



# Tuatara

## Native animals

While they may look like lizards, tuatara are actually the only surviving members of a unique group called Sphenodontia that roamed the earth during the age of the dinosaurs about 200 million years ago. All of the other species in the group apart from the tuatara became extinct about 60 million years ago. Tuatara are therefore of huge international interest for their value in teaching us about ancient life forms.

### Where is it found?

The total number of surviving tuatara is estimated at around 100,000. About half of these live on Stephens Island in Cook Strait and the rest are located on other islands in the Marlborough Sounds and islands in the Hauraki Gulf, off Northland, the Coromandel Peninsula and the Bay of Plenty.

Tuatara once lived throughout the mainland of New Zealand but by the time Europeans arrived here, they were found just on offshore islands. Tuatara can only survive on islands that are free of rodents and other introduced mammalian predators. The islands are usually occupied by colonies of breeding seabirds, which contribute to the fertility and hence the richness of invertebrate and lizard fauna that tuatara require as food.

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### Tuatara facts

- Tuatara (meaning 'spiny back' in Māori) are New Zealand's largest reptile, with adult males measuring up to about a half metre in length and weighing up to 1.5 kilograms when fully grown. The male has a distinctive crest of spines running along the neck and down the back, which he can fan out to attract females or when fighting with other males.
- Their diet consists primarily of invertebrates such as beetles, wētā, worms, millipedes and spiders, and the remainder is made up of lizards, seabird eggs and chicks and even, on occasion, their own young. This seems to be why juveniles are active during the day while adults are in their burrows, and hide at night when the adults come out to feed.
- Tuatara have a single row of teeth in the lower jaw that fits between two rows of teeth in the upper jaw. This helps tuatara tear apart hard foods such as

wētā.

- The colour of tuatara ranges from olive green to brown to orange-red, and they can change colour over their lifetime. They shed their skin (called moulting) once per year.
- Tuataras are unusual reptiles because they like cool weather. They do not survive well over 25 degrees centigrade but can live below 5 degrees, by sheltering in burrows.
- Tuatara mate differently from other reptiles. The male tuatara does not have a penis; he mounts the female and passes sperm straight from his cloaca to hers.
- Tuatara have a gland beneath the skin on the head, which contains a simple 'third eye'. The 'third eye' is visible under young tuatara's skin and becomes covered with scales after four to six months. The purpose of this 'eye' is still largely a mystery, although theories suggest it may help absorb vitamin D from sunlight or function as a biological clock.
- Tuatara have one of the slowest growth rates of any reptile, and they keep growing until they are about 35 years old. A tuatara's average life span is about 60 years but they probably live up to 100 years.

### Can I see a tuatara?

Wild tuatara are located on island refuges mostly not accessible to the general public. However, you can see tuatara at places such as the Southland Museum (Invercargill), Willowbank (Christchurch), Natureland (Nelson), Wellington and Auckland Zoos, Otorohanga Kiwi House, and the Mt Bruce National Wildlife Centre (Wairarapa). You can also see tuatara in their natural habitat at Matiu Island in Wellington Harbour and in a

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semi-wild state at Karori Sanctuary.

### Did you know?

Like many reptiles, the sex of baby tuatara is determined by soil temperature; warmer temperatures produce predominantly males and cooler temperatures mean females. However, research has shown that tuatara are far more sensitive to temperature than other reptiles. Just one degree change means the difference between a boy or a girl. At 21°C, all of the young born are females, whereas a one degree rise to 22°C means all of the young are male.

Scientists have found that some tuatara populations have very skewed sex ratios with many more males than females. They suspect this could be because of rising temperatures and are concerned that global warming could potentially cause the extinction of tuatara. Once a population has too many more males than females, not enough young can be produced to replace old animals that die and extinction is inevitable. Further research is being conducted to determine if tuatara will be able to somehow adapt to a warmer climate, or if more drastic management measures will be needed to protect the species.

### Threats

The tuatara was one of New Zealand's first native species to be fully protected by law in 1895. Before then, hundreds of specimens were shipped overseas for museums and private collections. Poaching is still a problem today, although diminished by the tuatara's legal protection and remote locations.

The major threats to tuatara today are habitat destruction and introduced mammalian predators, especially rats. Rats prey on young tuatara and eggs and also compete with adults for food. Because tuatara only survive on islands, they are very vulnerable to changes in the islands' habitat (such as fires) and to the loss of genetic diversity within their small, isolated island populations.

### Further information

You can find out more about the Department of Conservation's *Tuatara Recovery Plan* (PDF 632K) and *Tuatara captive management plan and husbandry manual* (PDF 769K) by contacting your local DCC office.

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Some other resources include:

*Conservation of the Tuatara* by Mary McIntyre. Published by Victoria University Press, 1997.

