

Frogs on Farms



The Southern Bell Frog (Photo by David Hunter)

Frogs of the Southwest Slopes and Plains

The south west slopes and plains region of New South Wales is home to at least 19 frog species, all of which have the capacity to thrive on farms in the agricultural landscape. Frogs can occupy a very broad range of both natural and man-made wetlands. Whether it is a small pond that only fills after rain, or a large permanent dam, there is a good chance that some frogs will call it home.

Frogs need wetlands, because this is where they lay their eggs and where the tadpoles live until they reach metamorphosis and move on to land. Nearly all frogs in our region lay their eggs in water. The only exception is Bibron's Toadlet (*Pseudophryne bibroni*), which lays its eggs on land in a small nest. Bibron's Toadlet eggs hatch during heavy rain, and the tadpoles are then washed into a nearby pool.

Some frog species on the south west slopes and plains are well known, because they have very noisy and distinctive calls, or because they are often found around houses. Farmers are often familiar with the Banjo Frog (*Limnodynastes dumerilii*) because its call is a very loud 'bonk'. This species lays foamy egg masses which float on the water surface. The Banjo Frog will also bury underground during the day in loose moist soil, and people often find them when they turn over their veggie patch, or dig post-holes!

Farms are important for frog conservation!

Many farms are home to threatened frogs that have declined from much of their historic known distribution. Over the past three decades, frogs have been declining and becoming extinct at a very alarming rate throughout the world.

This decline is primarily due to habitat degradation and the spread of a pathogen known as the Amphibian Chytrid Fungus, which kills frogs. The fungus has spread throughout most of Australia, and is the likely cause of the Southern Bell Frog (*Litoria raniformis*) having disappeared from our region. The Southern Bell Frog was known to many property owners and farmers because this species is a large green frog that would bask in the daytime sun and jump into water when approached or disturbed.



The Banjo Frog makes a loud 'bonk' call (Photo by David Hunter)

One threatened frog still persisting on the south west slopes is the Booroolong Frog (*Litoria booroolongensis*), which only lives along rocky sections of river. The critical habitat required for the Booroolong Frog is rock crevices in shallow stream water, as this is where the female places her eggs in spring and early summer.

Removal of riparian vegetation and inappropriate grazing can cause erosion, and lead to large quantities of sediment entering the stream and smothering these rock crevices. Heavy infestation by weeds such as willows will also result in loss of rocky stream habitat. Many farmers are now protecting their sections of stream by controlling weeds and implementing grazing practices that minimise erosion. These activities typically result in improved water quality and more productive grass growth, which also help maintain healthy livestock.

"Many farms are home to threatened frogs"

The benefits of protecting and enhancing frog populations

Protecting and enhancing habitat for frogs has many benefits for the broader environment. Frogs play a valuable role in the food web and cycling nutrients within an ecosystem, because they often occur in very high abundance, and occupy both aquatic and terrestrial habitats.

Tadpoles consume large quantities of food (algae and microorganisms) in wetlands, and then move onto the land. This process helps maintain nutrients within a local area, rather than being washed downstream. Tadpoles and frogs are also consumed by many other animals, such as fish and birds, so frogs are important for enhancing broader biodiversity.

Like the Booroolong Frog, which relies on aquatic rock crevices, different frog species typically have different habitat requirements which are essential for their populations to survive. These may relate to where they lay their eggs, what sort of wetland the tadpoles can survive in, or where the adult frogs like to shelter during hot dry summers. So the number of frog species living in an area is related to the variety of habitats available. Properties with a combination of well-vegetated dams, areas that become seasonally inundated, and patches of remnant woodland are likely to have a greater abundance and diversity of species.

In general, maintaining diverse and abundant frog populations on farms is conducive to promoting a healthy environment, and typically involves habitat protection and enhancement, which has benefits for many other species and ecosystem processes. Moreover, enhancing ecosystem health in the agricultural landscape should provide benefits to farmers, in particular, providing greater resilience to extreme drought conditions. Hence, efforts to ensure the persistence of our biodiversity in the agricultural landscape should also assist in maintaining viable agricultural businesses into the future.

Author: Dr David Hunter, NSW Office of Environment and Heritage



*The endangered Booroolong Frog
(Photo by David Hunter)*

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