

North Central Waterwatch

Frogs Field Guide



"This guide is an excellent publication. It strikes just the right balance, providing enough information in a format that is easy to use for identifying our locally occurring frogs, while still being attractive and interesting to read by people of all ages."

Rodney Orr, Bendigo Field Naturalists Club Inc.



The North Central CMA Region



Acknowledgement Of Country

The North Central Catchment Management Authority (CMA) acknowledges Aboriginal Traditional Owners within the North Central CMA region, their rich culture and their spiritual connection to Country. We also recognise and acknowledge the contribution and interests of Aboriginal people and organisations in the management of land and natural resources.

Acknowledgements

North Central Waterwatch would like to acknowledge the contribution and support from the following organisations and individuals during the development of this publication: Britt Gregory from North Central CMA for her invaluable efforts in the production of this document, Goulburn Broken Catchment Management Authority for allowing use of their draft field guide, Lydia Fucsko, Adrian Martins, David Kleinert, Leigh Mitchell, Peter Robertson and Nick Layne for use of their wonderful photos and Mallee Catchment Management Authority for their design support and a special thanks to Ray Draper for his support and guidance in the development of the Frogs Field Guide 2012.

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Introduction

The North Central CMA region covers an area of around 30,000 km²; about 13% of Victoria. It is bordered by the mighty Murray River to the north, which injects life into the land around it, the Great Dividing Range and Wombat State Forest to the south and Mt Camel Range to the east.

The region is packed with an abundance of diverse natural attractions from forested national parks to waterfalls, gorges, slowly meandering waterways and wetlands of international significance. Our backyard is home to a teeming assortment of flora and fauna, some of which are found nowhere else.

The four major river catchments in our region include the Campaspe, Loddon, Avoca and Avon-Richardson; they are the lifeblood to the region and its people. They have helped shape, grow and sustain communities including Bendigo, Bridgewater, Donald, Echuca, Kerang, Kyneton and Swan Hill.

Twelve species of indigenous frogs are known to the region, including two threatened species listed under the Victorian *Flora and Fauna Guarantee Act 1988*; the Growling Grass Frog (*Litoria raniformis*) and the Bibron's Toadlet (*Pseudophryne bibronii*). In addition, the Growling Grass Frog is also listed as 'Vulnerable' under the Commonwealth's *Environmental Protection and Biodiversity Conservation Act 1999*.

Frogs are amphibians (Class *Amphibia* – Order *Salientia*) which means they rely on water to complete their life cycle. Two families of frogs occur in the region - the Southern Frogs (*Hylidae*) and the Tree Frogs (*Myobatrachidae*). The main difference between the two families is the presence of discs or pads on the tips of the fingers and toes of the Tree Frogs, while the tips of fingers and toes of the Southern Frogs typically lack these pads. Within North Central Victoria, there occurs three species of Tree Frog and nine species of Southern Frog.

There is only one true toad found in Australia, the introduced Cane Toad (*Bufo marinus*). Common names of 'toadlets' and 'toads' were given by early settlers to slow moving, warty, terrestrial species based on similarities to European species, with the names persisting despite taxonomic incorrectness. In North Central Victoria there are two frogs with such common names: the Bibron's Toadlet and the Common Spadefoot Toad, they are both frogs.



Photo Nick Layne



Photo © Lydia Fucsko 2011

A potential threat to frogs is the amphibian Chytrid fungus (*Batrachochytrium*), which can cause a lethal disease in many frog species. The fungus can live in soil and can be readily transported between sites by unsuspecting frog surveyors. The fungus has been found in Victoria and is being taken very seriously by the Australian Government. A threat abatement plan was released in 2006 to help deal with the issue. The risk of spread of the disease can be greatly reduced if shoes and vehicle tyres are sprayed with anti-bacterial spray, methylated spirits or Dettol between site visits.

About this guide

This guide has been developed by North Central Waterwatch for anyone interested in learning more about the frogs of our region and as a quick reference, handy size guide for use in the field. It contains simple information to assist with identification of a frog, eggs or tadpoles and is being produced in conjunction with a collection of sample frog calls; this being the most reliable method of identification.

How to use this guide

Frogs are ordered together by family groups (*Hylidae* and *Myobatrachidae*), and then listed in alphabetical order of the common name mostly used in North Central Victoria. Note that there may be several common names used for one species of frog. These have also been listed.

Frogs have been described by simple-to-use symbols for pupil shape, toe type and egg identification. Further description includes notes on adult description, calls, breeding, eggs, tadpoles, habitat and conservation status. A Victorian distribution map and breeding cycle calendar is also provided for each species, along with a photo or two. It is important to note however, that the most reliable method of identification of frogs is by the call. This is due to variation in appearance, colour and size of individuals within a species, but also minimises the risk of harm to the frog.



The Symbols

Pupils

Pupils of frogs in the region are either horizontal, vertical and one species has a cross-shaped pupil (the Peron's Tree Frog).



Horizontal



Vertical



Cross-shaped

Toes

To easily identify which family group a frog belongs to, one must look at the digits (toes and fingers) of a frog:

Tree Frogs

If pads or discs are present, this indicates a Tree Frog. All tree frogs have at least some webbing.



Toe pads present, wider than digits.



Toe pads present, not wider than digits.

Southern Frogs

If no pads or discs are present, this indicates a Southern Frog. Southern Frogs have variable webbing, from none at all, to full webbing. Some also have fringing on their digits, which appears as a thin, transparent "skirt" of skin around the sides.



Toe pads absent, no webbing.



Toe pads absent, no webbing, fringes present.



Toe pads absent, minimal to half webbing.



Toe pads absent, almost fully webbed.

Eggs

Frog eggs found in North Central Victoria are all pigmented (contain colour). There are three main features that assist with identifying eggs: texture, form and habitat.

Texture

Eggs are either surrounded in jelly or in a frothy, foamy mass.

Form

Eggs can be in long chains (often appearing as clumps), individual in loose small groups or in clumps.

Habitat

Eggs may be either aquatic or terrestrial. Aquatic eggs can be found floating, scattered on the substrate or attached to vegetation in the water. Terrestrial eggs are always laid near water, or in depressions that are expected to flood, and usually in moist soil or leaf litter.



Terrestrial, loose clumps.



Floating, foamy mass.



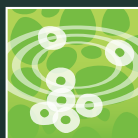
Floating jelly chains, around vegetation.



Floating raft of eggs in jelly.



Aquatic clumps in jelly, around submerged vegetation.



Aquatic single eggs or loose groups in jelly, on substrate.



Aquatic single eggs or loose groups in jelly, attached to submerged vegetation or on substrate.



Growling Grass Frog

(Litoria raniformis)



Other common names: Green and Golden Frog, Southern Bell Frog, Warty Swamp Frog.

Adult description: The Growling Grass Frog is also known as the Southern Bell Frog or the Warty Swamp Frog. Their colour varies from olive to bright emerald green with irregular bronze, gold brown or black spotting. Their backs are warty and usually have a pale green stripe down the middle. The Growling Grass Frog is one of the largest frog species in Australia. The females (60-104 mm) grow much larger than the males (55-65 mm).

Calling: The male calls out after rain in spring, summer and autumn. Whilst floating in open water, they usually call with several distinctive short grunts, followed by a long deep growl that lasts for about one second "Craark Craark Crok Crok Crok".

Breeding: Breeding usually occurs during the spring and summer months. Females are believed to become reproductively mature between two and three years of age.

Eggs & tadpoles: The pigmented eggs are large, contained within a floating jelly raft and often attached to vegetation for protection and stability. Often they are laid in a broad single layer at the edge, or in shallow areas of water bodies. The clusters may later break up and sink. The tadpoles are large and initially dark in colour. As they develop they lighten, turning a pink-grey to yellow colour with iridescent green over the spine and brain, and yellowish fins. They can reach 100mm before they metamorphose into frogs.

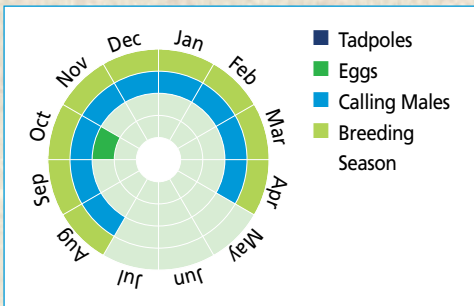
Habitat: Growling Grass Frogs prefer to live amongst reeds, sedges and rushes growing in and along slow moving streams, ponds, lagoons, swamps, lakes and farm dams. They can be found floating in warmer waters with temperatures between 18 and 25°C.



Photo © Lydia Fucsko 2011

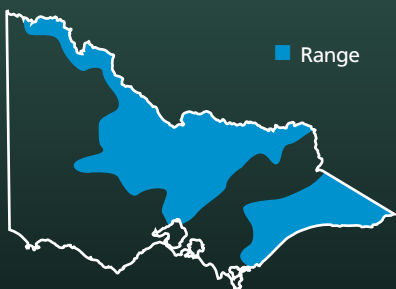
Conservation status & threats: Listed as a Threatened Species under the *Flora and Fauna Guarantee Act 1988* and as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*. Threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides, introduction and presence of exotic predators such as trout and *Gambusia* and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: Growling Grass Frogs primarily feed on ground-dwelling insects such as beetles, termites, cockroaches, moths, butterflies and insect larvae. Interestingly, they will also eat small lizards, snakes, fish and other frogs, including smaller Growling Grass Frogs. They are not active hunters, preferring to sit and wait for their prey to come to them. They respond positively to habitat restoration, providing there are floating or emerging water plants. Growling Grass Frogs were once abundant in Victoria, and were commonly used for dissections in universities and to feed the snakes at the Melbourne Zoo.



Peron's Tree Frog

(*Litoria peronii*)



Other common names: Emerald-spotted Tree Frog, Laughing Tree Frog, Maniacal Cackle Frog.

Adult description: The adult Peron's Tree Frog varies in colour from pale cream to dark grey. It has small (sometimes indistinct) emerald green spots on its body, and is bright yellowish-orange in the groin area, armpits and backs of the thighs. It has a very distinctive cross-shaped pupil, enabling distinction from all other Victorian frogs. They will grow in length between 30-70 mm, usually around 50 mm.

Calling: Males call from tree branches, the ground and from beside dams, ponds and pools during spring and summer to attract a mate. The call is very long and drawn out, and slowly increases in volume 'cra-ah-ah-ah-ah-ah-ah-ahhk'.

Breeding: Breeding activity is more common after rain and usually occurs in temporary pools, dams and sometimes suburban ponds. Hatchlings occur four to six days after laying.

Eggs & tadpoles: Pigmented eggs are found during October and December, singly or in small clusters in jelly, near the water's edge, scattered over the substrate or among leaf litter and vegetation. Tadpoles are found in still water in swamps, dams, ponds, and lagoons. They are pale golden-yellow to iridescent green in colour, with a shiny pale green spot on the tip of the snout.

Habitat: Peron's Tree Frog is locally common and can be found in wet and dry forest, woodlands, shrublands, and open areas. They are usually found near water bodies, however they can be found in trees long distances from water. In Victoria, the Peron's Tree Frog is distributed throughout the Murray-Darling Basin, East Gippsland and Central Victoria. It prefers areas that have large old trees and fallen logs and branches. Peron's Tree Frog is a species that has adapted well to an urban setting - it can often be seen on windows or near lights at night, as it hunts the insects attracted to household lights.



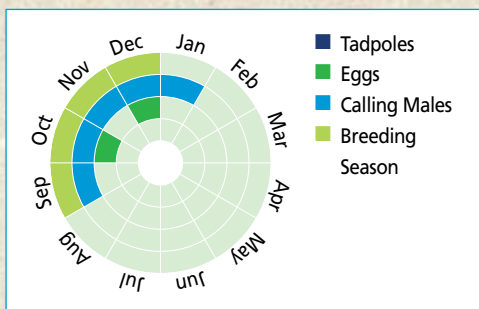
Photo © Lydia Fucsko 2011



Photo Adrian Martins

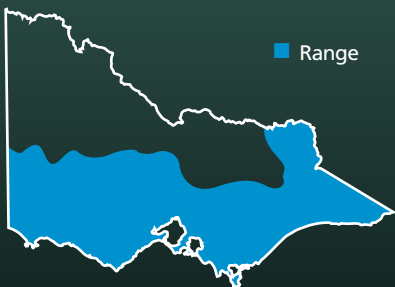
Conservation status & threats: Non-threatened. Population is said to be steady, productive and possibly increasing. Potential threats however, include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: Peron's Tree Frog has a distinctive loud call, almost like a 'machine gun' cackle, lending it to its other name the Maniacal Cackle Frog. It can change colour depending on the time of day, temperature and temperament of the individual. It can be found seemingly far from water sources and trees, but is probably moving between favoured sites. Large old River Red Gums can support several hundred frogs, which hide beneath the bark and in crevices.



Southern Brown Tree Frog

(*Litoria ewingii*)



Other common names: Brown Tree Frog, Ewing's Tree Frog, Whistling Tree Frog.

Adult description: As its name suggests, the Southern Brown Tree Frog is brown in colour, with a broad darker band running from the eyes down most of the back. It has a dark band from the nostril, through the eye, to the shoulder, with a pale white stripe running from the mouth to the arm. The back of the thighs and groin are yellow to red. May also display pale fawn, cream, orange, or light brown sides. The belly is smooth and a single, pale colour. The adult frog is usually around 45 mm, but may grow between 25-60 mm in length.

Calling: Males usually call from the ground, at the water's edge or in water, floating amongst the vegetation. The call is a series of rapid, whirring notes repeated 5-15 times 'creeeeeeee creee creee cree cree cree', with the first note usually the longest. Calling can be heard throughout the entire year, although most frequently after rain.

Breeding: Breeding males will display a light brown vocal sac. This species breeds all year round, peaking in late winter and early spring.

Eggs & tadpoles: The female will lay between 500-700 eggs in jelly-like clumps, which she attaches to submerged vegetation. The medium-sized tadpoles are pale golden-yellow to dark grey in colour. The fins are usually clear. Eggs and tadpoles can be found in still water in ponds, dams, lakes, streamside ponds and flooded roadside ditches. Hatching occurs within a few weeks of spawning. Tadpoles take between 12 and 26 weeks to reach metamorphosis.

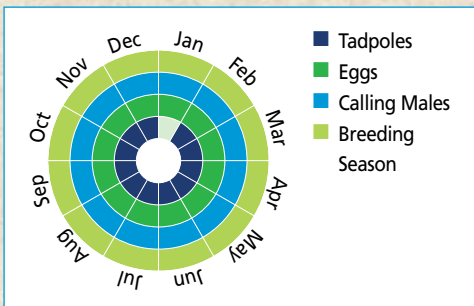


Photo Ray Draper

Habitat: The Southern Brown Tree Frog can be found in a wide variety of habitats, including urban gardens, flooded grasslands, or amongst wet marshy areas. They frequent wet and flooded areas for breeding but can be heard calling long distances from water.

Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides, potentially at risk from the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: The Southern Brown Tree Frog is an agile climber and jumper, highly capable of leaping to catch a flying insect in mid-flight.



Whistling Tree Frog

(*Litoria verreauxi*)



Other common names: Alpine Tree Frog (subspecies *alpina*), Verreaux's Frog, Whistling Tree Frog.

Adult description: The Verreaux's Frog varies in colour but is commonly light brown with a green stripe down the back and green stripe spreading down each side from the head. A dark stripe extends from the nostril, through the eye, to the base of the forearm. The belly is smooth and plain whitish colour. The back of the thighs and groin are yellow to red-orange. The groin has black spots or blotches. The adult frog is usually around 30 mm in length.

Calling: Males usually call from the ground, in low vegetation near the water's edge, or in the water, floating amongst the vegetation. The call is a rapidly repeated burst of 10-20 short notes with an almost whistling quality - "tweee tweee tweee tweee".

Breeding: Calling occurs all year round and increases during Autumn and Spring. Eggs and tadpoles can be found in still water in ponds, dams, lakes and roadside ditches.

Eggs & tadpoles: The female will lay between 500 - 1000 eggs in jelly-like clumps, which she attaches to submerged vegetation. The medium-sized tadpoles are clear yellow with darker areas. The fins are dusky dark grey or mottled to almost transparent. They grow to approximately 53 mm in length.

Eggs and tadpoles can be found in still water in ponds, dams, lakes, streamside ponds and flooded roadside ditches. Hatching occurs within a few weeks of spawning. Tadpoles take between seven and eight weeks to reach metamorphosis.



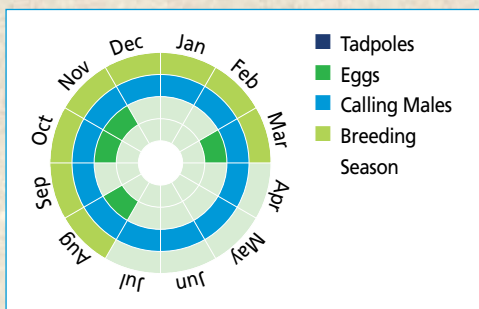
Photos © Lydia Fucsko 2011



Habitat: The Whistling Tree Frog can be found in a wide variety of habitats, including urban gardens, flooded grasslands, or amongst wet marshy areas.

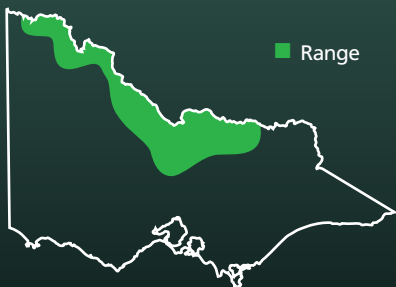
Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides. Potentially at risk from the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: The Whistling Tree Frog is a clumsy climber but a strong swimmer and a fair jumper.



Barking Marsh Frog

(*Limnodynastes fletcheri*)



Other common names: Barking Frog, Fletcher's Frog, Long-thumbed Frog.

Adult description: The adult Barking Marsh Frog has irregular edged brownish-olive green blotches on its back and a reddish-orange patch on the upper eyelid. The skin is smooth, or with low, rounded warts. The belly is white and smooth. The base of the toe is webbed. Adults range in length between 33 and 55 mm.

Calling: Males call from amongst concealed floating vegetation. The call is a short modulated note, sounding similar to a distant barking dog, hence the name. This 'whrup' or 'rok' sound is repeated every few seconds.

Breeding: Breeding usually occurs between spring and autumn after heavy rains. It takes a female two years to become reproductively mature.

Eggs & tadpoles: Approximately 300 pigmented eggs are laid in a floating foamy mass, often partly anchored to grasses. Found in slow moving or still water. Eggs hatch within three days after being laid. Tadpoles are moderately large and can range in colour from translucent white-gold with a tint of olive to opaque grey-brown or olive-brown. Found in slow moving or still water. When disturbed, tadpoles can move very swiftly.

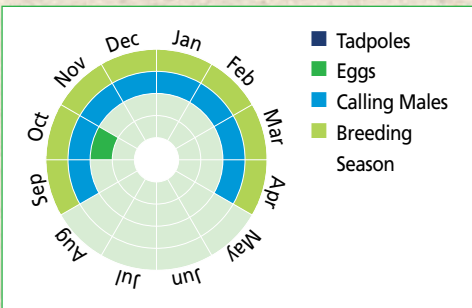


Photo David Kleinert

Habitat: Adults most often associate with water within woodlands and along the floodplains of lakes and rivers. Usually found beneath rocks, logs and in yabby burrows.

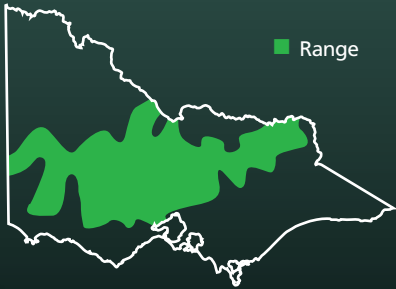
Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, habitat disturbance, cats, foxes, herbicides and pesticides, and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: Most often confused with *Limnodynastes tasmaniensis* - the call is the most reliable method of distinction between the two species.



Bibron's Toadlet

(*Pseudophryne bibronii*)



Other common names: Brown Toadlet, Brown Brood Frog.

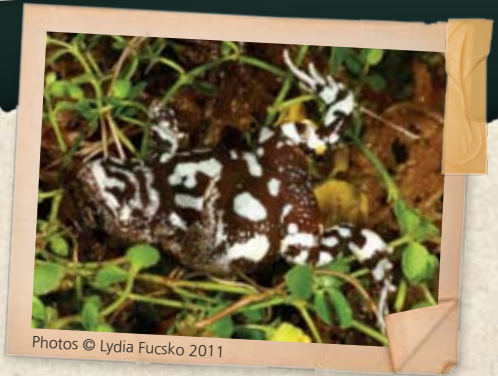
Adult description: The adult Bibron's Toadlet is brown to black on its back, with a scattering of darker flecks and red spots. Its skin is mostly smooth, with small warts. Its underbelly is marbled in black and white or black, grey and white. Often has a bright yellow spot on the vent and sometimes a faded yellowish stripe down the middle of its lower back. On the base of each arm there is always an orange or yellow patch. As with all members of this genus, it tends to walk rather than hop. Adult females are slightly larger than males, measuring between 25-32 mm, and the male being around 22-30 mm.

Calling: Males call from within the nest or burrow, especially after heavy rain. The call is a short, harsh, grating "cre-ek" or "ark" sound, repeated every few seconds.

Breeding: Breeding season is during autumn; the female will only produce one batch of eggs each year. Eggs are laid terrestrially amongst moist leaf litter or under rocks, logs or stones. After rain when the area becomes inundated, the eggs will hatch. If it does not rain soon after being laid, tadpoles will continue to develop inside the unhatched eggs which can take between three to seven months.

Eggs & tadpoles: Eggs are large, pigmented and often coated in soil or mud. They are laid on moist soil in loose clumps of between 70-200 eggs. Tadpoles vary in colour, from dark brown to light grey. The tail fin is clear and mottled with black or brown flecks. They grow to approximately 30 mm in length. Found in ponds, puddles, flooded grasslands and roadside ditches.

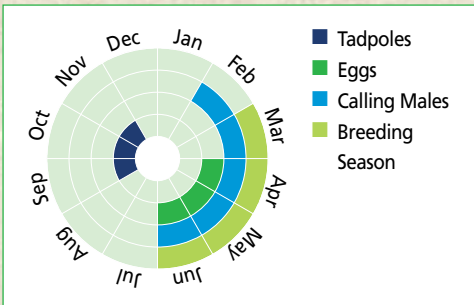
Habitat: Adults utilise a wide variety of habitats including dry forests, woodland, shrubland and grasslands, preferring areas that are prone to inundation after rain. They shelter in damp areas under leaf litter, logs, or other forms of cover.



Photos © Lydia Fucsko 2011

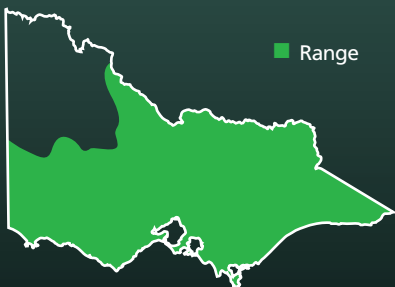
Conservation status & threats: Endangered in Victoria and listed under the *Flora and Fauna Guarantee Act 1988*. Threats include decline in water quality, habitat disturbance, cats, foxes, herbicides and pesticides, agricultural activities relying on high fertiliser inputs, small population sizes, which makes populations more susceptible to localised extinctions and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: They are thought to feed mainly on ants while foraging at night, but also beetles and mites.



Common Froglet

(*Crinia signifera*)



Other common names: Clicking Froglet, Eastern Common Froglet, Day Frog, Varied Froglet, Signifera Froglet.

Adult description: The adult Common Froglet is a small ground dwelling frog, common and widespread throughout North Central Victoria and most of Eastern Australia. The colouring is extremely variable, but three patterns (morphs) are recognised: the first has longitudinal ridges along the back; the second has boomerang shaped ridges over the shoulder and on the back; and the third has a smooth unpatterned back, sometimes with small warts. Its belly may be white, brown-white or heavily mottled with black or dark brown. It varies in length from 18-28 mm, with females being larger than males.

Calling: Males call from amongst vegetation at the water's edge or from vegetation floating in open water which they cling to whilst calling for a mate. The call is a series of three to five pulsed calls, with a cricket-like chirp, rapidly repeated in a long series 'crick crick crick crick crick'.

Breeding: Its cricket-like chirping can be heard all day and all year round, but is usually heard during and after rain. Eggs and tadpoles are aquatic and can be found in ponds, dams, swamps, flooded grassland, ditches and hollows containing water.

Eggs & tadpoles: 100-150 pigmented eggs are usually laid, and can be found individually or in loose clumps, scattered on the substrate of ponds, dams, swamps and ditches. Tadpoles are light grey or brown all over with scattered dark flecks; some are sandy gold in colour. Metamorphosis from tadpole to frog takes between 40-70 days.

Habitat: Adults are commonly found in wet and dry forests, woodlands, floodplains, and in open and disturbed areas. They shelter under logs and other debris, usually in moist depressions or near water. Dozens of individuals may share the space beneath one log or rock.



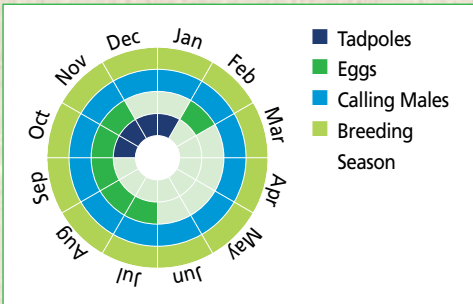
Photo © Lydia Fucsko 2011



Photos Leigh Mitchell, North Central CMA

Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, habitat disturbance, cats, foxes, herbicides and pesticides, and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: The Common Froglet recognises 'safety in numbers', with dozens of individuals sharing the space and protection offered beneath one log or rock. Can be distinguished from other members of the same genus by its call and belly colouration. Adults and tadpoles are an important food source for many wetland birds.



Common Spadefoot Toad

(*Neobatrachus sudelli*)



Other common names: Painted Burrowing Frog, Meowing Frog, Sudell's Frog, Eastern Metal-eyed Frog.

Adult description: The Common Spadefoot Toad is actually a frog (no true native toads exist in Australia). It is a burrowing frog and remains buried for much of the time, becoming active after rain. It is identifiable by its vertical pupil and fully webbed toes, used for digging and propulsion in the water. Its skin colour is highly variable; from blotchy grey to dark brown above, with numerous warts. There may be a pale stripe down the back, and the belly is white. The skin in the groin area is loose and extends from the side of the body to the knees like "baggy pants". It grows to approximately 40 mm.

Calling: Males will call for a mate whilst floating in open water. The call is a slowly pulsed musical trill 'craa-aw-aw-aw-aw-aw-aw-awk'.

Breeding: During the mating season, males develop black spines on the back.

Eggs & tadpoles: Up to 1,000 pigmented eggs are laid in long strands contained within jelly. Eggs are found in ponds, dams, ditches, and flooded claypans after heavy rain. Strands may be wrapped around submerged vegetation when present. Tadpoles are silvery grey, the fins are clear and sometimes have dark flecks. They feed on the bottom of the dam or pond, on a variety of matter including insects and other dead tadpoles.

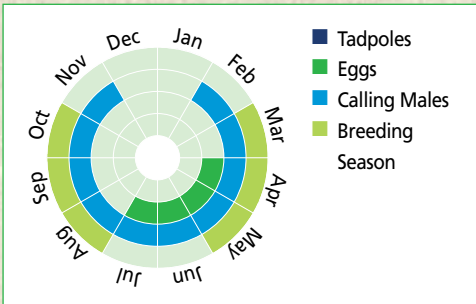
Habitat: The adult Common Spadefoot Toad is most often found in dry habitats, including woodlands and grassland areas, mallee, open, and disturbed areas, beneath soil, rocks and fallen timber. They seek water in which to breed and lay eggs.



Photos © Lydia Fucsko 2011

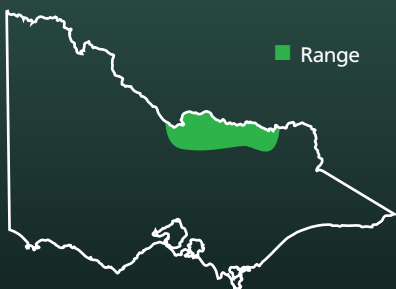
Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, habitat disturbance, cats, foxes, herbicide and pesticide use and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: The adult Common Spadefoot Toad may be found wandering on moist nights, some distance from the nearest permanent water. May be confused with the Mallee Spadefoot Toad (*Neobatrachus pictus*), although this species is not common in North Central Victoria. Can be distinguished by its 'baggy pants' and by warts on the back – low and smoothly rounded in *N. sudelli*, raised and horny-capped in the *N. pictus*.



Giant Banjo Frog

(*Limnodynastes interioris*)



Other common names: Giant Bullfrog, Giant Pobblebonk, Great Bullfrog, Inland Banjo Frog.

Adult description: The Giant Banjo Frog is Victoria's largest frog. It is powerfully built and a strong burrower and jumper. Grey-brown to olive-green in colour, the skin can be smooth to warty on the back. The underbelly is smooth and yellow, often with black flecks, while the groin is marbled yellow and black. A prominent gland is visible on the hind leg. Most specimens have distinctive yellowish fleshy areas along the jaw line and raised ridgelines along the back. Can grow to 90 mm.

Calling: Males call from either floating vegetation or in burrows or other cover along the water's edge. Their call is a short deep hollow note similar to that of the Pobblebonk (*Limnodynastes dumerili*) but a much lower pitch - "gunk", "donk" or a reverberating "bonk". Males call almost year round, except for summer which is likely to be due to lack of rain.

Breeding: Breeding occurs in spring, summer and autumn after heavy downpours of rain. Females are thought to first reproduce at two to three years of age.

Eggs & tadpoles: The pigmented eggs are contained within a large foamy mass about 1200-1800 mm in diameter. This is carefully concealed in aquatic vegetation or flooded burrows for protection from predators. The tadpoles are large, dark brown, or black with dark grey fins. The fins, as well as the body, are scattered with dark flecks.

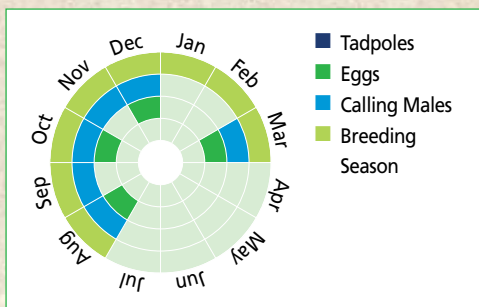
Habitat: The Giant Banjo Frog is fairly uncommon in Victoria and is largely restricted to the Murray River floodplains. It can be found in many different vegetation types around dams, wetlands and streams, but does not necessarily need to be close to a water body as it will burrow into moist soil.



Conservation status & threats: Critically Endangered. Threats include a decline in water quality, increased sedimentation in water bodies, habitat disturbance and degradation, cats, foxes, herbicides and pesticides, predation of eggs and tadpoles by introduced fish and the Chytrid fungus (*Batrachochytrium*).

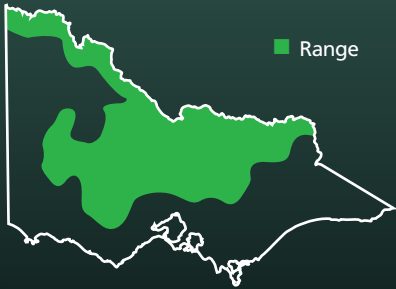
Interesting facts and features: *Interioris* means "inner", as in inland Australia. Spends most of its life concealed underground, emerging only after rain to feed and spawn. Most often confused with the Pobblebonk Frog (*L. dumerilii*) from which it can be easily distinguished by having a bright belly colouration.

L. dumerilii has a plain white or orange/yellow belly that is heavily mottled with black or steel grey.



Plains Froglet

(*Crinia parinsignifera*)



Other common names: Eastern Sign-bearing Froglet, Beeping Froglet.

Adult description: The adult Plains Froglet has variable patterning on the back, but three patterns (morphs) are recognised: the first is ridged with longitudinal lines along the back; the second is boomerang shaped ridges over the shoulder and on the back; and the third is a smooth unpatterned back; sometimes with small warts. It has a light coloured belly, either plain or peppered with black, grey, and white flecks. This species will grow to between 18-24 mm.

Calling: Males call from the safety of vegetation at the waters edge or from emergent vegetation. The call is a harsh squelching note - 'eeeeeeek' repeated every few seconds.

Breeding: Most breeding occurs in mid-winter, however may occur throughout the year. On average metamorphosis from tadpole to frog is completed in 11-12 weeks.

Eggs & tadpoles: The very small, pigmented eggs are laid individually or in loose clumps, scattered around the bottom of ponds and water bodies; often found attached to aquatic plants. Tadpoles can be found in ponds, dams, swamps, flooded grassland, ditches, hollows and depressions containing water. The tadpoles are light grey to brown all over their body, with scattered dark flecks. The dark pigmentation has patches of gold over the top, which increase in size as the tadpole grows.

Habitat: The Plains Froglet can be found in and around farm dams, woodlands, floodplains, and open or disturbed areas, where they will shelter under logs and ground litter, usually in moist depressions or near water. Numerous individuals may be found beneath one log or rock.

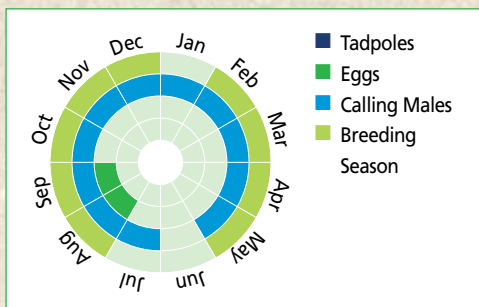


Photos © Lydia Fucsko 2011



Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: A small ground dwelling frog that is quite conspicuous by its habit of calling during the day, throughout the year. It can be distinguished from other frogs of the same genus through its belly colouration and call. Females are larger than males.



Pobblebonk

(*Limnodynastes dumerilii*)



Other common names: Southern Bullfrog, Eastern Banjo Frog, Eastern Pobblebonk, Four-bob Frog, Bull Frog.

Adult description: The Pobblebonk is a variable species, ranging in colour from grey, olive-green, dark brown to black on its back with dark marbling, blotches or flecks. A pale stripe runs from under the eye to the arm, above this a dark band runs from the eye to the membrane covering the entrance to the ear. The belly is plain white or white-mottled with grey and/or black. The skin on the back may be either smooth or with small warts, and the underbelly is smooth. Some specimens have a pale stripe running down the spine. It grows to approximately 70 mm in length.

Calling: The call is a very characteristic single 'plonk' or 'bonk' repeated at intervals, sometimes likened to the pluck of a banjo string. When one frog starts calling others usually join in. Calling is more intense after heavy rain, with males often congregating and calling in large numbers.

Breeding: Females are able to reproduce at two to three years of age. Males call throughout most of the year from burrows at the water's edge or whilst floating in the water clinging to vegetation.

Eggs & tadpoles: The female will lay up to 4,000 eggs at one time in a large, floating foam nest of up to 1,800 mm diameter, which is usually concealed amongst aquatic vegetation. The egg mass is quite easily distinguished by a white foamy appearance; the female uses her forearms to whip up a mixture of air bubbles and clear jelly creating the foam. The tadpole is quite large and dark brown to black in colour, often with dull gold clusters of colour. Tadpoles spend most of their time at the bottom of still water swamps, streams, dams and lakes, feeding on sediment and other vegetation.

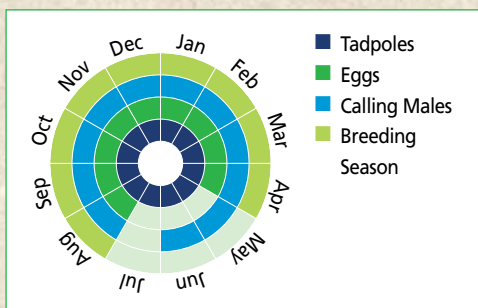


Photo © Lydia Fucsko 2011

Habitat: The Pobblebonk frequents most habitats in North Central Victoria, including woodlands, wet and dry forests, heathland, farmland and grasslands. This frog is commonly seen after rain near dams, ditches and other bodies of still or slow-moving water.

Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides, potentially at risk from the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: Most often confused with the Giant Banjo Frog (*L. interioris*) but can be easily distinguished by the lack of bright belly colouration (as seen on *L. interioris*, often bright yellow and black). This common and widespread species is often seen in large numbers following rain. So variable in colour, size and call, that it has been classified into five subspecies. It is a burrowing frog which uses its arms and legs to dig itself backwards into soft mud.



Southern Toadlet

(*Pseudophryne semimarmorata*)



Other common names: Orange Throated Toadlet

Adult description: The adult Southern Toadlet is olive to dark brown on its back, with darker flecks. Its underbelly has black and white marbling. The throat, the underside of the legs and lower half of its belly are bright orange, yellow or a flesh colour. The skin can be warty. Females usually have a smooth belly, while the males can be rough. Like all *Pseudophryne* species, it is a ground dweller and has a preference for walking. Adult females are 25-28 mm in length, while males can grow up to 35 mm long.

Calling: Males call from shallow burrows near boggy ground or water, especially after heavy rain. The call is a short, "ark" or "cre-ek" and can be heard in late summer and autumn.

Breeding: Breeding season occurs from March to June. Eggs are laid terrestrially amongst moist leaf litter or under rocks, logs or stones or in shallow burrows. Eggs will hatch after rain when the area becomes inundated.

Eggs & tadpoles: Eggs are large, pigmented and often coated in soil or mud. The eggs are usually laid singly in nests which can contain 8 – 194 eggs. Tadpoles vary in colour, from dark brown to fine gold. The tail fin is clear patchy brown. They grow to approximately 34 mm in length. They are found in ponds, puddles, flooded grasslands and roadside ditches.

Habitat: Adults utilise a wide variety of habitats including dry forests, woodland, shrubland and grasslands, preferring areas that are prone to inundation after rain. They shelter in damp areas under leaf litter, logs, or other forms of cover.

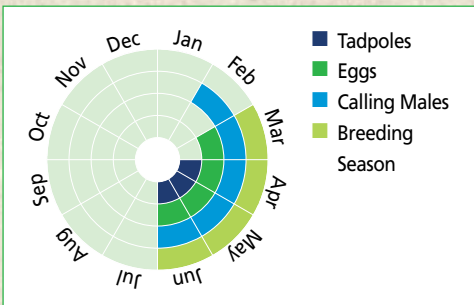


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Conservation status & threats: Non-Threatened. Threats include declining water quality, habitat disturbance, cats, foxes, herbicides and pesticides, agricultural activities relying on high fertiliser inputs, small population sizes – the latter which makes populations more susceptible to localised extinctions and the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: The Pseudophryne species is unique in its dietary sources eating such things as ants, beetles and millipedes.



Spotted Marsh Frog

(Limnodynastes tasmaniensis)



Other common names: Spotted Grass Frog, Spotted Frog.

Adult description: The Spotted Marsh Frog is a light brown to olive-green coloured frog with large, irregular green or brown blotches or spots. Usually it has a pale narrow mid-dorsal stripe extending from the snout to the vent, ranging from white, pink, yellow, orange or red in colour. Has a raised pale stripe from below the eye to the base of the arm. Adult males have a dark throat. The belly is white, and the toes display slight webbing and fringing. Usually grows between 30-45 mm, but may be up to 60 mm.

Calling: Males call from the water, usually concealed in floating vegetation. The 'northern race' of the species (central, northern, and eastern Victoria) has a distinctive call of three or four notes repeated in a long series of 'kuk-kuk-kuk'. The southern call race (western and south-eastern Victoria) has a single sharp call - "click" or "plock".

Breeding: Calling occurs almost year round, while breeding occurs in all months except June and July. Females are reproductively active at less than two years of age.

Eggs & tadpoles: Between 80 and 1,500 pigmented eggs 50-80 mm in diameter are laid by the female in circular floating foam mass. The nest is usually close to the water's edge amongst vegetation. Tadpoles are of medium size, ovoid and usually have semi-transparent or light grey fins and an olive grey, dark grey or black body. Colouration depends largely on the clarity of the water. It takes approximately a week for tadpoles to hatch, they grow to around 60 mm and it takes a further three to 12 months for tadpoles to reach metamorphosis.

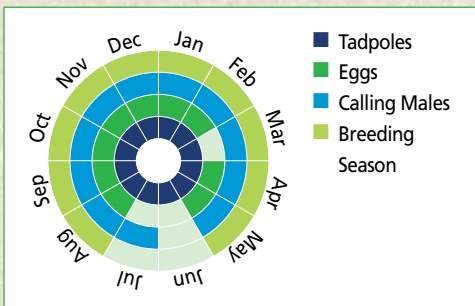


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Habitat: Most often associated with wet areas, floodplains, and semi-permanent water in many habitats including dams, ditches, flooded grassland, woodlands, farmland, slow moving creeks and in urban areas to which it has become well adapted. Commonly found in farms dams.

Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides, potentially at risk from the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: The frog is usually found in or nearby water, and in dry periods it shelters in cracks in the ground, usually under large rocks. Most often confused with the Barking Marsh Frog (*L. fletcheri*) - the call is the most reliable method of distinction between to two species.



Striped Marsh Frog

(Limnodynastes peroni)



Other common names: Brown Frog, Brown-striped Frog, Night Frog, Peron's Marsh Frog, Swamp Frog

Adult description: The colour and size of the Striped Marsh Frog is unique from all other *Limnodynastes* species. Its skin is smooth in texture and is a light brown to grey brown with a darker brown stripe along the back. The belly is also smooth and white in colour. The Striped Marsh Frog is quite large and can grow to 90 mm. The toes are almost free of webbing.

Calling: Males call from the water, almost all year round. They are usually concealed in floating vegetation or on land near the water's edge. The call is a single short soft explosive "whuck" or "tok" and can be heard throughout the year.

Breeding: Breeding occurs from late winter to early spring. Eggs are laid in still or very slow moving water. Hatching occurs 4 days after laying.

Eggs & tadpoles: The Striped Marsh Frog may lay up to 1300 pigmented or unpigmented eggs, usually laid within a foam raft concealed in reeds, rushes, and other aquatic vegetation. Tadpoles can grow up to 81 mm. The body is moderately large, ovoid and wider across the abdomen. The dorsum (surface of the body) is dark brown to almost black or translucent grey-black with fine gold pigment. The tail is dusky or light brown smaller tadpoles may have clear fins.

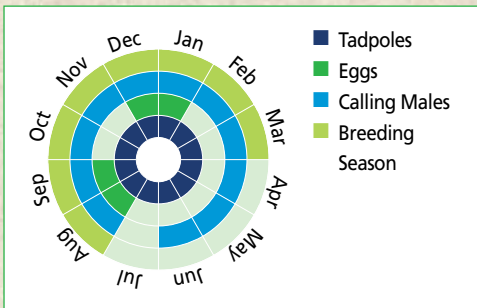
Habitat: A wetland dwelling frog, most often associated with wet areas, floodplains, and semi-permanent water in many habitats including dams, ditches, flooded grassland, woodlands, farmland, slow moving creeks and in pools and ponds.



Photos © Lydia Fucsko 2011

Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides and pesticides, potentially at risk from the Chytrid fungus (*Batrachochytrium*).

Interesting facts and features: A voracious hunter, this frog eats almost any animal smaller than itself, including small frogs.



Victorian Smooth Froglet

(*Geocrinia victoriana*)



Other common names: Eastern Smooth Froglet.

Adult description: The adult Victorian Smooth Froglet is a variable species, the back being smooth, rough or warty, plain or marbled in single or multi-colours. The belly is smooth, usually marbled or peppered, also in multi-colours. The armpit or groin usually displays a pink patch in each. They have a dark pigment on the thighs. Adults grow to a length of 20-35 mm.

Calling: Males call from the ground in moist leaf litter and among grass tussocks, usually near water in areas which are prone to inundation. The call is a long harsh introductory note followed by a long series of short rapidly repeated notes 'wa-a-a-a-ark pip-pip-pip-pip-pip-pip...'

Breeding: Calling can be heard almost year round, but particularly between January and May. Breeding season extends from November to May.

Eggs & tadpoles: Up to 160 pigmented terrestrial eggs are spawned, adhering in sticky clumps in moist leaf litter or grass tussocks that will later become inundated with water. Hatching of eggs can be delayed for up to four months in dry periods; tadpoles hatch when the area is flooded. They generally reside along the bottom of still pools and can take up to eight months to reach metamorphosis. They are dark brown in colour with clear fins flecked with brown.

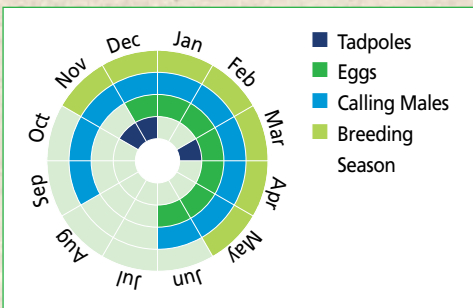
Habitat: This species can be found in a wide range of habitats from rainforests, wet and dry forests, woodlands, shrublands and grasslands.



Photos © Lydia Fucsko 2011

Conservation status & threats: Non-threatened. Potential threats include a decline in water quality, loss, fragmentation and disturbance of suitable habitat, cats, foxes, herbicides, pesticides and the Chytrid Fungus (*Batrachochytrium*).

Interesting facts and features: A common and widespread but secretive species which is most often encountered in late summer and autumn. It is distinguished from most species by the pink colouring in the groin.



'Banana Box Frogs'

(introduced *Litoria* spp.)

The three introduced species of tree frogs, known collectively as the 'Banana Box Frogs', are: the Green Tree Frog (*Litoria caerulea*), the Eastern Dwarf Tree Frog (*Litoria fallax*), and the Dainty Tree Frog (*Litoria gracilentia*). These frogs are naturally found within Queensland and New South Wales. However individuals have been transferred to Victoria and other states via transport of fresh produce such as fruit, vegetables and plants. These individuals pose a threat to local native frog populations through potential competition and the transfer of the lethal Chytrid fungus. Tree frogs in general can be identified by the presence of circular discs at the end of their toes which provide suction and allow them to climb. The toes of most tree frogs are also about one-third webbed.

If you suspect you have found a lost 'Banana Box Frog', please follow the collection and storage tips below, then contact the Amphibian Research Centre's 'Lost Frogs Home' on (03) 9742 3764 or lostfrogs@frogs.org.au.

Collection and storage of a frog is important. Before handling a frog ensure your hands are clean and wet. To store a frog for a short period use an ice-cream or margarine container with air holes in the lid, a few leaves as cover and a small amount of water in the bottom. Most tree frogs will feed on crickets or moths, so provide them with a snack if possible. Please do not keep these frogs in your home or pond - they need to be quarantined to ensure they are disease free and can then be adopted as a pet.

Green Tree Frog– *Litoria caerulea*

This species is the largest of the tree frogs and can attain a length of up to 10 cm. Colouration is either dark green or bright green all over, usually with white specks along the sides or back. Their underside is white or pale yellow,

and they have golden iris and horizontal pupils. The green tree frog is usually found on rocks or trees and on the ground near water. Their call is made up of a continuously repeated 'crawk'.



Photo © Lydia Fucsko 2011

Eastern Dwarf Tree Frog– *Litoria fallax*

This is a slender frog that can grow up to 3.5 cm. Colouration can vary from all green to all fawn. However, they typically have a green back with brown stripes running down either side of their body. The backs of their legs and their belly are bright orange or yellow. Using its bright orange vocal sac, the frog produces a two-part call: a long 'wreeek' followed by a sharp 'kik kik, kik kik'.



Dainty Tree Frog– *Litoria gracilentia*

This species grows up to 4.5 cm. They are leaf-green, usually with a yellowish-green stripe over the eye while fingers, toes and upper arms are a bright lemon yellow. Dainty tree frogs prefer to stay under cover when the sun is at its hottest. They are common garden-dwellers and seek shelter in the daytime. Their call is a long drawn out 'waaaaaag'.



Glossary

Cloaca: joint opening of the digestive, urinary, and reproductive tracts.

Digits: fingers or toes.

Dorsal: referring to the back or upper surface.

Dorsolateral fold: a fold of skin or ridge separating the dorsal (back) surface from the lateral (side) surface.

Endemic: restricted to a particular geographic region.

Fringing: toes with a thin, transparent “skirt” of skin around the sides. May be folded around the toe.

Genus: a group of related species, sharing the same first name. (eg. *Litoria*).

Groin: area on side of body, at the base of leg.

Herpetologist: scientist who studies reptiles and amphibians.

Insectivorous: feeding on insects and usually other small invertebrates.

Invertebrate: animal without a backbone.

Lateral: referring to the side surface.

Longitudinal: running lengthways along the body, from head to tail.

Metatarsal tubercle: one or more small (usually rounded) lumps at the base of the foot.

Metamorphlings: recently metamorphosed tadpoles, that is, very young frogs.

Mid-dorsal: referring to the middle of the dorsal (back) surface.

Pads: round flat endings to digits to aid in climbing.

Parotoid gland: a gland behind the ear and above the shoulder.

Pupil: aperture in the eye through which light enters.

Spawn: frog eggs, or the act of laying eggs (spawning/to spawn).

Supratympanic fold: a fold of skin above or overhanging the tympanum.

Supratympanic ridge: a ridge of skin above or overhanging the tympanum.

Tadpole: larval stage of frogs.

Terrestrial: living on land.

Tibial gland: gland on lower leg.

Tympanum: eardrum.

Ventral: referring to the belly or lower surface.

Vestigial: remnant or relict of (example: “vestigial webbing” is with only a trace of webbing).

Vocal sac: expandable sac beneath throat that serves to amplify male call.



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Frogs Australia Network - www.frogsaustralia.net.au

Museum Victoria - www.museum.vic.gov.au

Amphibian Research Centre, *The Frogs of Australia* - www.frogs.org.au



Photo David Kleinert



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