drought-tolerant shrub. Suitable as a light screen or wind break. May require additional watering over summer.

Soil type - responds to full sun and well drained positions. Grows in a wide range of soils, and is lime sensitive.

Flowering time - flowers are creamy white and grow in clusters on short pink stalks at the leaf base. Flowers appear in early to mid-spring.

Middle Storey Plants (tall shrubs)

Hakea rostrata
Beaked Hakea

Photo: Fagg, M. Australian National Botanic Gardens

Description - small to medium sized, rounded shrub with rigid, sharply-pointed leaves.

In the garden - the prickly nature of this plant makes it a good barrier plant and bird refuge.

Soil type - grows in a wide range of soils and is lime sensitive. Will tolerate full sun to shady positions.

Flowering time - white flowers that grow in clusters with a short hairy stalk. Flowers appear in winter or spring.

Conservation status - rare within the Campbelltown Council area.

Melaleuca brevifolia
Short-leaf Honey-myrtle

Photo: Verdon, D. Australian National Botanic Gardens

Description - rounded shrub with narrow leaves.

In the garden - hardy, low maintenance shrub. May be suitable as a screening plant, informal hedge or wind break. Requires adequate moisture for growth and survival.

Soil type - grows in a wide range of soils and will tolerate saline conditions and sandy soils.

Flowering time - cream to white flowers that grow in clusters on the old wood. Flowers appear in spring.

Conservation status - rare on the Southern Lofty and endangered within the Campbelltown Council area.

Shrub Layer (small shrubs)

Acacia acinacea
Round-leaved Wattle

Photo: Friends of Morialta and Blackhill Conservation Park

Description - small, somewhat straggly shrub. Roundish leaves that grow to 1.5cm in length and terminate in a sharp point.

In the garden - prune lightly after flowering.

Soil type - responds to sunny, reasonably well-drained positions in most soils.

Flowering time - flowers are small, bright yellow and round (globular), and appear in late autumn to early spring.

Acacia myrtifolia
Myrtle Wattle

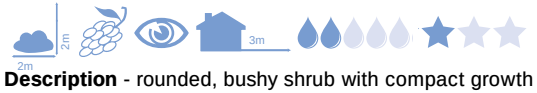


Photo: Grieg, D. Australian National Botanic Gardens

Description - rounded, bushy shrub with compact growth and dark green leaves.

In the garden - hardy, low maintenance shrub.

Soil type - responds to sunny, reasonably well drained positions. Grows in most soils and is lime sensitive.

Flowering time - flowers are pale yellow, round (globular) and grow in groups. Flowers appear mid-winter to early spring.

Atriplex semibaccata
Berry Saltbush

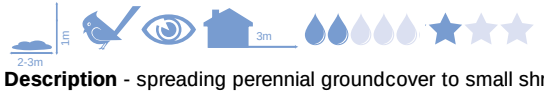


Photo: Friends of Scott Creek Conservation Park

Description - spreading perennial groundcover to small shrub with blue-green foliage and red berries.

In the garden - hardy, drought and salt tolerant plant. Needs little water once established although occasional watering will improve appearance. May attract butterflies.

Soil type - responds to full sun or part shade in well drained soils. Will tolerate extended dry periods.

Flowering time - fruit are red and succulent with a flat green top edge. Flowers appear mostly in summer.

Conservation status - threatened within the Campbelltown Council area.

Shrub Layer (small shrubs)

Calytrix tetragona
Common Fringe-myrtle

Photo: Fagg, M. Australian National Botanic Gardens

Description - bushy shrub. Soft blunt, needle-like leaves that are bright green in colour and point upwards.

In the garden - easily grown and very hardy shrub for the small garden. Water and regularly prune lightly for a bushy shrub and to avoid bare wood.

Soil type - responds to sun or light shade. Grows in a wide range of well drained soils, and is lime sensitive.

Flowering time - flowers are pink or white and grow to 1cm in diameter. Flowers are starry and grow in clusters that appear in late winter to early summer.

Correa glabra
Rock Correa

Photo: Fagg, M. Australian National Botanic Gardens

Description - small to medium sized, rounded shrub with rigid, sharply-pointed leaves.

In the garden - the prickly nature of this plant makes it a good barrier plant and bird refuge.

Soil type - grows in a wide range of soils and is lime sensitive. Will tolerate full sun to shady positions.

Flowering time - white to yellow flowers that grow in clusters with a short hairy stalk. Flowers appear in winter or spring.

Daviesia ulicifolia
Gorse-bitter-pea

Photo: Verdon, D. Australian National Botanic Gardens

Description - prickly, stiff shrub. Stiff, spine-tipped branchlets and narrow, rigid, spine-tipped leaves.

In the garden - the prickly nature of this hardy shrub provides good habitat for birds. May attract butterflies.

Soil type - responds well to sheltered positions. Grows in a wide range of well drained soils, and is lime sensitive.

Flowering time - brown and yellow pea flowers grow in groups along the stem. Flowers appear from late winter to spring.

Conservation status - rare within the Campbelltown Council area.

Eutaxia microphylla var. *microphylla*
Mallee Bush-pea

Photo: Friends of Sturt Gorge Recreation Park

Description - low, dense, twiggy shrub with small leaves that are blue-green in colour. Smaller branches can be spiny.

In the garden - may attract butterflies, and can be grown in pots.

Soil type - grows in a wide range of well drained soils, and is lime sensitive.

Flowering time - small yellow and brownish-red pea flowers that appear in late winter to mid-spring

Goodenia amplexans
Clasping Goodenia

Photo: Friends of Sturt Gorge Recreation Park

Description - small spreading shrub with long, sticky, smelly, lime green leaves.

In the garden - hardy, quick growing shrub. May require additional watering over summer.

Soil type - responds to part shade, in a sheltered position. Grows in a wide range of well drained soils.

Flowering time - yellow flowers appear in spring and summer.

Conservation status - uncommon on the Southern Lofty.

Grevillea lavandulacea var. *lavandulacea*
Lavender Grevillea

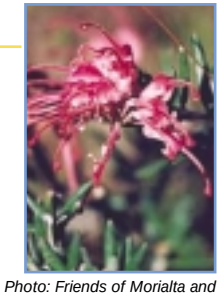


Photo: Friends of Morialta and Blackhill Conservation Park

Description - low spreading to compact shrub. Foliage is grey-green in colour, and leaves have a pointed apex.

In the garden - drought tolerant plant that is suitable for small gardens.

Soil type - responds to full sun or part shade. Grows in well drained or dry soils, and is lime sensitive.

Flowering time - flowers are white to red and grow in spidery clusters that appear in winter through to summer.

Hakea rugosa
Dwarf Hakea

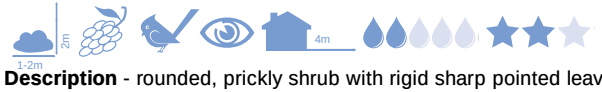


Photo: Fagg, M. Australian National Botanic Gardens

Description - rounded, prickly shrub with rigid sharp pointed leaves.

In the garden - the prickly nature of this hardy shrub provides good habitat for small birds.

Soil type - grows in a wide range of soils and will tolerate high pH.

Flowering time - creamy white flowers that grow in clusters and are supported by a hairy stalk. Flowers in late winter to spring.

Conservation status - uncommon within the Campbelltown Council area.

Hardenbergia violacea
Native Lilac

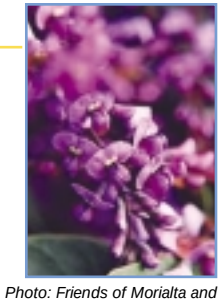


Photo: Friends of Morialta and Blackhill Conservation Park

Description - somewhat woody, creeping plant with trailing and twining stems, and dark green leaves.

In the garden - common and successful as a garden plant. Will often form a carpet of colour over other foliage. May require additional watering over summer.

Soil type - responds well to part shade, in sheltered positions. Grows in a wide range of soils including sandy and rocky locations.

Flowering time - lilac to purple pea-shaped flowers that spread in clusters. Flowers in mid-winter and spring.

Conservation status - threatened within the Campbelltown Council area.

Leptospermum myrsinoides
Heath Tea-tree

Photo Fagg, M. Australian National Botanic Gardens

Description - erect shrub with small green, narrow leaves.

In the garden - easily grown and hardy plant. Tip prune after flowering to improve vigour and to avoid a woody appearance. May require additional watering over summer.

Soil type - responds to full sun and will tolerate poor drainage - may survive in regularly inundated positions. Grows in most soils, and is lime sensitive.

Flowering time - flowers are white or sometimes pink and are almost 1cm across. Flowers appear in spring and early summer.

Conservation status - rare within the Campbelltown Council area.

Lomandra multiflora ssp. dura
Many-flowered Mat-rush

Photo: Friends of Sturt Gorge Recreation Park

Description - hardy, clump-like plant closely related to grass trees *(Xanthorrhoea species)*. Leaves are flat, strap-like and narrow to a blunt apex.

In the garden - ideal as a foreground plant in a bush garden. May require additional watering over summer.

Soil type - responds to full sun or partial shade. Grows in moist, well drained positions in most soils.

Flowering time - flowers are small, yellow-brown in colour, and arranged as an inflorescence. Flowers appear in late winter and spring.

Myoporum viscosum
Sticky Boobialla

Photo: Friends of Morialta and Blackhill Conservation Park

Description - small to medium spreading shrub with attractive dark green, glossy leaves.

In the garden - hardy and drought tolerant plant. May be used as an informal hedge.

Soil type - grows in a wide range of soils.

Flowering time - masses of small white flowers that appear in winter to spring.

Conservation status - uncommon on the Southern Lofty and threatened within the Campbelltown Council area.

Olearia ramulosa
Twiggy Daisy Bush

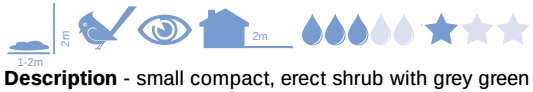


Photo: Friends of Morialta and Blackhill Conservation Park

Description - small compact, erect shrub with grey green foliage. Very similar in appearance to rosemary.

In the garden - prune after flowering to keep dense and bushy and to avoid it becoming straggly. May attract butterflies. Good as a foreground plant in bush gardens. May require additional watering over summer.

Soil type - responds to sunny positions or part shade in a wide range of soils.

Flowering time - small white flowers grow in small groups along the stem. Flowers for most of the year.

Pultenaea largiflorens
Twiggy Bush-pea

Photo: Friends of Sturt Gorge Recreation Park

Description - medium to tall, erect shrub. Rigid, twiggy branches. Leaves are hairy, small and wedge-shaped.

In the garden - slow growing, may attract butterflies.

Soil type - responds to well drained and drier positions. Grows in a wide range of soils, and is lime sensitive.

Flowering time - attractive orange-yellow with red or crimson pea flowers that appear in mid-winter to spring.

Xanthorrhoea quadrangulata
Rock Grass Tree

Photo: Friends of Morialta and Blackhill Conservation Park

Description - large perennial herb that develops a trunk with age. Supports a dense crown of grass-like leaves that are one and a half metres long.

In the garden - drought tolerant and long lived but very slow growing. Requires adequate drainage for growth and survival.

Soil type - responds well to full sun and low to moderate moisture. Grows in a wide range of well drained soils.

Flowering time - flower heads grow to half a metre on a leafless flower stem that is up to 70cm in length. Flowers in autumn to winter.

Xanthorrhoea semiplana ssp. semiplana
Yacca

Photo: Dorr, C. Onkaparinga Catchment Water Management Board

Description - shrub that develops a trunk. Supports a dense crown of grass-like leaves that grow up to two and a half metres in length. Similar in appearance to *Xanthorrhoea quadrangulata*.

In the garden - drought tolerant and long lived but very slow growing.

Soil type - responds well to full sun and low to moderate moisture. Grows in a wide range of well drained soils.

Flowering time - flower heads grow on a leafless flower stem.

Conservation status - threatened within the Campbelltown Council area.

Ground or Under Storey Plants (grasses)

Dianella revoluta var. revoluta
Black-anther Flax-lily

Description - small clump-like plant with strap-like leaves, that spreads via creeping, underground stems.

In the garden - hardy plant that will grow right up against the base of established plants and trees. Suitable for planting in rockeries. Attractive when mass planted.

Soil type - prefers part shade in sheltered locations but will grow in full sun. Grows in a wide range of soils.

Flowering time - blue flowers that are down-turned with prominent black anthers and yellow bases. Flowers appear in spring.

Photo: Friends of Morialta and Blackhill Conservation Park

Dichanthium sericeum
Silky Blue Grass

Description - slender, tufted grass with flat leaf blade.

In the garden - fast growing and frost tolerant grass. May act as a host plant for butterfly larvae. Attractive when mass planted or grown in small clumps.

Soil type - grows in a wide range of soils.

Flowering time - dense, silky, hairy flower heads that are blue-grey in colour.

Conservation status - vulnerable on the Southern Lofty and threatened within the Campbelltown Council area.

Photo: Smith, J. Onkaparinga Catchment Water Management Board

Chloris truncata
Windmill Grass

Description - warm-season, low-growing perennial grass, forming compact tufts or spreading.

In the garden - good for planting in small strips such as between driveways and in rockeries. Attractive when mass planted.

Soil type - grows in a wide range of soils.

Flowering time - small windmill type flower that looks slightly purple. Flowers appear in spring to autumn.

Photo: Friends of Sturt Gorge Recreation Park

Ground or Under Storey Plants (grasses)

Cyperus vaginatus
Stiff Flat-sedge

Description - bright green sedge restricted to waterways and ponds with brown seeds found in clusters.

In the garden - frost resistant plant, can be used in a bog garden. Will tolerate inundation and can withstand extended dry periods. Attractive when mass planted. May require additional watering over summer.

Soil type - grows in a wide range of soils, including well drained sandy and loam soils.

Flowering time - flowers in spring to summer.

Photo: Friends of Morialta and Blackhill Conservation Park

Juncus subsecundus
Finger Rush

Description - sedge with shiny blue-green stems/leaves.

In the garden - suitable for use in wet or boggy sites. Attractive when mass planted. May require additional watering over summer.

Soil type - grows in a wide range of well-drained soils.

Flowering time - flowers appear in spring to summer.

Photo: Smith, J. Onkaparinga Catchment Water Management Board

Themeda triandra
Kangaroo Grass

Description - dense tussock perennial with narrow leaf blades. Actively grows in warm weather, and in winter has a period of dormancy when the leaf blades change colour.

In the garden - drought and heat tolerant, and will also tolerate low to moderate frost. Suitable for planting in rockeries. May be used as an interesting alternative to lawn, and will tolerate mowing once or twice a year. Attractive when mass planted.

Soil type - grows in a wide range of well-drained soils.

Flowering time - rusty brown-red flowers with noticeable black awn in late spring and early summer.

Photo: Friends of Morialta and Blackhill Conservation Park

Arthropodium strictum
Chocolate Lily

Photo: Friends of Morialta and Blackhill Conservation Park

Description - small perennial herb with grass-like leaves.

In the garden - delicate, fragrant and subtle plant that may be difficult to grow. Best grown in small groups or clumps. Suitable for rockeries, pots, and as a border plant. May die-back during summer and is best grown as an annual. May require additional watering over summer.

Soil type - grows in a wide range of soils.

Flowering time - purple flowers to 2cm in diameter on upright, branched flowering stems to just under half a metre. Flowers in spring to early summer.

Brunonia australis
Blue Pincushion

Photo: Legge, K. Australian National Botanic Gardens

Description - perennial herb with rosette of broad, green leaves that cluster around the base.

In the garden - attractive when grown in small groups or in pots. Suitable for rockeries, and best grown as an annual.

Soil type - grows in a wide range of soils, and is lime sensitive.

Flowering time - pink to blue flowers which grow in a tight group on flower stems rising 20cm from the base of the plant. Many crowded flowers give the 'pincushion' effect. Flowers in spring to early summer.

Conservation status - uncommon within the Campbelltown Council area.

Bulbine bulbosa
Bulbine-lily

Photo: Friends of Sturt Gorge Recreation Park

Description - densely tufted perennial herb. Single, upright, fleshy flowering stem.

In the garden - should be treated as an annual but for greatest effect, grow in small groups. Can be grown in a pot.

Soil type - responds to full or part sun and tolerates a variety of soils provided reasonable drainage is available. During dry weather, plants can die back to the rootstock, but regular watering throughout the year will produce new growth.

Flowering time - fragrant, star-like flowers that are bright yellow on the inside with one green line on the outside of each petal. Flowers appear in spring.

Calostemma purpureum
Pink Garland-lily

Photo: Grieg, D. Australian National Botanic Gardens

Description - annual with narrow, long, shining green, strap-like leaves.

In the garden - ideal for planting in rockeries. May also be used in tight rows in more formal situations. Attractive when planted in small groups.

Soil type - grows in a wide range of soils.

Flowering time - trumpet-shaped, pink flowers - similar to a miniature agapanthus flower - that grows on a single flower stem around 25cm in length.

Einadia nutans ssp. *nutans*
Climbing Saltbush

Photo: Friends of Morialta and Blackhill Conservation Park

Description - small spreading salt bush. Leaves are blue-grey-green in colour.

In the garden - hardy, frost resistant, low growing plant, that will tolerate extended dry periods.

Soil type - responds well to part shade. Grows in a wide range of soils.

Flowering time - flowers grow on short spikes at the end of stems for most of the year. Fruit is red and fleshy with the hard seed visible inside.

Geranium retrorsum
Common Cranes Bill

Photo: Friends of Morialta and Blackhill Conservation Park

Description - small herb with green leaves.

In the garden - may require additional watering over summer.

Soil type - responds well to part shade and a sheltered position. Prefers loam and clay soils.

Flowering time - small pink to white flowers in winter to summer.

Geranium solanderi var. *solanderi*
Austral Geranium

Photo: Manley, G. Australian National Botanic Gardens

Description - similar to *Geranium retrorsum* but a bigger, coarser plant.

In the garden - may require additional watering over summer.

Soil type - responds well to part shade and a sheltered position. Prefers loam and clay soils.

Flowering time - larger flowers than *Geranium retrorsum* that appear in spring.

Conservation status - likely to be of significance within the Campbelltown Council area.

Goodenia blackiana
Native Primrose

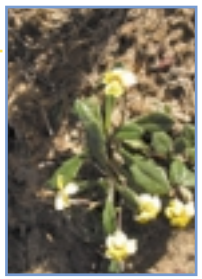


Photo: Legge, K. Australian National Botanic Gardens

Description - small herb with thick leaves that are shiny green on top with white hairs underneath.

In the garden - hardy groundcover, suitable for planting in rockeries or as a border plant.

Soil type - grows in a wide range of soils.

Flowering time - flowers are single on each flower stem. Flowers in spring and early summer.

Linum marginale
Native Flax

Photo: Green, C. Australian National Botanic Gardens

Description - slender, erect, annual or perennial herb with bluish-green, linear leaves.

In the garden - attractive when grown in small groups or clumps. Suitable for growing in rockeries, and can be grown in pots. May require additional watering over summer.

Soil type - responds to sunny positions in moist, well-drained soils.

Flowering time - small, pale blue flowers with darker blue streaks that appear in late spring.

Lobelia alata
Angled Lobelia

Photo: Fagg, M. Australian National Botanic Gardens

Description - small, spreading, delicate herb with dark green foliage. Found in wet areas particularly in positions sheltered by rocks.

In the garden - requires adequate moisture for growth and survival. Suitable for planting in rockeries, and can be grown in pots. Should be treated as an annual. May require additional watering over summer.

Soil type - grows in a wide range of moist soils.

Flowering time - small flowers with five petals in a hand shape, pink to white in colour. Petals are thin and wilt easily. Flowers appear in summer.

Microtis unifolia
Common Onion-orchid

Photo: Friends of Morialta and Blackhill Conservation Park

Description - annual orchid with single, erect stem and tiny green leaves.

In the garden - one of the more hardy and robust orchids, can be grown in pots.

Soil type - grows in a wide range of well drained soils.

Flowering time - yellow flowers that appear in spring and summer.

Scaevola albida var. *albida*
Pale Fanflower

Photo: Friends of Morialta and Blackhill Conservation Park

Description - soft, ground running annual or perennial herb with bright green leaves that form a small mat.

In the garden - low-growing groundcover. Suitable for rockeries, and can be grown in pots.

Soil type - responds to full sun or part shade. Grows in a wide range of soils.

Flowering time - flowers are pale blue, purple to white and appear in spring and summer.

Ground or Under Storey Plants (ground layer)

Senecio hypoleucus
Pale Groundsel

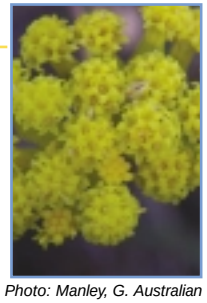


Photo: Manley, G. Australian National Botanic Gardens

Description - erect or straggling herb or shrub. Broad, flat, leathery leaves that are green on top and white below.

In the garden - hardy, low maintenance plant.

Soil type - grows in a wide range of well-drained soils including rocky sites.

Flowering time - yellow flowers that grow as congested flower heads in summer.

Conservation status - uncommon on the Southern Lofty and endangered within the Campbelltown Council area.

Vittadinia cuneata var. *cuneata*
New Holland Daisy - Fuzzweed

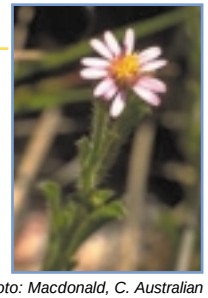


Photo: Macdonald, C. Australian National Botanic Gardens

Description - erect, rigid, perennial herb to about shin high. Fruit with white hairs all over it.

In the garden - small and delicate herb that should be treated as an annual. Best grown in small groups or clumps. Suitable for rockeries, and can be grown in pots.

Soil type - grows in a wide range of well-drained soils.

Flowering time - pale blue to violet flowers for most of the year.

Where can I get native plants or more advice?

For information on buying and planting local provenance indigenous plant species, please contact:

SA Urban Forest Biodiversity Program

Wittunga House
328 Shepherds Hill Road Blackwood SA 5051
Ph: 8278 0603 Fax: 8278 0619
email: info@urbanforest.on.net

References

Conserving Adelaide's Biodiversity: Resources

Brewer, K. Guerin, G. & Smith, J. 2000, 'The Indigenous Biodiversity of the City of Campbelltown District,' for Campbelltown Landcare with assistance from SA Urban Forest Biodiversity Program.

Dashorst, G.R.M & Jessop, J.P. 1998, 'Plants of the Adelaide Plains and Hills,' The Botantic Gardens of Adelaide and State Herbarium.

Kraehenbuehl, D. 1996 'Pre-European Vegetation of Adelaide: A Survey from the Gawler River to Hallett Cove,' Nature Conservation Society of South Australia Inc.

Prescott, A. 1988, 'It's Blue with Five Petals: Wildflowers of the Adelaide Region,' Lutheran Publishing House, SA, National Library of Australia.

CSIRO for Land and Water, education resources, online: http://www.clw.csiro.au

Council greatly appreciates the assistance of the following groups

SA Urban Forest Biodiversity Program
http://www.urbanforest.on.net/

Campbelltown Landcare Group

South Australian Indigenous Flora (SAIF)
saif@senet.com.au

Our Patch Program - Torrens Catchment Water Management Board
http://www.ourpatch.on.net/

Australian National Botanic Gardens (ANBG)
http://www.anbg.gov.au/index.html

Friends of Black Hill and Morialta Conservation Parks Incorporated
88 Addison Ave, Athelstone SA 5076
http://users.senet.com.au/~fobhm/index.htm

Friends of Sturt Gorge Recreation Park
http://users.chariot.net.au/~fosg/

Friends of Scott Creek Conservation Park
http://homepages.picknowl.com.au/peters/introduction.htm

CAMPBELLTOWN
CITY COUNCIL

The Caring Community