

AMPHIBIANS

INTRODUCTION

D. Shelly, M.Sc

I have not attempted to re-write this chapter of the original book but rather update the information originally presented. Several of the following paragraphs have not been altered from the words initially put down by D.R. Butcher as changes are not needed – the comments from 1984 are still relevant today.

In the original version of this book printed in 1984, D.R. Butcher wrote the following comments as an introduction to the chapter on amphibians. *“It is only when one sets about the task of listing the member animals of the classes under current consideration for the Dubbo area that it is realised just how little information is available... This is especially so in the case of Amphibians which are somewhat beyond my area of expertise. The reason for this lack of information when compared, for instance, to birds is that many of the animals under consideration are small, nocturnal and extremely elusive.”* Luckily for us the situation has changed for the better by 2005. Today, I can draw on several sources of information regarding the vertebrate species present in the Dubbo region. Databases such as the NSW Wildlife Atlas administered by the Department of Environment and Conservation (formerly National Parks and Wildlife Service) contain literally tens of thousands of records of animal locations throughout the state. Such a database was not publicly available in 1984. In addition, there have been several extensive vertebrate fauna surveys conducted throughout the region, giving new information with regards to amphibian species presence.

Some of these surveys include those conducted within

- Goobang National Park (Hervey Ranges) by NPWS.
- Goonoo / Momo / Cobbora / Beni State Forests by State Forests (now National Parks and Wildlife Service or Department of Primary Industry (Forests NSW))and by the NPWS Biodiversity surveys of the Brigalow Belt South Bioregion.
- Gibraltar Rock and a compartment of Goonoo State Forest by the Department of Land and Water Conservation (now Department of Infrastructure, Planning and Natural Resources) –see DFNCs Gibraltar Rock notes.

Since 1984, there have also been many records made of vertebrate species by members of the Dubbo Field Naturalist Society from either sightings at home or on the many field trips members undertake. Therefore, with the information that is available, the list of amphibian species known to exist in the Dubbo region can be considered comprehensive. These species are presented below.

The Dubbo region is basically the area encompassed between the towns of Gilgandra in the north, and the line between Wellington and Peak Hill in the south. The eastern boundary is roughly a line between Wellington and Mendooran while a line through Peak Hill north through Narromine forms the western limit. Within this area, the habitat varies from relatively high ranges and rocky escarpments, as in the Hervey Ranges, through rolling open forest land to river valleys and some open plains to the west. One cannot imagine the changes that white man has made to this country over the past 200 years, but it can be seen that those changes occurred at the expense of the habitat systems and the animal residents they contained.

To formalise the position of the animals under consideration in the animal kingdom it is important to realise that classes Amphibia, Reptilia and Mammalia fall into phylum Chordata (animals with backbones) and are members of subphylum Vertebrata.

AMPHIBIA

The end of the Devonian era, about 270 million years ago, saw the appearance of ‘land dwelling’ fishes probably similar to the present day lungfish. This class has never lost its dependence on water which has limited its ability to fully exploit all habitats. Amphibians, however, were the first vertebrates to colonise land and it is from this source that all higher vertebrates have evolved. Amphibians are often seen in great numbers during ideal conditions and are a very important link in the food chain of rivers, swamps and marshy areas. Class Amphibia comprises three orders, the largest of which is represented in Australia. This is Order Salientia, or the frogs and toads, of which there are about 2,000 species world wide.

All adult amphibians are air breathers but juveniles have gills and are usually dependent on early aquatic life. Amphibians occupy both permanent and temporarily wet environments and can be found all over the state. In order to colonise dry hostile environments, some species can aestivate (become dormant), often encased in moisture-preserving structures in

the soil until the rains come. In arid regions the aquatic part of the life cycle is completed at this time, and because of the potentially short-lived ephemeral surface water the tadpole stage is often foreshortened. Some frogs have evolved to the point of direct development, undergoing the larval stage within the egg.

Two families of amphibia are present in the Dubbo region, those of Hylidae and Myobatrachidae. Differentiation between the two families is relatively simple, the main feature being the expanded finger and toe pads or discs on Hylidae and the simple pointed fingers of Myobatrachidae (ie. no pads). Differentiation however, within families is often difficult and therefore one should refer to reference texts and classification keys such as those in *Reptiles and Amphibians of Australia* by Harold Cogger and *A Field Guide to Frogs of Australia: from Port Augusta to Fraser Island including Tasmania* by Martyn Robinson.

Family **HYLIDAE** – 5 species known in the Dubbo region.

General description:

This family is broadly known as Tree Frogs because of the development, in many species, of large finger and toe pads which have enabled them to become efficient climbers. Australian members of this family vary greatly in form and habit. They range from agile, arboreal species with large adhesive discs on the fingers and toes (eg. genus *Litoria*), to long-limbed terrestrial species with only slightly expanded discs (eg. genus *Cyclorana*).

While several species look similar, no amphibian species in the Dubbo region has exactly the same call. Definitive identification can be accomplished by recording calls and comparing them to reference tapes of the calls of known species.

Genus: *Cyclorana*

Cyclorana platycephalus – Water Holding Frog

Distinguishing features:

A moderate sized (up to 60mm), stout, flat-headed burrowing frog. Dull olive-grey or olive-green above. Often has a light green vertebral stripe. Scattered fine, dark flecks over the upper surface, larger brown flecks on the lips. Toes are fully webbed.

Legal status: protected

Regional distribution:

Recorded on the western margin of the region near Narromine. Generally found on floodplain soils. Dubbo is on the eastern limit of this species range.

Regional status: rare

Genus: *Litoria*

Litoria caerulea – Green Tree Frog

Distinguishing features:

A large frog that can grow up to 100mm. Skin smooth and bright green above. Smooth white skin on throat, granular on the belly. The finger and toe discs are large. Sometimes the frog has scattered white spots on the sides and back. The tympanum (earhole) is distinct (ie. looks like a slightly depressed circle relative to the rest of the body skin).

Legal status: protected

Regional distribution:

Present throughout the entire region. Lives in tree hollows but is equally at home in urban areas in house gutters, pot plants and garden trees.

Regional status: common



Green Tree Frog (*Litoria caerulea*)

Photo: Kay Owens

An interesting association of colours occurs with this species. It is a green frog described by a Mr. White and called caerula or blue. The reason being that this species turns blue in alcohol and it was initially formally described from preserved specimens.

Litoria latopalmata – Broad-palmed Frog

Distinguishing features:

A medium sized frog (up to 40mm). Has yellow and black mottling on the thighs. A black stripe runs from the snout through the tympanum (at the same width) and down the flanks. This stripe is broken by a white bar in front of the eye.

Legal status: protected

Regional distribution:

Present throughout the region, mainly found in dams and watercourses surrounded by woodland / forest but can be located well away from water.

Regional status: common

Litoria peronii – Peron's Tree Frog

Distinguishing features:

A medium sized frog (up to 50mm). Fingers are half-webbed. The eye has a cross appearance with a horizontal iris intersected by a vertical black line. The overall skin colour is variable but the species usually has numerous small, bright green spots on the back. The back can also have numerous low rounded warts. The groin and hind side of the thighs are mottled black (or dark brown) and bright yellow. The ventral surface is a smooth cream or yellowish colour, except for scattered dark brown flecking on the throat.

Legal status: protected

Regional distribution:

Present throughout the region. A tree dwelling species that can be found in urban areas as well as woodlands and waterpoints in open country. Lives in trees but forages on the ground at night. Sometimes seen hunting insects on flyscreen doors in spring / summer.

Regional status: common

Litoria rubella – Desert Tree Frog

Distinguishing features:

A smallish sized frog (up to 35mm). Typically a uniform brown colour above with a lack of patterning on the back and a slightly warty appearance (see photo). Yellow inside thighs. A dark stripe runs from the nose to behind the arms.

Legal status: protected

Regional distribution:

A tree dwelling frog found throughout the region, mostly in wooded areas. Can be found in outer suburbs of urban areas. Outback toilets on properties are particularly good habitat.

Regional status: common



Desert Tree Frog (*Litoria rubella*)
Photo by Darren Shelly

Family **MYOBATRACHIDAE** – 15 species known in region.

General description:

Known as the Southern Frogs, members of this family are confined to the Australian region. The family is characterised by finger and toe discs being small or absent and toes never more than about half-webbed. Members of the family display considerable diversity in morphology, life cycles and ecology. Most are burrowing or terrestrial, none are primarily arboreal.

Genus: Crinia

Crinia parasignifera – Eastern Sign-bearing Froglet

Distinguishing features:

Small size (up to 20mm). Can be very variable in colour patterns. Similar in most respects to *Crinia signifera*, from which males can be distinguished almost solely by call. The belly is uniformly grey. Palms are smooth with no tubercles.

Legal status: protected

Regional distribution:

Found throughout the region on permanent watersources and areas holding water for long periods. Can be found beneath logs and rocks and in thick vegetation during dry periods.

Regional status: common

Crinia signifera – Common Eastern Froglet

Distinguishing features:

Small size (up to 30mm). Can be very variable in colour patterns. The belly is blotched in black and white. The palm has tubercles.

Legal status: protected

Regional distribution:

Found throughout the region on permanent watersources and those areas holding water for long periods. Preferred habitats consist of slow flowing creeks and still water. Can be found beneath logs and rocks and in thick vegetation during dry periods.

Regional status: common

Crinia sloanei – Sloane's Froglet

Distinguishing features:

Small body size (up to 25mm). The froglet has barred patterning on the back legs. The body is generally warty.

Legal status: protected

Regional distribution:

Noted only from the southern margin of the region at the northern tip of Goobang National Park. Often lives in soil cracks in areas of heavy clay soils.

Regional status: rare

Genus: Limnodynastes

Limnodynastes dumerilii – Bullfrog

Distinguishing features:

A medium to large sized frog (up to 70mm). There is a pale raised stripe that runs from below the eye to above the arm. Above this, a dark stripe runs from the eye to the tympanum. The Bullfrog has a smooth white belly.

Legal status: protected

Regional distribution:

Found throughout the region. A burrowing frog usually noted by its call and mainly seen after heavy rain.

Regional status: uncommon

Limnodynastes fletcheri – Long-thumbed Frog

Distinguishing features:

A medium sized frog (up to 50mm). The frog has a camouflaged pattern above. There are poorly defined pink patches on the eyelids (see photo). The species lacks a prominent tibial gland on the legs. The first finger is shorter than the second (hence the common name). The tympanum is indistinct.

Legal status: protected

Regional distribution:

A grass loving frog found throughout the region. Likely to be in and around any waterholding area.

Regional status: abundant



Barking Marsh Frog (*Limnodynastes fletcheri*)
Photo by Sky Kidd

Limnodynastes interioris – Giant Bullfrog

Distinguishing features:

Large frog up to 90mm long. The species has a broad coppery-orange band down the side with an irregular black band below it (see photo). There is also a raised yellow or orange stripe from below the eye to below the tympanum. The belly is yellow, often with black flecks. Colouration above ranges from pale fawn to yellowish, to red brown.

Legal status: protected

Regional distribution:

A large burrowing frog found occasionally after heavy rain. Usually located as individuals and prefers the sandier soil types.

Regional status: uncommon / rare



Giant Bullfrog (*Limnodynastes interioris*)
Photo by Darren Shelly

Limnodynastes ornatus – Ornate Burrowing Frog

Distinguishing features:

A medium sized frog (up to 45mm). There is a conspicuous barred lip pattern and a distinctive barring pattern on the legs. The belly is smooth and white. A vertebral stripe can sometimes be present.

Legal status: protected

Regional distribution:

A burrowing frog found throughout the region. The preferred habitat is areas of sandy soils in woodlands. This species can be locally common after rain.

Regional status: uncommon

Limnodynastes peronii – Striped Marsh Frog

Distinguishing features:

A medium sized frog (up to 65mm). Colouration is light brown above with a series of irregular dark brown stripes and spots. There is usually a broad band from the centre of the head to the vent and another on each side of eye to the groin. A dark band runs along the snout, continues behind the eye and through the tympanum to the base of the forelimb. The toes are almost entirely free of webbing. The tympanum is indistinct.

Legal status: protected

Regional distribution:

Only recorded from the eastern margin of the region near Gulgong. The main distribution of this species is along the coast and dividing range.

Regional status: rare

Limnodynastes tasmaniensis – Spotted Marsh Frog

Distinguishing features:

A medium sized frog (up to 45mm). The species has a camouflage pattern on the back and legs. Red and white vertebral stripes can be present. There is a lack of colouring on the inside of the back legs. The belly is smooth and white. An identifying white stripe runs from the eye to the base of the arm.

Legal status: protected

Regional distribution:

A grass loving frog found throughout the region. Likely to be in and around any waterholding area.

Regional status: abundant

Limnodynastes terraereginae – Northern Banjo Frog

Distinguishing features:

A medium to large frog (up to 75mm). The species has a distinctive orange mottling on the back of the legs. A thick white stripe runs from below the eye to the base of the arm. The belly is smooth and white.

Legal status: protected

Regional distribution:

A burrowing frog found mostly in the northern half of the region (ie. north of Dubbo). Usually seen on watercourses and drainage lines after rain.

Regional status: uncommon

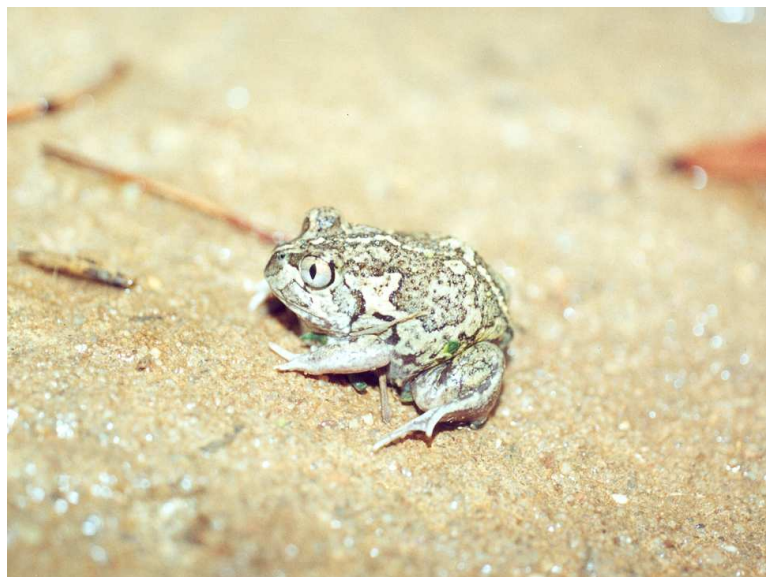
Genus: *Neobatrachus*

Neobatrachus sudelli – Sudell's Burrowing Frog

Distinguishing features:

A medium sized frog (up to 40mm). There is rough and warty skin on the back. The species has a distinctive vertical eye pupil (see photo). The skin in the groin is loose and baggy and the belly is smooth and white.

Legal status: protected



Sudell's Burrowing Frog (*Neobatrachus sudelli*)

Photo by Darren Shelly

Regional distribution:

A burrowing frog found throughout the region particularly in areas of intact woodland. Mostly seen after summer rain.

Regional status: uncommon

Genus: Notaden

Notaden bennettii – Holy Cross (or Crucifix) Toad

Distinguishing features:

A medium sized frog (up to 55mm). The toad has a unique patterning on the back forming a cross on a yellow background (see photo). The belly skin is smooth and white compared to warty skin on the back. Frogs of this genus exude a thick white smelly poison when aroused.



Legal status: protected

Regional distribution:

A mid-sized burrowing frog normally found further west on areas of alluvial clay soils. Recorded from the northern margin of the region at Gilgandra on the Castlereagh River floodplain.

Regional status: rare

Holy Cross Toad (*Notaden bennettii*)
Photo by Darren Shelly

Genus: Pseudophryne

Pseudophryne bibronii – Bibron's Toadlet

Distinguishing features:

A small sized frog (up to 30mm). There is often a bright yellow spot on the vent, and sometimes a yellowish stripe on the lower back. The base of the arm is yellow. The belly shows a bold black and white mottling. The belly skin is smooth.

Legal status: protected

Regional distribution:

A burrowing species noted from areas of sandy soils across the centre of the region (eg. Goonoo State Forest, Gibraltar Rock). Usually found in areas of intact woodland. This species is normally found further east along the coast and dividing range.

Regional status: rare

Genus: Uperoleia

Uperoleia laevigata – Smooth Toadlet

Distinguishing features:

A small sized frog (up to 25mm). The skin on the back is usually covered with numerous tubercles. In colouration there is usually a light triangular patch on the head. There are bright reddish-orange patches in each groin and behind each knee. The belly is grey speckled with dark purplish brown.

Legal status: protected

Regional distribution:

A burrowing frog known only from the northern portion of the region between Brocklehurst and Goonoo State Forest. This species is normally found further east in New South Wales.

Regional status: rare

Uperoleia rugosa – Wrinkled Toadlet

Distinguishing features:

A small sized frog (up to 30mm). The skin on the back is usually covered in tubercles. In colouration there is usually a dark triangular patch on the head and orange patches in the groin and behind each knee. The belly is smooth and grey in colour, the throat white.

Legal status: protected

Regional distribution:

A burrowing frog noted from near Peak Hill on the south-west margin of the region. It is often trapped in wooded areas with plentiful leaf litter. This species normally occurs further west.

Regional status: rare

GLOSSARY OF TERMS

arboreal: dwelling, at least part of the time, in trees.

discs: the enlarged expanded tips of the toes of many frogs.

legal status ratings: protected, vulnerable, endangered (as listed in the *Threatened Species Conservation Act 1995*).

regional status categories: rare (only one or two records known in Dubbo region)

uncommon (relatively few records in Dubbo region)

common (numerous records in Dubbo region)

abundant (records from most habitats and in every year in Dubbo region)

tibial gland: a large swollen gland on the upper surface of the lower (tibial) region of each hindlimb in some frogs.

tubercle: any small, rounded protuberance on the skin.

tympanum: eardrum.

vertebral: pertaining to the spine or vertebral column.

BIBLIOGRAPHY

Cogger, H. G. (1996) *Reptiles and Amphibians of Australia*. Reed Books Australia. Melbourne.

Robinson, M. (1998) *A Field Guide to Frogs of Australia: from Port Augusta to Fraser Island including Tasmania*. Australian Museum / Reed New Holland. Sydney