

## ENDEMIC SPECIES FEATURE

### NZ carnivorous land snail

#### *Powelliphanta hochstetteri consobrina*

*Powelliphanta* is a genus of large carnivorous land snails that is endemic to New Zealand. The genus has ten described species, but that number is ultimately likely to exceed 25 species, with many new populations having been found only in recent decades due to their presence in remote parts of the country. Many species are further subdivided into distinctive subspecies.

The species/subspecies being translocated to the Sanctuary is *Powelliphanta hochstetteri consobrina*. The *P. hochstetteri* snails are among the larger *Powelliphanta* species. *P.h. consobrina* is medium-large, with some animals attaining shell diameters of over 60mm.

The natural range of *P.h. consobrina* comprises mostly higher altitude areas below bush line within the Bryant and Richmond Ranges. It usually occurs at altitudes in excess of 800m all but at a handful of sites it is found at lower altitudes, as low as 300m. Within this quite extensive range, the subspecies occurs only patchily, which is thought to be due to the impacts of introduced predators. The subspecies was reported in 1930 to be present as far south as Gordon's Knob but subsequent burning of much of the forest there appears to have led to extinction of that population. There is no evidence of *P.h. consobrina* having been found in The Brook catchment previously, but their existing distribution in the vicinity and the fact that some of these populations occur at lower altitudes, well within the altitudinal range of the Sanctuary, suggests that they are likely to have once been present.

Like most *Powelliphanta* species, *P.h. consobrina* feeds primarily on earthworms which are sought at night. It is likely that some other invertebrates may also be taken. During the day the snails take cover under leaf litter, logs, etc.

Like most snail species, *Powelliphanta* are hermaphroditic, meaning each animal has both male and female sex organs. When they mate, they cross-fertilise; i.e. both animals are fertilized at the same time. They lay hard-shelled eggs which are large in relation to the size of the adult. Their eggs are laid in clusters of two or three in moist moss or litter.

It is thought that annual egg production as is low as 5-10 eggs per animal and no more than 20.

Larger *Powelliphanta* such as *P.h. consobrina* may take up to five years to reach sexual maturity and may have a life span of 12-14 years, with some individuals possibly living for several years longer than this. Like most snail species they grow continuously throughout their life, but growth slows after the first few years.

It is likely that *Powelliphanta* have few natural predators, with weka being the most significant. Kiwi may take eggs or young but are unlikely to be able to prey on large snails. A handful of other invertebrate species may be able to prey on them, especially on young. However, they are highly vulnerable to introduced predatory mammals. Not only will mammals take foraging snails at night but they can also use smell to find them in their retreats during the day. The predators that especially impact *P.h. consobrina* throughout their range are possums and pigs. At lower altitudes rats are also a significant predator. At present, there is nowhere within the natural range of *P.h. consobrina* that these predators are being controlled sufficiently to relieve predation pressure on the snails.

Establishment of a population of *P.h. consobrina* within The Brook Waimarama Sanctuary will create the first predator-free population of this subspecies. It is likely that substantial areas of the Sanctuary will ultimately provide suitable habitat for the snails, especially damp and shady areas with good canopy and ground cover.

