

Frog Ponds for Gardens

How to set up a pond that provides suitable conditions for local frogs in South Australia



Government
of South Australia



South Australia

WaterCare
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What are the benefits of frogs?

Keeping frogs can be lots of fun and, more importantly, they are a vital part of the food web. They help to control many pest species and provide food for other animals such as birds.

Unlike many frog species around the world, most frogs in the Adelaide metropolitan area are not currently believed to be declining. However, there are now many pressures on frog populations in our environment.

Modifications have significantly changed the waterways—for example, clearance of habitat, re-routing of streams, stormwater and drainage

works, and the introduction of non-native invasive species. These have all had an impact on our frog communities.



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Why set up a frog pond?

Frog ponds are not a replacement for good waterway management; however, they may help relieve some of the stresses on frog populations. Some species have requirements that mean they are unlikely to use ponds. Some mate and lay eggs on land subject to flooding at a later date—conditions that are not easily created artificially in an urban pond.

To promote these unusual frogs, you could create or enhance a boggy spot in the garden that is allowed to flood during wet weather and dry out over summer.



What should the pond be made from?

The choice is yours. Frogs will be happy in and around pre-fabricated ponds or those made using UV-resistant plastic pond liners, concrete or even old bathtubs. However, not all frogs are good at climbing—ponds should have gentle slopes that let young frogs get out.

Rocks, logs and branches protruding from the water are striking features that make it easier for frogs to get in and out. Many frogs will happily call from these semi-submerged logs or low branches.

Many smaller frogs don't require deep water to breed, so a shallow pond is sufficient. However, a greater volume of water allows more tadpoles to grow.



vital part of the food web

Where can I put a pond?

Be neighbourly

Frogs can get quite noisy when they call, so make sure the noise will not be a nuisance. Many people hate frog calls and will get very disgruntled if they are kept awake at night—don't put the pond too close to your or your neighbours' bedrooms.

Shade or sunlight?

Position the pond so that two-thirds of the water is shaded during the day, but so it also gets some direct sunlight. Too much sunlight will result in an algae problem and too little will mean that the pond stays too cold. Shade provided by trees is acceptable as long as the pond is not directly underneath them. A build-up of leaf litter (especially from introduced deciduous trees) will quickly choke the system and some trees, such as oleanders and pines, have leaves containing toxins that may poison the water.



What about pollution?

Avoid run-off from compost heaps, roads or any other source of nutrients, chemicals or other pollutants. These may kill the frogs and other pond creatures.

What do I need to watch out for?

If you construct a pond out of concrete, you will need to let it sit for about a month before adding frogs, so that the lime has time to leach out.

It is much easier to install pre-made ponds. Fibreglass or plastic ponds now come in many sizes, shapes and styles. They can also be extended with artificial streams, side ponds and waterfalls. They look great, are very easy to install and can be moved if the location is not quite right.

Many people like fountains in their ponds. Too much water flow may discourage some frogs, but most pond species will tolerate a circulating pump that runs a gently flowing waterfall or stream. A low voltage system is the safest option and you will not need an authorised electrician for its installation.



Adding a surrounding bog garden

Caution: Be child-aware!

In South Australia, ponds aren't subject to the safety regulations that apply to swimming pools, but they should be child-safe. The pond shouldn't have steep sloping sides that prevent a child getting out easily. Planting bog gardens, lots of vegetation or installing non-corroding mesh just under the water will help restrict child access.





What are the benefits of a bog garden?

Adding a surrounding bog garden discourages cats and other predators and provides additional habitat for frogs (especially ground-dwelling species) and their prey. Bog gardens will be a major site of frog calling activity and will help prevent young frogs dehydrating. They contain marsh plants (such as grasses, mosses, reeds and other water tolerant plants) and are kept wetter than the surrounding garden—possibly incorporating an overflow from the pond. Stones, branches and logs also provide additional refuge sites.

If you want to provide frog sheltering sites, but not breeding sites, a bog garden is the solution. You can create a small one by sinking a shallow tub or wading pool, filling it with very moist soil, extensively planting with suitable vegetation and keeping it wet. Alternatively, you could connect a bog garden to the main pond via a water pump or stream feature.

discourages cats and other predators



What plants should I have in the pond?

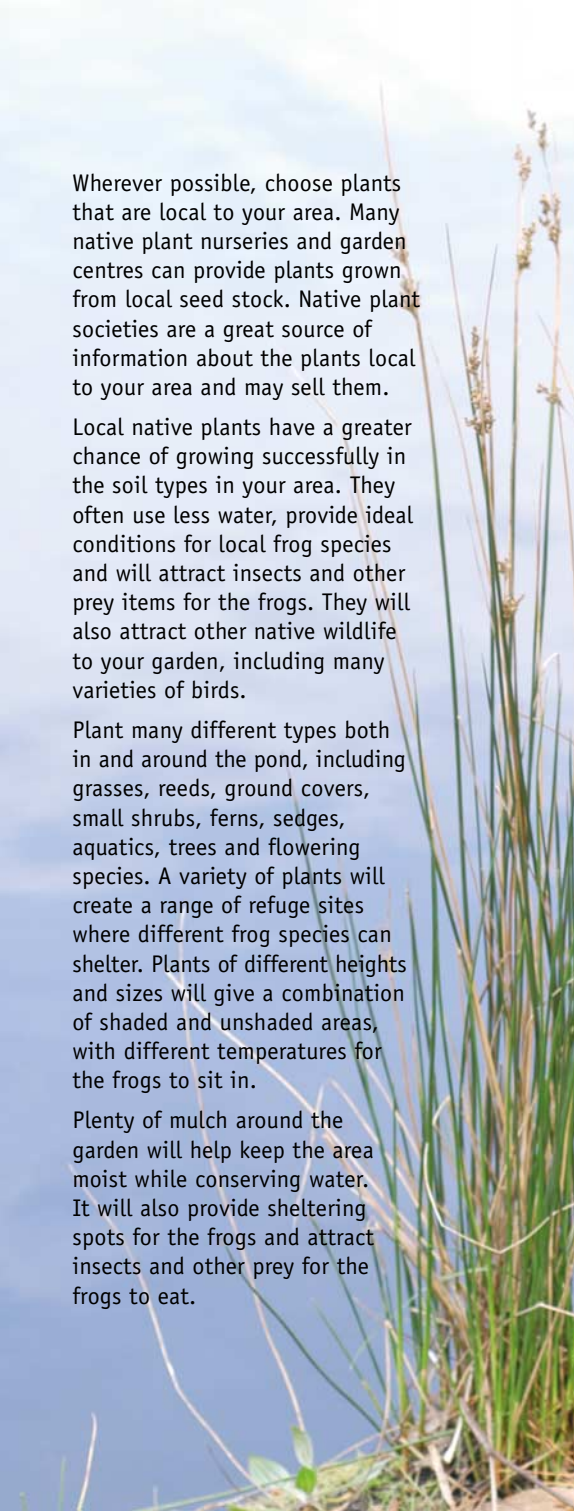
Wherever possible, choose plants that are local to your area. Many native plant nurseries and garden centres can provide plants grown from local seed stock. Native plant societies are a great source of information about the plants local to your area and may sell them.

Local native plants have a greater chance of growing successfully in the soil types in your area. They often use less water, provide ideal conditions for local frog species and will attract insects and other prey items for the frogs. They will also attract other native wildlife to your garden, including many varieties of birds.

Plant many different types both in and around the pond, including grasses, reeds, ground covers, small shrubs, ferns, sedges, aquatics, trees and flowering species. A variety of plants will create a range of refuge sites where different frog species can shelter. Plants of different heights and sizes will give a combination of shaded and unshaded areas, with different temperatures for the frogs to sit in.

Plenty of mulch around the garden will help keep the area moist while conserving water. It will also provide sheltering spots for the frogs and attract insects and other prey for the frogs to eat.

Wherever possible, choose



Different frogs have different requirements.
A mix of plants will support a mix of frogs.

Some plants that may be suitable in your area:

Free-floating

duckweed (*Lemna spp*)
azolla (*Azolla spp*)

Floating (but attached at base)

nardoo (*Marsilea mutica*)
swamp lily (*Ottelia ovalifolia*)
wavy marshwort (*Nymphoides crenata*)

Emergent

rice sedge/dirty dora (*Cyperus difformis*)
rush (*Juncus spp*)
common spikerush (*Eleocharis acuta*)

Submerged

curly pondweed (*Potamogeton crispis*)
blunt pondweed (*Potamogeton ochreatus*)
ribbonweed (*Vallisneria gigantea*)



plants that are local to your area.

Some introduced plants are considered noxious species and should never be used:

water hyacinth (*Eichhamia crassipes*)
water lettuce (*Pistia stratiotes*)
salvinia (*Salvinia molesta*)



How do I keep the garden healthy for frogs?

Frogs are very sensitive to herbicides, insecticides, fertilisers and many other commonly used garden chemicals. To keep frogs in your garden, stop using these chemicals around the pond—ideally, stop using them altogether. Frogs in your garden will help control many pest species, so you will not need to spray.

Many species are intolerant of chlorine and other tap water additives. Use rainwater to fill your pond, or allow tap water to sit in the sun for a few days to let the chlorine evaporate. Make sure the water is not too hot when putting it in and only add about 5% of the total pond volume per day. Otherwise, the sudden change could kill the tadpoles and other pond organisms.

Frogs in your garden will help control many pest species, so you will not need to spray



What about mosquitoes or fish?

The habitats frogs prefer also tend to be ideal for mosquitoes. However, many tadpoles will eat mosquito larvae during their normal feeding activities and reduce the build-up of mosquito numbers.

Another way to help control mosquitoes is to increase the movement of the surface water, for example, using a fountain or waterfall. However, many tadpoles also dislike too much water movement, so you will need to work out a balance.

You could introduce small fish into the pond if mosquito numbers become intolerable, but generally fish and tadpoles don't mix, so only add fish as a last resort. Never add goldfish or *Gambusia* (plague minnow/mosquitofish)—these will destroy your frog population!

As a rule, all fish are likely to eat tadpoles, but some of the smaller native fish will only eat small tadpoles. If you have a lot of aquatic vegetation and only a few fish, especially in a shallow area, you should get enough tadpoles surviving in your pond to become frogs.

Only add fish if there is absolutely no chance of them escaping and entering local waterways.

Generally fish and tadpoles don't mix

Some fish that may be suitable, available from many pet shops:

Murray rainbowfish	(<i>Melanotaenia fluviatilis</i>)
mountain galaxia (minnow)	(<i>Galaxias olidus</i>)
chanda perch (glassfish)	(<i>Ambassis agassizii</i>)

Others less common in pet shops but also suitable:

Australian smelt	(<i>Retropinna semoni</i>)
blue spot goby (Swan River goby)	(<i>Pseudogobius olorum</i>)
fly-specked hardyhead	(<i>Craterocephalus stercusmuscarum fulvus</i>)
southern pygmy perch	(<i>Nannoperca australia</i>)

Note: Native fish shouldn't be collected from the wild. The southern pygmy perch is a state-protected species, so it must only be purchased from an authorised dealer that sells captive-bred stock from South Australian populations.

Where do I get the frogs/tadpoles?

It may take a few months but frogs will often make their own way to your pond. In fact, frogs are often present in people's gardens in some of the most urban locations but, because they don't have any breeding sites, they go unnoticed. When a pond is provided, the frogs often start breeding!

However, if frogs are not finding your garden, there are a few different ways to introduce them.



DOs and DON'Ts

Don't take large numbers of frogs or tadpoles from wild populations. Although it may look like there are many tadpoles at a site, most wild tadpoles don't survive to become adult frogs. A frog may lay a few hundred eggs, but only a small percentage will survive to breed.

Don't collect frogs, eggs or tadpoles from National Parks and reserves.

Do get tadpoles from a friend or neighbour with a frog pond.

Do get tadpoles from a local breeder or pet shop. However, if they cannot tell you where their tadpoles came from, don't buy them for your pond.

A frog is not just a frog!

Each frog population is adapted to its own environmental conditions. Slight changes in rainfall, food sources, soil type, temperature and vegetation may have a big impact. For example, a Spotted Grass Frog in Mount Gambier has very different requirements and experiences from a Spotted Grass Frog living in the Flinders Ranges. If a Mount Gambier frog was relocated and interbred with a Flinders Ranges frog, their offspring would be greatly disadvantaged and may not survive the conditions. Only release frogs in an area within 50 km of their birthplace. If you are not sure, don't risk it!

Only release local frog species! For example, there have been many reports of Peron's Tree Frog in unsuitable locations in South Australia. Peron's Tree Frog is a beautiful, large frog, but its normal distribution is the Murray Valley and the South East. Outside these regions, it could have a big impact on local frogs, as large frogs often feed upon small frogs and compete for food, shelter and breeding sites.

Only release a few frogs in a new area! If your pond supports lots of frogs that successfully breed you may be tempted to release some of them in a nearby waterway. Take care. In the wild, only the strong tadpoles survive to adulthood. In a pond, predation, starvation or desiccation kills fewer tadpoles, so many of the weaker ones survive to adulthood. Releasing large numbers of pond frogs may genetically reduce the wild population. If you must get rid of some, give them to a friend for their pond or just release a very small number. Ordinarily, your frog pond will naturally reach an upper limit and large numbers of frogs will not occur.

What do I feed frogs and tadpoles in a pond?

In a well-balanced pond, you won't need to feed them. Tadpoles will eat pond algae and other aquatic vegetation. Frogs will eat insects and other invertebrates attracted by the native plants in and around the pond area. If you really want to feed the tadpoles, you can add a small amount of tropical fish flakes or softened lettuce or spinach (but not cabbage).



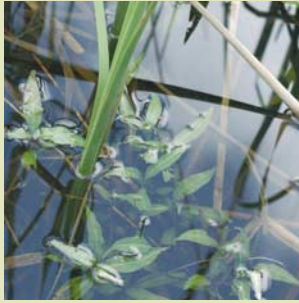
*In a well-balanced pond
you won't need to feed them*



Simple instructions for softening lettuce or spinach:

1. Wash the leaves really well to remove any chemical residues.
2. Either freeze them in small packs, or drop them in boiling water for a few minutes until just limp (If you prepare a large batch, freeze some in small packs for later use).
3. Only add enough food for the tadpoles to eat in about one hour (no more than a couple of leaves for a few dozen tadpoles).
4. Don't add hot or cold lettuce to the pond. If frozen, thaw it then add a small amount to the pond. If boiled, allow it to cool before putting it in the pond.
5. Remove any uneaten food after an hour or the pond will foul very quickly.

A good way to feed frogs is to place small amounts of fruit around the pond where frogs are likely to sit (for example, hidden in hollow logs or in rock piles). The fruit will attract small insects that frogs will readily consume.



Be a responsible frog pond owner by using local frogs, monitoring pond conditions and being aware of the needs of your neighbours. Enjoy the wonderful seasonal changes to your pond and remember that a frog pond is a great focal point in a garden.

What else can I do?

Healthy habitats provide conditions for diverse and abundant frog populations, while unhealthy or degraded habitats have few or no frogs present. Frogs are easy to monitor because each species has its own distinct mating call. The Frog Census is your chance to help the Environment Protection Authority (EPA) monitor the health of aquatic environments in South Australia. It relies on people from all over the State taking tape recordings of frog calls during 'Frog Week' in the second week of September to provide a 'snapshot' of the distribution and abundance of frogs in South Australia.

We are always looking for new people to become involved in the Frog Census. Register your interest, and we will send you a Frog Census kit in August. You will need a site to record from—a creek, swamp, drain, pond or dam—and a tape recorder. Just follow the instructions on the datasheet and become a Frog Census collector!

To register your interest contact the Frog Census Coordinator:

Phone (08) 8204 2099
Freecall 1800 623 445 (country areas)
Fax (08) 8204 2107
Email epainfo@state.sa.gov.au

A good book, filled with information, that is readily available in South Australia is:

Attracting frogs to your garden: creating an ideal habitat for native frogs in your own backyard.

Casey, K. 1996, Southwood Press, Marrickville.