



New Zealand land snails

Native animals

Hidden away in New Zealand's forests and grasslands, ranging in size from the microscopic to the massive, is a fascinating assortment of native land snails. Compared to other temperate countries, New Zealand has an enormous diversity of snails that are found nowhere else in the world. Over 1000 species live in a wide range of habitats from beach dune systems and lowland forests to alpine grasslands.

Powelliphanta

These meat-eating giants of the forest floor are true biological oddities, possessing a remarkable set of characteristics. They are mainly found in northwest Nelson and north Westland, where most of the species occur, but they are also found in the Marlborough Sounds and Mt Richmond Forest Park, as far south as Fiordland and Southland and, across Cook Strait, on parts of the Kapiti Coast and into the central North Island.

- They are voracious carnivores, sucking up earthworms through their mouths like strings of spaghetti. They also eat slugs and smaller snails.
- They are nocturnal

- They are hermaphrodites, meaning they possess both male and female reproductive organs.
- These are the Sumo wrestlers of the snail world - the largest *Powelliphanta* species measures about nine centimetres across.

Flax snails / pupuharakeke

Before human settlement, these giant snails were once widespread around the top and near the east coast in Northland. However, all three species are no longer common and inhabit a more restricted area of Northland and nearby offshore islands.

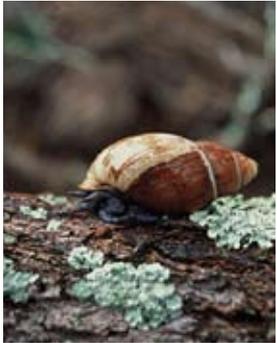
- They have a long, elegantly tapered spiral shell and are usually dark reddish-brown to chocolate with no conspicuous pattern.
- Although they can live in litter at the base of flax plants most shelter under any plant that provides a

Kauri snail
D. Veitch





Powelliphanta
R. Morris



Flax snail
T. Greene



Wainuia urnula
V. Vercoe



Powelliphanta hochstetteri
obscura (top/centre) Rhytida
stephenensis (bottom)
R. Morris

skirt of dead leaves.

- As vegetarians, they mostly feed on fallen leaves.
- Compared to other snails, they have a long life-span and can live 30 years or more.
- They are nocturnal and can remain under or close by the same bush or tree for years.
- Translocations to islands and other mainland sites have been carried out and some have been very successful.
- Mating appears to be triggered by climatic conditions, such as rainfall, and can last for several days. Nests of over 200 have been found but these are thought to be the result of cooperative breeding with several snails laying in the same nest. A single snail is more likely to lay fewer than 30 eggs.

Kauri snails /pupurangi

The two species of kauri snails are naturally distributed in Northland and on nearby Taranga (Hen) Island. (There are introduced populations around Warkworth, in the Waitakere Ranges and Kaimai Ranges.)

- Kauri snails have a disc-shaped, coiled shell.
- They are carnivorous with a diet consisting mostly of earthworms.
- Kauri snails live in both native forests and scrub, and also some pine forests with native species understorey. The adults usually stay within an area of several hundred square metres, but they can also be highly mobile (for a snail that is). They have been known to move 15 metres overnight.
- Mating appears to be triggered by climatic conditions, such as rainfall, and can last for two to three days.
- Kauri snails lay about six or so eggs a year. The eggs look just like small birds eggs. They have a hard eggshell and are about one cm long. Clutches of eggs are laid in covered holes in the ground and after one and a half months the snails hatch. The hatchling snails spend the first few weeks underground feeding on small worms and other invertebrates that chance into their nest.

Rhytida snails

These snails are notable for their extremely bizarre feeding habits. They can eat other snails by biting their heads off and then they carry them to a quiet spot on the back of their foot where they insert their tails up into the prey's shell. The tail secretes a liquid that slowly dissolves the prey's flesh and the calcium from its shell. The *Rhytida* snail then absorbs the dissolved nutrients. It can take the snail several days to actually complete such a meal. Snails in the genus *Rhytida* are related to kauri snails, *Powelliphanta* snails and the *Wainui* snails described below. They are not as colourful or large (except for *Rhytidarex buddlei* which

is 60 mm diameter) as some of the other, well-known New Zealand snails.

Wainuia snails

Like *Rhytida* snails, *Wainuia* snails are medium-sized but look more like small kauri snails with a very thin shell. They also have unusual eating habits. Some feed on small forest sand-hoppers called amphipods. These animals are fast jumpers but the snails, which generally move slowly, can shoot out their extendable mouthparts much quicker. The amphipod is grasped by rows of sharp teeth (the radula) and then drawn back into the snail faster than you can blink.

Threats

The causes of decline for all of New Zealand's land snails are similar, and include the following:

- Habitat destruction by humans;
- Habitat modification and trampling by grazing animals such as goats, pigs, deer, sheep and cows;
- Being preyed upon by introduced animals and birds (there are also some introduced snails, which appear to impact seriously on indigenous species).

Collection of live animals for their shells may once have had an effect on populations of large species. Collecting discarded shells can also harm snails, because some species need to recycle the calcium lining of old shells.

How can you help?

Properly monitored pest control operations are crucial to the survival of our snail species, as is the protection of forest and grassland habitat. Get involved and help protect our unique natural heritage – both big and small!

Please do not remove snail shells from their natural environment. These discarded shells help living snails to get the calcium they need to maintain their shells.

Further information

The Department of Conservation welcomes any comments or suggestions you may have about the conservation of giant snails. These can be directed to the recovery group via any office of the Department. Copies of the recovery plans for land snails are available from DOC Science Publications, Science and Research Division, P.O. Box 10-420, Wellington (price \$15).

For more information about New Zealand land snails you may want to read *Land snails* by Jenny Jones (2001; Heinemann Education, Reed Publishing, Auckland).