

Victoria's Declining Frogs

A number of frog species throughout Victoria have declined or are currently in decline. The Baw Baw Frog, *Philoria frosti*, was once so common on Mt. Baw Baw that they were found around the ski resort jumping out from under logs when disturbed. Within a short space of time, these frogs have disappeared completely from the summit of the mountain. Similarly the now endangered Growling Grass Frog, *Litoria raniformis*, were once so common around parts of Melbourne that they were the only frogs people saw.

There is an important lesson to learnt from past experiences with once-common frogs. All endangered or extinct frogs were once common within their habitat at some stage in the past.

Some declining species like the Southern Barred Frogs, *Mixophyes balbus*, and the Booroolong Frog, *Litoria booroolongensis*, only just enter Victoria at the limits of their range. Very small modifications in climate or habitat could easily make the environment unsuitable for these species and see them become extinct in Victoria.

Investigating Declines

Investigating declines is rarely a straightforward matter. Species like the Spotted Tree Frog, *Litoria spenceri*, have disappeared from much of their habitat. Predation from introduced trout, increasing sediment loads from stream disturbances and other factors such as disease all seem to be contributing factors.

Introduced predators such as cats and foxes are also likely to reduce frog numbers, while the spread of introduced fish, like trout and the plague minnow (sometimes inappropriately called the mosquito fish) can decimate tadpole populations. The common use of pesticides and herbicides can also lead to frog declines causing respiratory problems and abnormalities in frogs, tadpoles and even embryos.

Urban Frogs

Most urban areas are rather unlikely to support unusual and threatened frog species but this does not devalue the practice of frog-friendly gardening. While species may appear common on a state or national level, locally they may be rare or even extinct. In the suburbs of Melbourne many species, such as the Southern Brood Frog, *Pseudophryne semimarmorata*, have become increasingly rare.

One of the significant features of urban frog-friendly gardens is that they can provide stepping-stones by which separate populations can interbreed and recolonise areas that for one reason or another have seen local populations die out.

Top Left: A field researcher tracks the movements of individual Baw Baw Frogs in the hope to better understand the biology of this unique and highly endangered frog.

Middle Left: A Spotted Tree Frog, one of Victoria's endangered frogs.

Bottom Left: A Baw Baw Frog with a radio transmitter on its back. Each individual frog can be identified and tracked by its own special frequency signal.

Helping Your Local Frogs

With so many Victorian frogs in decline, people are asking, 'How can I help?' In fact, there is a great deal you can do to help your local frogs.

Look for frogs in your local area and record what you find. This will be of interest to your local council, environment groups and reserve managers. Your records will help environmental planners make informed frog-friendly decisions.

Join a frog / field naturalist group! There are a number of groups around Melbourne that regularly produce newsletters, host field trips or are involved with conservation projects.

Reclaim some habitat for your local frogs. While the environmental requirements of frogs vary among species, many local frogs can be attracted into urban gardens and local reserves. Resist the temptation to bring frogs, tadpoles or spawn into your garden from other areas. Under Victorian wildlife legislation this is illegal and may increase the risk of exposure of new diseases to local frogs. Instead, allow local frogs to move in naturally and colonize this new habitat.

Where To From Here?

There is no doubt that frog population density and species diversity is decreasing everywhere. This loss of biodiversity should be a cause of concern to all of us.

Even in the middle of suburban Melbourne, people can share their environment with native species such as frogs. It is largely a matter of taking individual action and not, as is often the case, waiting for political solutions. If you are keen to help support your local frogs and want to know more try the following resources:

ARC / Victorian Frog Group website:
www.frogs.org.au

WWF Australia Frogs! Program website:
www.frogs.wwf.org.au

Anstis, M. 2002
Tadpoles of south-eastern Australia
Reed New Holland Publishers
Barker, J., Grigg, G., Tyler, M. 1995
A field guide to Australian Frogs
Surry Beatty & Sons

Tyler, M. 1994
Australian Frogs a Natural History
Reed New Holland Publishers

Marantelli, G. 2002
Bonking in the Garden
Amphibian Research Centre

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Front Cover Top: A Southern Brown Tree Frog, *Litoria ewingi!*

Front and Back Cover Bottom:
A Spotted Marsh Frog,
Limnodynastes tasmaniensis

Below: Foam Nests due to mass spawning of Pobblebonk Frog,
Limnodynastes dumerilii!

Getting to know the frogs! of Melbourne

by Craig Cleeland



WWF



a conservation partnership with RIO TINTO

Getting to know the frogs of Melbourne

Ground Frogs (*Myobatrachidae*)

Melbourne's ground frogs are a diverse group spanning 5 genera and 8 species. Despite this diversity they have a number of characteristics in common. Most are burrowing frogs and those that aren't live under the leaf litter and other debris. All ground frogs throughout Melbourne have tadpoles that develop in water, but spawning sites can vary considerably. Some spawn on land in damp leaf litter, while others, such as the marsh frogs, create floating foam nests.

Common Froglet *Crinia signifera*



Size: 2 cm
Distribution: Very widespread around Melbourne, including many of the inner-urban areas.
Description: The colouration and pattern of this species is extremely variable. At one extreme the back is smooth and uniformly brown, at the other extreme longitudinal ridges are present with alternating light and dark brown bands (as pictured) or even shades of green or red.
Habitat: During the day they shelter under logs and other debris, usually in moist depressions or near water. It is possible, on occasions, to find dozens of individuals under one log or rock.

Call: A series of 'crick crick crick crick' calls similar in some ways to the sound of crickets.
Breeding: Can occur at anytime however the greatest activity occurs in late winter and early spring, with males forming dense choruses that can be heard at considerable distance from the breeding pond.
Eggs: Around 200 pigmented eggs are deposited in a clear jelly capsule either singly or in small clumps.
Tadpoles: Metamorphosis takes around 6 to 10 weeks after hatching and the young frogs emerge at around 8 mm in length.

Painted Burrowing Frog *Neobatrachus sudelli*



Size: 4.5 cm
Distribution: Found to the north and west of Melbourne
Description: A rotund frog with short legs, protruding eyes and vertical pupils. The belly is smooth and white but the back can be quite variable in both colour and patterning.
Habitat: An efficient burrower, this species spends much of its life underground to shelter from extremes of temperature and to avoid dehydration.
Call: In autumn / spring males emerge to begin calling whilst floating in shallow, still water. Unlike most other frogs around Melbourne the male does not possess a well-developed vocal sac and the resulting call is like a subdued purring.

Breeding: Autumn / spring
Eggs: Up to 1,000 pigmented eggs in long strands of semi liquid jelly attached to submerged plants.
Tadpoles: Bottom feeding tadpoles with a voracious appetite for protein including dead tadpoles or insects that have drowned. Metamorphosis is reached between 4 to 7 months after hatching.

Southern Brood Frog and Bibron's Brood Frog *Pseudophryne semimarmorata* and *P. bibroni*



Size: 2.3 cm
Distribution: The Southern Brood Frog occurs to the south and east of Melbourne while Bibron's Brood Frogs occurs to the north and west. Both species have suffered significant declines in recent times and now only exist around Melbourne as a few small isolated populations in the outer suburbs.
Description: Both species are small frogs with short legs and numerous large warts over the back. They can be distinguished based on the belly coloration with the Southern Brood Frog having bright orange coloration under the limbs and throat as well as the black and white mottling present on the belly in both species.

Habitat: Open forest environments and seepage lines.
Call: Males of both species begin calling in autumn, producing a single resonant 'cre-ek' while hidden in small burrows in depressions that will later flood with winter/spring rain.
Eggs: Females deposit 100 to 200 pigmented eggs in nests that can remain viable for over three months without water. When at last the nest floods, the tadpoles hatch out and carry on normal development in water.
Tadpoles: Metamorphosis occurs 6 to 7 months after hatching.

Victorian Smooth Froglet *Geocrinia victoriana*



Size: 2.3 cm
Distribution: Found to the east and southeast of Melbourne and although the species has declined in many areas, it can still be found in a number of parks and reserves in the outer suburbs.
Description: Small brown frogs, with a variable patterning on the back and a smooth light grey mottled belly.
Habitat: Can be found in a wide variety of habitats ranging from tall wet eucalypt forests to open farm paddocks.
Call: Males produce a complex call of two distinct parts. The first part consists of a drawn out

'cra-a-a-ack' followed by a series of 'pips'.
Eggs: 100 to 150 pigmented eggs are deposited on land usually in tussocks of grass or under logs that will later flood with winter/spring rain. Once flooded the tadpoles hatch out and begin the normal aquatic tadpole stage of their development.
Tadpoles: Generally found browsing near the bottom of still pools, the tadpoles can take up to 8 months to reach metamorphosis.



Australia can lay claim to some of the most fascinating and spectacular frogs in the world. In fact, Australia is home to over 210 of the world's almost 5,000 frog species. The vast majority of these Australian frogs are unique to Australia because of the comparative isolation of the continent.

Victoria has at least 35 species, all of which belong to one of two frog families; the tree frogs (*Hyllidae*) and the ground frogs (*Myobatrachidae*). Some ground frogs are also referred to as marsh frogs.

The origin of this frog fauna can be traced back many millions of years to a time when dinosaurs still walked the earth and South America, Antarctica and Australia formed part of a large landmass known as Gondwana.

Marsh Frogs (*Limnodynastes Spp.*)

These three ground frogs of the genus *Limnodynastes*, are commonly known as marsh frogs. All three produce eggs in large white foamy masses that float on the surface of the water. Pobblebonk frogs will often breed in explosive events that result in hundreds of foam masses being produced on one or two nights. The other two species of marsh frogs have a more drawn-out breeding season. Tadpoles of all three species hatch within a week and spend most of their time as bottom dwellers, grazing on decomposing materials and algae.

Pobblebonk Frog *Limnodynastes dumerillii dumerillii* / *Limnodynastes dumerillii insularis*



Size: 5-8 cm
Distribution: Common and widespread.
Description: A medium to large frog with 2 sub-species occurring around Melbourne. To the north and west is *L. dumerillii dumerillii* with a relatively uniform dark brown back coloration while to the south and east is the other form with a pale stripe running down the back and a more variable colour. A distinctive characteristic of this species is a large oval gland on the tibia (top of rear leg). The gland produces chemical secretions that are either toxic, or at least distasteful, to a range of predators.
Habitat: Despite its reliance on large permanent

bodies of water such as dams and large ponds, individuals have been found burrowed in gardens several kilometres away from breeding sites.
Call: Well known for its explosive single note advertisement call 'bonk'.
Breeding: Spring and early summer
Eggs: Females produce floating foam masses of up to 4,000 pigmented eggs.
Tadpoles: Are usually darkly pigmented and can obtain sizes in excess of 7 cm. If conditions are suitable metamorphosis can be delayed well over 12 months.



Spotted Marsh Frog *Limnodynastes tasmaniensis*



Size: 4 cm
Distribution: This is one of the best known and most common frogs in eastern Australia.
Description: The pale colouration of the back is broken by numerous clearly defined spots which can range in colour from brown to green, while the underneath of the frog is smooth and white.
Habitat: It is a regular inhabitant of small ponds and flooded grasslands even toward the middle of Melbourne. During the day they shelter under logs, rocks and other debris.
Call: Males call from the edge of shallow water producing a short, sharp 'click' sound similar to that

produced by two stones being tapped together. The call is quite different for populations in western and northern Victoria.
Breeding: Spring
Eggs: Approximately a 1,000 pigmented eggs in a small frothy egg mass floating on the waters surface.
Tadpoles: Hatching occurs about a week after spawning and the resulting tadpoles can take between 3 to 12 months to reach metamorphosis.

Striped Marsh Frog *Limnodynastes peronii*



Size: 5-7 cm
Distribution: Very common along the east coast of Australia but has only a patchy distribution around Melbourne.
Description: A medium to large frog with striking brown and golden striping on its back.
Habitat: Found amongst vegetation in dams, flooded grasslands and roadside ditches.
Call: Males produce a single note 'poc'.
Breeding: Spring
Eggs: Unpigmented (creamy-white) eggs are laid in large floating foam masses. Populations further north and east of Melbourne produce pigmented eggs.

Tadpoles: Mostly bottom-dwellers, these darkly pigmented tadpoles can take up to 12 months to reach metamorphosis.



Tree Frogs (*Hyllidae*)

There are five local native species of tree frogs found around Melbourne and all are in the genus *Litoria*. They can be distinguished from the ground frogs by the presence of discs on the tips of their fingers and toes.

In the Melbourne area, tree frogs usually breed in early spring through to summer; although the Southern Brown Tree Frog, *Litoria ewingi*, can spawn outside of these times if conditions are suitable. Most species breed in still pools of water, such as flooded grassland, dams, garden ponds and even swimming pools.

Southern Brown Tree Frog *Litoria ewingi*



Size: 3-5 cm
Distribution: Common and widespread.
Description: A medium-sized frog usually with dark to light brown colouration on the back and white on its underside. The back of the thighs range in colour from yellow to a deep red and a pale stripe can be found between the eye and the upper jaw.
Habitat: Despite being an agile climber, this frog prefers to spend most of the day under pot plants, woodpiles and other cool, moist places and is as much at home in the bush as it is in the suburbs of Melbourne. This frog is generally responsible for the tadpoles that occur in backyard swimming pools and is

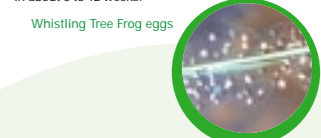
often the first species to colonise backyard frog gardens.
Call: Males produce a loud 'creeee cree cree cree cree' from sites in, and around, still water.
Breeding: All year round, peaks in late winter and early spring.
Eggs: Pigmented eggs laid in clear jelly clumps attached to submerged objects, usually near the surface.
Tadpoles: Hatching occurs within a few weeks of spawning with the resulting tadpoles taking between 12 and 26 weeks to reach metamorphosis.

Whistling Tree Frog *Litoria verreauxi verreauxi*



Size: 3-4 cm
Distribution: Common up the east coast of Australia but has only a patchy distribution around Melbourne.
Description: Similar in appearance and biology to the closely related Southern Brown Tree Frog from which it can be distinguished by its whistle-like call and very small toe pads that are no wider than its fingers and toes.
Habitat: Males call from in, and around, still water such as ponds, dams, lakes and roadside ditches.
Call: Males produce a rapid 'reet reet reet reet reet reet'.
Breeding: Usually occurs in spring.
Eggs: Females lay between 400 and 1,000 pigmented

eggs in small clear jelly clumps attached to plant stems just below the waters surface.
Tadpoles: Hatching occurs usually within a week of spawning and the tadpoles can reach metamorphosis in about 8 to 12 weeks.



Peron's Tree Frog *Litoria peronii*



Size: 4-7 cm
Distribution: Once found only to the north and east of Melbourne, this species is now becoming much more common and has recently been recorded in a number of parks and reserves in the suburbs.
Description: This large and agile climbing frog has large toe pads and unusual 'cross-shaped' pigmentation on its eyes. The back of the frog is often spotted green, giving rise to one of its common names the Emerald Spotted Tree Frog and the back of the thighs are heavily marked with black on yellow / orange.
Habitat: Found under the bark, or in the hollows of trees associated with permanent bodies of water such

as dams, creeks and billabongs. This is the only tree frog around Melbourne that actually takes shelter in trees.
Call: Distinctive drawn out 'cra-ah-ah-ah-ah-ah-ah-ah-ah-ah-ahhkk'.
Breeding: Mid to late spring
Eggs: A hundred, or more, small clumps of 5 to 6 pigmented eggs in a clear jelly usually scattered around on submerged vegetation.
Tadpoles: Hatching occurs about a week after spawning and then 3 to 4 months to reach metamorphosis.

Growling Grass Frog *Litoria raniformis*



Size: 6-9 cm
Distribution: Once common around the waterways of Melbourne, this species has now become so rare that it has been classified as endangered. As such any sightings of this frog should be reported.
Description: Large, with long back legs, this frog is easily recognised by its green and gold coloration and scattered warts over its skin. In fact, it is the only naturally occurring green frog to be found around Melbourne.
Habitat: Associated with large permanent water bodies such as dams, water filled quarries and large grassy wetlands.

Call: Males produce a growl-like 'cra-wark cra-a-ak crok-crok'.
Breeding: Spring through to early summer.
Eggs: Several thousand pigmented eggs are laid in extensive mats that eventually sink to the bottom.
Tadpoles: Reaching sizes over 10 cm in length these tadpoles are among the biggest to be found around Melbourne. In suitable conditions development time to metamorphosis can extend well over 12 months.



Rocky River Frog *Litoria lesueuri*



Size: 3-6 cm
Distribution: Restricted to the creeks and rivers of the north-western part of Melbourne.
Description: Although the back colouration is generally brown, males in the breeding season will turn a bright yellow making them much more conspicuous for approaching females.
Habitat: These frogs are usually never found too far away from flowing water. In the breeding season males will call from rocks along the edges and in the rapid zones of streams.
Call: Lacking a vocal sac to amplify their calls, the males make a soft murmuring call repeated every two or three seconds.

Breeding: Spring through to early summer
Eggs: Several thousand eggs are laid in streams attached to rocks or the river sediment.
Tadpoles: Beautifully adapted to life in fast flowing streams, the tadpoles have relatively large mouths that enable them to suck onto rocks and avoid getting washed down stream. Metamorphosis occurs 3 to 4 months after hatching.



The WWF Frogs! Program managed by WWF Australia, in partnership with Rio Tinto, was established to demonstrate a joint commitment to the conservation of Australian frogs and their habitats in recognition of the vital role that frogs play in freshwater ecosystems and biodiversity. The Program has supported research, community outreach and education initiatives and facilitated a cohesive national network that strategically linked the aims, activities and expertise of individual

scientists, educators and regional community groups.
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