

# Meet the Frogs

Australia is home to around 230 known species of frogs—and more are being discovered. From the vast, dry inland to rainforests, mountains and even cities, frogs live in places you would least expect. If you have shared a visit to the toilet in the outback or in the tropics with a local tree frog, you will know what I mean! While frogs need at least some moisture to survive, they don't all live in, or even near, water. Some are adapted to living on or under the ground, in trees or among rocks. Frogs are mostly nocturnal.

## Tree Frogs

Not all tree frogs live in trees! Some live on the ground, or in streams. But they all belong to the same family, known as Hylidae (pronounced hi-lid-ay). All tree frogs lay non-foamy eggs and parts of their insides are different from true ground frogs. Most (apart from burrowing forms) have large discs on their fingers and toes. A lot of them like to climb trees or shrubs, where they can hunt different prey from those on the ground.



Like other tree-dwelling tree frogs, this Northern Red Tree Frog has big suction discs on the tips of its four fingers, and five toes to help it hold on to smooth surfaces and climb more easily.



Peron's Tree Frog is right at home in trees, but if you live in bushy areas, you might find one on your window, looking for moths at night! It has tiny emerald green spots over its back, though these are hard to see in the picture.



Ground-dwelling tree frogs like this Rocket Frog have smaller suction discs on their fingers and toes. They have long legs and are often good jumpers.

Some ground-dwelling tree frogs, like this Copland's Rock Frog, live and breed in streams, where they hide under rocks by day. They have wider suction discs to help them cling onto slippery rocks when they are jumping around at night.

## Ground Frogs

Unlike most tree frogs, ground frogs like the Red-crowned Toadlet below have no suction discs on their fingers or toes. They do not climb much. Many like to burrow into sand or soil. Others live under leaf litter in rainforest; or beneath rocks, logs or vegetation near water; or in moss high in the mountains. True ground frogs (as opposed to ground-dwelling tree frogs) belong to a large family of frogs known as Myobatrachidae (pronounced my-o-bat-ra-kid-ay) that live in a wide variety of habitats.



Underside of hand of Red-crowned Toadlet.



Many burrowers carry their own personal shovel on each foot for digging backwards, like on this Goldfields Bullfrog!

Shovel



A Giant Burrowing Frog...



...slowly burrows...



...under the ground.

## Aquatic Frogs

Some tree frogs spend much of their time in water, like this Dahl's Aquatic Frog and the Green and Golden Bell Frog and its relatives. These frogs have smaller discs on their fingers and toes. But the webbing between their toes makes their feet useful—a bit like the flippers you wear when you're snorkelling. They also have larger bodies with a pointy snout so they can dive under water faster.

The entirely aquatic Gastric-brooding or Platypus Frog and its close relative the Northern Gastric-Brooding Frog, are ground frogs that were once found in mountain streams in mid and south-eastern Queensland. They are now thought to be extinct. These remarkable frogs are the only entirely aquatic frogs known in Australia. Their muscular, streamlined bodies make moving through water a breeze and their eyes are like two periscopes when they break the surface.



Dahl's Aquatic Frog

## Eyes to Eat With

Frogs have movable eyeballs which they can squeeze downwards into the back of their mouth to help push food down.



## Clever Breathers!

Frogs have lungs like us, but they also get oxygen through the inner surfaces of the mouth, as well as their skin. If frogs swim under water, they need to return to the surface every now and then to breathe through their nostrils.

# All About Frogs

Like us, frogs have a backbone and two arms and legs. However, while we are warm-blooded and can make our own heat, they are cold-blooded, so their body temperature varies with that of the surrounding environment. Some tree frogs (often green ones) bask in the sun during the day to warm up. They are well disguised on green leaves. Some small **diurnal** stream frogs bask on rocks. All frogs need at least some moisture to survive, and to help conserve this while sunbaking, some **secrete** a waxy substance over their skin that helps seal in moisture. We reach for the sunscreen instead!

Most frogs can swim... Spotted-thighed Frog



## Getting Around

Most frogs can jump, but some are real champions! Good jumpers like this **Broad-palmed Frog** have longer legs and arms and powerful leg muscles. Their snouts are often quite pointed and this helps them cut through mid-air during a longer leap. Their arms help steady the body when they land, or they can reach out and grab onto a branch with them too.



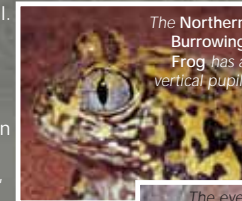
Some smaller ground frogs like the Red-Crowned Toadlet prefer to walk. These have shorter legs, and arms with less-developed muscles



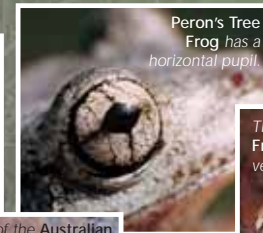
Broad-Palmed Frog ready to leap.

## Eyes

Most frogs can see well. They can quickly spot moving prey. At night when most are active, the pupils of their big eyes open wide to let in more light. Some frogs have a horizontal pupil, others a vertical one—none have a round one like us. They have a thin, clear inner eyelid or **membrane** that can cover the eye for protection. In the Australian Lace-lid Frog, this membrane looks like white lace.



The Northern Burrowing Frog has a vertical pupil.



Peron's Tree Frog has a horizontal pupil.



The Giant Barred Frog has a vertical pupil.



The eye of the Australian Lace-lid Frog is black all over.

## All Ears

Frogs can hear very well. While we have our ear drums hidden inside each ear canal, most frogs have their ear drum (tympanum) exposed on each side of their head behind the eye. It is round or oval and quite large.

Just to confuse things, a few frogs have their ears so well hidden that you can't see them, like this Hidden-ear Frog!



## Skin

Frogs' skin is important to their survival and needs to be kept slightly moist. Their skin can absorb both moisture and air. This also makes frogs vulnerable to loss of moisture or absorption of chemicals through the skin.



Some, such as this Mountain Frog, have brilliant bellies. The purpose of these colours is not understood, but it may be another way that frogs of a certain species recognise each other (when they are not calling).

# Calling All Females

Frogs communicate just like we do, with sound. Male frogs call to let female frogs know that they are ready to breed. Each **species** has its own call that differs from others in its **pitch**, length and how often individual notes are repeated. Females can 'tune in' to the call of the male of their own species, even when many different frogs are calling at once. Frogs call by pushing air from their lungs over the vocal chords, producing sound. The air passes into the vocal sac, which **amplifies** it.

## Bubble Gum Frog?

The **Northern Red Tree Frog** has a beautiful pale pink vocal sac when calling. It looks rather like pink bubble gum in action.



## Wailing Frog

The **Red-eyed Tree Frog** makes a long, repeated wailing sound, each note louder than the last.



## A Laughing Frog

The medium-sized, greyish brown **Tyler's Tree Frog** has a beautiful yellow throat when calling. Its call is a series of short notes that sound rather like laughing.

vocal sac



## Maniacal Cackle!

**Peron's Tree Frog** has a loud, rolling laugh, often described as a 'maniacal cackle', that can be heard a long distance away.



## Dunny Frog

You may have wondered how **Green Tree Frogs** can survive living in toilet bowls—their skin contains antibiotics that protect them from infection!



Aboriginal painting of a frog on a lily pad.

## A Dog of a Frog

The loud, repeated low-note call of the **Green Tree Frog** almost sounds like a barking dog. You might have heard it echoing in toilets or pipes in summer. You know it's going to rain when you hear this call. This frog is the star in an Aboriginal story called 'My Girragundji' about a young

Aboriginal boy who feels lost and alone because he is bullied at school. One day a Green Tree Frog hops onto his shoulder and into his life, and he gains hope and courage through his connection with nature.

## Sheep Frog

The **Bleating Tree Frog** has a very big voice. It literally screams its long, high-pitched call, sounding a bit like a bleating sheep. It is hard to believe that such a loud sound could come from such a small body (about 4 centimetres long). The blown-up vocal sac is almost transparent.

