

## Insects and Small Animals

Pictures of these creatures can be found in the Photo Gallery in this resource kit.

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Wherever you are in Arthur's Pass small creatures are watching you! This section sets out to identify just a few of these creatures that you may find at Arthur's Pass and to help you learn something about why, where and how these small animals live.

Trees, plants and birds can teach us about **adaptation, behaviour, habitat and life cycles**; so too can the small animals and insects that live amongst the forest, tussock lands and riverbeds. They are very small but with closer investigation and a little time, this smaller world can come to find you.

Insects and other small animals are found in lots of different **habitats**. To find them we have to use many techniques. Turn over logs, pull off bark from rotting logs, lift up stones, scrape away leaf litter from the forest floor, shake the branches of **subcanopy** trees and look closely at streams.

Some of the common insects and small animals you may get to know are the sandfly, the stonefly, spider, centipedes, millipedes, cockroaches, dragonflies and earwigs. Most of the small animals we are going to look closely at are insects.

An insect is a creature that has six legs and a body made from three parts - **head, thorax and abdomen**. Insects vary in some way from each other because of their different lifestyles and habitats. They have various adaptations to help them survive; such as large compound eyes for all-round vision; long thin **antennae** for feeling; colouring for **camouflage**; different choices of food and methods to obtain it. We can sometimes tell what they feed on by looking at their mouth parts - don't forget your magnifying glass. For example, the sandfly's mouth part is adapted for piercing and sucking. Some insects, like bees, have a type of tongue to suck or lap up nectar from flowers.

Most of the insects we see are in their adult stage. There is usually a distinct **metamorphosis** or change in form during the insect life cycle. Once the insect egg is hatched the **larval** stage begins (the young insect may look totally different from the adult); this leads to the **pupal** stage (the resting stage), which finally forms the **adult**. On the other hand, some insects undergo very little change from larva to adult.

### Dragon Fly

If you are within the river zone **habitat** during summer or autumn, you may see or even hear the large dragon fly on the wing. Its large wings enable the dragon fly to dart about quickly, but it can also hover very still like a helicopter. The large compound eyes give it all-round vision which helps the dragon fly catch its prey (smaller flies, mosquitos, butterflies), while flying.

Its **life cycle** is most interesting to us. Before maturing to the adult we see here, the **larva** actually lives in the waters of ponds, lakes and streams for up to six years! There it feeds on other aquatic insects (other larvae, small tadpoles) until it is ready to change into the **adult** dragon fly and live the rest of its life above the water. In the gallery, there are three photographs showing the adult emerging from the larval stage.

## Sandfly (adult stage)

You should all know this insect! It doesn't take much to find, more often than not it will find you.

The eggs of this insect are laid in streams on the surface of rocks. The **larvae** are shaped a bit like a caterpillar, and can fix themselves to rocks and trail out finger like hairs that collect food particles as the water flows by. They don't go after food, the food comes to them. This sounds like sensible behaviour!

For the next stage of the **life cycle**, the sandfly larvae builds itself a cone shaped house, still in the stream. After some time it emerges as an **adult** form. It is only the female who has the blood sucking habit. This enables her to lay more eggs, thus the more people sandflies bite, the greater their **population**.

The Maoris have an interesting story about the sandfly or namu, where after a battle of the Gods, one God sent namu to another so that he would have no more peaceful moments.

During the winter, sandflies are not seen (or felt) but as soon as spring arrives the temperature is not so cold so the sandflies come out in their thousands!

## Stonefly

It may take years for the larva to emerge from its aquatic habitat to take up its adult form, which you can see in the photograph in the gallery.

### Stonefly (larval stage)

Look closely in streams. Lift up rocks and stones. It is here that some young insects live, who are adapted to aquatic life. Living under rocks helps them hide from fish and birds who feed on aquatic insects. Their bodies are flattened and they have strong legs so that they don't get washed away in the current. Some insects in the larval stage of their life cycle, like the stonefly, can remain completely under water, breathing by gills of some sort.

## Centipedes and Millipedes

These creepy crawlies are not insects. They have more than three body parts and more than six legs, but not as many as 100 or 1000.

**Centipedes**, like the one in the gallery are **carnivores**, feeding on slugs, worms and insects. The front claws have poison in them, which is used to catch **prey**. They can inflict a painful bite when frightened! Centipedes may be found under stones or under the bark of decaying logs.

Millipedes have more legs and rounder bodies, often with bright and dark bands around them with a shining armour or hard skin for protection. They are slower moving than centipedes and when disturbed may simply coil themselves up. Their **habitat** is in

gardens and forests, under wood or leaves. Millipedes are vegetarians or **herbivores**, feeding on plant materials.

## Spiders

Spiders are not insects. They have eight legs instead of six and their bodies are in two parts not three. Some overseas spiders are dangerous so people often dislike them. Spiders, however, can be very interesting. They do much to control insect pests because of their place in the **food chain**.

Some spiders build webs to snare their prey while others hide in holes and emerge to grab unsuspecting passing prey. They have powerful **fangs** to hold **prey**; insects or small animals. Many spiders then use poison injected into the captured prey to kill them. Thousands of eggs are laid because of the low **survival rate**. Spider's eggs and young are a delicacy for many birds. **Spiderlings** hatch after three or four weeks and then go through stages, shedding skins as they out grow them, until the final adult stage is reached. If a spider loses a leg it has the capability to **regenerate** the lost limb. This ability to lose a leg without any permanent inconvenience is an excellent **adaptation** for survival when attacked by a **predator**.

## Earwig

Many insects share the same **habitat**, and the **earwig** is a good example. The cockroach can also be found living near an earwig population. Decaying logs, rotting bark and the forest floor provide an ideal habitat for both.

This little insect looks more fearsome than it really is. The pincers were once thought to be for obtaining food, but this is not so, as the earwig is **herbivorous** with strong mouth parts. Its colour and shape enable the earwig to blend in with its natural surroundings - look carefully on your insect hunt. Don't be fooled either - those pincers are harmless! It's **life cycle** is very simple - it does not have a **pupal stage**. From the **larva** the earwig goes through a series **of moults** (sheds its skin just like a snake). The last moult is then the beginning of the adult earwig.

## Cockroach

The **cockroach** is one of the easiest insects to find at Arthur's Pass. Although its colour is a good camouflage, the cockroach can be seen under stones, in cracks of logs, under rotting bark and in leaf litter. An interesting **adaptation** is the long legs and antennae. These long legs enable the cockroach to move quickly in its **habitat** and when disturbed it is often hard to catch. As it is a nocturnal creature, the long antennae helps the cockroach to feel its way. It will often be asleep when discovered or perhaps it is playing dead.