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New Zealand Beetles

New Zealand biodiversity

New Zealand's beetle life is diverse – there are more than 4,500 named, native species. By way of comparison, this is more than all mammal species worldwide, or all New Zealand plant, fish, amphibian, reptile, bird and mammal species combined. The actual number of New Zealand beetle species is likely to be between 6,000 and 10,000.

Beetle families

About half of the world's 160 or so beetle families occur in New Zealand, and most of the major families are present. Most biodiversity is within a few families – there are 11 families with over 100 species. The most diverse family is Curculionidae or weevils, with about 1,300 species – nearly one-third of the beetle fauna.
Other large families in New Zealand are (with approximate species numbers in brackets):

- Staphylinidae – rove beetles (800)
- Carabidae – ground beetles (420)
- Cerambycidae – longhorn beetles (180)
- Scarabaeidae – scarabs and chafers (150)
- Tenebrionidae – darkling beetles (150)
- Chrysomelidae – leaf beetles (150).

Several families are represented by only one or a few species, such as Cucujidae or bark beetles, whose sole representative, *Platisus zelandicus*, is confined to the remote Three Kings Islands. The Trogidae or carcass beetles have only one species in New Zealand, accidentally introduced.

Distribution

Some species are widely distributed, while many are specific to certain regions. Offshore islands, such as the Three Kings, Chatham and subantarctic groups, each have a characteristic beetle fauna.
Some groups show unusual distributions. The family Chaetosomatidae was originally thought to be unique to New Zealand, until new species were discovered on Madagascar. Carrion beetles are confined to the northern hemisphere except for two New Zealand species of the genus *Zeanecrophilus*.

Endemism

About 90% of New Zealand beetles are endemic – they are found nowhere else. Two entire families – Cyclaxyridae and Metaxinidae – are endemic. Such a high proportion of endemism is probably the result of New Zealand's isolation, and its changing climate and geology, which has promoted the evolution of new species.

Beetles Fan

Captain Thomas Broun (1838–1919) was New Zealand's most prolific beetle taxonomist – he described and named 3,538 new species. The quality of his work, however, did not always match his output. His descriptions were often basic, and they were rarely illustrated. Many species were described several times over – the ground beetle*Megadromus meritus* was given 14 different names. Controversially, Broun bequeathed his main collection to the British Museum in London.

Origins

Until the 1990s it was thought that New Zealand beetles were an ancient lineage, and had become isolated when New Zealand split and drifted away from the Gondwana supercontinent, around 85 million years ago. Others had arrived by dispersing across the ocean, or had been introduced through human activities. But research now suggests that New Zealand was largely submerged around 35 million years ago, and many plants and animals have arrived since then.
New Zealand's beetles, like many of its plants and animals, are most closely related to species in Australia and South America.

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Habitats

Seaweed darkling beetle

Diving beetle

Pintail beetle

Moehau stag beetle

Speargrass weevil

Beetles can be found throughout New Zealand's mainland and offshore islands, in virtually all habitats.

The coast

Few species are true marine-dwellers, but several inhabit rocky shores or sandy beaches – for example, plump, C-shaped sand scarab larvae live under driftwood.

Fresh water

A small group of beetles are aquatic. Pond dwellers include the predatory diving beetles. Algae-grazing riffle beetles and cascade beetles are found in fast-flowing streams. Semi-aquatic species of ground beetles and mud beetles live in sand, stones and mud at stream edges.

Grassland and shrubland

Grassland and shrubland beetles tend to be reclusive. Among them are the iridescent blue or orange flower longhorns, mānuka beetles or kekerewai (*Pyronota festiva*), and pintail beetles, which may be seen feeding on flowers. The whirr of chafer beetles can be heard as they fly about at dusk.

Forests

The forest is a beetle stronghold – the greatest diversity occurs there. The soil is home to root-feeding larvae of mumu and tanguru chafers (*Stethaspis longicornis* and *S. suturalis*) – the bright-green adults emerge en masse in summer. Leaf litter hosts a multitude of species, most of them tiny. Predatory ground beetles scuttle across the forest floor at night, and include species of the genera*Mecodema* and *Megadromus*, which reach 4 centimetres in length.
Log-dwellers include wood borers like elephant weevils (*Rhyncodes ursus*) and metallic-tinged jewel beetles (*Nascioides enysi*). Fungus-feeders and predators such as click beetles of the genus *Thoramus*also live in logs.

Huhu for dinner
Māori ate the large white larvae of huhu beetles (*Prionoplus reticularis*), which they called tunga haere and tunga rākau. The larvae feed on the dead wood of native trees and introduced pine. When mature larvae or tataka have emptied their gut contents before pupating, they are considered a delicacy. Adult beetles or tunga rere can be seen flying around lights on spring or summer evenings, and can give a nasty nip when handled.

A range of species can be found high in the forest canopy. These include foliage, branch and stem borers, and predators.

Alpine zones

Mountainous areas are home to black-and-white striped speargrass weevils, whose larvae feed on the tap roots of speargrass or Spaniard plants (*Aciphylla*). Flightless chafers (*Scythrodes squalidus* and*Prodontria* species) and moss beetles inhabit high-altitude grasslands and herbfields.

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Extreme habitats

Some beetles have adapted to extreme environments. Subantarctic rove beetles (*Baeostethus chiltoni*) can survive periods of immersion in sea water, and some water scavenger beetles are found swimming in thermal pools in temperatures as high as 45°C. Blind ground beetles live deep in caves, and diving beetles live metres below the surface in alluvial groundwater.

Beetles Of Interest

Scarab/chafer beetle Prodontria grandis Given, 1964
Scarab/chafer beetle Prodontria matagouriae Emerson, 1997
Scarab/chafer beetle Prodontria minuta Emerson, 1997
Ground beetle Oregus crypticus Pawson, 2003
Ground beetle Oregus septentrionalis Pawson, 2003
Longhorn beetle Nesoptychias simpliceps (Broun, 1880)
Ground beetle Mecodema atrox Britton, 1949
Giant ground beetle Mecodema chiltoni Broun, 1917
Ground beetle Mecodema costellum lewisi Broun, 1908
Ground beetle Mecodema nitidum Broun, 1903
Ground beetle Mecodema proximus Britton, 1949
Ground beetle Mecodema pulchellum Townsend, 1965
Ground beetle Mecodema rex Britton, 1949
Ground beetle Megadromus compressus (Sharp, 1886)
Ground beetle Megadromus fultoni (Broun, 1882)
Ground beetle Megadromus haplopus (Broun, 1893)
Darkling beetle Menimus crinalis Broun, 1880
Darkling beetle Menimus curtulus Broun, 1883
Darkling beetle Menimus laevicollis Broun, 1895
Darkling beetle Menimus oblongus Broun, 1880
Darkling beetle Chrysopeplus expolitus (Broun, 1880)