Other Aquatic Animals (Invertebrates) in Your Pond

It is likely that when your pond is developed other aquatic invertebrates will appear in your pond area. These are organisms without a backbone.
Macroinvertebrates can be seen with the naked eye. Using a magnifying glass can make identification easier. The types of invertebrates you might find are:

- ►Snails
- ►Gilgies – and marron
- ►Beetles – backswimmers
- ►Mayfly larvae
- ►Stonefly larvae
- ►Dragonfly larvae



These invertebrates require the water during their larval stage and use the area around the waterways and bushlands for the remainder of their life. Like frogs they are very sensitive to pollutants and are very good indicators of the health of your pond and the surrounding area.
The invertebrates also make up an important part of the ecology (life cycle) of your pond. Frogs eat insects, thus the invertebrate population in and around your pond can make or break the success of your frog garden.

Attracting Invertebrates You can use artificial pond lighting – especially blue lights seem to attract more insects. Do not leave the lighting on all night and remember electricity around water can be dangerous. Use only approved garden lighting. Solar lights are now available and very useful around ponds.

Mosquito Control Mosquitoes can be a major problem around water gardens. Native fish, such as Western Pygmy Perch, are a simple answer to this problem. They are small, low maintenance and need no feeding at all. They cause no detrimental effects to the frog spawn or tadpoles.
Do not use Goldfish, Mosquito Fish (Eastern Gambusia), Koi or any other non native fish species as they will eat the frog spawn, tadpoles and other invertebrates that your pond needs to stay healthy.

This pamphlet was created by the Bannister Creek Catchment Group Inc. and the Phosphorus Awareness Project for educational use only. Many thanks to the Alcoa Frog Watch Program for the use of diagrams and some information printed in this pamphlet.
For further information please contact the South East Regional Centre for Urban Landcare on 9458 5664 or go to www.sercul.org.au.

Bannister Creek CATCHMENT GROUP

SERCUL
South East Regional Centre for Urban Landcare

ALGAE BUSTER
PHOSPHORUS AWARENESS PROJECT

Gardens for Frogs in Perth


Understanding the Frogs of the Perth Region

The frogs of the Perth region can be divided up into coastal and hills species. The different species have evolved in specific areas and have thus developed specific survival techniques that are unique to each species.

A few points to understand about our frogs:

►Translocation of tadpoles or frogs from their specific areas usually means, you are corrupting the natural gene pool that exists in your area, and they will have a reduced survival rate. A 5km radius is currently accepted but it is usually not necessary to import tadpoles or frogs to your garden. They will come naturally if you provide the right home for them.

►Generally the majority of Perth's frog species are damp sand dwellers.

►The majority of our frog species are winter breeders. They rely on a waterlogged or an inundated area in winter for breeding and a dormant area with a dry surface and moist under layer to burrow into during the summer.

Creating a Home for Frogs

The needs of Perth's frogs:

►**SHADE** – especially during summer (can use shade cloth until shade established).

►**LIGHT** – make sure there is enough light in winter for algae to grow as this is the main food source for tadpoles. Azolla is another local plant that grows on water that tadpoles can feed on. Boiled lettuce can be used if no other alternative is available.

►**~500mm (18") DEPTH FOR PONDS** (can be shallower but need water added in summer to maintain) - variance of depth is essential and can be created by adding soil into the pond, stones, logs, and even blocks of cement can be used to create gentle sloping sides and shallow areas. Pond liner is the best medium to make a pond as it is flexible and different depths can be achieved easily. If using cement to make the pond use a cement sealer to prevent lime from leaching from the cement.

►**BOG** - a boggy area is essential to attract ground frogs to your garden. Dig a trench around your pond, line it with black plastic and then fill the trench with the soil just dug out. Once it starts raining this area will be boggy, perfect for ground frogs.

►**HABITAT** - use rocks, wood planks, logs/tree branches in and around your boggy area or pond for shelter and hiding places for frogs and other water animals. Large poly pipe tubes work well in boggy areas and half buried in the sand around the garden.

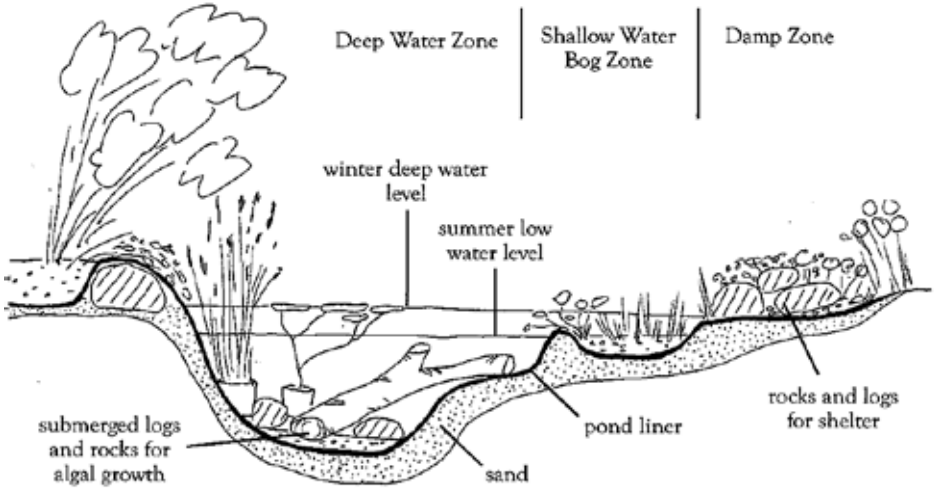
►**LEAF LITTER/MULCH** - acts as a good surface on the immediate edge of the pond.

►**PLANT SEDGES, REEDS AND RUSHES** - around the edges and some inside the pond. These plants act as the biological filter of the water. This is natures way of purifying and oxygenating the wetland system. They function like the kidneys of the wetland. It is best to use local plants for this purpose as these are best suited to our climate and soil conditions.

►**LOCAL NATIVE PLANTS** - are preferred for areas in and around frog ponds but not entirely essential. Some non-native plant species do provide good frog habitat but often do not attract the insects that will keep the frogs returning to your garden.

►**FLOATING PLANTS AND SUBMERGED PLANTS** - provide a good area for algae to build up thus providing a food source for tadpoles. Native *Azolla filiculoides* or *Azolla pinnata* provides a good food source and shade for tadpoles.

►**NATIVE WATER LILY** (*Ottelia ovalifolia*) - is sometimes available at specialised water garden nurseries but prefers to be partially dried out in summer to survive long term. Other aquatic non-native pond plants can over grow in your pond and pose a serious risk to the ecosystems of local wetlands and rivers if they escape from home gardens.



Disease of Frogs – CHYTRID FUNGUS

The WA Museum has been monitoring and recording the effect of the Chytrid fungus on the frogs of WA. The cause of the fungus is not entirely understood. The fungus invades the outermost layer of the skin (keratin) of frogs and other amphibians (eg salamanders). The fungus can only be detected microscopically and is not easily eradicated from an infected frog. Tadpoles are not affected as keratin is not contained on the entire body, but is present on the lip region. As frogs breath and exchange water through their skin, one theory is that the fungus corrodes the skin of the frog thus causing a slow death by oxygen deprivation and organ failure. A second theory is that the fungus produces a toxin that is absorbed through the skin that causes internal damage and organ failure. Symptoms are not always obvious.

Some common observations are:

►Lethargy
►Unusual posture, often with extension of the hind limbs.

Please do not release frogs or tadpoles from your area into wetlands, bushland or waterways. Please do not remove tadpoles or frogs from natural areas as you can spread the disease without knowing. Contact the WA Museum for further advice.

The Alcoa Frog Watch program runs from the WA Museum. They have a fantastic website about Western Australian frogs.
Go to museum.wa.gov.au/explore/frogwatch to have a look.
The Frog Watch Program is encouraging people to create good frog habitat in home gardens to help prevent the loss of our frog populations.