#BuzzInTheGarden

What Is This Bug?

This handy ID flip book will help you identify common insects to New Zealand!

SouthSci
Everyone has a question: what's yours?

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Ngā Pātaka Kōrero o Tāmaki Makaurau

CURIOUS MINDS
HE HIHIRI I TE MAHARA

This resource was created for the "**Buzz in the Garden**" Project
by
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Order	Scientific name	Common Name	Copyright	License	Order	Scientific name	Common Name	Copyright	License
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Hymenoptera	Polistes chinensis	Asian paper wasp	Pete McGregor	CC BY-NC-ND	Hemiptera	Siphanta acuta	Green planthopper	Steve Kerr	CC BY
Hymenoptera	Vespula vulgaris	Common wasp	Kyle Bland	CC BY-NC	Hemiptera	Tuberolachnus salignus	Giant willow aphid	Tom	CC BY
Hymenoptera	Anthidium manicatum	Wool carder bee	Kyle Bland	CC BY-NC	Hemiptera	Cermatulus nasalis	Brown soldier bug	Tom	CC BY
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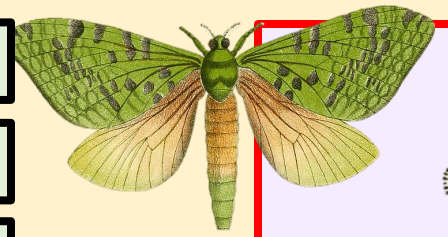
Hymenoptera	Pison spinolae	NZ mason wasp	iNaturalistNZ user jacqui-nz	CC BY-NC	Hemiptera	Arocatus rusticus	Swan plant seed bug	Steve Kerr	CC BY
Hymenoptera	Priocnemis monachus	Large black hunting wasp	Pete McGregor	CC BY-NC-ND	Hemiptera	Aphis nerii	Milkweed aphid	iNaturalistNZ user jacqui-nz	
Hymenoptera	Leioproctus spp.	Leioproctus native bee	Jacob Littlejohn	CC BY-SA					
Hymenoptera	Linepithema humile	Argentine ants	Lek Khauv	CC BY-NC	Mantodea	Orthodera novaezealandiae	NZ praying mantid	Jon Sullivan	CC BY
Hymenoptera	Technomyrmex jocosus	White footed House ant	Shaun Lee	CC BY	Mantodea	Miomantis caffra	South African praying mantid	John B	CC BY-NC
Hymenoptera	Amblyopone australis	Southern Michelin ant	Erin Powell	CC BY-NC					
					Lepidoptera	Danaus plexippus	Monarch butterfly	TexasEagle	CC BY-NC
Diptera	Eristalis tenax	Drone fly	iNaturalistNZ user obscurus	CC BY-NC	Lepidoptera	Pieris rapae	Cabbage white butterfly	Eran Finkle	CC BY
Diptera	Melangyna novaezelandiae	Large hover fly	Steve Reekie	CC BY-NC	Lepidoptera	Vanessa itea	Yellow admiral butterfly	Dean Morley	CC BY-NC
Diptera	Trigonospila brevifacies	Australian leafroller tachinid	Steve Kerr	CC BY	Lepidoptera	Nyctenera annulata	Magpie moth	Grahame	CC BY-NC-ND
Diptera	Exaireta spinigera	Garden soldier fly	Pete McGregor	CC BY-NC-ND	Lepidoptera	Aenetus virescens	Puriri moth	Grant Crawford	CC BY-NC-SA
Diptera	Arachnocampa luminosa	Glowworm	Steve Reekie	CC BY-NC	Lepidoptera	Orocrambus flexuosellus	Common grass moth	Donald Hobern	CC BY
Diptera	Calliphoridae (Calliphora stygia)	Blowfly	Steve Kerr	CC BY	Lepidoptera	Epiphryne verriculata	Cabbage tree moth	Landcare Research	CC BY
Diptera	Lucilia sericata	Greenbottle	Steve Kerr	CC BY					
Diptera	Tipulidae (Leptotarsus huttoni)	Crane flies	Kate Steeds	CC BY-NC	Coleoptera	Copris incertus	Mexican dung beetle	iNaturalistNZ user mathiasm	CC BY-NC
Diptera	Aedes notoscriptus	Mosquito	iNaturalistNZ user dougalm	CC BY-NC	Coleoptera	Scolopterus tetracanthus	Four-spined weevil	Julie V. Simpson	CC BY-NC
Diptera	Hermetia illucens	Black soldier fly	John Charles	CC BY-NC	Coleoptera	Lasiorynchus barbicornus	Giraffe weevil	Erin Powell	CC BY-NC
Diptera	Helophilus seelandicus	Three lined hoverfly	Tom	CC BY	Coleoptera	Anagotus fairburni	Flax weevil	iNaturalistNZ user theylooklikeus	CC BY-NC
Diptera	Tachinidae (Protohystricia sp.)	Tachinids	Steve Kerr	CC BY	Coleoptera	Halmus chalybeus	Steel blue ladybird	Alex Breuhan	CC BY-NC
Diptera	Asilidae (Neoitamus sp.)	Robber flies	Pete McGregor	CC BY-NC-ND	Coleoptera	Coccinella undecimpunctata	Eleven spotted ladybird	Steve Kerr	CC BY
					Coleoptera	Prionoplus reticularis	Huhu beetle	Jon Sullivan	CC BY
Phasmatodea	Micrarchus hystriculeus	Micrarchus	Jacob Littlejohn	CC BY-SA	Coleoptera	Neocicindela tuberculata	Tiger beetle	Jon Sullivan	CC BY
Phasmatodea	Tectarchus huttoni	Tectarchus	Dougal Townsend	CC BY-NC	Coleoptera	Oemona hirta	Lemon tree borer	Simon Nicholas	CC BY-NC
Phasmatodea	Acanthoxyla prasina	Prickly stick insect	Uwe Schneehagen	CC BY-NC					
Phasmatodea	Clitarchus hookeri	Smooth stick insect	Steve Kerr	CC BY	Blattodea	Drymaplaneta semivitta	Gisborne cockroach	Jean & Fred	CC BY-NC
					Blattodea	Drymaplaneta heydeniana	Golden cockroach	Phil Bendle	CC BY-NC
Dermaptera	Forficula auricularia	European earwig	Steve Kerr	CC BY	Blattodea	Celatoblatta undulivitta	Celatoblatta native cockroach	Uwe Schneehagen	CC BY-NC
Dermaptera	Anisolabis littorea	Mata	Steve Kerr	CC BY					
Dermaptera	Labidura riparia	Shore earwig	Robert Briggs	CC BY-SA	Orthoptera	Caedicia simplex	Common garden katydid	Mike Bowie	CC BY-NC
					Orthoptera	Hemideina thoracica	Auckland tree weta	Nathan McCauley	CC BY-NC
Hemiptera	Scolypopa australis	Passionvine hopper	Steve Kerr	CC BY	Orthoptera	Phaulacridium marginale	NZ grasshopper	Steve Reekie	CC BY-NC
Hemiptera	Nezara viridula	Green vegetable bug	Pete McGregor	CC BY-NC-ND	Orthoptera	Teleogryllus commodus	Black field cricket	Victor W Fazio III	CC BY-NC

Insects

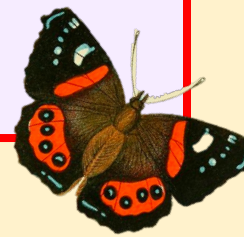
Order: Lepidoptera

Lifecycle: Complete Metamorphosis



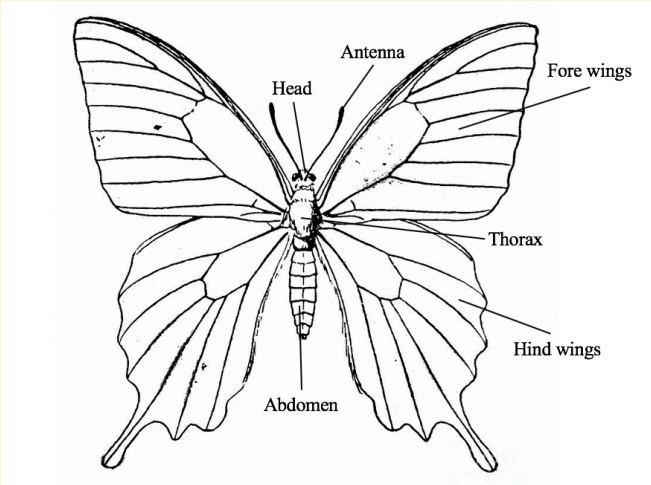
Butterflies & Moths

Pepe & Pūrerehua



Butterflies and moths belong to the order Lepidoptera. They have **two large pairs of wings**, which are covered in very small **scales**. Their mouthpart is a long tube that is coiled called a **proboscis**. This is used for sucking nectar, sweet sap or other liquids. During this process, they will help with pollination.

There are around 25 species of butterflies, with a few accidentally blown over from other countries during storms. New Zealand has a lot more moths, with over 1700 different species. Over half of these are called micro moths, as they have a wingspan of less than 2 cm.



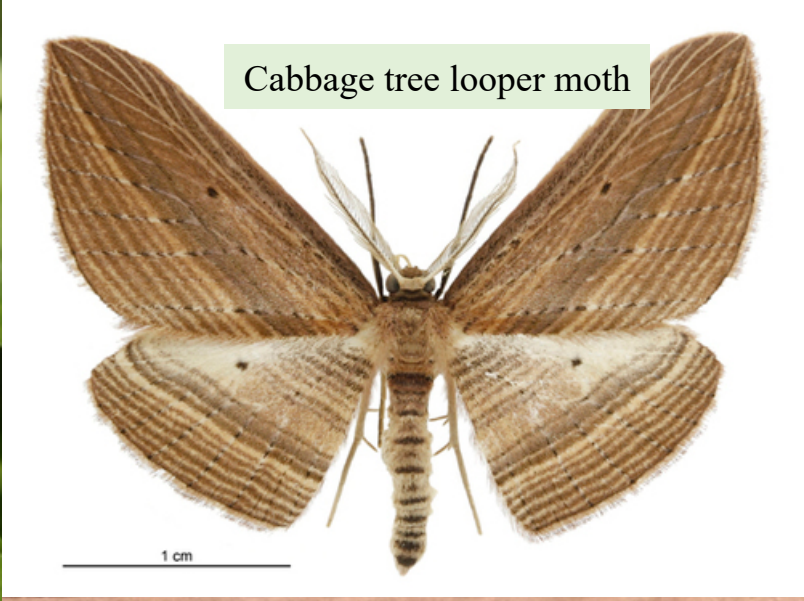
How to tell the difference between a butterfly and a moth:

BUTTERFLIES	MOTHS
• Antennae always have a *clubbed tip* • Wings mostly *folded upright* when resting • Fly during the day	• Antennae *feathery or pointed*, not clubbed • Wings mostly *spread flat* when resting • Most fly at night (though some fly during the day)

The females lay their eggs on plants, from which **caterpillars** (the young) hatch and eat the plant.

Monarch butterfly

Yellow admiral butterfly



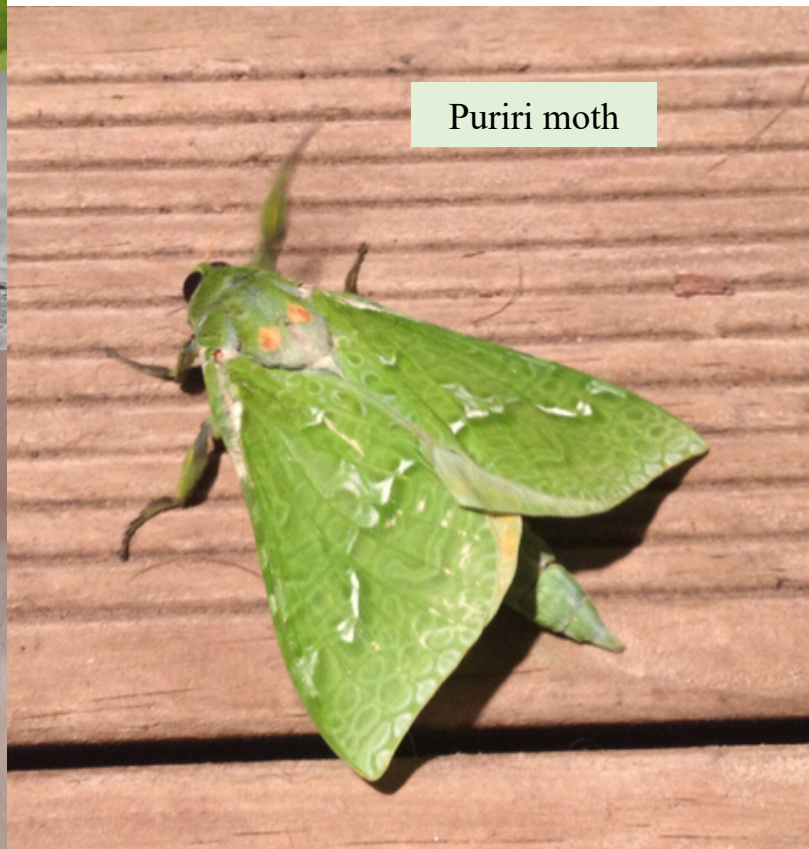
Cabbage tree looper moth

Magpie moth

Cabbage white butterfly

Common grass moth

Lichen moth

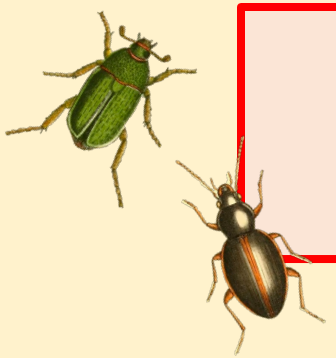


Puriri moth

Insects

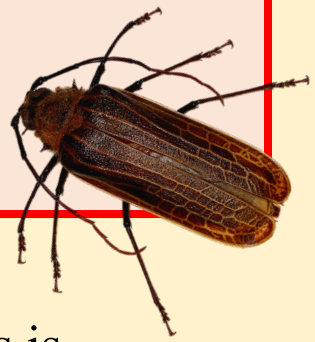
Order: Coleoptera

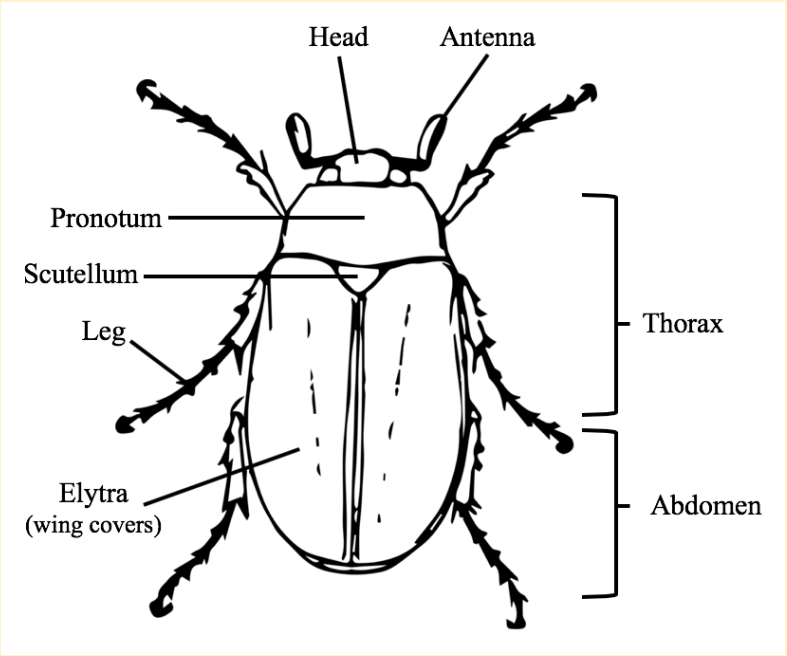
Lifecycle: Complete Metamorphosis



Beetles

Pāpapa





Common types of beetles:

- Scarab beetles
- Ladybugs
- Weevils
- Giraffe weevils
- Ground beetle
- Tiger beetles
- Click beetles
- Stag beetles
- Dung beetles

Beetles are insects which belong to the order Coleoptera. This is such a large group, that there are more species of beetles than all the plants put together on the whole planet! There are over 5,500 species of beetles in New Zealand.

The first pair of wings is hardened into hard protective wing covers, called **elytra**. When the beetle is not flying, these fold down to rest on the back and **meet at the middle**. The soft wings are hidden underneath, folded up like origami. They have antennae, used mostly to smell. They also have **chewing mouthparts**. Beetles are found in a wide range of habitats, many acting as flower pollinators.

The larva of beetles are called grubs, and can be found in trees or underground.


Huhu beetle


Flax weevil


Ground beetle


Eleven spotted ladybird


Giraffe weevil
Erin C Powell


Steel blue ladybird


Lemon tree borer


Tiger beetle


Four-spined weevil
© Julie V. Simpson * * www.thetoughphotgrapher.com


Mexican dung beetle

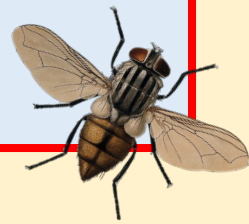
Insects

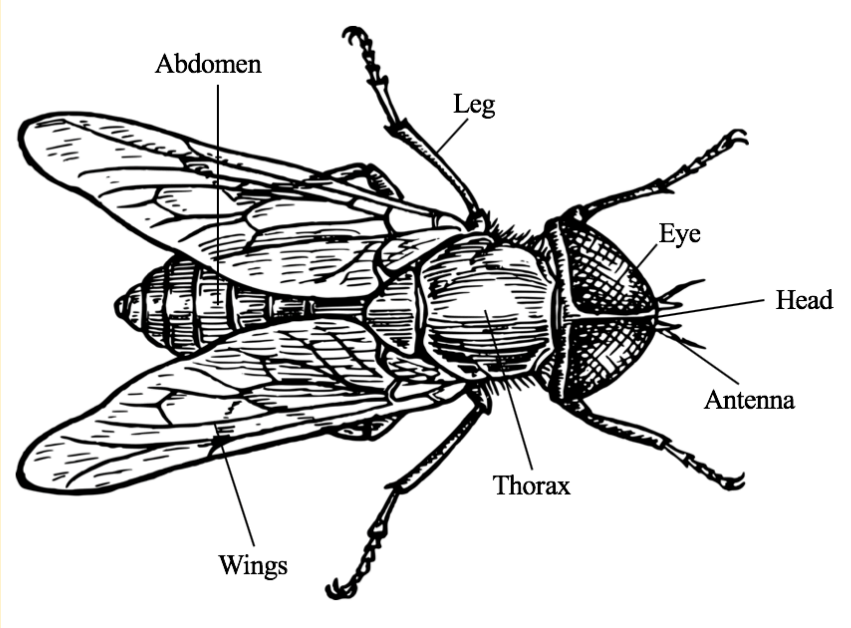
Order: Diptera

Lifecycle: Complete Metamorphosis

Flies

Ngaro





Flies are insects which belong to the order Diptera. They are characterised by having only one pair of wings. The hindwings are modified into small drumstick like organs called halteres, which are used for balance while flying! They can be incredibly fliers, moving in fast acrobatics. New Zealand has around 2000 species. To eat, flies have a sucking and sponging tube-like proboscis. They have very large eyes. The larva are called maggots.

Flies can be divided into two groups;

1. **Thin-bodied flies**: these are the flies with small delicate bodies such as crane flies and mosquitoes. The maggots an obvious head.
2. **Fat-bodied flies**: these have a round, stout body with short antennae like house flies. Unlike the other group, the maggots have no obvious head.

Common types of flies:

- House flies
- Crane flies / Matua Waeroa
- Fungus gnats (glowworms)
- Mosquitoes / Waeroa
- Sand flies / Namu
- Hover flies/ Ngaro Paira
- Blowflies / Ngaro Iro
- Soldier flies
- Robber flies
- Seaweed flies


Australian leafroll tachinid


Blowfly


Garden soldier fly


Drone fly


Black
soldier fly


Mosquito


Glowworm

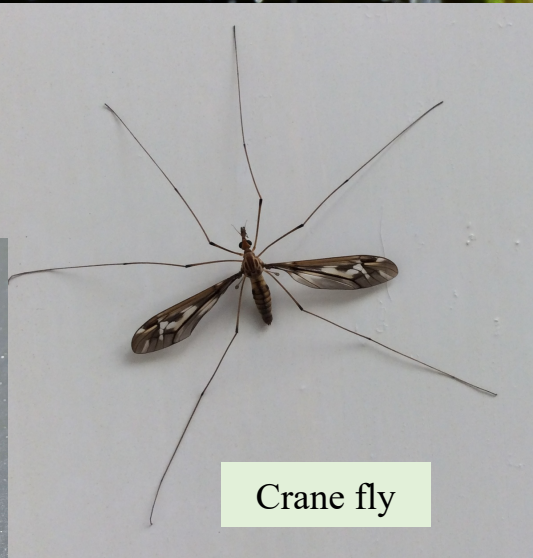

Large hoverfly


Greenbottle fly


Robber fly


Three lined hoverfly

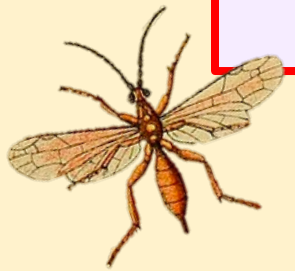

Tachinid


Crane fly

Insects

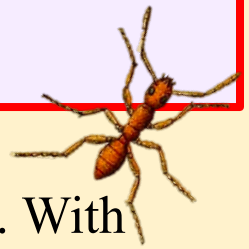
Order: Hymenoptera

Lifecycle: Complete Metamorphosis



Bees, Wasps, Ants & Sawflies

Pī, Wapī, Pōpokorua

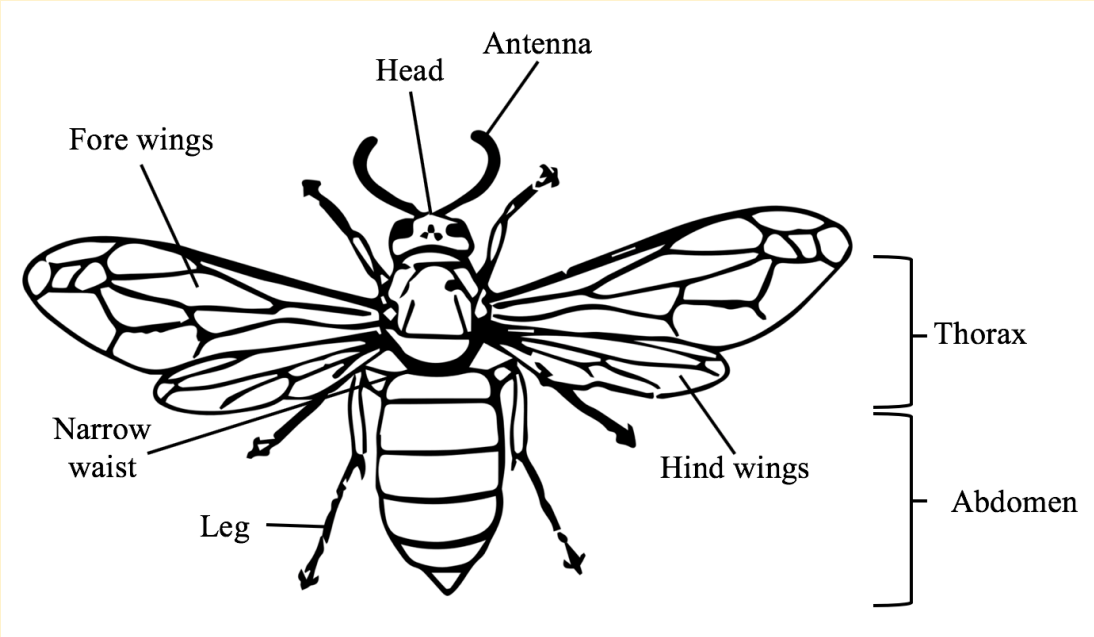


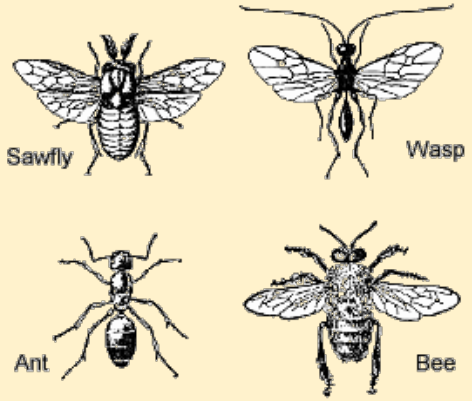
New Zealand has over 1500 different species, with many known for their pollination services. However, many introduced species have become pests over the years.

The order Hymenoptera contains bees, ants, wasps and sawflies. With the exception of sawflies, all members of this group have a **narrow waist**. Of those who can fly, they have **two pair of clear wings** which are hooked together during flight. These hooks are called frenulum. When reproducing, eggs that are fertilised produce females, while unfertilised eggs produce males.

Hymenopteran groups:

- Bees
  - Social bees
  - Solitary bees
- Wasps
  - Social wasps
  - Parasitic wasps
  - Hunting wasps
- Ants
- Sawflies






Asian paper wasp


Honeybee


Lemon tree borer parasite


Argentine ant


Common wasp


Large black hunting wasp


Wool carder bee


White-footed House ant


German wasp


Native *Leioproctus* bee

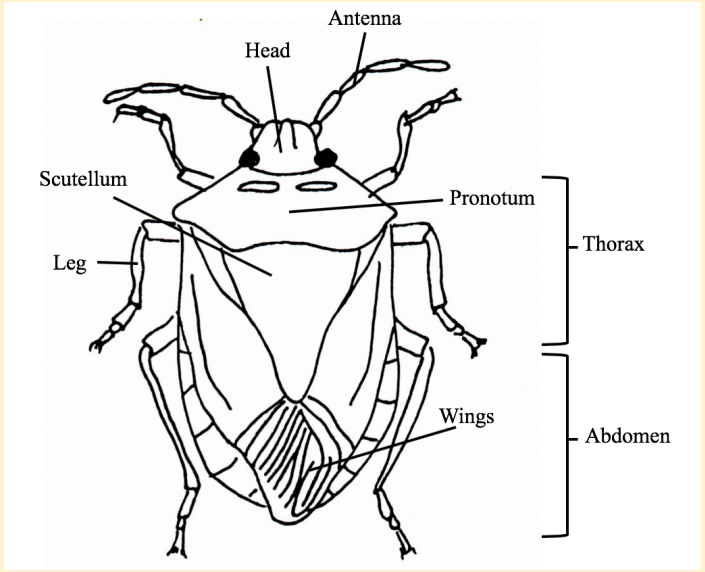

NZ mason wasp


Southern Michelin ant

Insects

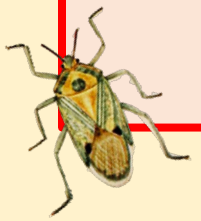
Order: Hemiptera

Lifecycle: Incomplete Metamorphosis

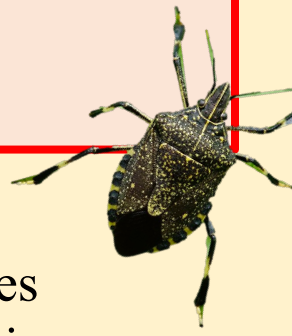


Common types of true bugs:

- Shield (stink) bugs
- Planthoppers
- Spittle bugs
- Cicadas / Kihikihi
- Aphids / Kuturiki
- Scale insects & Mealybugs



True Bugs



True bugs belong to the order Hemiptera, which loosely translates in Latin to ‘half wing’. They have **piercing mouthparts**, which is a straw-like tube used to pierce holes in plants or animals and suck out liquid food. There are over 800 species in New Zealand.

True bugs can be divided into 3 broad groups;

1. **Wings overlap to form a cross**: they have a flattened body with hardened wings (often confused with beetles). An example are the shield bugs.
2. **Wings angled like the roof of a house**: when not flying about, the wings are held together at an angle like a house roof. Most males of this group ‘sing’ to attract mates. Examples are the cicadas and planthoppers.
3. **All others (aphid relatives):** small insects, whose piercing mouthpart is located between the two front legs (or even further back). Examples are aphids and mealybugs.


Forest shield bug


Swan plant seed bug


Variable cicada


Chorus cicada


Brown soldier bug


Green vegetable bug


Green planthopper


Milkweed aphid


Passionvine hopper

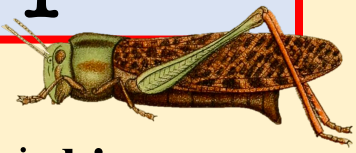

Giant willow aphid

Insects

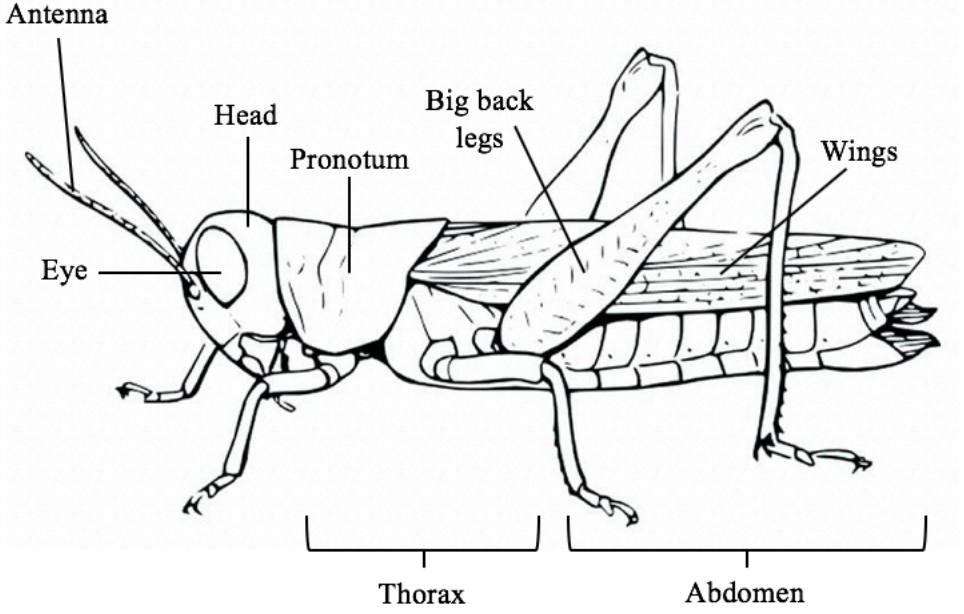
Order: Orthoptera

Lifecycle: Incomplete Metamorphosis

Wētā, Crickets & Grasshoppers



These insects belong to the order Orthoptera and are characterised by their **big back legs**. These huge legs are used to leap away from predators. Those with wings have a hardened pair covering and protecting the soft underwings. They have **chewing mouthparts**, mostly used to eat plants. They have large heads with big eyes, and the region behind the head is saddle-shape (pronotum).



They can ‘sing’ by rubbing one part of their body against another (known as stridulation). This song is used to attract mates.

New Zealand has over 130 species, and the wētāpunga holds the record for being the world’s heaviest insect!

New Zealand grasshopper

Green katydid

Black field cricket

Auckland tree wētā

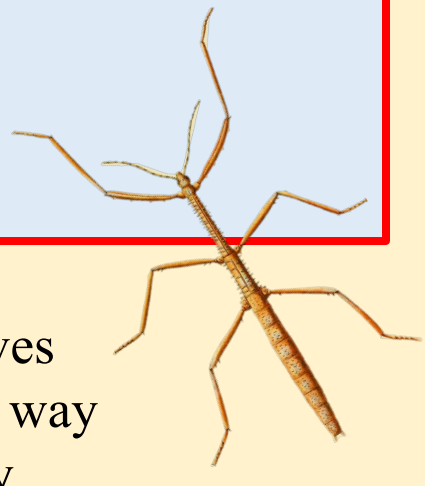
Insects

Order:
Phasmatodea

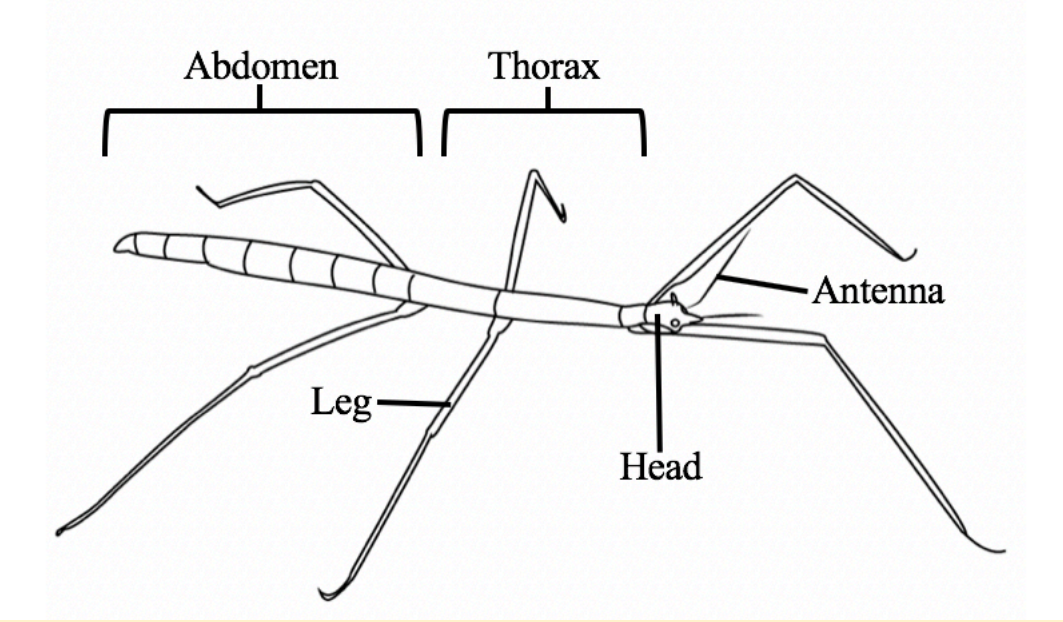
Lifecycle:
Incomplete
Metamorphosis

Stick Insects

Rō, Whē



Stick insects are insects in the order Phasmatodea. Their name derives from the Greek ‘phasma’ which means ghost, likely referring to the way that they look like plants, and blend in with their environment. They depend on this **camouflage** to avoid predators.



Some New Zealand species and populations consist of only females (no males), and they reproduce asexually through parthenogenesis. Essentially, the offspring are clones of the mothers! When they are still nymphs, they can re-grow legs if one has been lost during a bad moult or to a predator!

New Zealand has around 20 species, all native. They all have **thin, stick-like bodies**, with colours ranging from brown to green, and lack wings. Some overseas species can be quite colourful, with wings, and even resemble leaves!


Tectarchus species


Smooth stick insect
Clitarchus hookeri

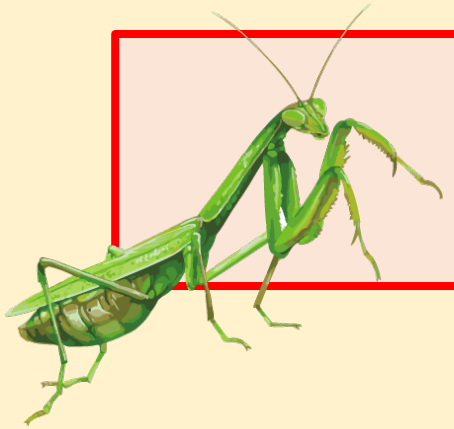

Prickly stick insect
Acanthoxyla species


Micrarchus species

Insects

Order: Mantodea

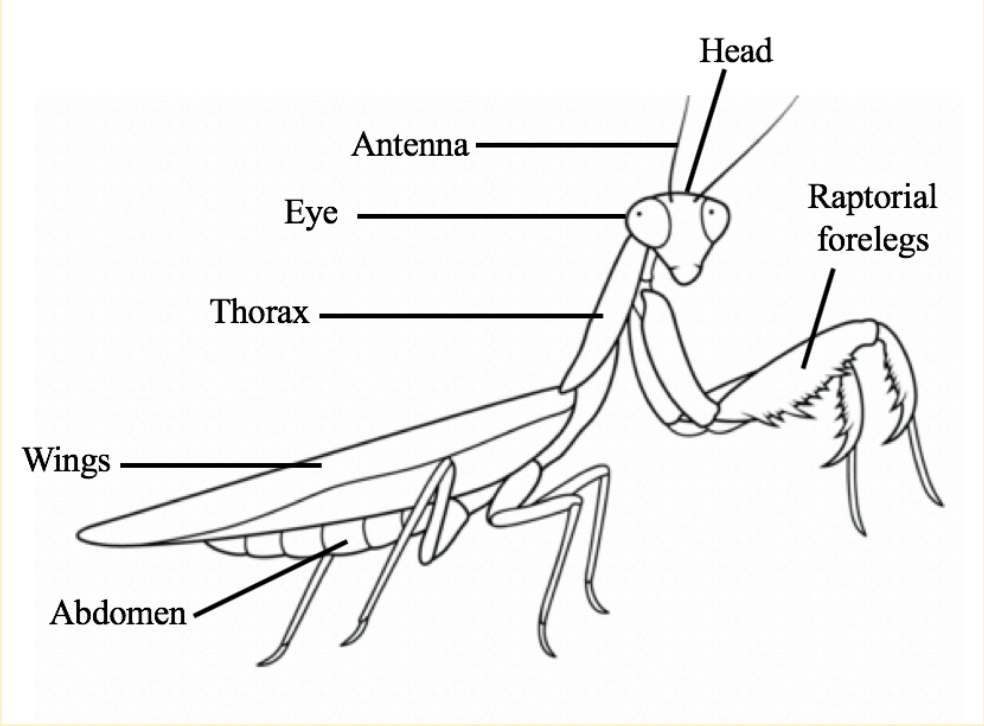
Lifecycle: Incomplete Metamorphosis



Praying Mantis

Rō, Whē

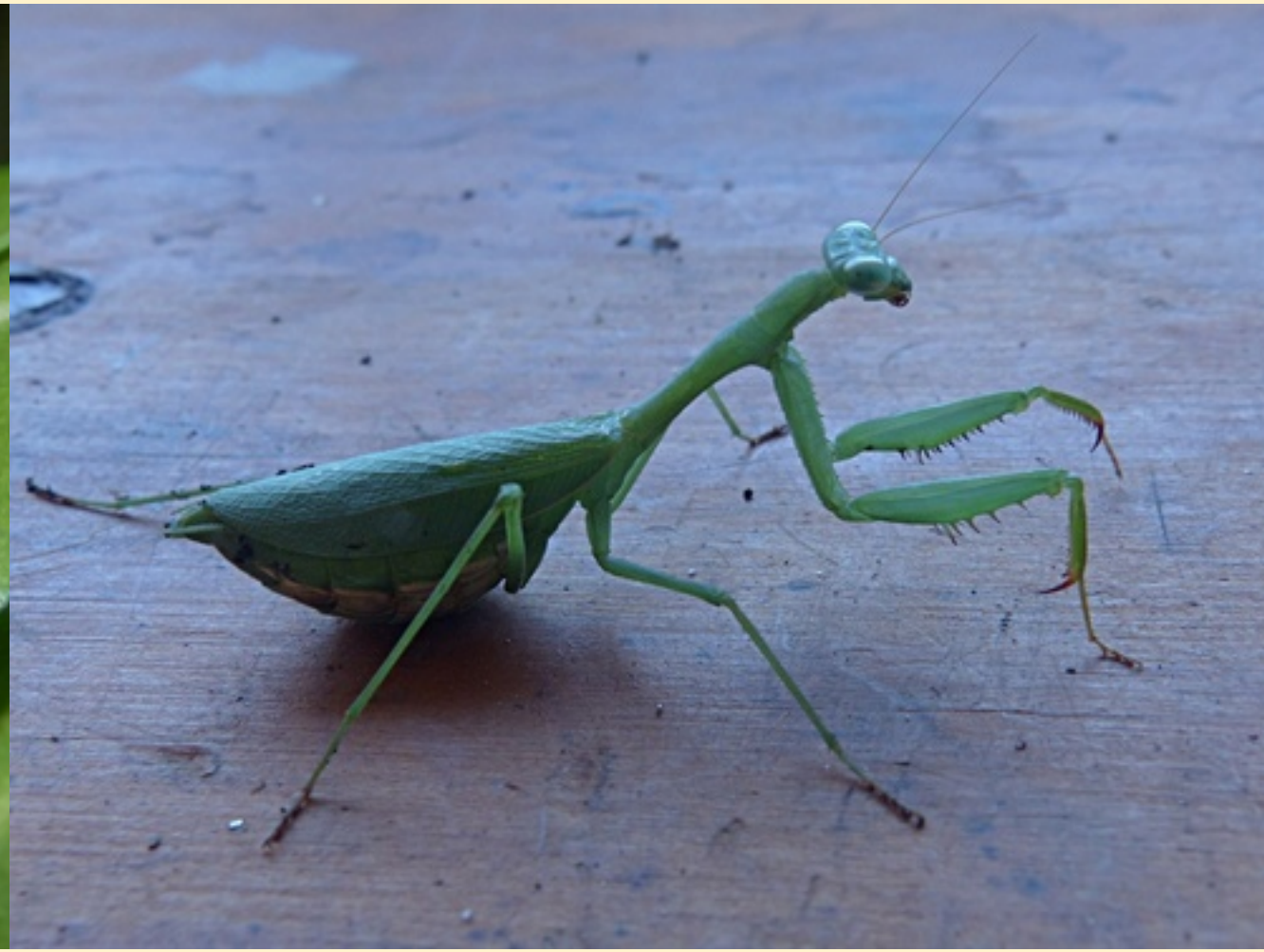
Ootheca



Praying mantis belong to the order Mantodea. These insects have large forelegs which they hold in front of the body (known as raptorial), in order to quickly grasp prey. A very mobile head which is triangular in shape and has large bulging eyes. They are very good predators. The ones that can fly, have a leathery forewings protecting the soft membranous hindwings. Their name is thought to come from the way they hold their front legs, making them look like they're praying. They lay rows of eggs in a foamy substance which hardens to protect the eggs. This egg case is known as an ootheca.

New Zealand only has two species, of which one is native and the other being invasive from South Africa. The native praying mantis is distinguished by its characteristic blue spot on the inner forearm and wider thorax.

New Zealand praying mantis
Orthodera novaezealandiae

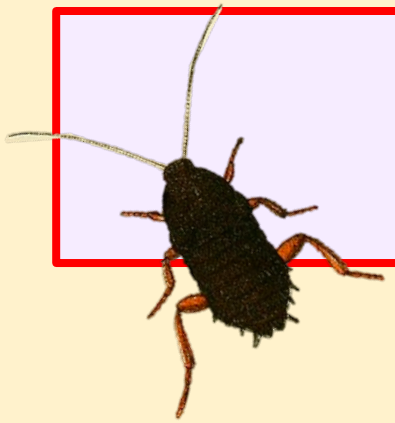


South African praying mantis
Miomantis caffra

Insects

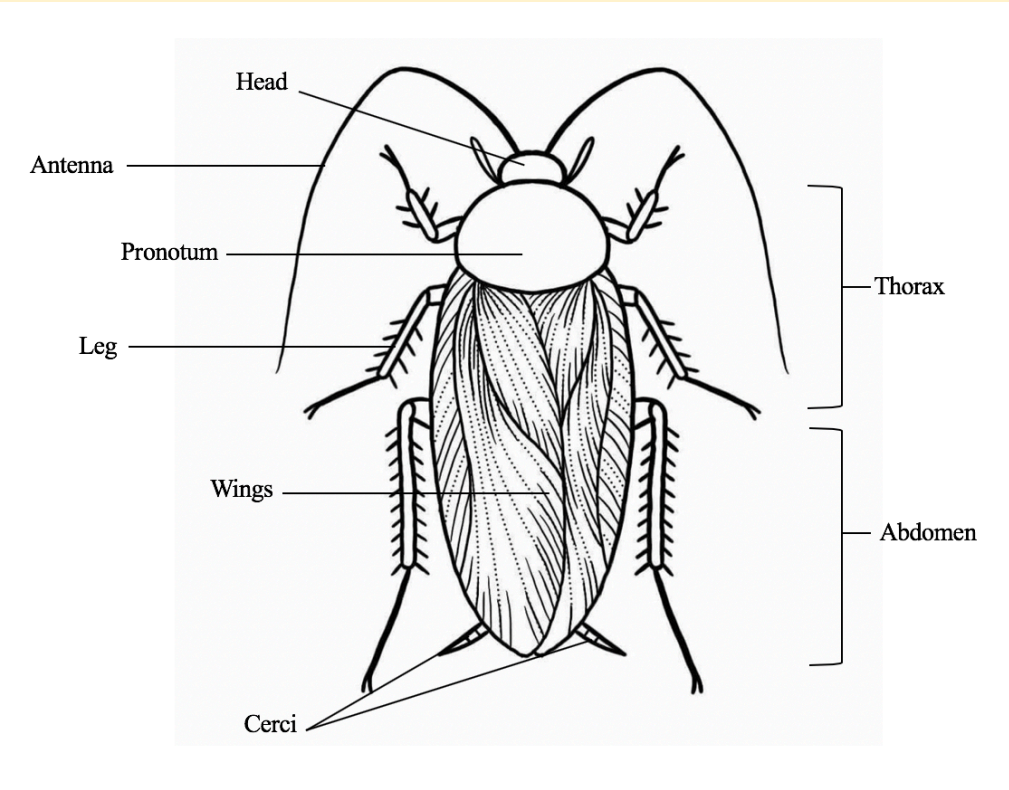
Order: Blattodea

Lifecycle: Incomplete Metamorphosis



Cockroaches

Kokoroihe



Cockroaches are insects in the order Blattodea. They have broad flattened bodies with a shield like structure behind the head (pronotum). They are fast-running with spiky legs. They have two distinctive spikes (cerci) at the back which are used to detect air movement and feel their way around tight spaces. Some have wings, though they can't fly very far. They have chewing mouthparts which they use to mostly eat food scraps or rotting wood and fungus.

New Zealand has over 30 species, of which most are native. They live in a wide range of habitats. This group has been on Earth for over 300 million years, long before the dinosaurs!


Native bush cockroach


Golden cockroach


Gisborne cockroach

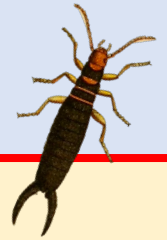
Insects

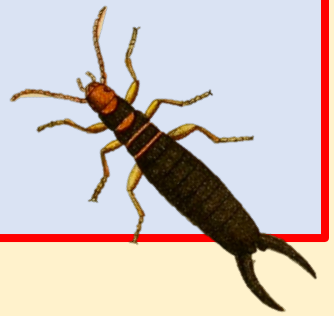
Order: Dermaptera

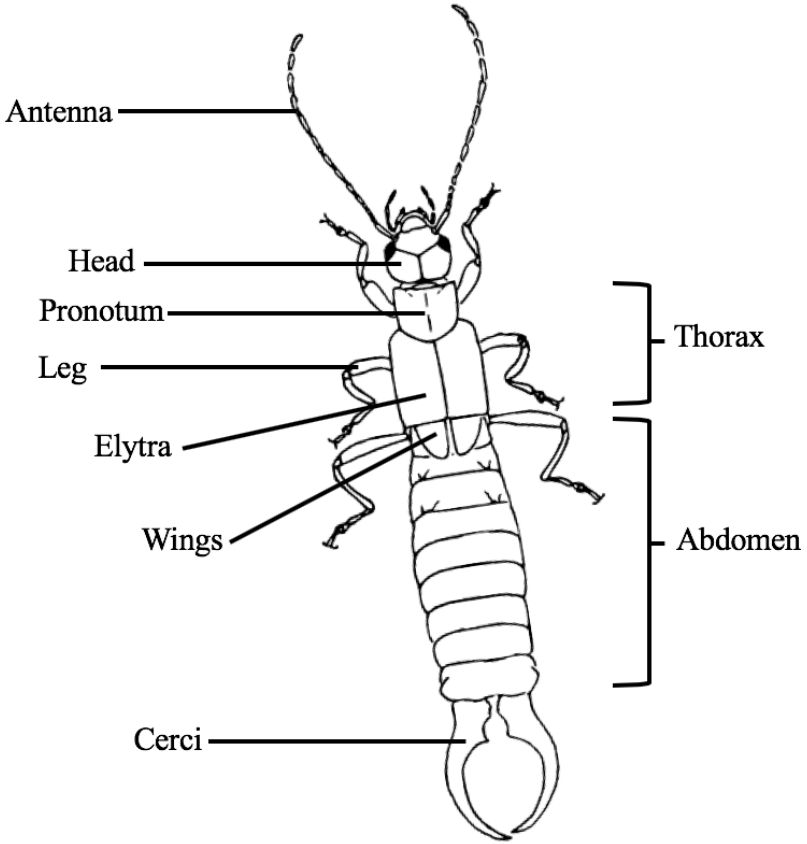
Lifecycle: Incomplete Metamorphosis

Earwigs

Hiore Kakati







Earwigs are insects from the order Dermaptera. They have a small, elongated flattened body. The introduced species has small pairs of wings, while the native ones have no wings at all. They have a distinct pair of curved pincers (or forceps) at the end of their body called cerci.

During the day, they like to hide away in damp places, under logs, leaf litter or even in flowers (making them pollinators!).

There are over 20 species of earwigs in New Zealand, most native to here. The name is thought to either come from the shape of the wings which look like ears, or the old belief that they wiggle into ears (which they do not!).


European earwig


Mata


Shore earwig