

A garden snail, showing the twisted gut it shares with all modern gastropods and the position of the anus closer to the head of the snail.

MORE THAN A thousand species of native land snails have been identified in New Zealand. They range from carnivorous snails – so large the extended animal would cover a human hand – to species the size of pin-heads. The best known of the large carnivores are the beautiful *Powelliphanta* and *Paryphanta* which live on the forest floor and hunt earthworms, slugs and smaller snails, devouring them with the hundreds of tiny dagger-like teeth that cover their tongues.

Why do we have such an abundance of species, when the whole of the similarly sized United Kingdom has only 112? The geological record suggests that New Zealand has always had a moist, snail-friendly climate. The past fragmentation of our land masses together with the variety of forest habitats has provided opportunities for species to become physically separated from their fellows, adapt to different niches and evolve into different species. Today, both ancient and more recent species make up our enormous diversity of native snails.

The snails evolved in this country along with natural predators such as weka which meant that snail numbers were maintained at a stable level. This balance was shattered by forest clearing and the introduction of mammals such as rats, pigs and possums. The result has been a decline in native snail populations throughout mainland New Zealand and today more than half of the threatened invertebrates listed by the Department of Conservation are native snails.

One of best ways in which you can help native land snails is to resist souveniring their shells. Firstly the shell may not be empty at all with the snail only aestivating inside – to emerge later on the mantlepiece – and, secondly, shells are eaten by other snails and are an important source of calcium for the next generation. One researcher who removed many shells from an area of snail habitat in Northland, was dismayed to discover on his return some years later, a large proportion of snails with deformed shells.

roomy for the entire animal to withdraw into, and the entrance could be plugged with its foot.

Such were the adaptive advantages offered by this ancient twisted veliger and its descendants that they cornered the market in the evolution of all future gastropod species. Today there are more than 50,000 species of land, sea and fresh-water snails carrying a wonderful array of spiral shells.

But however well designed, a secure home has its costs. For a snail, the cost is a loss of speed and agility. In some species the shell is shrunk, and the slugs have gone even further and reduced their shell to a tiny internal organ. Although slugs have outwardly straightened their bodies

to a bilaterally symmetrical form, they still retain a contorted digestive system. Without a protective shell, land slugs have become nocturnal to avoid the burning sun and beady-eyed birds.

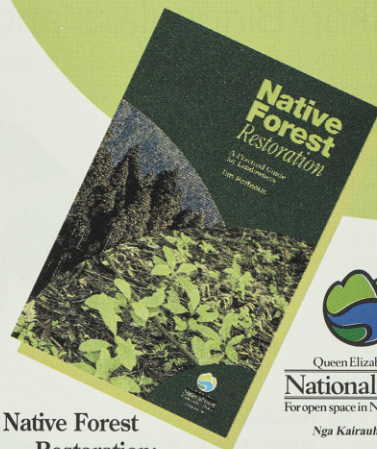
Despite the diverse forms of today's gastropods, every species still carries the secret of its ancestry in the twisted gut of its veliger larva.

Ann Graeme

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