



**Biodiversity is life  
Biodiversity is our life.**

# Biodiversity

## Building Skills By ‘Garden’ Investigations

By Jeanie Clark

*This article follows on from ‘Biodiversity in your Garden’ in Otherways Feb 2010 but can be done in any living environment.*

### Biodiversity In Our Garden

How many different species did you find in your garden? My son, Michael, and I found 16 very obvious life forms by sight or sound that were easy to draw (there were more). We rated our biodiversity as ok – we had mammals, reptiles, birds, insects, trees, bushes and ground plants as well as edible plants. Can you name them! from Fig 1 below?



*Fig 1 Living things sketch for our backyard*

Groups can also record what they see by drawing as demonstrated in the photo collection on Figs 4 and 5 made at the Wild Things Wilson’s Prom Camp in February.

### Global Action – Local Tree Planting

One of the programs for the International Year of Biodiversity is the Green Wave’s ‘one school, one tree, one gift to nature’ project. Groups register to plant one indigenous tree in their yard to celebrate the International Day for Biological Diversity on May 22, 2010. A global map shows current participation – Australia looks a bit empty at the moment with only one tree! So if you would like be part of this global action for kids for the IYB, have a look at this on [greenwave.cbd.int/en/home](http://greenwave.cbd.int/en/home)

### Identifying Species

Last week we found a new insect in our garden! No, not a grasshopper! They were yet to arrive. But was it a stick insect or a praying mantis? Michael and I used the techniques described in the last issue to learn about it.

**Observe** – It was camouflaged on a chair. We watched it for a few minutes, noted its colour, size, shape (especially of its head), and the way it responded to our movements.

**Record** – Michael used his digital camera to take photos.

Most of these were close up to get details of the:

- Head
- Antennae
- Thorax
- Abdomen
- Legs.

He then drew the full animal from his photos with enlargements of specific features to help with the identification.

### Research – What was it?

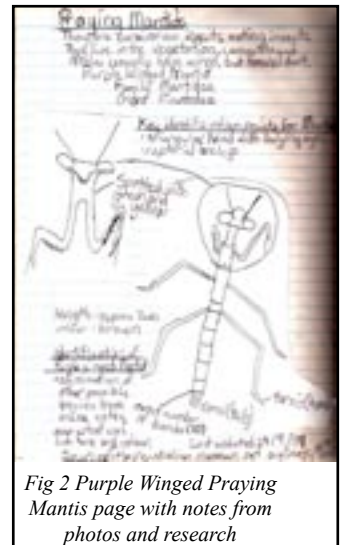
What could it do in our garden? Did it need help to stay – or to be moved on? To answer these questions for any living thing, we first need to identify the main group to which it belongs.

The classification system for living things is based on observable features. It follows down through levels from kingdom to phylum, to class, to order, to family, to genus to species, and sometimes to subspecies. Common names are fine, but to try to identify a species, it helps to be able to recognise some Latin names too. Linneaus’ classification system began with two kingdoms – flora (plants) and fauna (animals) – but is now up to six!

The animal kingdom is broken into vertebrates (back-boned animals) and invertebrates (with no back-bone). The vertebrates include mammals, while the invertebrates include insects. Most science and nature books describe plants and/or animals and their characteristics by common names and at the class level. Field guides usually take the species level, with both common and Latin names, and give detailed descriptions of life forms, food and habitat.

A local library may have field guide books, but we have some of our own. Because of our creature’s six legs, we checked our land insect field book. It was too general and their drawings and description did not fit well enough with what we had recorded. So, onto the computer to search the web for this insect and its place in our garden!

The Australian Museum website is a good first, and possibly last, source for identifying and learning about creatures. It has line drawings, but not always photos.



*Fig 2 Purple Winged Praying Mantis page with notes from photos and research*

You may need to use possible identifications there to help find photos on the web to be sure about your conclusions. Michael confirmed that we had a praying mantis by the comments on front leg position and the very noticeable triangular head shape. Using the species descriptions, he concluded it was a female Purple Winged one (Fig 2).

**Action** – Our garden has plenty of plants for camouflage for the Mantis, and insects for it to eat. It did not need our help! Indeed, it had disappeared from view by then! But, what if you did find a species that needed help to survive? One of the aims of the IYB is to get people involved in such actions! So you might choose to do something!

Whatever you find out, can you share that with others? Communicate! You could inform others in your family, your home ed group, in your community or online. World Environment Day (June 5) could be a good time for a display at home, library, shop window or shopping plaza.

**Writing?** As well as general reporting, there are competitions. Science Talent Search<sup>3</sup> has a Creative Writing competition that invites students to create a picture book (primary) or imaginative story (secondary).



Fig 3 magpie identification card

**Photos or drawings?** They could be shared online. If you have a local show, they could be entered there. They can be printed, backed and laminated into cards (Fig 3) for future reference and matching games. A group can be bound with a ring to make into your own field guide.

Photos do not have to be displayed singly for identification puzzles. How many animals in Fig 4 could you name – by their class and name – common or Latin?



Fig 4 photo composite made for a naming quiz



Fig 5 common names naming quiz

The solution sheet (Fig 5) could also be used as a record sheet for a future survey at the same site or similar sites.

Photos are a useful aid to developing scientific skills and communication. The Science Talent Search<sup>3</sup> has a Science Photography section for this. It involves 4-6 mounted photos with a written report about what they show. Last year, Michael used this to focus his learning about an unusual bulb in our garden. We not only learnt what it was in common and Latin names, and how it grew differently to other plants, but that it was a South African species. We now appreciate it so much more... and Michael was fortunate to be awarded a minor bursary of \$50 (sponsored by Swinburne University of Technology) for his "Life of a Bulb" entry!

#### Models and 3D art?

Creating models helps to focus on features. Arranging a group of models draws attention to links for the biodiversity of a place (Fig 6). Anything goes! Over the years, we have used boxes, plastic bags, and toilet rolls to make all sorts of creatures. Sewing and modelling clay work too! Models are also a category for the Science Talent Search<sup>3</sup>.



Fig 6 model pond scene = egret, spoonbill, tortoises, dragonflies, pondweed, fish mussels, placed on water and banks

#### Where could you go from here?

You are ready to go from the garden out to the 'world' with skills of observation, recording, research, identification and communication! Explore biodiversity in other places and habitats and care for them too! Have fun!

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<sup>1</sup>Solution to the life forms in our garden at class level:

Veggie patch = cucumbers, tomatoes, basil, lilies, lizard

Tree dwellers= possum, bees, magpies

General = parrots, dog, grass, Saltbush, ants, tulips, grass, gums.

<sup>2</sup> www.ric.edu/faculty/ptiskus/Six\_Kingdoms/index.htm is an American school's introduction to the kingdom level, but don't bother with the links. A lovely British pdf introduction to the vertebrates is found at *Classification of animals by Diane Hawkins*. A good plant kingdom diagram can be found at [www.ucmp.berkeley.edu/plants/planteasy.html](http://www.ucmp.berkeley.edu/plants/planteasy.html) kids.britannica.com/lm/passport/plant\_kingdom.pdf is a teacher's lesson plan and student activities that works through the issues of classification.

<sup>3</sup>Science Talent Search is open to home educated students. It is run by the Science Teachers Association of Victoria. Online registration closes on 28 May at [www.sciencevictoria.com.au](http://www.sciencevictoria.com.au). Entries are due end of July.