Pepeketua / New Zealand’s native frogs

Native animals

New Zealand’s native frogs belong to an ancient and primitive group of frogs that have changed very little in 70 million years. They are small, nocturnal and well-camouflaged, which makes them difficult to see.

New Zealand originally had seven species of native frogs. Three species have become extinct since the arrival of humans and animal pests in New Zealand. The four remaining species are: Hochstetter’s frog, Archey’s frog, Hamilton’s frog and the Maud Island frog.

There are also three introduced Australian species of frog in New Zealand. These species are easily distinguished from native frogs because they generally live in or near ponds, have loud mating calls and pass through a tadpole stage.

Where are they found?

New Zealand’s native frogs are not swamp or pond-dwellers. Three of the species live in shady, moist, undisturbed forests, while the Hochstetter’s frog lives a semi-aquatic life on stream edges.

Fossil records show that our native frogs were spread throughout both the North and South Islands several thousand years ago. The four remaining species have declined significantly in range and in numbers over the past 1000 – 2000 years, as land has been cleared of forest and predators introduced.

Today the native frog species are found only in the following areas:

- The Hochstetter’s frog is the most widespread native frog species. It has been sighted around the upper half of the North Island, including Waipu, Great Barrier Island, the Coromandel, central North Island, and the Raukumara Ranges.

- The Archey’s frog is found only in the Coromandel and at one site west of Te Kuiti.

- The Hamilton’s frog is one of the world’s most endangered frogs with less than 300 individuals remaining on Stephens Island in the Cook Strait, where it is carefully managed by the Department of Conservation. It has also been translocated to another island, Nukuwaiata, in the Marlborough Sounds.

- The Maud Island frog is only found on Maud Island and it has been translocated to Motuara Island and Long Island in the Marlborough Sounds. The Motuara population originated from the translocation of 300 frogs from Maud Island in 1997, the first such inter-island transfer of a frog in the world.

Native frog facts

New Zealand’s native frogs have some distinctive features, which make them very different from introduced frogs:

- They have no external eardrum or vocal sacs. This...
means that they don’t croak regularly like most frogs but instead let out a high pitched squeak

- They have round (not slit) pupils.
- Most of our native frogs don’t have a tadpole stage. The embryo develops inside an egg, and then hatches as an almost fully-formed frog. The hatchlings of the three terrestrial frogs (Archey’s, Hamilton’s and Maud) climb on their father’s back during their last weeks of development, making them far less reliant on bodies of water than other frogs.
- They have retained primitive features such as tail wagging muscles (even though they no longer have a tail to wag), hollowed vertebrae (instead of the more usual ball and socket) and ribs which are not attached to their spine.
- Their main forms of defence against predators are camouflage and their ability to freeze when in danger. They also secrete a substance from their glands which gives them an unpleasant taste.

Did you know?

The Department of Conservation is using an innovative new method to identify individual Archey’s frogs in order to better understand what is happening to populations of this highly endangered species. Identifying individuals allows the Department to monitor the frogs and determine what factors are leading to species decline.

Toe-clipping has been used in the past to identify individuals, but the potential risk associated with this technique is unknown. Using natural markings on the frog’s skin for identification is less invasive and allows scientists to collect information with minimal handling time.

A compact, portable photo-stage has been developed that uses mirrors to obtain images of the front, back and sides of the frog in a single digital photograph. Additional information about the frog, such as size and skin condition (used for disease surveillance), can also be collected from the photographs.

**Threats**

Frogs are declining everywhere in the world. More than most creatures, frogs are sensitive to disease, pollution, chemical poisons and environmental changes, as they absorb many things through their sensitive, semi-permeable skin. For this reason they are often used as a barometer of ecosystem health. They may even act as an early warning system for the quality of the environment and potential threats to other animals including humans.

Although the main cause of frog deaths worldwide seems to be habitat destruction and fragmentation, the following other causes have been implicated to various degrees.

- Frogs are highly vulnerable to introduced predators such as rats and cats.
- Introduced frogs may transmit disease, or directly compete or prey upon native frogs. In late 1999, a sighting of the aggressive Eastern banjo frog in Auckland raised fears that if this alien invader got a foothold, it would out-compete native frogs.
- Forestry and agriculture (and associated new roads) not only destroy frog habitat but also release harmful chemicals and pollutants.
- Herbicides and pesticides have been proven to cause developmental abnormalities or fatalities in frogs overseas. An Australian report in 1995 showed that an apparently safe herbicide was actually extremely toxic to tadpoles and adult frogs. The herbicide is widely used by farmers, foresters and gardeners in New Zealand.
- The chytrid fungus is a soil-borne toxic fungus that has killed frogs in other countries and has been found in New Zealand frogs (including Archey’s frog which has suffered a rapid decline in the past few years).
- Increased levels of UV (ultraviolet) radiation have also been implicated in the global decline of frogs, but New Zealand’s species are generally nocturnal and therefore unlikely to have been affected by UV levels.

**How can you help?**

The public can assist the Department of Conservation greatly by reporting any sightings of native frogs. Record carefully the location, the type of habitat (e.g. stream edge, forest floor), the time and date you sighted them, and if possible take photographs. Avoid touching the frogs, because you may damage their sensitive skin.

**Further information**

DOC has more information about frogs on its website. www.doc.govt.nz

For more information about our native frogs, visit your local Department of Conservation office or see www.reptiles.org.nz (New Zealand Herpetological Society).