Engaging with Nature

Butterfly gardens — taking action module for teachers
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About this resource

The purpose of this resource is to provide background and technical information on creating a butterfly garden, either within school grounds, at home, or in the community. The greatest learning outcomes will be achieved if students undertake the research themselves and are involved at every possible stage of the project development.

Why have a butterfly garden?

Consider discussing this question in your group.

Why are butterflies important? Who are they important to?

Butterflies need specific plants on which to feed and lay their eggs. Creating a butterfly garden will ensure that there is a place for them to breed and will provide nectar as a food source for local and migrating butterflies.

A butterfly garden does not just provide habitat for butterflies, but also for a wide range of insects and other animals. In addition, it can raise public awareness of the need to protect and provide food for caterpillars, as without caterpillars there can be no butterflies.

Case study

Pilyabilyangga — Waite Campus Children’s Centre

Pilyabilyanngga means butterfly place in the language of the Kaurna, the people of the Adelaide Plains. Here is the link to find out how Waite Campus Children’s Centre created their butterfly garden.

🔗 The making of Pilyabilyangga
What do butterflies need?

**Sunshine**

When considering where to locate a butterfly garden, consider spots that receive sunshine all day or at least in the morning. Thinking about where the sun rises and sets at different times of year will help to determine the best location. Butterflies are cold-blooded so they need warmth in order to fly, preferring temperatures between 15 and 35°C. You can place flat rocks in sunny places to radiate heat, and for butterflies to use for resting and basking.

**Shelter**

Butterflies need shelter from the wind. Select a location that is not too windy. If the area is open and exposed, consider planting trees and shrubs and/or building permeable barriers to slow the wind down.

**Water**

Butterflies also need water. They will drink from puddles and get the salt and minerals they need from the soil. You can create this artificially by filling a bird bath with some sand, pebbles, or soil and keeping it moist.

**Plants — host and nectar**

Butterflies need specific plants to survive. Female butterflies are very fussy about what plants they will lay their eggs on. When the eggs hatch as caterpillars, the caterpillars will only eat particular leaves. The particular plants that caterpillars rely on are called host plants. In contrast, butterflies only live on liquids, so they are attracted to flowers and feed on the nectar, these are termed nectar plants. Generally, butterflies will use a wider variety of plants than the caterpillar.

Firstly, find out what butterflies are found in your local area and decide which species you would like to attract to your garden. You can do this by looking at the ‘Attracting Butterflies to your Garden’ book (available to borrow from the NRM Education loan library or for purchase from http://butterflyconservationsa.net.au)

Some butterflies have a narrow range of habitat and will only be found on the coast, the hills or the plains, while others can be found in all these places. Do you want to provide food sources and protection for particular species, or would you like to cater for a broader range?

Butterfly Conservation SA Inc. has created an interactive map that provides information on the butterfly attracting plants that are native to each suburb in Adelaide.

🔗 Find butterfly attracting plants for your area
Activity — complete the table

NRM Education’s Butterflies of the Adelaide Region ID chart will help you identify the butterfly species in the following table. Once you know the name of the butterfly you can find out what particular host plants the caterpillar needs by researching the type of food each caterpillar requires.

Host plants (caterpillar food plants)

<table>
<thead>
<tr>
<th>Butterfly</th>
<th>Type of plant</th>
<th>Host plant for caterpillar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>e.g. Southern Grass-dart</td>
<td>e.g. Spear-grass and Kangaroo Grass</td>
</tr>
<tr>
<td>e.g. Southern Grass-dart</td>
<td>e.g. Grass</td>
<td></td>
</tr>
</tbody>
</table>

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<th>Butterfly</th>
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<td></td>
</tr>
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</tr>
</tbody>
</table>
The following plants flower over spring and summer, when more butterflies are active, thereby providing a source of nectar. A selection of plants that will attract a range of butterflies and are local to the Adelaide region can be found below.

**Host plants (butterfly food plants)**

<table>
<thead>
<tr>
<th>Common plant name / Scientific plant name</th>
<th>Plant type</th>
<th>Description of flower</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common Everlasting</strong>&lt;br&gt; <em>Chrysocephalum apiculatum</em></td>
<td>Groundcover</td>
<td>Bright yellow buttons with delicate paper touch</td>
</tr>
<tr>
<td><strong>Running Postman</strong>&lt;br&gt; <em>Kennedia prostrata</em></td>
<td>Groundcover</td>
<td>Bright red pea flower with yellow centre</td>
</tr>
<tr>
<td><strong>Saltbushes</strong>&lt;br&gt; <em>Atriplex species</em></td>
<td>Low bush</td>
<td>Inconspicuous cream flowers, sometimes with red berries</td>
</tr>
<tr>
<td><strong>Sweet Bursaria</strong>&lt;br&gt; <em>Bursaria spinosa</em></td>
<td>Shrub</td>
<td>Masses of white flowers with 5 petals in summer</td>
</tr>
<tr>
<td>Common plant name / Scientific plant name</td>
<td>Plant type</td>
<td>Description of flower</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Native Bluebell <em>Wahlenbergia</em> species</td>
<td>Small herb</td>
<td>Blue flowers with five petals in spring and summer</td>
</tr>
<tr>
<td>Twiggy Daisy-bush <em>Olearia ramulosa</em></td>
<td>Shrub</td>
<td>Small white daisy flowers in autumn</td>
</tr>
<tr>
<td>Native Lilac <em>Hardenbergia violacea</em></td>
<td>Climber, when support available</td>
<td>Purple pea flower with yellow centre begins late winter</td>
</tr>
<tr>
<td>Clasping Goodenia <em>Goodenia amplexans</em></td>
<td>Low shrub</td>
<td>Bright yellow flower with two petals pointing upwards and three downwards in spring and summer</td>
</tr>
</tbody>
</table>

- We recommend only using local native plant species. Investigate why this is the case.
- Investigate the plant species local to your area. Choose ones that are suitable for a butterfly garden and which are available to buy/can be sourced locally.
Useful links

- Local plant catalogue
- Adelaide and Mt Lofty Ranges — interactive vegetation map
- Local plant growers list
- Australia’s virtual herbarium

What next?

Gathering support

To gather support for creating a butterfly garden on school grounds, approach your principal and grounds committee. Together, select an appropriate location taking into account existing plants, shelter, sun, and availability of water. Consider also what activities will take place around the location, such as ball games and sporting activities that may cause damage to the plants.

Money, fundraising and donations

You will need to work out how to pay for the things you need:

- Do you have any existing funds with your environment group?
- Is there funding available from your school?
- Can you ask for funding from another organisation e.g. Rotary Club or local business?
- Can you apply for a grant?
- Is it possible to organise a fundraising event?
Naming your garden

Decide on a name for your butterfly garden. This makes your garden unique and different from the rest of the school grounds. You might like to name it in memory of someone or to mark an anniversary or special day. Ask families and students for ideas or to vote on their favourite name.

Consider an Aboriginal name to recognise the traditional owners of the land. If you choose an Aboriginal name for your garden it is important, and respectful, to seek approval from local Aboriginal elders. Depending on where you are located, this may be Kaurna, Ngarrindjeri, Peramangk or Ngadjuri.

DECD Aboriginal Community Engagement Officers and the Aboriginal Cultural Consultants are available to support you with embedding Aboriginal Cultural Studies into the curriculum and can support your work on the butterfly garden by contributing to the cultural connections, Aboriginal perspectives and supporting your connections to local Aboriginal community networks.

The Kaurna language is being revived by Kaurna Warra Pintyanthi, who can be contacted to assist you in naming your garden. They will take inspiration from the surrounding area and the information you provide them.

Kaurna Warra Pintyanthi
Designing your garden

Map your site

- Draw a map of your area with a north arrow.
- Mark on your map the rough dimensions.
- Mark on the map any existing features that you are not going to remove such as trees or fences.
- Draw in any pathways – consider natural elements with low reflectivity; mulch, sawdust, crushed brick etc.
- Consider if you are going to have any seating and draw this in – under shade is ideal.
- Draw in any features, for example a bird bath or art work.
- Consider drainage and where water will collect when it rains.

Infrastructure

Do you need:

- Irrigation pipes? If not, how will you water the plants in their first year before they are established?
- Drains?
- Paths?
- Seating?
- Other hard landscaping elements such as retaining walls?

These all need to be planned and installed before planting can occur.

Draw the plants on your map

Look at your final plant list and start to estimate numbers of plants that will suit the space. Consider putting shorter plants along the path and taller plants in the middle of the space or against the fence line so the tall plants don’t block your ability to see the garden.
Make sure that you have selected a variety of types of plants (e.g. grasses, groundcovers and shrubs) to create an ecosystem with plenty of protection from predators for butterflies and caterpillars. It is important to think about the size of plants when fully grown, so that there are not too many plants in the space.

Due to Adelaide’s hot and dry climate, it is strongly recommended that plantings occur in late autumn (in frost prone areas) or winter to give the plants the best chance of survival. Plants grown here from locally collected seed are better suited to our conditions than those that come from interstate or overseas.

**Building your garden**

*Plan action*

- Create a timeline for the development and maintenance of the garden.
- Consider how you can build quality relationships beyond the school community to achieve your school’s sustainability vision.
- Seek volunteers and organise a working bee.

*Money, fundraising and donations*

Write a list of all the things you need to build your butterfly garden. Brainstorm where you could get these things. Remember to ask for donations from local businesses and parents before purchasing or applying for a grant. Find out how much things are going to cost. For an example, see the following table.
<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Source (purchase at $ / donation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional soil</td>
<td>Volume in cubic metres</td>
<td></td>
</tr>
<tr>
<td>Mulch</td>
<td>Volume in cubic metres</td>
<td></td>
</tr>
<tr>
<td>Plants</td>
<td>Species and number</td>
<td></td>
</tr>
<tr>
<td>Tree guards and stakes</td>
<td>Number</td>
<td></td>
</tr>
<tr>
<td>Pathway material – bark chips, sawdust, gravel fines</td>
<td>Volume in cubic metres</td>
<td></td>
</tr>
<tr>
<td>Rocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird bath or shallow dish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bench/seating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artwork</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Prepare the site**

- Remove existing lawn or unwanted plants by hand, composting or laying sheets of newspaper.
- Test the soil type and adjust if necessary by adding compost or sand (see resource below).
- Test the soil for compaction and dig over with added gypsum if necessary in order to break up clay.

**Information on soil and soil testing:**

- Soils Aint Dirt - teaching and learning resources to investigate soil
Plant your garden

- Refer to your plan of which plants will go where – consider their size when fully grown.
- Decide on a time to do the planting.
- Organise a group of people or working bee.
- Put down mulch before planting – this is much easier than trying to mulch around the small plants, though ensure some earth is left bare, as some species of native bees live in the ground.
- Water the plants in thoroughly and maintain watering as necessary until plants are established.

See this guide for how to plant seedlings correctly:

🔗 How to plant local natives fact sheet

As an alternative or addition to planting seedlings in the soil, many native grasses, reeds, and sedges grow very well in a ‘pebble garden’. This consists of laying two layers of 25 mm pebbles onto bare soil then sowing with seed in late summer. The seeds germinate in spring and, after some initial weeding, fewer weeds tend to grow than in soil or mulch and increased moisture is held in the spaces between pebbles due to condensation. Careful consideration should be given to where the pebbles are sourced, as many come from sensitive areas in Australia or overseas and are extracted irresponsibly. As always, recycled or local materials should be given preference.

Celebrate

Plan a celebration event or grand opening to say thank you to everyone that has helped, as well as show people what you have achieved. You can share the information you have learned about butterflies and encourage others to take action.

Share your enthusiasm for butterfly gardening and the conservation of butterflies with the community and your family by:

- making a poster, a mobile or some other communication tool which tells others about your butterfly garden; display it in a prominent place at school or in the community (such as your school noticeboard or local shops)
- giving away plants and information about butterflies
- writing an article for the school or local newspaper
- help scientists find out more about our local butterflies by recording which plants the adult butterflies are feeding on and where butterfly colonies exist.

🔗 Butterfly watch
The future

Maintaining your garden

Make sure you let the grounds person know that the butterfly garden should be a chemical-free zone as pesticides can kill caterpillars and other insects. Even systemic insecticides sprayed onto the soil or the leaves of plants will end up in the nectar and pollen of the plant to be ingested by butterflies and other insects.

The plants will need weeding and mulching from time to time. Whose responsibility will this be? How can you make sure the garden is well looked after?

The table below will help organise what needs to be done, when, and by whom.

<table>
<thead>
<tr>
<th>What needs to be done</th>
<th>When</th>
<th>Who will do it</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dead plants replaced / removed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mulch topped up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree guards and stakes removed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audit to see which caterpillars and butterflies are using the garden using NRM Education’s Butterflies of the Adelaide Region ID chart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bird bath or shallow dish</td>
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</table>

Embed your garden into the school curriculum

- Monitoring – What butterfly species visit the garden? Are birds and insects also present?
- Additional learning/use of space – How else can you use the garden to personalise and connect learning for your students (science, art, mathematics, literacy and numeracy, ICT etc.)?

Useful links

- Linking the Australian Curriculum with NRM Education resources – Biodiversity (Foundation to Year 2)
- Linking the Australian Curriculum with NRM Education resources – Biodiversity (Years 3-6)
- Linking the Australian Curriculum with NRM Education resources – Biodiversity (Years 7-10)
Further reading

See the following resources for more information on establishing butterfly gardens:

- **Bringing butterflies back** fact sheet
- Butterfly Conservation SA information about butterflies and host plants and nectar plants
- 10 steps to a butterfly garden
- ‘Attracting Butterflies to your Garden’ by Hunt, Grund, Keane and Forrest provides an introduction to designing a garden to attract butterflies and explains what specific plants butterflies and caterpillars need
- **Gardening Australia** episode on ‘Gardening for butterflies’
- Information about local native plants and flowers ‘The native plants of Adelaide; returning the vanishing natural heritage of the Adelaide Plains to your garden’ by Bagust and Tout-Smith
- DECD Outdoor Learning Environments Standard details the minimum and recommended standards for creating and maintaining an outdoor learning environment.
Appendix — growing a project tree

1. Roots: Groupwork
2. Trunk: Vision
3. Branches: Identify & Plan
4. Leaves: Action & Evaluation
5. Fruit: Evolution
6. Sun: Community Support

Growing a project
Guiding questions for growing a project

1. Roots
   Groupwork
   - What will your group feel like?
   - How will it work?
   - Do you have meeting norms?
   - Does the group work together well?
   - How can the group improve?

2. Trunk
   Vision
   - Why are you doing the project?
   - What will it look like?
   - What are the benefits of your project for the environment, community and school?

3. Branches
   Identify & Plan
   - What do you need to find out before you start?
   - What challenges might you face?
   - What kind of support will you need and from who/where?
   - What resources will you need and how will you get them?
4. LEAVES

action & evaluation

- What steps do you need to take?
- Who is responsible for each action?
- When do the actions need to be done by?
- How will we know if we have achieved your goals and vision?

5. FRUIT

evolution

Future plans:
- What do we want to do next?
- How could you extend or expand the project?
- Could you help another group setup a similar project at another school?
- Is the project ongoing? Who will look after the project once it is completed?
- How will the group continue?

6. SUN

Community support

- Who could provide feedback on your project tree? Staff, classes, experts, NRM Education.
- Who should you keep informed of your project’s progress? Parents, general public.
- Who can help you do your project? Parents, classes, community groups.
- Who should you invite to the celebration? All of the above, special guests; mayor, local celebrities.
- How will you celebrate your successes and achievements?