

Australia has some two hundred species of frogs belonging to five families. Over recent decades many species have suffered serious decline in numbers, with many becoming endangered and 6 becoming extinct.

In general, there has been a growing awareness of, and interest by, people in the number and diversity of frog species found in their area. This is also true of the Glenelg Hopkins region where over twelve species of frogs are found, many in healthy wetland environments.

Factors adversely affecting the populations of frogs are thought to include changes in agricultural practice (i.e. increased superphosphate, herbicide and insecticide use), habitat reduction, the spread of the chytrid fungus and predation by feral animals.

As well as being a general guide to frogs, their habitats and their lifecycles, this book is designed to provide information on frogs found in the Glenelg Hopkins region and assist in identifying them.



Monitoring Frogs

One of the easiest and most effective ways to identify frogs is by listening to their calls. Each species has a distinctive call used by the males when trying to attract a mate. Frog calls can be learnt by listening to them on the Amphibian Research Centre's website www.frogs.org.au or by obtaining a frog call audio.

Once you have learnt the calls of your local frogs you can identify the frogs calling in your area. A recording of calls can be taken away for future identification or for verification by experienced monitors. Playing a recorded call can sometimes even prompt call responses from frogs.

While some species call at different times of the day, many species call at night time, especially after rain, making this the best time to monitor for most frogs. Frogs' eyes will also reflect torch light at night making them easier to spot.

When monitoring frogs, it is also useful to record an estimate of the number of frogs present. Assistance with monitoring of frog populations in the Glenelg Hopkins region can be received from your local Landcare Coordinator or from Glenelg Hopkins CMA.

Lifecycle

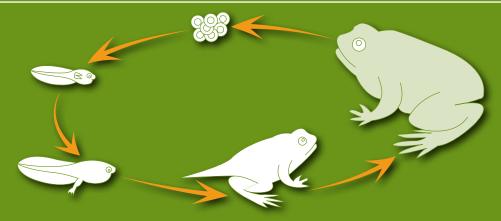
Most people only realise that frogs are present when they hear them calling near a pond or stream. Each species makes its own particular sound, but it is the male frog which does all of the calling, to attract the females.

Many frogs reproduce by laying eggs in a mass of jelly like material in the water. The eggs are called frogspawn.

Tadpoles develop from this jelly mass, rapidly grow arms and legs, lose their tails and eventually transform into frogs. Most tadpoles are unable to leave the water until they have developed into frogs. They can then leave the water and live on land. Frog diet is primarily flies, crickets and other insects.

Frogs will generally mature and be able to breed when they are one to two years old. Frog life expectancy varies with local frogs living for between 5 and 15 years, while some alpine species have been observed to live for up to 25 years.

Lifecycle of a Frog



Frog lifecycles are particular to the species. For further information on the lifecyle of any of the frogs contained in this guide visit the Amphibian Research Centre's website www.frogs.org.au

Threats

Although some of the factors responsible for declining frog populations are unclear, a number of human activities can cause frog populations to decline. These include habitat loss, pollution and contaminants, as well as introduced species.

The Glenelg Hopkins CMA region has lost 78% of its shallow fresh water meadows and 66% of deep fresh water meadows since European settlement. Many of these wetlands were important habitat for frogs.

Agriculture makes up 80% of the land use in the Glenelg Hopkins CMA region. Pesticides, herbicides and fertilisers used in the agricultural industry can affect frogs. Pesticides and herbicides become dangerous when they move from the area they were intended for, and break down and accumulate elsewhere. It is possible that surfactants found in many herbicides have toxic effects on tadpoles.







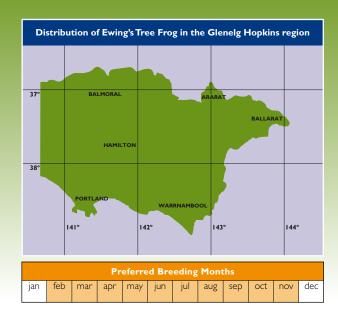
Phosphates and nitrates are the main components of fertilisers. Australian frogs are likely to be very sensitive to these chemicals. Fertilisers also contain traces of heavy metals, which have been proven to be very harmful to frogs.

Other global factors including climate change, disease and ultraviolet radiation may represent threats to frogs. Climate change can affect the ecology of frogs. Because frogs rely on water to breed, any reduction or change in rainfall could reduce frog reproduction. Higher temperatures may also contribute to the drying out of breeding pools. Increased levels of ultraviolet B (UV-B) radiation may damage developing embryos and depress the immune system, leading to increased likelihood of disease.

An infectious disease responsible for many recent frog deaths is Chytridiomycosis, caused by the chytrid fungus. This fungus is thought to kill frogs either by releasing toxins absorbed through the frogs' skin, or through damaging the skin. This disease is extremely contagious and has been moved around in many areas by humans collecting and moving frogs and tadpoles.



Photo: Ivor Graney



The Ewing's Tree Frog is a widespread and common species found in great numbers in flooded grasslands and marshes. It is an agile climber and jumper with a voracious appetite for insects. Adults can be pale fawn, cream, orange or light brown in colour. Green or partially green individuals may also be found in the Glenelg Hopkins region. Breeding males have a light brown vocal sac under their chin.

Habitat:

Adults can be found in all habitat types, including gardens. They breed in wet and flooded areas but can often be found calling long distances away from water.

Call:

Males call from the ground or in low vegetation, at the water's edge or even in water, floating among vegetation. The call is a series of rapid, harsh, whirring pulsing notes repeated 5-15 times – 'creeeeee creee creee creee'. The first note is usually the longest.

Breeding:

The Ewing's Tree Frog is capable of breeding all year round, although it is unusual for females to lay eggs in mid-summer. Eggs and tadpoles can be found in still water in ponds, dams, lakes, streamside ponds and flooded roadside ditches. Between 500-700 pigmented eggs are laid in jelly-like clumps usually attached to submerged vegetation. Tadpoles are pale golden-yellow to dark grey and the fins are usually clear.



Preferred Breeding Months

jan feb mar apr may jun jul aug sep oct nov dec

WARRNAMBOOL

Distribution of Growling Grass Frog in the Glenelg Hopkins region

ARARAT

BALLARAT

Photo: David Nichols

37°

38°

BALMORAL

HAMILTON

Populations of this once widespread frog have declined.

Adults are bright emerald to dull olive green with brown and/or gold blotches on a warty back. The Growling Grass Frog has clearly visible ears and a distinctive line down the middle of its back.

This frog preys on other frogs and is active by day.

Habitat:

Adults are usually found close to, or in water or very wet areas in woodlands, shrublands and both open and disturbed areas. Unlike other local frogs, this species is very active during the day and is often seen basking on vegetation near water.

Call:

Males usually call while floating in open water. The call is a growl of about one second duration – 'crawark- crawark- crok-crok'-repeated every few seconds.

Breeding:

This frog will typically breed from August through to April. The pigmented eggs are spawned within a floating jelly-like raft that breaks up after the eggs have hatched and sinks. Tadpoles are pinkish grey with yellowish fins. Eggs and tadpoles can be found in permanent lakes, swamps, dams and lagoons with still water.



Photo: Lydia Fucsko / frogs.org.au



12. Plains Froglet (Crinia parinsignifera)

A small ground dwelling frog. Conspicuous by its habit of calling all year round, often during the day. As with the Common Froglet, three back patterns are possible, ridged (longitudinal ridges along back), lyrate (boomerang shaped ridges over shoulder and on back), or smooth (unpatterned, or with small warts). Adults have a granular belly, which is light grey or muddy white, and are usually distinguished from Common Froglets by being peppered with darker flecks (not blotched).

Habitat:

Adults are most common in woodlands, floodplains, open and disturbed areas. Within these areas they shelter under logs and other debris, usually in moist depressions or near water. Often dozens of individuals may be found together.

Call:

Males call from among vegetation at the water's edge or from emergent vegetation. The call is a long harsh squelching note – 'eeeeeeeeek' – repeated every few seconds.

Breeding:

Typically breeds from February to May and August to December.

Eggs are pigmented and found individually or in loose clumps, scattered around the bottom of ponds.

Tadpoles are light grey or brown all over with scattered dark flecks.

Eggs and tadpoles can be found in ponds, dams, swamps, flooded grassland, ditches and hollows.



Preferred Breeding Months

jan feb mar apr may jun jul aug sep oct nov dec

WARRNAMBOOL

Distribution of Common Froglet in the Glenelg Hopkins region

BALLARAT

Photo: Ivor Graney

37°

38°

BALMORAL

HAMILTON

The Common Froglet is a small ground dwelling frog, and one of the most common and widespread species in the region. This frog can be heard all day and all year round. Adults have a granular belly which is white or muddy white, heavily mottled with black or dark brown. The pattern on the back may be a ridge running down the back, or a curved shape like a leaf or a boomerang. In some cases the back is smooth, sometimes with small warts.

Habitat:

The Common Froglet lives in wet and dry forests, woodlands, floodplains and open and disturbed areas. It prefers to shelter under logs and other debris, usually in moist depressions or near water.

Call:

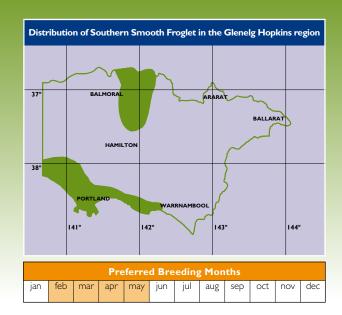
The males call from vegetation at the water's edge or floating in water supported by vegetation. They make a series of three to five short-pulsed calls, rapidly repeated in a long series 'crick crick crick crick crick'.

Breeding:

These frogs are capable of breeding all year round, and will typically spawn between 100-150 eggs at a time. Both the eggs and tadpoles can be found in ponds, dams, swamps, flooded grassland, ditches and hollows. The hatched tadpoles are light grey or brown all over with scattered dark flecks.



Photo: Ivor Graney



16. Southern Smooth Froglet (Geocrinia laevis)

The Southern Smooth Froglet is grey or brown on its back, often with a number of scattered black-edged red spots and dark markings. The belly is white or grey with darker flecks and mottling. The legs and arms are mottled pink underneath with a pink spot outlined in black in each armpit and around the groin. The skin on the back is smooth with a few low warts. The skin on the belly is smooth. The toes are not webbed. The large photo on the opposite page is of the male Southern Smooth Froglet. The smaller image is of a female Southern Smooth Froglet.

Habitat:

This frog lives in forests, woodlands, shrublands and cleared areas. In these habitats this frog is associated with areas that are prone to flooding.

Call:

The call has two parts - "Chi-i-i-ck" which is followed by "cra-a-a-a-ack... cra-a-ack... cra-a-k".

Breeding:

Males call from late February until mid-May beside ponds, creeks or flood prone areas.



Photo: Ivor Graney



Preferred Breeding Months												
	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec

The Victorian Smooth Froglet is a common and widespread but secretive frog. It is most often active in late summer and autumn and is generally restricted to the eastern parts of the Glenelg Hopkins region. Adults have smooth bellies, sometimes a pink patch in each armpit or groin, and pink marbled with dark pigment on hind of thighs.

Habitat:

This frog lives in moist areas ranging from rainforests through to wet and dry forests, woodlands, shrublands, grasslands and alpine bogs.

Call:

Breeding:

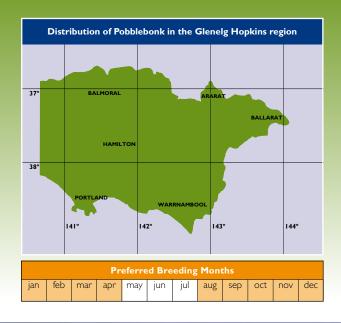
The Victorian Smooth Froglet typically breeds from November to May.

The female spawns 90-160 eggs at a time which attach to sticky clumps in leaf litter or grass tussocks.

The tadpoles are dark brown with clear fins flecked with brown. They can be found in dams, ditches and ponds, and hatch when the area is flooded.



Photo: Ivor Graney



This common and widespread burrowing frog may often be found in large numbers at night, particularly after rain. Adults have a prominent gland on the lower hind leg, a fleshy lump at the base of the foot and a smooth white or mottled belly.

Habitat:

Adults are found in a wide range of habitat types throughout the Glenelg Hopkins region.

Call:

Males usually call when concealed in floating vegetation or sometimes from land at the water's edge. The call is a short, musical, explosive note producing a resonant 'bonk'. The call is usually repeated every few seconds.

Breeding:

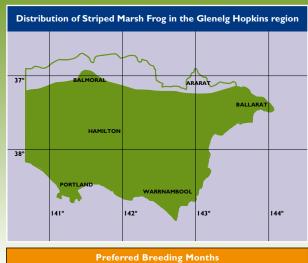
The Pobblebonk typically breeds from August to April.

The female will spawn up to 4000 pigmented eggs which are enclosed in a large (1200-1800 mm diameter) white frothy floating foam raft, usually concealed in aquatic vegetation.

The tadpoles are large, dark brown or black and the fins are dark grey/brown. The fins and sometimes the body are flecked with darker spots or flecks.



Photo: David Nichols



	Preferred Breeding Months											
jaı	n	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec

The Striped Marsh Frog is a voracious hunter that eats almost any animal smaller than itself, including frogs. Adults range from pale fawn to golden-brown with dark brown or black stripes running down the back. Juveniles may have spots or streaks running down their backs.

Habitat:

Adults live in wet and dry forests, woodlands, shrublands, open and disturbed areas. They are most often found in swamps, flooded grasslands, pools and ponds.

Call:

Males call from the water while concealed in vegetation or even underneath a mass of eggs. The call is a single soft explosive note – 'tock' or 'poc' with similar inflections to a hen's 'cluck'.

Breeding:

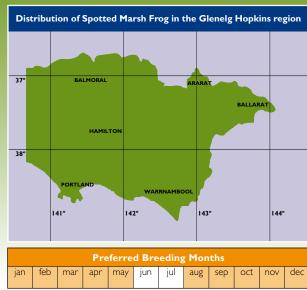
The Striped Marsh Frog typically breeds from August to April.

The eggs of this frog are generally unpigmented, and are laid within a foam raft concealed in reeds, rushes and other aquatic vegetation.

Tadpoles are usually light brown or silvery grey on both body and fins.



Photo: Ivor Graney



The Spotted Marsh Frog is one of the most common frogs of the region. It is usually found in association with water, sheltering in cracks in the ground and under large rocks during dry periods. Adults usually have large regularly-shaped olive-green blotches on the back and sometimes have a yellow, red or orange stripe along the middle of the back.

Habitat:

Adults prefer to live in wet areas, floodplains and semi-permanent water in habitats ranging from open forests and woodlands to shrublands and grasslands as well as open and disturbed areas. They are also common in farm dams.

Call:

Males call while floating in water, most often concealed in floating vegetation. This frog has a short sharp call – 'click' or 'plock' – similar to the sound made when two stones are struck together.

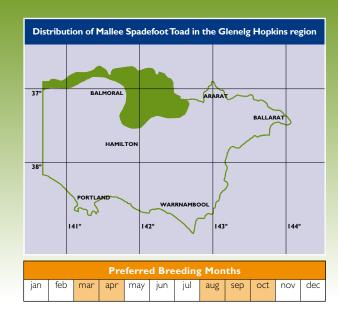
Breeding:

The Spotted Marsh Frog will breed all year except the coldest winter months of June and July. Females spawn up to 1500 pigmented eggs inside a floating foam mass measuring between 50-80 mm in diameter.

Tadpoles are olive grey, dark grey or black, and the fins are usually semi-transparent or light grey.



Photo: Viridans Biological Databases



26. Mallee Spadefoot Toad (Neobrachtus pictus)

The Mallee Spadefoot Toad is a powerful burrower that is a common inhabitant of the drier northern parts of the Glenelg Hopkins region. The adults are characterised by a vertical pupil and a black round lump on the foot. They can be distinguished from the Common Spadefoot Toad by the absence of loose skin extending from the side of the body to the knee.

Habitat:

Adults prefer to live in drier areas including woodland, shrubland, heathlands and open and disturbed areas including farmland.

Call:

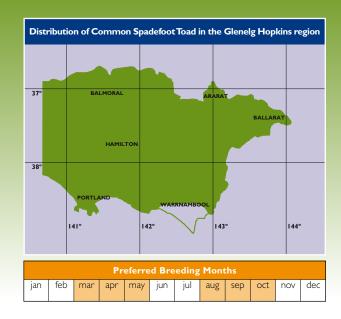
Breeding:

The Mallee Spadefoot Toad typically breeds in the warmer and wetter months from March to April and August to October. Females lay pigmented eggs within jelly clumps in open water.

Tadpoles are black with a bluish sheen and live in still water in ponds, dams, flooded ditches and claypans.



Photo: Viridans Biological Databases



28. Common Spadefoot Toad (Neobrachtus sudelli)

The Common Spadefoot Toad is found throughout most of the Glenelg Hopkins region, except perhaps the wetter areas around Warrnambool. It is a burrowing frog that remains buried most of the time, becoming active after heavy rains. The skin around the abdomen is loose, and extends from the side of the body to the knee. The eye of the adult has a vertical pupil.

Habitat:

Adults are found in drier areas including woodlands, shrubland and open or disturbed areas. This frog is capable of travelling large distances from permanent water on moist nights.

Call:

Males call while floating in open water. The call is a slowly pulsing musical trill - 'craa-aw-aw-aw-aw-aw-aw-aw-aw'.

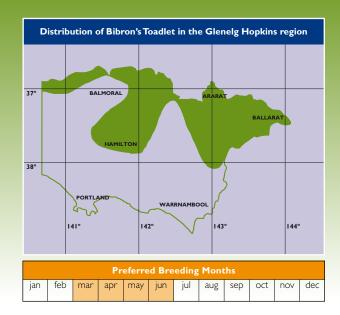
Breeding:

The Common Spadefoot Toad breeds in the wetter and warmer months, usually from March to May and August to October.

Eggs are spawned in ponds, dams, ditches and flooded claypans. The eggs are pigmented and contained within long jelly-like strings, which are wrapped around submerged vegetation. The eggs hatch into silvery grey tadpoles with clear fins. Some will also display dark flecks.



Photo: Lydia Fucsko / frogs.org.au



The Bibron's Toadlet is a small and secretive autumn-breeding frog found in the Grampians area and across the northern part of the Glenelg Hopkins catchment. Adults are mid to dark brown with a coarsely marbled underside of black and white, and have a pair of curved ridges over the shoulder.

Habitat:

Adults are found in dry forest, woodland, shrubland and grassland, sheltering under leaf litter and other debris in moist soaks and depressions.

Call:

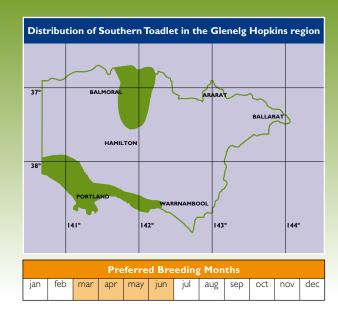
The males call from within their nest or burrow, producing a short grating 'cre-ek' repeated every few seconds.

Breeding:

The Bibron's Toadlet will typically breed from March to June. They lay between 70-200 eggs at a time in shallow burrows under leaf litter, in low areas, or near water that will later be flooded. Tadpoles are dark brown and the clear fins are darkly flecked with black or brown.



Photo: Ivor Graney



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The Southern Toadlet is a quite small and attractively coloured frog whose range includes the southern areas of the Glenelg Hopkins region. Adults have bright orange or yellow on their throats, lower belly and hind limbs, and black and white marbling on the chest and upper belly.

Habitat:

They prefer dry forest, woodland, shrubland, grassland and heaths, and will shelter under leaf litter and other debris in moist soaks and depressions.

Call:

Males call from the shallow nest or burrow in low-lying areas usually near water. The call is a very harsh grating note – 'cre-ek' – repeated every few seconds.

Breeding:

The Southern Toadlet typically breeds from March to June.

The eggs are spawned in shallow burrows (or nests) under litter, and in low area which are likely to flood during the year.

Between 70-170 pigmented eggs are spawned in loose clumps and often coated with soil.

The tadpoles are found in ponds, flooded grassland and roadside ditches.

References and Further Reading

Amphibian Research Centre website – www.frogs.org.au Viridans Biological Databases – www.viridans.com

A Field Guide to Frogs of Australia – from Port Augusta to Fraser Island including Tasmania, Robinson, M (2000). Reed New Holland Publishers

Key Guide to Australian Reptiles and Amphibians, Cronin, (2001). Envirobooks.

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