



New Zealand invertebrates

Native animals

Invertebrates are animals without a backbone. They are a diverse group ranging from spiders and jellyfish to insects and worms. Due to New Zealand's geographic isolation, many of our species have evolved into unique forms. The majority of New Zealand's native invertebrates are found nowhere else in the world. Like other groups such as birds in New Zealand, many invertebrates here became large and flightless (e.g. giant wētā, tusked wētā and giant weevil).

New Zealand's native invertebrates have been called the 'forgotten fauna'. Beetles, snails, wētā and spiders just don't seem to have the same cuddly appeal as kakapo, kiwi and fur seals. However, invertebrates are essential to our natural environment and to humans because:

- They recycle nutrients, break down pollutants and maintain soil structure.
- They are an important food source for many native species such as bats, kiwi, robins and fantails.
- Many marine invertebrates like crayfish, kina, paua and shellfish are popular parts of our diet.
- Many insects are pollinators of native plants.
- Invertebrates form part of a complex web of interactions and the loss of a single species can have widespread effects on the rest of the system in which it lives.

In the past little attention has been given to invertebrates in New Zealand and the majority of research had been conducted on exotic invertebrates of economic importance. This means we don't know much about most of our invertebrates – in fact many species are still waiting to be formally identified and named.

Huhu beetle
R. Morris



Incredible invertebrates



Banks Peninsula tree weta
G. H. Sherley



Powelliphanta
R. Morris



Mt Somers weta
B. Robertson



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

- The **ghost moth (puriri moth)** is a bright green moth that is the largest found in New Zealand. It is restricted to the North Island and only survives as an adult for a few days, just long enough to mate and lay its eggs. When the eggs hatch, the emerging caterpillars bore into trees such as the puriri, which gives the moth its name.
- The bizarre **peripatus** has the body of a worm, 15–16 pairs of clawed feet and the jointed legs and windpipes of an insect. It provides a link with the ancient past; fossils resembling peripatus have been found in rocks up to 500 million years old. It captures insects by shooting out sticky threads that trap the prey. It then punctures the insect with its jaws and sucks out the body contents.
- **Huhu beetle** grubs are a delicacy to some people and were traditionally eaten by Māori. The larvae are at their tastiest when they have stopped feeding and their guts are empty. After the grubs pupate, they emerge as dark brown, fearsome-looking adult longhorn beetles. The adults lay eggs on dead trees, such as rimu, kauri, kahikatea, and especially introduced pines. The grubs then burrow into these.
- **Wētā** are ancient flightless insects that were around at the time of the dinosaur. Giant wētā are regarded as one of the most primitive links with New Zealand's biological past. Some of the giant wētā species are among the world's heaviest insects. The wētāpunga, the largest wētā species on Little Barrier Island, weighs in at 71 grams, almost four times as big as some mice. There are tree wētā, ground wētā, cave wētā, and three species of the spectacular looking tusked wētā. These males have two tusks which they use to fight other males, or rasp together to warn off competitors. Wētā have evolved to take the place of rodents on the forest floor, and they are easy prey for birds and introduced rats.
- The **beech scale insect** is a small sap-sucker (or homopteran, a group that also includes aphids) that burrows into the bark of beech trees and sucks out sap through its long mouthparts. The scale insect removes nutrients and excretes excess sugars and water through a waxy tube. The resulting liquid is honeydew, which is an important food source for many native birds, insects, and lizards.
- **Giant land snails** include the flax snails (pupuharakeke), which eat fallen leaves, and kauri snails (pupurangi) of the far north, and Powelliphanta snails in the South Island and the lower North Island, which eat earthworms. All take several years to become adult and then live for many years, and they produce few young. For example, flax snails can take 3 to 9 years to become adult and then live for up to 30 years or more, and kauri snails only lay 6 or so large eggs a year.

Threats

Many of New Zealand's invertebrates are flightless and are facing extinction, for many of the same reasons that native birds are declining here. The main threats are habitat destruction and predation by introduced vertebrate species such as rats, hedgehogs, mice, possums and even song thrushes.

Native habitats have been destroyed and modified in many ways:

- Introduced plants displace native plants, reducing the habitat for host-specific invertebrates.
- Introduced browsers like deer, goats and possums trample vegetation, prevent forest regeneration, change the species composition, reduce leaf litter and dry out the environment.
- The clearance of native bush and scrub for urban development, rural farming, and forestry has resulted in fewer and more fragmented habitats.
- Roads or pasture can be impassable tracts of hostile ground for specialized invertebrates.

Another factor that may pose a significant threat to invertebrates is displacement or predation by exotic invertebrate pests. Examples are introduced ants, wasps and predacious snails which eat native snails. Even parasites introduced to control exotic leaf-roller pests of orchards have reduced numbers of native leaf-roller moths. Because native invertebrates evolved along with the rest of New Zealand's flora and fauna, they have a close association with these other species. Introduced invertebrates can disrupt these relationships in ways we cannot predict and so they can have far reaching effects on other animals.

How can you help?

You can help by considering your own attitude to invertebrates. Why do people kill spiders or insects without thinking? Most invertebrates are harmless and while we may not want them in our house, we can just as easily put them back outside rather than kill them.

If you would like to encourage insects in your garden, you can plant some native bushes or trees, or create areas of logs or dead wood for shelter, or leave leaf litter on the ground. Insects will also attract more birds to your garden!

Further information

The publication *The Conservation Requirements of New Zealand's Nationally Threatened Invertebrates* contains information on 280 invertebrate species that are of conservation priority, as well as 540 species that may require conservation management in the future. This publication is available on DOC's website at: www.doc.govt.nz. You might also like to search the DOC website for specific species recovery plans such as the plan for wētā and the plan for Powelliphanta land snails.