# Biodiversity in the Clapham native garden

## Our context

Set amongst hundreds of well established eucalypts; Clapham Primary School is located on 4.2 hectares in the Adelaide foothills. Our environmental focus has been the revegetation of a 460 square metre lawned area with indigenous natives; creating a window into a Grey Box Grassy Woodland biome, which can be used for outdoor learning. We envisage our school becoming a biodiversity haven and having a connection with the Hills Face Grey Box Grassy Woodland via a nature corridor.

The revegetation project has been a six year plan which began in 2010, with conversations among staff regarding developing the environmental assets of our site. We identified an under-utilized area of the school grounds and planted trees and shrubs to define the space. The second stage involved further planting of indigenous groundcover and Grey Box Grassy Woodland plants (more than 800 plants in total), as well as installation of a large rainwater tank and irrigation, the laying of a path that traverses the garden and raised beds for our kitchen garden.

Stage 3 (which was made possible with last year's NRM grant) was the development of an outdoor classroom. This took the form of a 3m x 5m carport with one solid wall and two 'green' walls of indigenous climbers, a sawdust & gravel floor and Red Gum log seating.

Pathways that meander through the vegetation have also been established and another 500 plants added. We are currently undertaking stage 4, which entails designing and producing plant identification and interpretive signage that link to the curriculum and will make this area an interactive resource for study on biodiversity for us and the wider community.

An important aspect of our Education for Sustainability approach has been the development of management practices that are sustainable and safeguard against programs ceasing once individual staff members move on. We have implemented the following management structures at our site to oversee the various aspects of environmental education:

- Environment Curriculum Reference Group – staff group tasked with developing curriculum resources / environmental documents (SEMP) and supporting teachers in education for sustainability. Meets twice per term.
- Eco-School Committee – staff and students involved in project planning, delivery and review. Meets twice per term.
- Facilities Sub-Committee – staff and parents who action improvements to school grounds e.g. organising working bees. Meets twice per term.
- Garden Club – student, staff and parent group, who meet weekly at lunch time to work in the experimental food garden, weed, mulch etc.

- Green Team Parent Action Group – volunteers connect via Facebook to carry out and maintain environmental projects throughout the school.

## Our vision and values for a more sustainable world

In connection with the school values of cooperation, respect and responsibility, we see our role as teaching children to live well in their environment. This means nurturing an appreciation for nature, promoting an ethos of environmental stewardship, and instilling lifelong values of sustainable living. Our vision is to enhance our natural assets, use them as educational resources, reduce our environmental footprint and become a model school of environmental education and sustainability.

## Our sustainability focus for the last 12 months

Late in 2014 Clapham Primary became part of the Eco-School Program; which encourages authentic learning with real world contexts, thus providing a meaningful platform from which to base environmental education. We established a student committee which identified a need to raise student and community awareness of biodiversity and to increase biodiversity in our Indigenous Garden. Before establishing our priorities for increasing biodiversity, it was necessary to ascertain exactly what plants and animals were present within school grounds. We conducted audits in three areas: birds, other wildlife and plants; to get a clearer picture of current biodiversity. We used existing records of bird surveys (that are part of a 5 year bird-watching program); students in Room 11 (Special Class) conducted a koala survey; Junior Primary classes conducted insect surveys (as part of a Minibeast unit of work) and Primary children surveyed trees in the Indigenous Garden. The students then prepared an action plan and wrote SMARTAR targets that would help us to achieve our goals. It was important to us that this detailed specific people, classes, timelines, information on funding, resources and responsibilities.

Our next step was to set about shaping how this would look for Clapham. The student committee elected to aim our efforts at increasing the numbers (and species) of lizards, native bees and small birds in our Indigenous Garden. Students from each class then participated in a variety of learning activities.

For the Junior Primary students, this included researching lizards from the Adelaide and Mt Lofty region (and their habitat needs in particular); mulching areas of the Indigenous garden; placing hollow logs in undergrowth and moving rocks into the area in order to provide habitat for lizards. We have already recorded sightings of two previously unseen lizard species and are in the process of investigating the practicalities of installing a permanent water source.

Our Middle Primary students participated in information sessions about native bees and researched their habitat needs and the vital role they play in pollination. We engaged the students with innovative activities in order to spark their interest; these included making mud bricks for the bee hotels and creating a display of 1000 unique painted thumbprint 'bees' (that represent the 1000 different native bee species in Australia).

Students then built bee hotels to provide shelter and a place for nesting, and planted more flowering natives; to provide a food source for native bees. We have become part of the Bower Bird information sharing community and now have regular sightings of Blue-banded and Carpenter bees.

The Upper Primary students researched small native birds (and in particular, those indigenous to a Grey Box Grassy Woodland). In order to encourage small native birds, 100 indigenous dense shrubs and trees have been planted; the council approached with a request for native trees (particularly middle story, dense shrubs) to form part of the street scape; and students have made bird nesting boxes (specifically designed for small birds). We expect it may be several years before we see an increase in small bird numbers, as the young plants are not yet providing either shelter or nectar.

Part of Clapham Primary School's strategic plan is to become a model school for environmental education and sustainability. We actively encourage community groups to use our extensive grounds and have partnered with the Daws Road Centre, the local kindergarten (children adopted a bed in our kitchen garden and use school grounds for setting up Nature Play activities) and Pasadena High School. Interpretive signage will further open up the possibilities for community inclusion, enabling the unique environmental assets of our school to be accessed by other schools and community groups.

## Student participation and learning

We believe the success of our Education for Sustainability program is due mainly to the inclusive nature of our approach. Each student in the school has participated in our biodiversity focus through activities completed in specialist Design & Technology lessons and during classroom activities. The wider school community has been eager to come on board and we have been able to harness areas of expertise within the parent community (in the form of both hands-on assistance and donations of resources).

This year's focus on biodiversity has had curriculum links across most learning areas.

- Students have engaged in maths activities (particularly during the auditing process) including data collection, analysis and representation, graphing, and measurement.
- Investigations in biology and ecology (plant and animal life-cycles, habitats, and species identification etc.) have formed curriculum links with science.
- In Design and Technology students have designed and installed garden infrastructure such as worm farms, compost bins, and used experimental gardening methods, e.g. straw bale gardens, wicking beds etc. that promote sustainability.
- Lessons regarding landforms, water management practices and place & space have linked with the Geography curriculum.
- We are addressing the cross-curricular priority of Aboriginal and Torres Strait Islander Histories and Cultures with instruction on traditional Indigenous plant usage.
- The outdoor classroom has been beneficial in enabling students to utilise the Indigenous Garden for outdoor lessons in all weather. Regular use by teachers is linking the cross-curricular priority of Sustainability with our natural assets and environmental programs.
- Curriculum resource packs (specifically designed for use in the Indigenous Garden) are currently being developed and, in conjunction with interpretive signage, will enable students to conduct research in the garden rather than in the computer room.

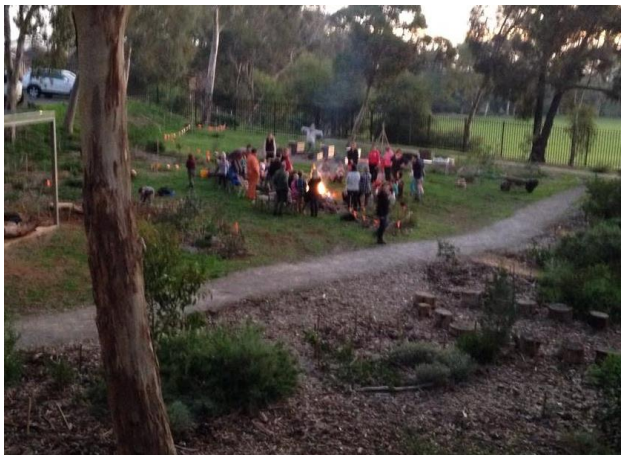
These initiatives not only affect student learning, but also encourage families to explore the importance of biodiversity conservation and habitat provision; increase knowledge of Kaurna history, culture and plant use; increase familiarity with plant lifecycles (including germination and propagation); and increase knowledge of Adelaide's native fauna.

## Outcomes

Since settlement, Grey Box Grassy woodlands have been reduced from 200 000 hectares to less than 2 000 hectares and this remaining woodland is threatened by weeds, introduced species and urban development. The creation of our Indigenous Garden at Clapham Primary School not only represents an application of environmentally sound management practices, but also allows for hands-on learning (supported by links to curriculum). Teachers have the opportunity to change the behaviours and attitudes of students and the wider community in ways that contribute to more sustainable patterns of living. Parents have shown interest in creating native gardens in their own backyards and we have produced a list of plants in our Indigenous Garden and made this available to the community.

Our involvement in environmental initiatives has provided a focus for a strategic review of our school culture, changes to curriculum delivery and the way we promote our school to the wider community, as well as strengthening partnerships with community groups.

The wider school community has shown enthusiasm and support for our environmental focus by participating in our Community Action Mornings (helping to weed, mulch and plant) and our family winter bonfire night in the Indigenous Garden.



## Resources

Integral to the success of our project has been our close partnership with NRM. We have received two $1500 grants (enabling us to build our outdoor classroom and to install interpretive signage in the Indigenous Garden). It has also given us access to resources (e.g. ID charts and teacher packs), training, a loan of a nest box camera and advice, as well as providing the opportunity to produce our SEMP. This has been invaluable in guiding our priorities and keeping us on track.

We have also formed partnerships with the wider community.

- This year Trees for Life supplied 100 flowering natives which were planted on National Tree Day.
- Secondary school students from the Daws Road Centre come each fortnight to work in the school grounds as part of their Certificate III in Horticulture.
- Each Grey Box Day for the last three years students have participated in purchasing, planting and nurturing indigenous natives in our garden area. This year 200 natives were purchased from the Grey Box Community Group and planted in our Indigenous Garden. Last year, 180 plants were purchased and in 2013, 140 plants were purchased.
- Pasadena High School students have produced bird nesting box kits for our students to assemble.
- Jackie Griggs (from our parent community) has a Ph.D. in Environmental Management and Ecology and has been a tremendous asset; speaking to the students about the importance of responsible water management practices and participating in our lunchtime Garden Club.
- Vanessa Hoo (from our parent community) is our resident bee keeper and native bee expert. She has provided advice on the bee hotels and run information sessions for students.
- For the last three years the Year 5 students have gone on a full day bushwalk, facilitated by former CPSW Ross Stewart. These bushwalks have connected students with the Grey Box Grassy Woodland environment in the neighbouring Mitcham Hills. The Mitcham Council Trails Officer, an Indigenous Guide and various study resources have helped students discover their role in recovering and sustaining a healthy local environment.
- Mitcham Council are developing a rain garden in front of the school and we have been able to request particular plant species that will further our biodiversity goals.
- Our local Mitre 10 store has made donations towards various environmental projects.
- Teachers and parents have participated in information sessions from the University of S.A. Discovery Circle; providing valuable and timely advice.
- In 2011 and 2012, Greening Australia donated 688 Grey Box Grassy Woodland plants through the Million Trees Grant Program.
- We were lucky enough to win a Water Wise Blue-scope Steel tank, and a grant from Mitcham Council provided funding for installation.
- We have received support from our local MP and featured in the local newspaper.

## Next steps

We are using our 2015/16 NRM grant funding to develop interpretive signage in our Indigenous Garden. This will enable teachers to use this valuable resource to complement classroom learning by providing hands-on experiences, allowing students to explore the natural world and become familiar with local flora and fauna. We also hope to address litter reduction and promote recycling in a more proactive way as well as maintaining existing projects for long term sustainability; including watering, weeding, and the planting of new sections, as well as continued biodiversity auditing.

In 2017 we expect our major focus will be water conservation measures, possibly with increased rainwater harvest, including a rain garden and stream bed wetland area.

## For more information

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