

On the snail trail

New Zealand's endangered birds often receive worldwide acclaim and attention. But on the forest floor, beyond the limelight, our native land snails go about their lives as they have for millennia, all but unnoticed.

Just like the moa, the kiwi, the kakapo, they're relics from the ancient land of Gondwana. Distant relatives are found in South Africa, eastern Australia and about the Pacific and are every bit as remarkable. Sadly, they, too, are threatened with extinction, as plagues of rats and possums devour them and their forest habitats are altered or vanish altogether.

Powelliphanta is the generic name given to the 40 or more species and subspecies of these snails, which differ from the introduced garden snail, a European immigrant regarded as a pest, in almost every aspect.

Powelliphanta are carnivorous. Earthworms and slugs are their favourite food, which they suck up like a strand of spaghetti.

Hermaphrodites, they carry both male and female reproductive organs, a bonus if you meet your own kind only infrequently. But like so many of New Zealand's native animals, they're slow breeders, laying between five and 20 small, hard-shelled eggs each spring. This slow replenishment makes it difficult for them to keep up with the onslaught of introduced predators.

Fortunately, they may live for up to 20 years, an extraordinarily long lifetime for an invertebrate.

Powelliphanta are vulnerable to dehydration, so they spend the day buried in leaf litter or under rocks and logs, waiting for nightfall before they come out to feed.

But browsers and humans are changing their forest home. As deer, goats and possums strip the trees of leaves, more sunlight is able to penetrate to the forest floor, warming and drying the snails' habitat. Pig rooting churns up the soil and speeds up the process.

And as humans drain underground water tables for development, forest remnants begin to dry out.

For this reason, the snails' last domain is in the humid montane forests of North-West Nelson and North Westland. Scattered populations also remain along the Kapiti Coast of the North Island, survivors from a time when the two islands were linked.

Powelliphanta shells can be extraordinarily beautiful, taking on a golden sheen as if they had been varnished. Many sport spirals of dark concentric rings. The shell grows at a rate of around five to eight millimetres a year, and finding the raw materials can be a problem for snails. They need lime to build both their shells and the hard shells of their eggs, and many are found in the limestone lands of North-West Nelson and Buller.

By contrast, most of our other native snails are tiny vegetarians, some covered with curious spikes and hairs, others with colourful zigzags. Most of the other medium to large sized New Zealand land snails (*Paryphanta*, *Wainuia*, *Rhytida*) are carnivores like *Powelliphanta*, though they each specialize in different prey.



Department of Conservation ranger Shirley Hayward examines a native land snail, *Powelliphanta gilliesii*, on Mt Burnett, in North-West Nelson, New Zealand. These carnivorous giants occur as multitudes of subspecies within isolated montane forest lands.



Powelliphanta Johnstoni



Rhytida, another of New Zealand's large native land snails