

SOME FROG FACTS!



Frogs are members of a class of animals with backbones (vertebrates) which evolved almost 400 million years ago. They are split up into three Orders or main groups:

- The Caudata, or salamanders and newts, with 400 known species;
- The Anura or frogs and toads, with 3500 species; and
- The Gymnophonia, or worm-like amphibians, with 150 species.

Amphibians are specialised in two ways:

- Most have 2 distinct body phases in their life. They start as an aquatic tadpole living in water. Then they undergo a period of change, or metamorphosis, which leaves them as land living animals, with internal gills.
- Their skin is very thin and moist. This lets them absorb oxygen and water through their skin, with a large network of blood vessels (capillaries) under the skin to transport gases and moisture.

Frogs depend on water to breed, with most frogs breeding in shallow ponds, marshes and streams. However, some species live in areas where water is scarce or far away, for example tree frogs in tropical rainforests. These frogs lay their eggs in tree hollows or in the cup-like bases of certain plants (like bromeliads) where water collects. The eggs hatch in the watery pools and often the female frog comes back to lay feeder eggs to nourish the tadpoles as they grow.

Some frogs can live in very dry areas, such as arid places and deserts. They take advantage of rain as it falls and can survive dry periods by storing water in their bodies and secreting mucus to waterproof their skin. Buried in the sand like this, they can survive until the next rains.

The skin of some frogs is specialised in more ways – their brightly coloured skin advertises the fact that they can produce toxins or poisons which can taste nasty or even kill! Some frog toxins are powerful drugs, used by humans as weapons and even heart disease treatment. Some scientists have called frogs ‘chemical treasure houses’ due to their great potential in providing drugs to help combat human illnesses.

When frogs breed, the male will call to attract a female and to let other males know his territory. Different species have different calls so they don’t attract the wrong species! Calls can be told apart by pitch, frequency, duration, and the arrangement of tones and notes that make up the call. By studying the frog calls heard in an area, we can tell how many frogs are there and how many species live in a particular area.

Studying frogs is important because frogs are sensitive to environmental change. Their sensitive skin absorbs pollution as well as water, so they can tell us how polluted an area is. Their skins also absorb UV light and one theory for frog numbers decreasing around the world is due to increased levels of UVB radiation, which damages frogs just as it damages humans.

Frogs are fascinating and an integral part of any wet habitat. The decline in their numbers around the world should act as an alarm call to us to look at how we are affecting the environment. Why not have a look in your local area, see how many frogs you can find and what species are living there? Maybe you can find records of other frog studies. Have numbers increased or decreased? Can we make a difference? The loss of frogs doesn’t just mean no tadpoles to watch and no calls in the evening – it also means no-one to eat insects like mosquitoes and nothing to feed the birds, reptiles and mammals that use frogs as food. Let’s look after our frogs now – before it’s too late!

Frogs in the ACT Region



There are approximately twenty-two frog species occurring in the ACT region. Many of these are commonly found in our suburbs, backyards, urban open spaces and nature parks, while others occur only in isolated locations or are rare or have experienced population declines in the region.



During their breeding season, frogs can be found in and near all types of water bodies. Most species in the region prefer water bodies with little or no water flow such as swamps, marshes and ponds (and to a lesser extent, lakes and reservoirs). Ephemeral wetlands in particular (those that have an annual wet / dry cycle) tend to have the highest diversity of frog species inhabiting them, as they provide standing water for tadpole development, but have lower numbers of predators such as fish and invertebrates.

There are some local species that are stream or river specialists. These species have particular adaptations to cope with the challenges of the stream environment

such as seasonal, and sometimes unpredictable high water levels and fast flows and the presence of predatory fish species. For example, tadpoles of these species have broad fins and sucker-like mouths that enable them to swim strongly in a current and to hang on to rocks.

While all species require water for breeding and tadpole development, some move annually into terrestrial areas well away from their breeding sites, even up to several kilometres away for some species. This means that a whole catchment approach to land management is required to protect frog species.

The majority of our most common local frog species breed during the warmer, wetter months of spring to summer. During winter or dry periods, they seek shelter to escape dehydration, extreme temperatures and predators. Suitable shelter sites include: deep cracks in the soil, abandoned burrows, tussock grasses and other thick native vegetation, fissures in bark or fallen timber and underneath rocks.

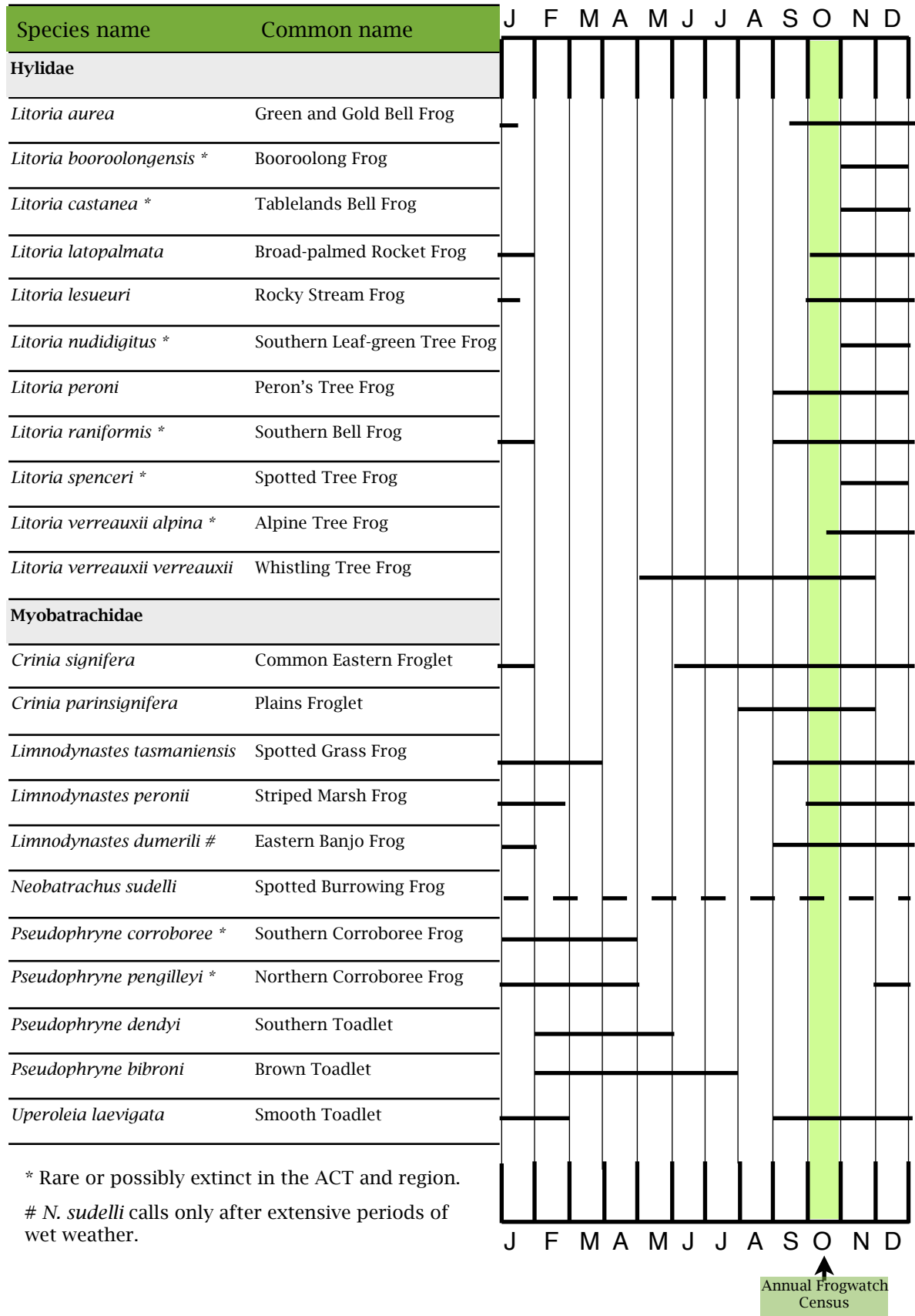
You can find out more about creating or protecting frog habitat from our leaflet, "Creating a Frog Friendly Habitat in the ACT region".

The fact sheets in this section are provided for common species found in the ACT and region, that are likely to be encountered whilst conducting the October Census.

The sites monitored in the annual Frogwatch Census in October are generally located in or adjacent to urban areas or on private rural properties. Ten species have been detected during the Frogwatch Census in previous years. These species are listed in detail in the following section.

The other species may not have been detected by the Census for a number of reasons. Their breeding season may not occur during spring time when the Census is conducted; they may occur only in remote or high altitude locations, where it is not practical for Frogwatch volunteers to monitor; or they may have experienced population declines and are only present at distinct locations that are not monitored. Summarised information is provided for these species at the end of this section.

Approximate Calling Seasons (ACT and Region Frog Species)



Crinia parinsignifera

(Plains Froglet)



Fact Sheet Series



Crinia parinsignifera

Above photos from top: D. Flynn
(www.en.wikipedia); L. Fucsko
(www.frogs.org.au); J. Bentley
(www.frogs.org.au).

Family: Myobatrachidae

Appearance: Adults grow to approximately 3 cm in length.

This species is very similar in appearance to *Crinia signifera*.

Colour ranges from light coloured to dark. The pattern on the back is variable, ranging from individuals that are smooth and unpatterned to strongly marked raised longitudinal ridges and bumps.

Call: A slightly drawn out 'wrrreeekk', repeated regularly.

Breeding: Throughout the year, but mainly from August to November.

Habitat: Prefers to breed in deep, permanent pools. It has benefited from the proliferation of farm dams in the region and can be found around the edges of dams, swamps and other wetlands. This species prefers standing water, but may sometimes be heard calling from slow moving stretches of some streams and rivers.

Local Distribution: Very common in the region, and is particularly associated with farm dams. It is distributed predominantly in the open country and plains, and is found only below about 800m altitude.

Biology: Male frogs call from amongst vegetation at the waters edge or emergent vegetation. Within these habitats they shelter under logs and other debris, usually in moist depressions or near water. It is not uncommon to find dozens of individuals under one log or rock. Eggs and tadpoles are aquatic and can be found in ponds, dams, swamps, flooded grassland, ditches and hollows.

Status:

Local region - Very Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Amphibian Research Centre - Frogs of Australia database. <http://frogs.org.au/frogs/species/Crinia/parinsignifera>. Downloaded 2 August 2007.

Crinia signifera

(Common Eastern Froglet)

Fact Sheet Series



Crinia signifera

Above photos from top:
www.en.wikipedia.org; L. Fuckso
 (www.forgs.org.au); J. Bentley
 (www.frogs.org.au);

Family: Myobatrachidae

Appearance: Adults grow to approximately 2.5 - 3 cm length.

Their colour is variable, ranging from grey-brown to reddish and can be smooth or covered in a series of ridges. All individuals have dark, triangular markings on the upper lips and darker bands on the hind legs. The underside of the body is granular with a black and white blotched pattern.

Call: A characteristic repeated clicking, "crick...crick...crick...crick...".

Breeding: Breeds mainly during spring and winter (June to January). Calling is continuous throughout the day, but activity decreases considerably on cold nights.

Habitat: This species is found in a wide range of habitats, including marshes, ponds, seepages and farm dams, from sea-level to above 2000 m altitude in the alpine zone.

Local Distribution: Very common and abundant in the region and in south-eastern Australia.

Biology: Male frogs begin calling regularly from pools during the wetter parts of winter, and spring (later at higher altitudes). Each female lays up to 250 eggs, which are deposited on the bottom of pools or are attached to aquatic vegetation or submerged moss. Amplexus (mating) pairs may sometimes be found floating in small pools during the day.

Tadpoles may be seen in high numbers in shallow pools from late spring until the end of summer. The newly metamorphosed frogs are very small, being about 7 mm in body length. They grow rapidly during the warmer months and attain adult size the following summer. Adults prey on a diverse range of invertebrates including beetles, spiders and centipedes.

Status:

Local region - Very Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Limnodynastes dumerili (Banjo Frog or Pobblebonk)



Fact Sheet Series



Limnodynastes dumerili

Above photos from top: M. Oram;
L. Fucsko (www.frogs.org.au); D.
Nelson (FATS)

Family: Myobatrachidae

Appearance: Readily distinguishable from other frogs in the region by its large body size - up to 8.5 cm in length.

They are grey - brown in colour and have a white glandular stripe from below the eye to above the base of their front leg. They also have a broad, dark band from the eye to the 'ear'. The legs are thickset and there is a large raised lump on the outside of each thigh. There is a raised lump for digging on the underside of each foot.

Call: Their call sounds like a deep, slowly repeated 'thud' or 'bonk' when calling from the water, or a loud 'toc' if calling from land.

Breeding: Breeds from September to early January, particularly after heavy rain.

Habitat: This species are rarely seen because for much of the time they remain hidden in short burrows in the ground. However, on wet summer evenings they may sometimes be observed sitting on the road surface. They are often discovered in soil delivered to suburban gardens as they have a habit of burrowing into soft soil.

Local Distribution: Widely distributed and common throughout lowland areas throughout the region, and south-eastern Australia.

Biology: Females lay up to 4,000 eggs in a conspicuous, floating, foamy mass with a diameter of about 12-18 cm. The tadpoles are large and easy to identify because of their light brown colouration and the presence of numerous pale blotches on the tail.

In high altitudes, tadpoles can take up to two summers to reach metamorphosis.

Status:

Local region - Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Limnodynastes peronii

(Striped Marsh Frog)

Fact Sheet Series



Limnodynastes peronii

Above photos from top: J. Bentley
(www.frogs.org.au); D. Nelson
(FATS); www.en.wikipedia.org.

Family: Myobatrachidae

Appearance: Adults grow to approximately 7 cm length.

This species resembles *Limnodynastes tasmaniensis*, but can be distinguished by the pattern of dark and light-brown stripes on the back. It has a slightly raised pale stripe running along the upper jaw edge from the snout, and below the eyes to the fore limbs. This stripe is accentuated by the presence of a dark stripe along the side of the head that passes through the eyes.

Call: A distinctive single 'pop', 'toc' or 'splut' that is monotonously repeated once every few seconds. In a chorus, the calls of many individuals combine into a more rapid continuous popping or sputtering sound.

Breeding: The breeding season of this species commences in late spring but most calling and breeding occurs in early summer. (October - February)

Habitat: Found mainly in low-lying open country that has a good cover of perennial tussock grasses. Including, lowland rivers, lowland creeks, swamps, farm dams and lakes.

Local Distribution: This species is generally uncommon in the region - the Canberra region appears to be about the western-most limit of this species' distribution in this area. It is a very common species in coastal regions of NSW.

Biology: A single floating foam nest is made during egg laying. The tadpoles are dark-coloured and graze actively on the surface of submerged vegetation and detritus. They are most commonly found in and near shallow marshes and reed beds at the edges of the urban lakes and creeks. Small populations still occur in some low-lying areas that were formerly wet tussock grasslands in the region.

Status:

Local region - Generally Uncommon (This species is at the western-most edge of its range in the Canberra region.)

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Limnodynastes tasmaniensis (Spotted Grass Frog)



Fact Sheet Series



Limnodynastes tasmaniensis

Above photos from top: M. Evans (Environment ACT); P. Robertson (www.frogs.org.au); J. Bentley (www.frogs.org.au).

Family: Myobatrachidae

Appearance: Adults grow to approximately 5 cm length.

A relatively large frog in the region, this species is conspicuously blotched in a neat pattern of dark and light markings. Many individuals have a distinctive red or orange stripe down the centre of the back. A line of white glandular tissue occurs from beneath the eye to above the back leg.

Call: A conspicuous 'uck ... uck...uck' that sounds a bit like a toy machine gun.

Breeding: Calls from September to March.

Habitat: Prefer standing water, including roadside ditches, marshes, swamps, lakes and ponds. Situations where there is considerable flooded vegetation such as tussocks and sedges provide ideal habitat. During dry weather, they shelter in deep cracks in the clays of the dry wetlands, beneath large logs and in the base of grass tussocks.

Local Distribution: An abundant species occurring throughout farmland and lower elevation woodland throughout the region.

Biology: Male frogs call whilst floating in the water. The egg mass is distinctive, consisting of a small, round, floating, white foamy nest that is usually attached to emergent vegetation..

Status:

Local region - Very Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Litoria aurea

(Green and Gold Bell Frog)

Fact Sheet Series



Litoria aurea

Above photos from top:
www.en.wikipedia.org;
www.en.wikipedia.org; J. Bentley
www.frogs.org.au.

Family: Hylidae

Appearance: Adults grow to approximately 12 cm length.

A large green or green and brown / gold coloured frog, with fully webbed toes. They have a smooth back and bright blue or purple on the hind side of the thighs.

Call: A relatively quiet, but distinctive drawn out 'wrrraaaaaagh wrrraaaaaagh wrrrk, wrrrk wrrk', sometimes likened to a motorbike changing gears.

Breeding: Calls from September to January.

Habitat: Found in Lowland rivers, swamps, farm dams and lakes. This species is semi-aquatic, spending much time in wetlands, either perched amongst emergent vegetation, or simply floating or swimming in the water. It is well known for its habit of basking in direct sunlight. Prior to their decline, the bell frog group were found in ponds, swamps, lakes and along slow-moving parts of some rivers such as the Molonglo. Sites that supported the species were typically thickly vegetated with reeds, sedges and rushes and contained relatively permanent water that did not contain predatory fish. Most sites were in open country, but the frogs have also been recorded in some forested areas.

Local Distribution: This is a predominantly coastal species with the western-most occurrences being near Canberra. The species has disappeared almost entirely from its former range in the Southern Tablelands, most likely as a result of infection by the amphibian chytrid fungus, perhaps acting in concert with some other unknown causes. The spread of alien fish such as the Eastern Gambusia is also suggested by some researchers to be a serious threat, because the fish have been shown to eat the eggs of bell frogs and to prey on tadpoles.

Biology: During spring and early summer, following heavy rains, the frogs lay large, gelatinous egg masses that are usually spread as a surface layer through vegetation. Because of their very large clutch size, (typically many thousands of eggs per clutch) the egg mass spreads to occupy a large area (often larger than a dinner plate), forming a transparent, floating jelly-like layer that later sinks.

Green and Gold Bell Frogs are voracious predators, capturing invertebrates and small frogs, including their own species.

Status:

Local region - Vulnerable

Nationally (EPBC) - Vulnerable

ICUN - Vulnerable

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Litoria peroni

(Peron's Tree Frog)



Fact Sheet Series



Litoria peroni

Above photos from top: L. Fucsko
(www.frogs.org.au); M. Idnurm;
www.frogs.org.au.

Family: Hylidae

Appearance: Adults grow to approximately 5 cm length.

This species is relatively large, and has broad round toe discs, yellow and black mottling behind the back legs, tiny emerald green flecks on the back and a horizontal pupil that appears cross-shaped.

Call: A loud descending rattle or cackle. A shorter chuckling sound is also made. This frog is often referred to as the 'maniacal cackling frog', because of its call.

Breeding: Males start calling in about September / October each year, and continue until December.

Habitat: Quite common in farmland where there are scattered large eucalypt trees, or where woodland is still present, and there are farm dams or swamps in which the species can breed.

This is the most aboreal frog occurring in the region, and may be found climbing on trees or shrubs and is often reported climbing up onto window panes to catch insects at night. During the day the species may shelter in tree hollows and any loose bark or in deep fissures in dead timber. In drier regions, individuals sometimes shelter in rainwater tanks.

Local Distribution: Quite common in areas of suitable farmland in the region. In south-eastern Australia this species is widespread, occurring from the coast to the foot-slopes of the Snowy Mountains and Brindabella Range, and occurring inland as far west as the lower River Murray in South Australia.

Biology: Males usually call from dead trees, partly submerged logs, clumps of rushes and reeds and other elevated perches in the water, or at its edge. The tadpoles are very active and have a slightly striped appearance in the water. They are quite secretive, instantly dropping to a deeper depth in the water if they are disturbed.

Status:

Local region - Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Litoria verreauxii

(Whistling Tree Frog)



Fact Sheet Series



Litoria verreauxii

Above photos from top: D. Nelson (FATS); L. Fucsko (www.frogs.org.au); P. Robertson (www.frogs.org.au).

Family: Hylidae

Appearance: Adults grow to approximately 3 cm length.

A terrestrial species with relatively poor climbing ability. It has a dark brown or black stripe from in front of the nostrils, continuing through the eye to the base of the forelimb. A broad, brownish, mid-dorsal marking which starts between the eyes and extends to the vent is also present.

Call: A repeated whistling 'cree.... cree.... cree.... cree... cree...'.

Breeding: Males commence calling in May or June when winter rains have filled the farm dams and other breeding pools, and if the weather remains moist, breed through until October or November.

Habitat: Found in the open valleys and cleared pasture country in the region, particularly in areas where there are large shallow pools and stock ponds. During the non-breeding season, they are secretive and rarely seen. Individuals may sometimes be found beneath logs and tussocks or under flat stones in streambeds, or in rocky areas near streams.

Local Distribution: Abundant in the region. In the 1980s, the species became quite rare in the ACT, perhaps as a result of the severe drought experienced at this time, or from the amphibian chytrid fungus. However, the species has now made a comeback and is now quite common in much of the region. The species occurs along the coastal plains and Great Dividing Range of south-eastern Australia, from Melbourne to near Brisbane.

Biology: Males usually call whilst partially submerged, or floating in water. Amplexus takes place in the water and the eggs are wound around submerged vegetation in large jelly-like clumps. Tadpoles can be found in the pools during late spring and early summer. Metamorphosis occurs in early summer with newly emerged froglets being about 15 mm in length.

Status:

Local region - Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Neobatrachus sudelli

(Spotted Burrowing Frog)



Fact Sheet Series



Neobatrachus sudelli

Above photos from top: P. Robertson (www.frogs.org.au); G. Marantelli (www.frogs.org.au); L. Fucsko (www.frogs.org.au).

Family: Myobatrachidae

Appearance: A small, squat, short-legged species, growing to approximately 3.5 - 4 cm in length.

They can be distinguished from other frogs of the region by several features:

- The back of the frog has numerous small, raised wart-like bumps that give it a rough, sandpaper-like appearance.
- They have a broad pattern of greenish-brown and darker brown blotches and patterns on the back.
- The pupils of the eyes form vertical slits.
- There is a prominent black tubercle under each foot.

Call: A soft, rapidly repeated, lengthy sequence of evenly spaced clucking or soft popping sounds.

Breeding: Calling can occur at any time of the year, but only after extensive periods of wet weather.

Habitat: The most terrestrial frog found in the region, spending most of the year sheltering in deep burrows in the soil. Individuals are usually only found active on the ground at night after periods of very heavy rainfall, when the ground is completely soaked.

Local Distribution: Widespread in the region, occurring to near Jindabyne and Bombala.

Biology: The ecology of this species has not yet been studied.

Status:

Local region - Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Uperoleia laevis

(Smooth Toadlet)

Fact Sheet Series



Uperoleia laevis

Above photos from top:
www.en.wikipedia.org; S. Eipper
 (www.frogs.org.au);
www.frogs.org.au.

Family: Myobatrachidae

Appearance: A small frog, growing to 2 - 3.5 cm in length.

It has a noticeable warty appearance, and can be identified by the presence of a conspicuous orange patch behind and in front of each thigh. These patches may be 'flash markings' intended to frighten potential predators. Paratoid glands are often noticeable as swellings on either side of the head above the forearms. A pale triangular-shaped patch is usually obvious on the head between the eyes and the tip of the snout.

Call: A low-pitched, monotonous sounding 'wwhrrrrrrrr' repeated at intervals of a few seconds. The call sounds a little like that of *Crinia parinsignifera*, but is deeper and longer.

Breeding: Males call from September to February.

Habitat: Found in swamps, farm dams and lakes, in a range of drier habitat types. They appear to avoid low-lying pasture, unless drier, rocky or tussock-covered hillsides are nearby. They occur in forest, woodland and tussock grassland in the Canberra region.

Local Distribution: Very common in the Canberra region, and occurring throughout the southern tablelands at least as far south as the Jindabyne area and into the lower parts of Kosciuszko National Park and Namadgi National Park, up to about 1100 m elevation.

Biology: Males call from sheltered positions well back from the water's edge, often as much as 10 m away from the breeding pond. The males usually call from partially hidden positions amongst grass tussocks, fallen branches or leaf litter. When a male has attracted the female, and clasped her in amplexus, the female then carries the male to the water and, with the male clinging on to her back, swims out and lays the eggs beneath the surface of the water by attaching them to submerged vegetation and twigs or the bottom of the pond.

Status:

Local region - Common

ICUN - Least Concern

References:

Lintermans, M. and Osborne, W. (2002) Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW. Environment ACT.

Frogs in the ACT Region



The following species are not likely to be encountered whilst conducting the spring Frogwatch Census, but may be present in particular locations across the ACT and region.

Information contained in this section is taken from:

Lintermans, M. and Osborne, W. (2002) *Wet & Wild. A Field Guide to the Freshwater Animals of the Southern Tablelands and High Country of the ACT and NSW.* Environment ACT.

<i>Litoria booroolongensis</i> (Booroolong Frog)	Found in	Upland rivers, Montane creeks, Lowland rivers and Lowland creeks.
	Mating Call	A soft, repeated purring sound very similar to that of the Rocky Stream Frog. Calls from November to December.
	Biology and Habitat	Associated with rocky streams and rivers, occurring in undisturbed locations in National Parks as well as in farmland. Breeding occurs during late spring and early summer.
	Distribution and Abundance	Recorded from parts of the Northern and Central Tablelands of NSW, as well as along the western fall of the Southern Highlands between Tumut and the Victorian border. It has not been recorded in the ACT. It is now exceptionally rare, having disappeared from much of the region. The largest remaining populations occur near Tumut.
	Potential Threats	The clearing of stream-side vegetation, the spread of blackberries and siltation of the riverbed are threats to local breeding populations. Some individuals have been found infected by the amphibian chytrid fungus but the overall threat to this species is not yet known. The tadpoles are relatively unpalatable to trout.



<i>Litoria castanea</i> (Tablelands Bell Frog or Spotted-thighed Bell Frog)	Found in	Lowland rivers, Swamps, Farm dams and Lakes.
	Mating Call	Similar to the Green and Golden Bell Frog, but lacks the long drawn out growls of the other 2 species of bell frog.
	Biology and Habitat	The ecology of this species is poorly known but believed to be quite similar to that of the Green and Golden Bell Frog and Southern Bell Frog. Unfortunately, it appears to have become extinct before any detailed studies could be detected.
	Distribution and Abundance	Occurred throughout much of the Southern Tablelands, but also occurred in parts of the Central and Northern Tablelands where it apparently was fairly localised in its occurrence.
	Potential Threats	Believed to be extinct, most likely as a result of infection by the amphibian chytrid fungus, perhaps acting in concert with some other unknown causes.



***Litoria
latopalmata*
(Broad-palmed Frog)**



Photo: www.frogs.org.au

Found in	Lowland rivers, Lowland creeks and Farm dams.
Mating Call	A very distinctive, repeated, duck-like quacking that typically starts slowly and builds to a rapid crescendo. Calls from September to December.
Biology and Habitat	Very little is known about the ecology and field behaviour of this species in the region. They may prefer open country interspersed with rocky areas and woodland. Most breeding populations near Canberra have been found in steeply dissected landscapes supporting small rocky streams with occasional still pools. Male frogs have been heard calling from hollows among grass and on rocky benches at the edges of these pools. Individuals have also been found breeding in farm dams.
Distribution and Abundance	Uncommon in this region. It occurs mainly along parts of the Murrumbidgee River and some larger tributary streams and creeks, between Kambah Pool in the ACT and Lake Burrinjuck in NSW.
Potential Threats	Threats are not known, but may include over-grazing and trampling by livestock along. Construction of farm dams in some areas may have helped the dispersal of this species.

***Litoria lesueuri*
(Rocky Stream Frog
or Lesueur's Frog)**



Photo: P. Robertson, www.frogs.org.au


Found in	Upland rivers, Montane creeks, Lowland rivers, Lowland creeks and Lakes.
Mating Call	A soft, repeated purring sound. Calls from October to December / early January.
Biology and Habitat	A stream-dependent species associated mainly with rocky streams and rivers that have a permanent flow. Breeding takes place from about November to late December or early January.
Distribution and Abundance	Widespread and common along the coast and ranges of eastern Australia, at altitudes up to about 1200m. Uncommon in cleared agricultural country.
Potential Threats	The clearing of stream-side vegetation, the spread of blackberries and siltation of the riverbed are threats to local breeding populations. Some individuals have been found infected by the amphibian chytrid fungus but the overall threat to this species is not yet known. The tadpoles are relatively unpalatable to trout.


***Litoria
nudidigitus*
(Southern Leaf-green
Tree Frog)**




Photo: J. Bentley, www.frogs.org.au

Found in	Upland rivers.
Mating Call	A series of short repeated creaking sounds 'eeeeek cruk! cruk! Not particularly loud. Calls from November to December.
Biology and Habitat	Associated with rivers and larger mountain streams which contain deep, slow-moving pools with banks covered densely with ferns, shrubs and tussock grasses. In the early summer males may be heard calling from elevated positions on overhanging vegetation at the edges of deeper pools where water flow is fairly slow.
Distribution and Abundance	Quite rare in the region, confined to the densely vegetated edges of larger mountain streams such as along parts of the Cotter River in the ACT and Goodradigbee and Geehi rivers in Kosciuszko National Park. It is however, quite common along streams in the coastal ranges of south-eastern Australia south of Sydney.
Potential Threats	The clearing of stream-side vegetation, the spread of blackberries and siltation of the riverbed are threats to local breeding populations. Some individuals have been found infected by the amphibian chytrid fungus but the overall threat to this species is not yet known. The tadpoles are relatively unpalatable to trout.

<p><i>Litoria raniformis</i> (Southern Bell Frog or Warty-backed Bell Frog)</p>  <p>Photo: P. Robertson. www.frogs.org.au</p>	Found in	Lowland rivers, Swamps, Farm dams and Lakes.
	Mating Call	Consists of a long introductory note (growling sound) followed by a series of shorter grunts. Similar to the Green and Golden Bell Frog. Calls from September to January.
	Biology and Habitat	A semi-aquatic species, spending much time in wetlands, either perched amongst emergent vegetation or floating or swimming in the water. On occasions it has been noticed basking, although in areas where predatory water birds are common it may remain hidden in thick vegetation. The general ecology and breeding biology is similar to that of the Green and Golden Bell Frog.
	Distribution and Abundance	The Southern Bell Frog is primarily a southern and inland species, which had its eastern-most populations between Lake George, Cooma and Bombala. It formerly occurred at altitudes up to about 1200 m. At some stage during the early 1980s, the entire Southern Tablelands population of this species vanished, and to date no remnant have been found.
	Potential Threats	This species is now believed to have disappeared from the southern Tablelands region, most likely as a result of infection by the amphibian chytrid fungus, perhaps acting in concert with some other unknown causes. The spread of alien fish such as the Eastern Gambusia is also suggested by some researchers to be a serious threat because the fish have been shown to eat the eggs of bell frogs and to prey on tadpoles.

<p><i>Litoria spenceri</i> (Spotted Tree Frog)</p>  <p>Photo: G. Gillespie. www.frogsaustralia.net.au</p>	Found in	Upland rivers and Montane creeks.
	Mating Call	A short series of short repeated 'whirrs' and 'cruks' (not particularly loud). Calls from November to December.
	Biology and Habitat	Occurs along larger streams and rivers in the montane tract of the Eastern Highlands of Victoria and southern NSW. Within these streams it is restricted to areas where the bed of the stream is dominated by riffles and cascades with exposed rock beds. A feature of this species is the very obvious basking behaviour of adults and smaller frogs. During sunny weather the frogs actively perch on damp boulders in direct sunlight. Breeding occurs during spring.
	Distribution and Abundance	This nationally endangered species is largely restricted to the northern and western slopes of the Great Dividing Range between Lake Eildon in Victoria and Bogong Creek near Mount Kosciuszko. It is known in only 19 streams, only one of which occurs in NSW (Bogong Creek in Kosciuszko National Park).
	Potential Threats	Disturbance to streams from land clearing, timber harvesting, altered flow regimes, and spread of weeds such as blackberry and European broom brush. Alien trout are likely to have reduced populations extensively. The amphibian chytrid fungus, which probably caused the loss of the Bogong Creek population in Kosciuszko National Park, poses a very strong threat.

<p><i>Pseudophryne bibroni</i> (Brown Toadlet)</p>  <p>Photo: www.frogs.org.au</p>	Found in	Upland bogs, Montane seepages, Swamps and Farm dams.
	Mating Call	Identical to call of the Southern Toadlet and similar to the Corroboree Frog, but is shorter and sharper, sounding like a short, sharp 'ek' repeated infrequently. Calls from February to July.
	Biology and Habitat	The ecology of this species is very similar to that of the Southern Toadlet. The diet and breeding biology appear to be identical in these closely related species. This species generally occurs at lower altitudes than the Southern Toadlet. However, in the Fiery Range and Bogong Mountains west of Canberra, it occurs at some high montane locations. It previously occurred in drier forests and woodlands near Canberra.
	Distribution and Abundance	Found throughout much of south-eastern Australia except for coastal areas south of Jervis Bay where it is replaced by the Southern Toadlet. In the region, it occurs on the plains north and west of Canberra and in the Tumut district where it is still reasonably common. It once occurred in bushland in suburban Canberra but has disappeared and is now only known from a few scattered sites in the foothills south-west of Canberra.
	Potential Threats	Disappearance of ephemeral wetlands may have affected many populations. It is not known if this species is affected by the amphibian chytrid fungus.

<i>Pseudophryne corroboree</i> (Southern Corroboree Frog or Corroboree Frog)	Found in	Upland bogs.
	Mating Call	The advertisement call is a short and nasal 'wrrankk ... erkkerkk' repeated infrequently. The threat call is a drawn out erhkkk'. Calls from January to April.
	Biology and Habitat	Restricted to subalpine areas that contain small, semi-permanent pools and seepages that provide suitable sites for tadpole development.
	Distribution and Abundance	Found only in the Snowy Mountains between Smiggin Holes and near Round Mountain in Kosciuszko National Park, occurring at elevations between 1300 and 1760 m. This species is now extremely rare and has disappeared from most areas where it previously occurred.
	Potential Threats	<p>Demonstrated to be susceptible to drought, particularly during autumn and winter when tadpoles are still in the nest sites or pools. In the long term, like other alpine species, it may be affected by global warming. Recently the amphibian chytrid fungus has been found in this species, and may be the major cause of the decline.</p> <p>Researchers believe that this striking species will be extinct in the wild within the next five to ten years and as a safeguard the species is now the focus of a captive breeding program.</p>



Photo: H. Cogger, www.iucn.redlist.org

<i>Pseudophryne dendyi</i> (Southern Toadlet or Dendy's Toadlet)	Found in	Upland bogs and Montane seepages.
	Mating Call	Very similar to that of the Corroboree Frog, except shorter and sharper, sounding like a short, sharp 'ek' repeated infrequently. They also make threat calls that are very similar to those of both species of Corroboree Frogs. Calls from February to May.
	Biology and Habitat	Very similar to the Corroboree Frogs, but tends to be found in drier habitats than the Corroboree Frogs. It breeds in shallow seasonal depressions and seepages in wet heaths, grassland and woodland.
	Distribution and Abundance	Confined to the south-eastern corner of Australia where it occurs at altitudes up to about 1700 m. Present throughout the Snowy Mountains and along the Brindabella Range where it is quite rare. It is very common still in the ranges and coastal forests east of Cooma and Braidwood.
	Potential Threats	Populations at high elevations have declined and may have been affected by the amphibian chytrid fungus. Disappearance of ephemeral wetlands may have affected many populations.



Photo: www.frogs.org.au

<i>Pseudophryne pengilleyi</i> (Northern Corroboree Frog or Corroboree Frog)	Found in	Upland bogs and Montane seepages.
	Mating Call	The advertisement call is a short and nasal 'wrrankk ... erkkerkk' repeated infrequently. The threat call is a drawn out erhkkk'. Calls from December to April.
	Biology and Habitat	Very similar to the Southern Corroboree Frog. It breeds in a wider range of wetland types including moss or herb dominated areas, seepages along drainage depressions, and in pools in bogs and wet heaths. Some populations have persisted in small clearings that are now in pine plantations. It is not known if the frogs actually move into the pine forest once breeding is completed.
	Distribution and Abundance	Restricted to a mountainous region west of Canberra with the range including the Bogong Mountains, Fiery Range, Brindabella Range and Bimberi Range. Much of the species range occurs in Kosciuszko National Park, Bimberi Nature Reserve and Namadgi National Park, particularly at altitudes between 900 and 1800 m. In the ACT, this species has declined dramatically in the last few years.
	Potential Threats	May be susceptible to drought, particularly during autumn and winter when tadpoles are still in the nest sites or pools. In the long term, like other alpine species, it may be affected by global warming. Recently the amphibian chytrid fungus has been found in this species, and may be the major cause of the decline at high elevations.



Photo: NP&WS/Dave Hillier