Caddisfly Larvae

Very Sensitive Bug

Photos courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

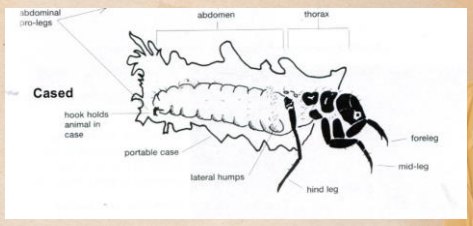


Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Trichoptera

Size: Caddisfly Larvae themselves can grow to 20mm but their case can be anywhere between 4-50mm.

Appearance: Caddisfly Larvae protect their soft bodies by building a protective case around them. The materials vary depending on the speed of the water in which it lives, the materials available and individual preference. They may include a hollow stick, reed, leaf, plant stem or even sand !

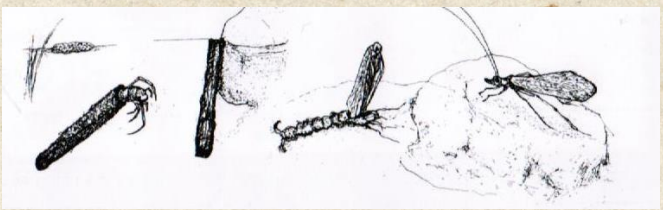
Habitat: Caddisfly Larvae are found among aquatic vegetation, rocks and snags in slow-moving streams, swamps, lakes and temporary pools or fast-flowing freshwater such as mountain creeks.

Diet: Caddisfly Larvae can be herbivores; collecting plant material, detrivores; collecting fine organic matter or carnivores; catching other aquatic invertebrates.

Movement: Caddisfly Larvae creep slowly along, dragging their case with them or they may poke their heads and front legs out and be seen thrashing wildly to propel themselves forward.

Predators: Dragonfly Nymphs, frogs, fish and platypus

Life Cycle: Egg, larva, pupa, winged adult (complete metamorphosis)



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Did You Know:

- Caddisfly Larvae spend 95% of their life as larvae
- Some Caddisfly Larvae are free living
- Caddisfly Larvae can chew out the inside of a stick or plant stem to make their case hollow
- Some Caddisfly Larvae even make a square-shaped 'log cabin' case out of small sticks

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Stonefly Nymph

Very Sensitive Bug

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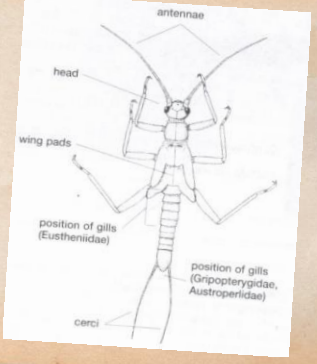


Illustration courtesy of The Waterbug Company

Phylum: Insecta **Class:** Plecoptera

Size: Stonefly Nymph grow to 30mm

Appearance: Stonefly Nymph are characterized by long antennae, two sets of wing-pads and a two-pronged tail. Some species have a tuft of feathery gills at the end of the abdomen.

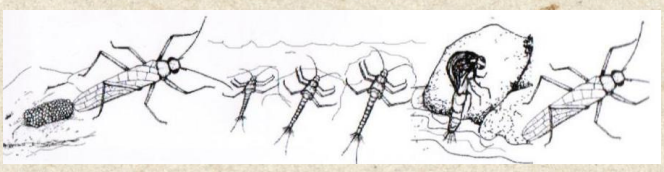
Habitat: Stonefly Nymph generally live in healthy, cool, fast-flowing streams and rivers. Some live on or under rocks, some cling to aquatic plants, some burrow and some live among woody debris.

Diet: Stonefly Nymph can be herbivores; feeding on algae and plant material, detrivores; foraging for organic particles and some become carnivores as they develop; preying on other aquatic invertebrates.

Movement: Stonefly Nymph moved slowly and deliberately and may try to crawl out of your sampling tray !

Predators: Fish, invertebrates and birds

Life Cycle: Egg, nymph, winged adult (incomplete metamorphosis)



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Did You Know:

- Stonefly Nymph development can be delayed in drought conditions to wait for rain
- Eggs are laid in water and have a sticky coating to keep them fixed to the bottom
- After maturing, adult Stoneflies only live for a few months at the most

Mayfly Nymph

Very Sensitive Bug

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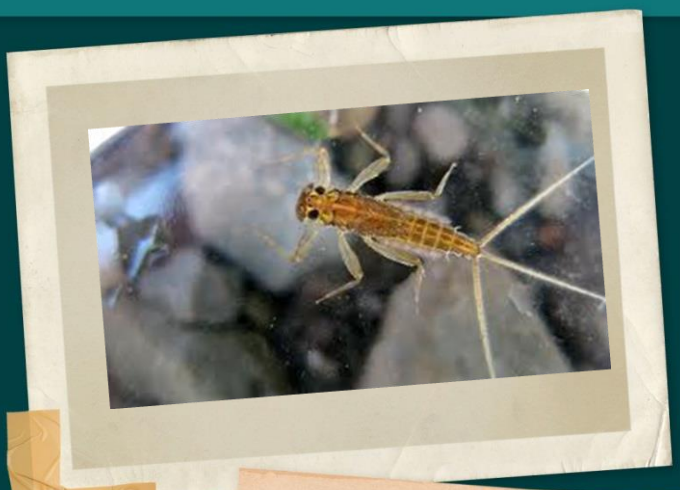

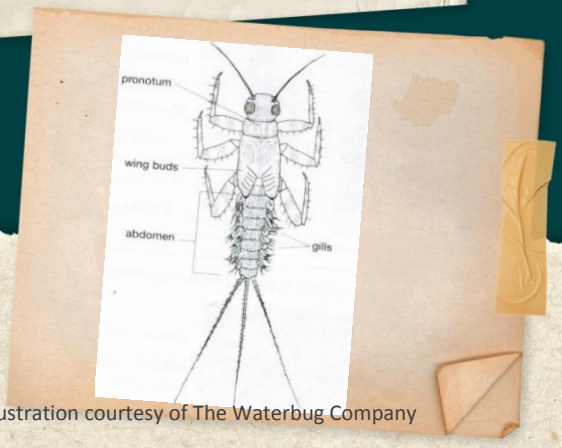

Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Ephemeroptera

Size: Mayfly Nymph grow to 20mm

Appearance: Mayfly Nymph have three tails edged with hairs, two antennae, gills along their abdomen. They can be confused with Damselfly Nymph.

Habitat: Mayfly Nymph can be found in still to fast-flowing freshwater, under rocks and logs and in vegetated areas

Diet: Mayfly Nymph can be herbivores; feeding on algae and phytoplankton, detrivores; eating decaying organic matter and carnivores; preying on other aquatic invertebrates.

Movement: Very slow with fast bursts of movement when hunting.

Predators: Fish and invertebrates.

Life Cycle: Egg, nymph, winged adult (incomplete metamorphosis)

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Did You Know:

- Most of the life of a mayfly is spent as a nymph
- Their three tails, some edged with swimming hairs, help them move in the water
- They can be confused with Damselflies because they both have three tails
- They have gills along each side of the abdomen that flutter
- Mouthparts have scraping blades or brushes that aid feeding
- They have one claw on the end of each leg for anchorage

Freshwater Shrimp

Sensitive Bug

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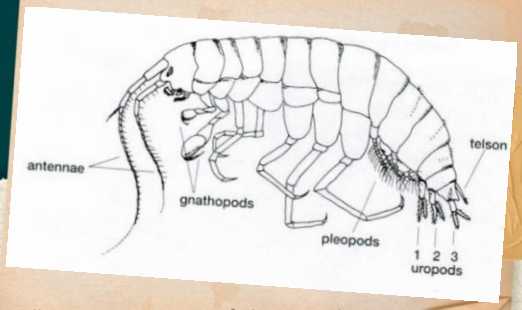


Illustration courtesy of The Waterbug Company

Class: Crustacea **Order:** Decapoda

Size: Freshwater Shrimp grow between 20-40mm.

Appearance: Freshwater Shrimp have five pairs of legs with the front pair equipped with small brushes rather than the pincers of yabbies and prawns. The head and thorax are fused and the fan-shaped tail is often curled under the body.

Habitat: Freshwater Shrimp can be found in slow-flowing rivers or lakes and tend to be found sheltering within vegetation or under rocks, stones or branches.

Diet: Freshwater Shrimp feed on small organic particles such as rotting vegetation, algae and other detritus they collect with their grasping front legs. They are detrivores (feeding on decomposing matter).

Movement: Freshwater Shrimp propel themselves with their fan-shaped tail. They flip around when in a sample or ice-cube tray.

Predators: Fish, birds, platypus and water rats.

Life Cycle: Females produce 50-250 eggs that are carried by the last 5 pairs of legs (pleopods) under the abdomen. Upon hatching the larvae bear no resemblance to adults. The larvae are termed 'plankton' and go through many stages of development before reaching adulthood.

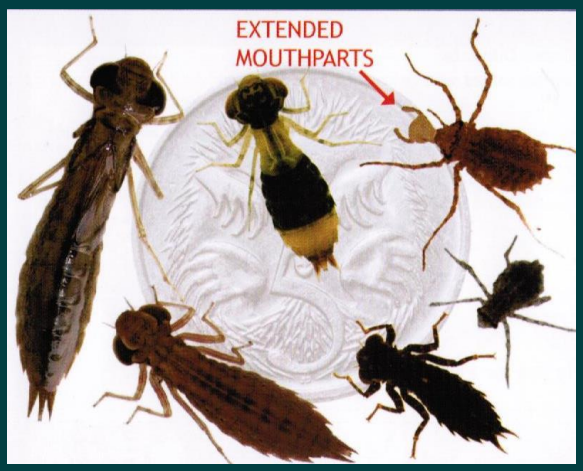
Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Freshwater Shrimp eyes are on short stalks
- Brushes on the front two pairs of legs help to draw food into the mouth
- Freshwater Shrimp are one of the more recognizable macroinvertebrates because of the similarity to their relatives; prawns

Dragonfly Nymph

Sensitive Bug



Photos courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Illustration courtesy of The Waterbug Company

Class: Crustacea **Order:** Odonata

Size: Dragonfly Nymph can grow up to 40mm.

Appearance: Dragonfly Nymph are quite distinctive and often the largest insect you will find within a sample. They have big heads, stout bodies, six legs and are often very well camouflaged.

Habitat: Dragonfly Nymph can be found in vegetation around the edges of both fast and slower moving freshwater. They may also be found in the sediment on the bottom of a body of freshwater and could be left behind in the bottom of your bucket of sample water.

Diet: Dragonfly Nymph are predators that will either stalk their prey or stay motionless and use their camouflage to ambush it. They have unique hinged mouths, which fold up under their heads and can be rapidly extended to grab prey.

Movement: Dragonfly Nymph are slow careful movers but they breath by sucking water in and out of their abdomen so, they are able to shoot out a forceful jet of water from their bottoms to propel themselves away from danger if they feel threatened.

Predators: Fish, frogs, platypus, reptiles and birds.

Life Cycle: Egg, nymph, winged adult (incomplete metamorphosis)

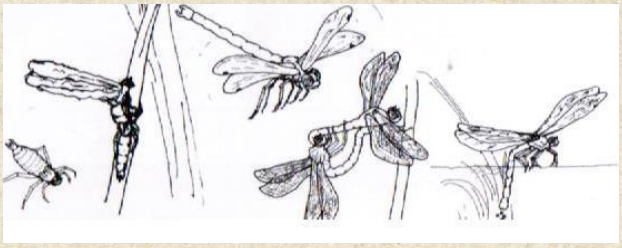


Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Dragonfly Nymphs are commonly called 'mudeyes' and are a popular fishing bait
- Nymphs can live for 40 days to 7 years, depending on conditions and temperature
- They breathe through their bottoms so that air can reach internal gills

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Damselfly Nymph

Sensitive Bug

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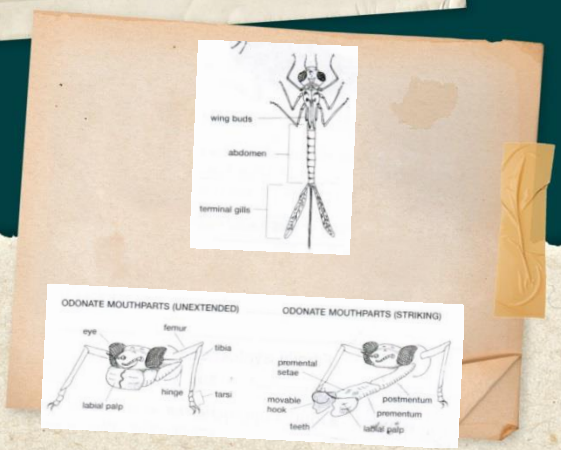

Illustration courtesy of The Waterbug Company

Class: Crustacea **Order:** Odonata

Size: Dragonfly Nymph can grow up to 30mm.

Appearance: Damselfly Nymph are slender and have a long tail tipped with three fan-like gills. Their heads often appear triangular and the eyes are prominent on the sides of the head. The colours of damselflies can vary dramatically from bright greens to dull browns depending on which particular habitat they live in.

Habitat: Damselfly Nymph are found in a diverse range of habitats such as rivers, lakes, swamps, ponds and wetlands, often living within vegetation.

Diet: Damselfly Nymph have the same hinged jaws as dragonfly larvae and are also active predators that feed on other aquatic creatures including water fleas, small fish, worms, tadpoles, mosquito wrigglers, fly larvae and beetles.

Movement: Damselfly Nymph can be identified by their characteristic way of moving; a rapid side-to-side 'dance' that propels them forward.

Predators: Platypus, fish, frogs, reptiles and birds.

Life Cycle: Egg, nymph, winged adult (incomplete metamorphosis)

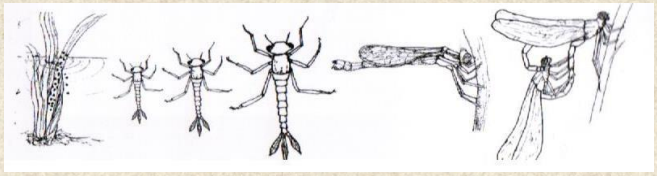

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Damselfly Nymph emerge from eggs inserted into plants growing in the water
- Damselfly Nymph have 10-15 developmental stages lasting from 5 months to several years
- They climb out of the water to enable the final moult to adult form
- You may find a shed skin in your sample

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Water Mites

Sensitive Bug

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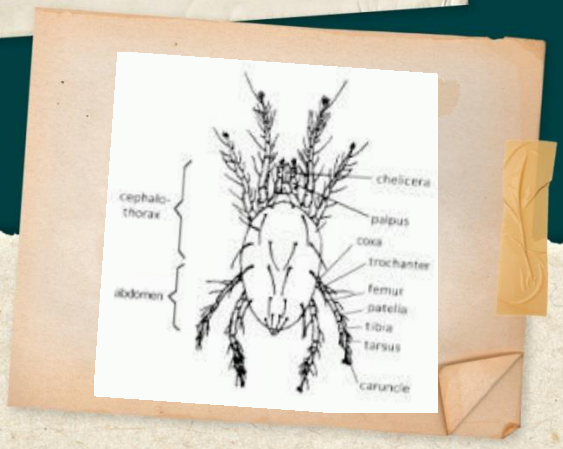

Class: Arachnida **Order:** Acariformes

Size: Water Mites grow to 5mm

Appearance: Water Mites are in the same class as spiders and scorpions and, like them, have four pairs of legs. However, juveniles often have only six legs. Unlike their relatives, water mites don't have any distinctive body sections and their bodies have a spherical appearance as a result. They are one of the more colourful aquatic invertebrates and are often red due to their parasitic diet.

Habitat: Water Mites can be found in most types of freshwater environments but particularly in slow-moving or still water with lots of vegetation.

Diet: Water Mites are predatory and use a beak-like mouthpart to attack small prey like insect larvae and crustaceans and suck the juice from them (parasites).

Movement: Water Mites will often appear as tiny, coloured dots swimming haphazardly around in sample trays.

Predators: Filter-feeding organisms

Life Cycle: They have a complex lifecycle with four major stages. After hatching from eggs, the juveniles attach to an aquatic insect host where they feed on the juices in it's body. Eventually the young mites leave the host and become free swimming.

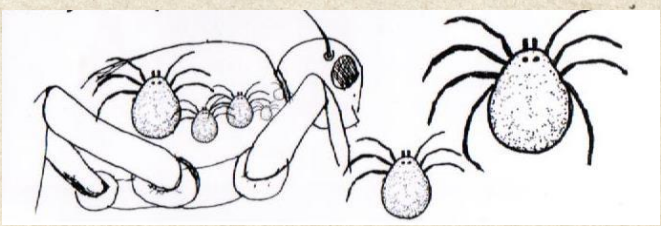

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Young mites attached to flying insect hosts are able to live out of water. Hitch-hiking mites use this opportunity to disperse and colonise new water bodies.
- Bright red mites have a toxic and distasteful substance in their skin so creatures choose not to eat them.

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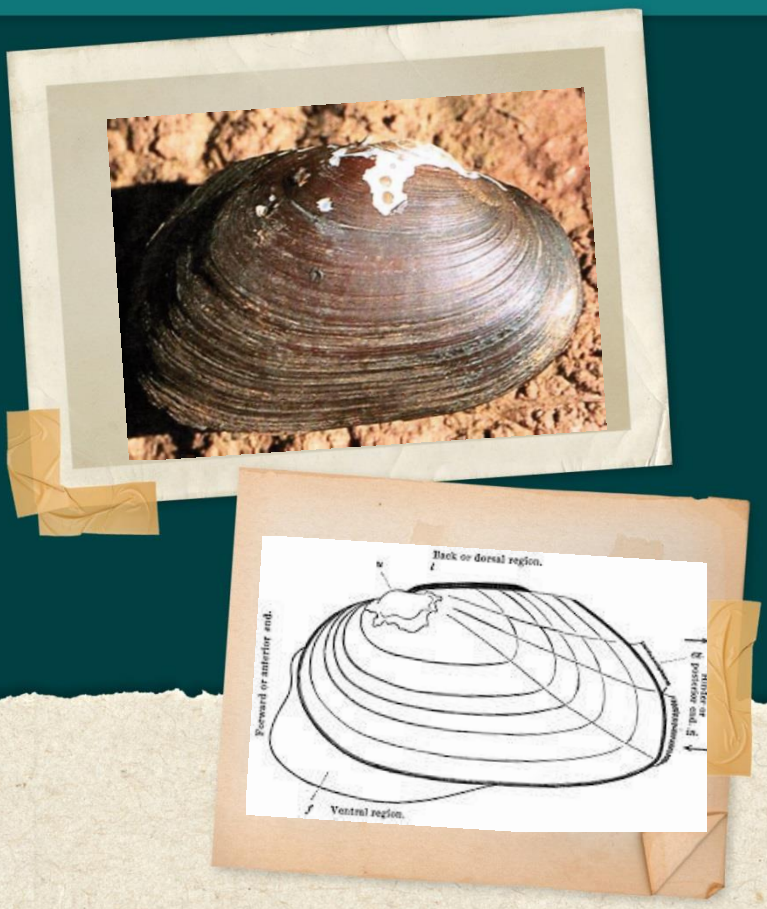
Freshwater Mussel

Sensitive Bug



Phylum: Mollusca **Class:** Bivalva

Size: Freshwater Mussels can grow up to 40mm long.

Appearance: Freshwater Mussels are a shell made of two halves joined together on one side. A soft body is enclosed in the shell. They are often a brown or black colour.

Habitat: Freshwater Mussels can be found partially buried in soft bottom sediment in permanent or semi-permanent bodies of freshwater.

Diet: Freshwater Mussels filter-feed small particles of organic matter and bacteria from the water through their hinged shell and extract any organic particles.

Movement: Freshwater Mussels are able to move a little using a muscular foot that they can stick out of their shell but they tend to sit still.

Predators: Water rats, platypus, bottom feeding fish and wading birds.

Life Cycle: Freshwater Mussels are hermaphrodites. Eggs hatch within the protective shell of the parent and are then released into the surrounding water. Reproduction can occur at any time of year but most young are produced during the warmer months.

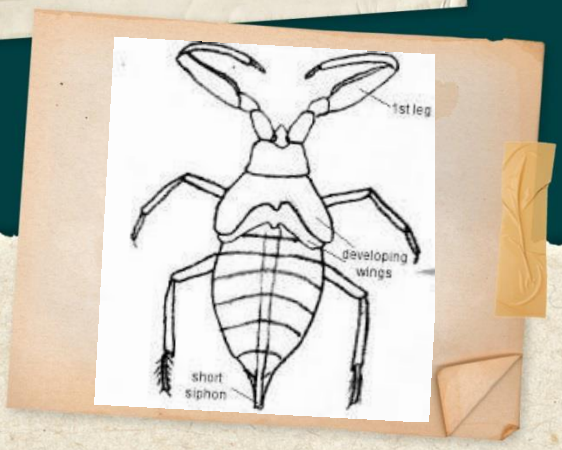
Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Freshwater Mussels, like Freshwater Snails, have evolved from marine ancestors that have adapted to a freshwater environment

Water Scorpian

Sensitive Bug



Class: Insecta **Order:** Hemiptera

Size: Water Scorpians can grow up to 50mm, not including the tail.

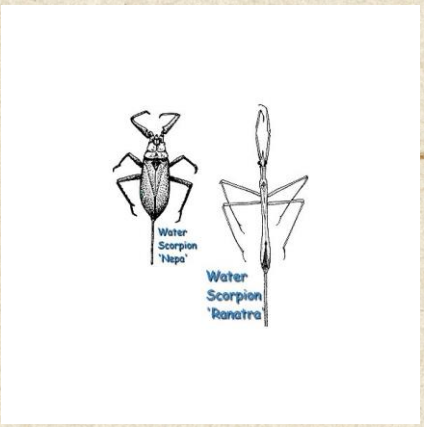
Appearance: Water Scorpians differ from land-based scorpians. They have large grasping claws on their front legs and a long tail which is used as a snorkel to collect air which is stored under their wings.

Habitat: Water Scorpians are found in slow-moving waterways amongst debris and vegetation.

Diet: Water Scorpians are predators, eating other bugs such as water boatmen, tadpoles or small fish.

Movement: Water Scorpians sit quietly within vegetation waiting to ambush their prey.

Predators: Fish, wading birds, frogs and platypus



Did You Know:

- Water Scorpians are not strong swimmers and are rarely seen flying, yet they sometimes seem to be able to find and colonise new habitats quickly.
- Water Scorpians are able to catch these fast swimming creatures due to their keen eyesight.

Freshwater Snails

Tolerant Bug

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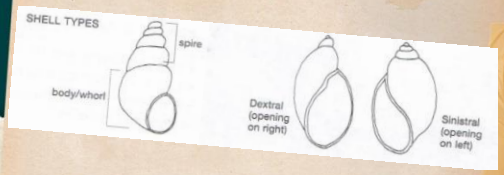

Illustration courtesy of The Waterbug Company

Class: Gastropoda **Order:** Pulmonata

Size: Freshwater Snails grow 3-20mm

Appearance: Freshwater Snails have a soft muscular foot, a coiled shell, two tentacles and eye-stalks. They can be very small or quite big.

Habitat: Freshwater Snails are found in a broad variety of aquatic environments living on muddy streambeds, aquatic vegetation and attached to plant debris, rocks and pebbles. Australian Freshwater Snails have evolved to deal with dry conditions and can live in temporary bodies of water that dry up during drought.

Diet: Freshwater Snails can be predators, scavengers or grazers. They use their specially modified tooth-row (called a radula) to obtain their food which is largely algae and leaves. They are herbivores.

Movement: Typical of a snail, very slow ! They will often be observed on the bottom or side of sample trays and, because of their suction abilities, they may remain in sample trays or buckets after the water has been emptied.

Predators: Fish, birds, turtles, frogs, platypus and yabbies.

Life Cycle: Fertilised eggs are laid in jelly-like clumps and are stuck to plants and stones. Miniature snails emerge from these eggs.

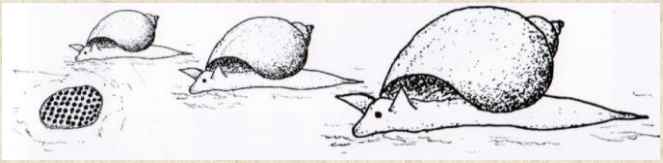

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- They are able to withdraw into their shell when threatened and some snails have an operculum (door) that can be closed over the shell's opening for further protection
- Their single shell increases in size by secretions of new calcareous materials from the mantle
- Shells can either coil to the left of the right

Backswimmer

Tolerant Bug

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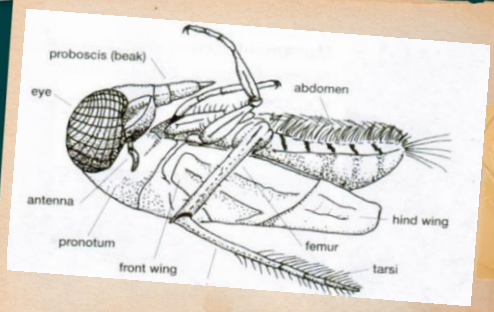

Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Hemiptera

Size: Backswimmers grow within a range of 4-11mm

Appearance: Backswimmers have strong, paddle-shaped, fringed hind legs. Beak-like mouthparts are used for piercing their prey. The Backswimmer's backstroke style and larger size distinguishes it from its relative the Water Boatman.

Habitat: Backswimmers are one of the most common waterbugs found in Victoria and will turn up almost anywhere there is water. In addition to being great swimmers they can also fly well and so are capable of finding new habitats quickly and easily. Backswimmers are found in slow-moving freshwater environments such as ponds, lakes and creeks.

Diet: Backswimmers are predators who prey on other invertebrates. They suck body fluids from small animals such as bloodworms, snails and crustaceans and animals as large as tadpoles and small fish.

Movement: Backswimmers swim backstroke whilst upside-down. They move in small bursts but are still at the surface while they re-fill their air supplies.

Predators: Fish, turtles, waterbirds, platypus and sometimes larger Backswimmers.

Life Cycle: Egg, nymph, winged adult (incomplete metamorphosis)

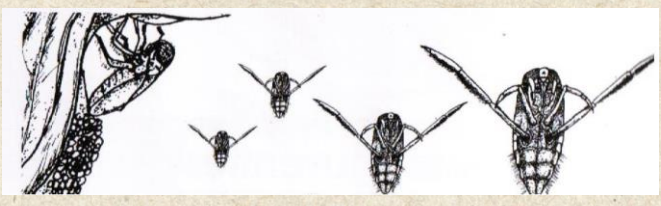

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Female Backswimmers lay eggs into holes that they have drilled into the stems of water plants. Others glue eggs to the stems of water plants.
- Backswimmers collect an air bubble at the water surface through the tip of their abdomen and use this for breathing
- Backswimmers are fierce hunters

Diving Beetle

Tolerant Bug

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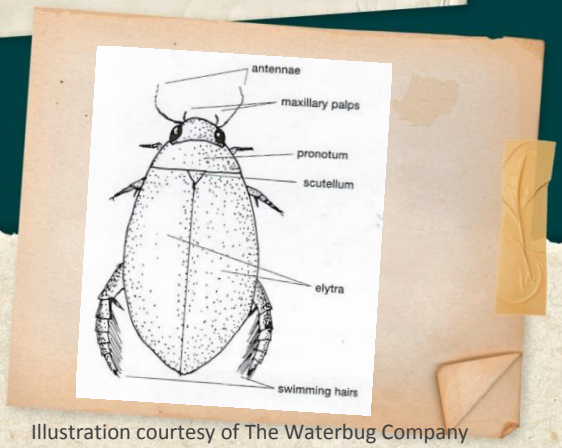

Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Coleoptera

Size: Diving Beetles grow to 35mm

Appearance: Diving Beetles are distinguished by their streamlined shape (with both upper and lower sides being slightly curved outwards), fine antennae and strong hind legs fringed with fine hairs.

Habitat: Diving Beetles can be found in ponds, lakes and slow-moving freshwater. They continually return to the water surface for air and is where they get the name 'diving beetle'.

Diet: Diving Beetles are carnivores and feed on creatures that fall into or live in the water; insects, crustaceans, worms, leeches, snails, tadpoles and small fish. Some feed on algae (herbivore), others feed on decaying matter (detrivore).

Movement: Strong fast swimmer using hind legs, rarely stops moving.

Predators: Fish, frogs, reptiles, water rats, platypus and birds.

Life Cycle: Egg, larva, pupa, winged adult (complete metamorphosis)

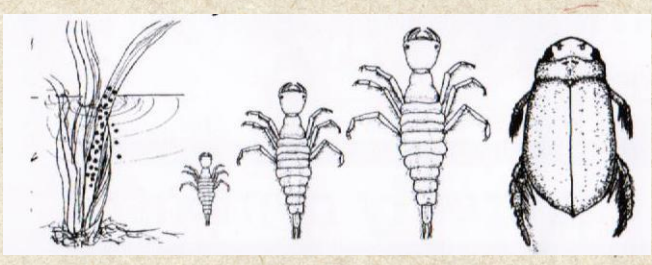

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Diving Beetles get their oxygen from the air above the water surface and hold an air bubble under their wing cases at all times
- Many adult water beetles can fly between bodies of freshwater
- Diving Beetles have mandibles (biting mouthparts) to tear their food into pieces

Water Boatman

Tolerant Bug

Photos courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

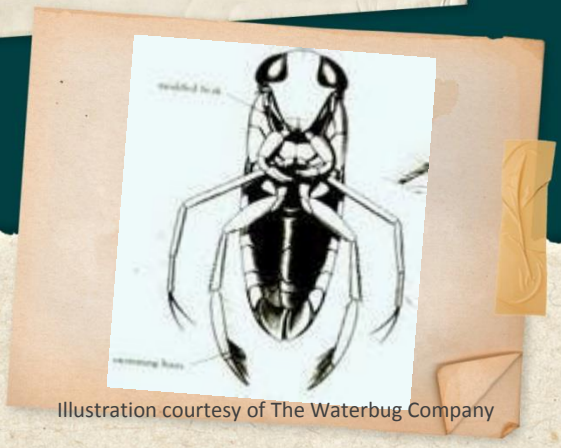

Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Hemiptera

Size: Water Boatman grow to 12mm

Appearance: Water Boatman are small bugs, usually coloured dark brown with rounded triangular heads and large compound eyes that wrap around the sides.

Habitat: Water Boatman are very well adapted to an underwater lifestyle but also retain the ability to fly to different water bodies. Their habitat consists of slow-moving or still pools and ponds where they are found near the edges amongst vegetation or swimming near the bed.

Diet: Water Boatman are predominantly omnivorous, foraging for small bits of plant and animal matter, although some species are predatory and hunt other aquatic invertebrates and even the occasional tadpole.

Movement: Water Boatman propel themselves through the water with their paddle-shaped hind limbs.

Predators: Fish and waterbirds

Life Cycle: Egg, nymph, winged adult (incomplete metamorphosis)

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Some male Water Boatman rub their front legs across a ridge on top of their head. This produces a sound that attracts females.
- Unlike other bugs, they have short blunt triangular mouthparts
- An air bubble for breathing is captured from the water surface and carried underneath the body
- Their front legs are much shorted than their other two pairs of legs

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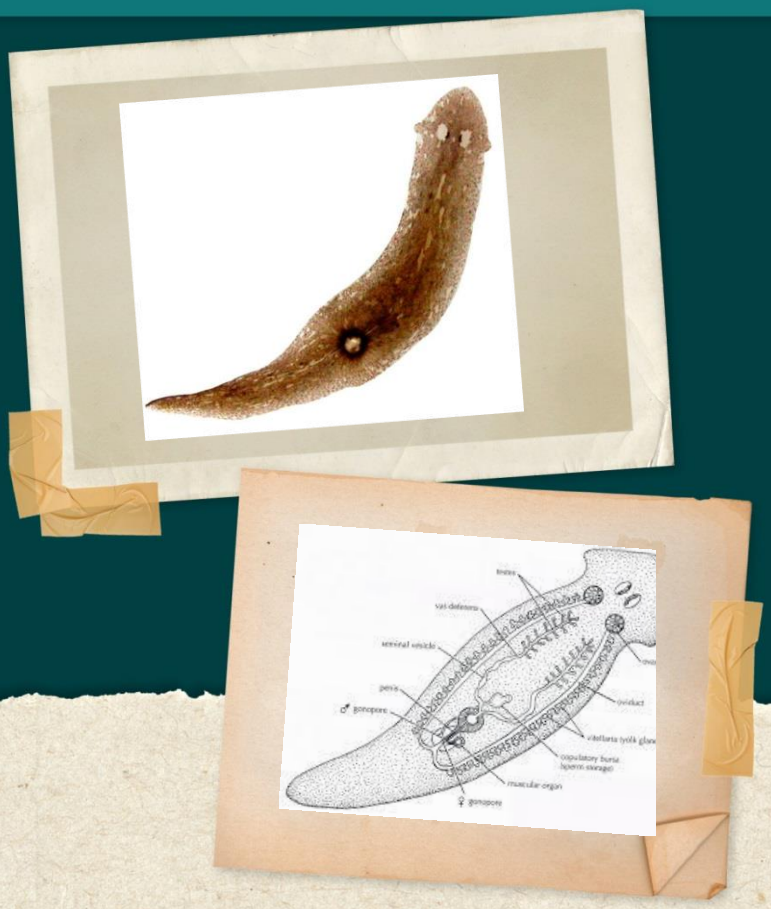
Flatworm

Tolerant Bug

Photos courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'



Class: Turbellaria **Order:** Tricladia

Size: Flatworm grow to 20mm

Appearance: Flatworms are flat, incredibly thin worms sometimes with arrow-shaped heads which can grow up to 20mm. Flatworms possess light-sensitive 'eye-spots' rather than true eyes, and these primitive organs give an idea of how eyes first evolved.

Habitat: Flatworms are found in a variety of freshwater environments usually hidden underneath debris like branches and rocks.

Diet: Flatworms prey on smaller invertebrates and graze on decomposing plant and animal matter.

Movement: Flatworms have an odd gliding movement which distinguishes them from almost all other worms.

Predators: Most predators avoid eating them as they exude a foul-tasting, toxic substance.

Life Cycle: Many Flatworms are hermaphrodites. In addition to being able to reproduce by laying eggs, Flatworms can also regenerate into two individuals if they are cut in half. During poor conditions, the reproductive organs may be reabsorbed and used for energy.

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Flatworms are able to glide upside down on the under-side of the water surface
- Adult Flatworms move by contracting their cilia (microscopic hairs) while gliding on a secreted mucus trail
- Flatworms eat and remove waste through their mouth

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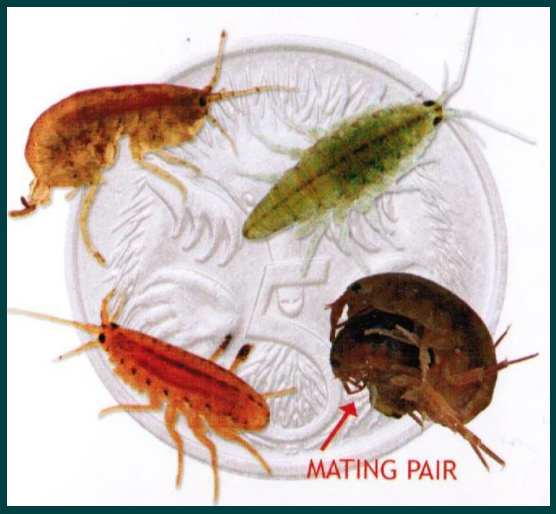
Amphipod (Scud or Side Swimmer)

Tolerant Bug



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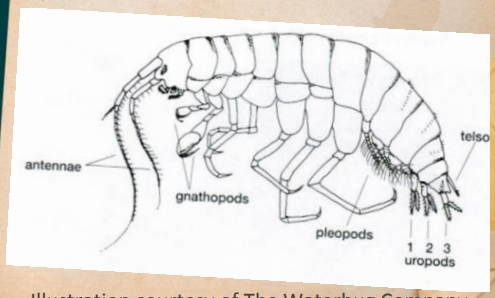


Illustration courtesy of The Waterbug Company

Class: Crustacea **Order:** Amphipoda

Size: Amphipods grow to 2-4mm

Appearance: Amphipods, also known as scuds and side-swimmers, are laterally (from the sides) flattened animals with seven pairs of legs and two sets of antennae.

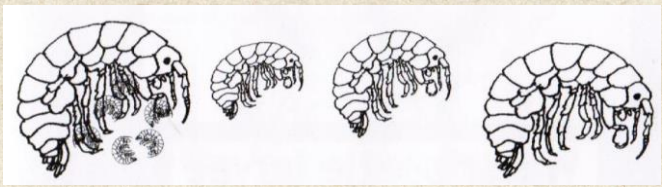
Habitat: Amphipods can be found in all sorts of aquatic environments within flowing and still water and even in underground cave systems. They are generally found near the edges or bottoms of waterways living under rocks, branches and plant matter.

Diet: Amphipods are omnivores who predominantly graze, shred or forage for vegetable matter, but they will also feed dead animals if the opportunity arises.

Movement: Amphipod swim in bursts of movement, usually on their sides.

Predators: Water bugs, water beetles, fish and frogs.

Life Cycle: Young Amphipods released from the female's brood chamber resemble small adults. They become adults after the 6th moult.



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Did You Know:

- During breeding the male Amphipods will guard their female mates against competition from other males
- Amphipods are related to crabs and can be green, red, grey or brown coloured

Whirligig Beetle

Tolerant Bug

Class: Insecta **Order:** Coleoptera

Size: Whirligig Beetles grow to 15mm

Appearance: Whirligig Beetles are protected by a streamlined, shiny black carapace. Unlike Diving Beetles, Whirligigs have long front legs and short mid and hind ledgs.

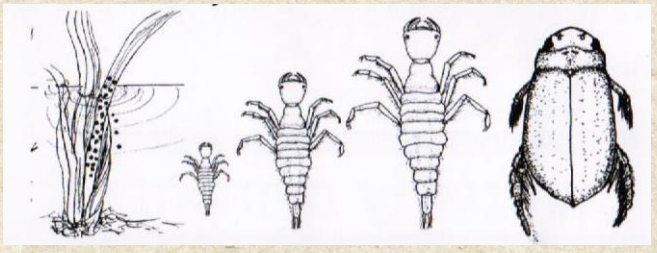
Habitat: Whirligig Beetles like to live on the surface of the water in most freshwater environments.

Diet: Whirligig Beetles hunt on the water surface for live prey or scavenge for dead organisms.

Movement: Whirligig Beetles are often found in groups, swimming in small circles on the surface of the water.

Predators: Fish, frogs, turtles and waterbirds

Life Cycle: Egg, larva, pupa, winged adult (complete metamorphosis)



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Did You Know:

- Due to their preference for the water surface, they have evolved split-screen eyes, separated so that the lower half can see in the water and the upper half can see in the air
- Whirligig Beetles are also able to secrete a detergent-like substance which reduces the friction between the beetle and the water and allows them to move faster

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Leech

Tolerant Bug

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Class: Hirudinea

Size: Leeches grow to 40mm

Appearance: Leeches have long, segmented bodies with two suckers, one on the tail and one on the mouth.

Habitat: Leeches are found in a wide variety of freshwater environments. They tend to live on the muddy bottoms of waterways.

Diet: Some Leeches feed on the blood of vertebrates such as fish, frogs, birds and mammals. Some suck out the juices of worms, snails and midge larvae.

Movement: Some Leeches are good swimmers that move through the water like an eel.

Predators: Fish, aquatic insects and yabbies

Life Cycle: All Leeches are hermaphrodites. Eggs may be brooded or deposited in cocoons in the water. Juvenile leeches look like miniature adults.

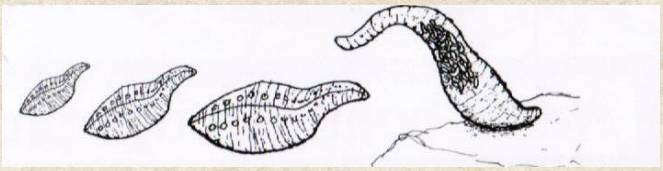

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Some species of Leeches are very good parents, carrying their young around on their back after they hatch and catching snails for them to eat
- Leeches can hibernate during drought by burrowing in the mud
- Leeches can survive for up to twelve months after a meal
- Leeches have saliva that stops blood clotting

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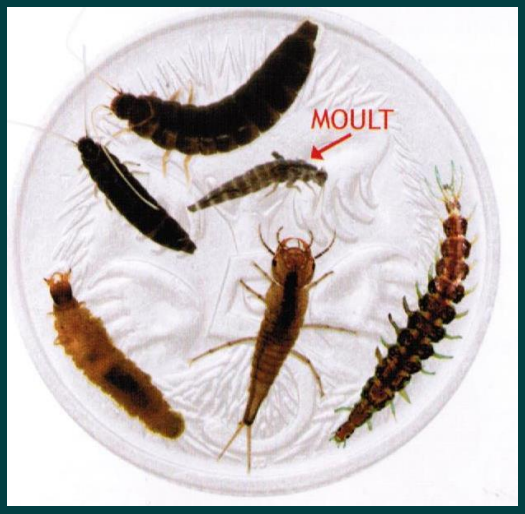
Beetle Larvae

Tolerant Bug



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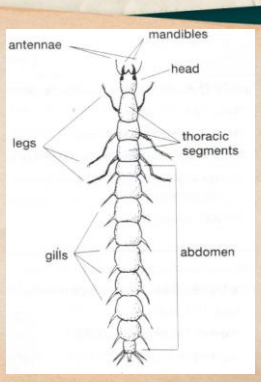


Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Coleoptera

Size: Beetle Larvae grow to 15mm

Appearance: Beetle Larvae vary depending on the species. Most have big heads with big piercing mouthparts used to grab their prey. They have short antennae and long legs. Some species have distinctive projections on their large heads.

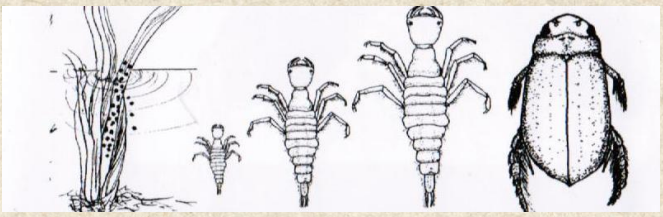
Habitat: Beetle Larvae are most often found living in the edges of non-flowing water bodies such as ponds and lakes. They are found in sandy or muddy bottoms of flowing freshwater.

Diet: Beetle Larvae eat other aquatic invertebrates and occasionally even tadpoles and small fish. Once a Beetle Larvae has captured its prey, it injects them with digestive enzymes and sucks out the animal's fluids. Others feed on algae or decaying plant matter.

Movement: Some Beetle Larvae crawl slowly, some move fast with a mix of swimming with legs and undulating abdomen.

Predators: Fish, frogs, water spiders, water rats, platypus, reptiles and birds.

Life Cycle: Egg, larva, pupa, winged adult (complete metamorphosis)



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Did You Know:

- Water Beetles spend most of their life as larvae (grubs)
- There are many families of beetles. They form the largest group of animals on earth

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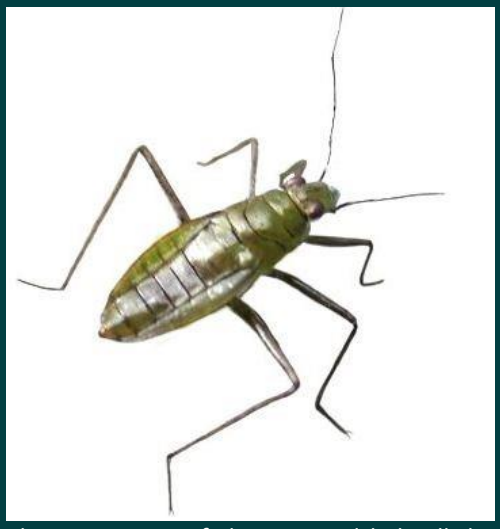
Water Strider

Tolerant Bug



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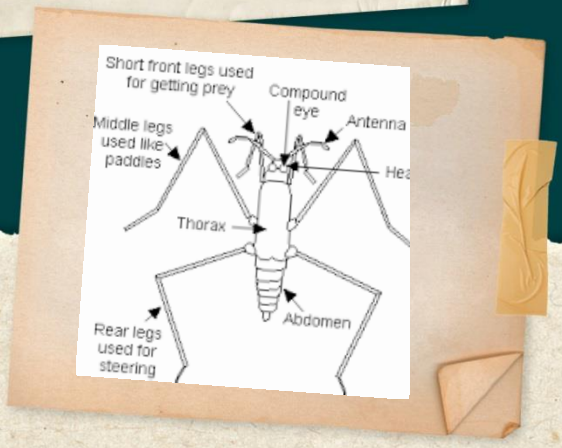


Family: Gerridae

Size: Water Boatman bodies grow to 20mm in length and their leg span to 70mm

Appearance: Water Boatman have a very thin body, two long legs out each side at angles of 45 degrees and one pair of legs out the front near two antennae. Water striders have a sharp mouthpart, called a rostrum, to suck up body juices from prey.

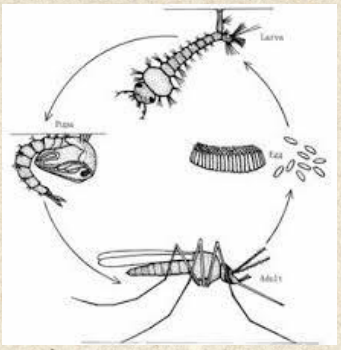
Habitat: Water Boatman live in wetlands and at river edges in quiet waters and can be seen skating on the surface of the water.

Diet: Water Striders eat living and dead insects on the surface of the water. Some are aquatic insects, such as mosquito larvae coming up from the bottom, and others are terrestrial insects, such as butterflies or beetles that accidentally land on the surface. Injured dragonflies are a favourite food, as are worms that fall in the water.

Movement: Common Water Striders have very good vision and move quickly on the water. The short front legs of a water strider are for grabbing prey. The middle legs push the insect forward, and the hind legs steer. The shape of their legs and their light weight keep them from breaking through the surface.

Predators: Water Striders must always keep moving so they don't become prey themselves to fish or other predators. As they do not have wings, they are usually in large groups and prefer the protection of overhanging trees and shade.

Life Cycle:



Did You Know:

- The Water Strider is water bug that looks a lot like a big mosquito walking on the surface of the water.
- Water Striders can live for many months. During winter they can crawl inside a plant stem when it gets too cold.

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Water Flea

Tolerant Bug

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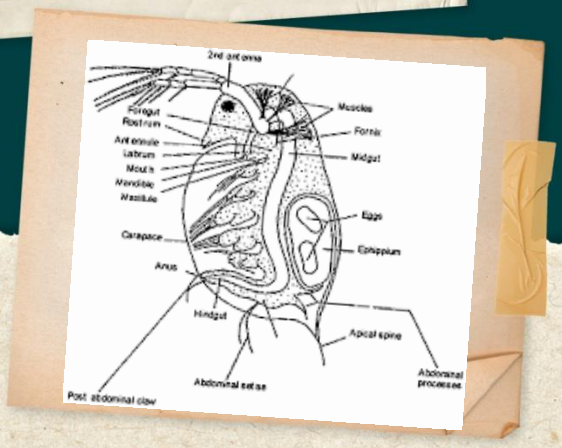


Class: Crustacea **Sub-Order:** Cladocera

Size: Water Fleas grow to 4-6mm

Appearance: Water Fleas have five to six pairs of legs, two pairs of antennae and one centrally positioned compound eye.

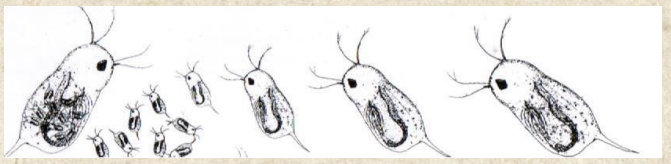
Habitat: Water Fleas are generally found in vegetation around edges and bottoms of slow-moving waterways.

Diet: Water Fleas feed by creating currents with their legs, which stream water through their carapace and allows them to filter out food like algae, bacteria and organic particles.

Movement: These crustaceans are called water 'fleas' due to the jerky swimming motion created by the beating of their antennae.

Predators: Fish and filter-feeding organisms such as mussels and mosquito wrigglers.

Life Cycle: During poor conditions, female Water Fleas have large amounts of eggs within their carapace, allowing them to rapidly reproduce when food is abundant.



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Did You Know:

- Some Water Flea eggs have been successfully hatched after 250 years
- If a body water dries up, eggs can be blown by wind, carried on feathers/fur or in the gut of an animal to a new habitat
- Water Flea populations peak during algal blooms
- The presence of dark red Water Fleas indicates low oxygen levels in the water

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Bloodworm (Chironomid/Non-biting Midge)

Very Tolerant Bug

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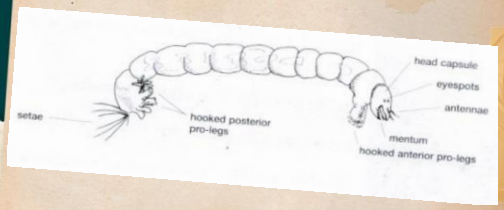

Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Diptera

Size: Bloodworms grow to 20mm

Appearance: The larvae of non-biting midges are long fleshy animals with a touch casing around their head like a helmet. They are called bloodworms because of their bright red colour. Bloodworms are red because they have pigments similar to those found in our blood which are specialized for extracting oxygen. This allows them to live in oxygen-poor and organically polluted waterways.

Habitat: Bloodworms can be found in almost aquatic habitats; on or under rocks, plants and among the sediment at the bottom of waterways.

Diet: Chironomid larvae have many different feeding modes depending on the species. Some species are collectors of organic particles and bacteria (detrivore), some build tubes and make silk nets to filter the water for algae (herbivore) and some suck on the juices of other organisms (parasite).

Movement: Bloodworms coil and uncoil quickly in a figure of eight, sometimes thrashing or using prolegs to drag themselves along the ground.

Predators: Water beetles, water bugs, fish, spiders and frogs.

Life Cycle: Egg, larva, pupa, winged adult (complete metamorphosis)

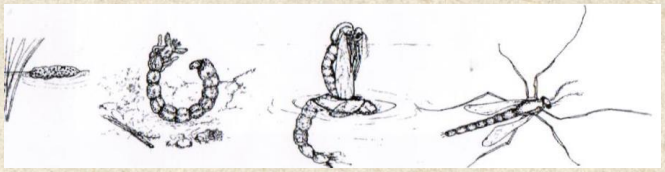

Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Chironomid larvae have several eyes
- Some construct portable sand covered cases for protection
- They come in a variety of colours
- Their eggs are laid in a group, called an eggstring or egg mass

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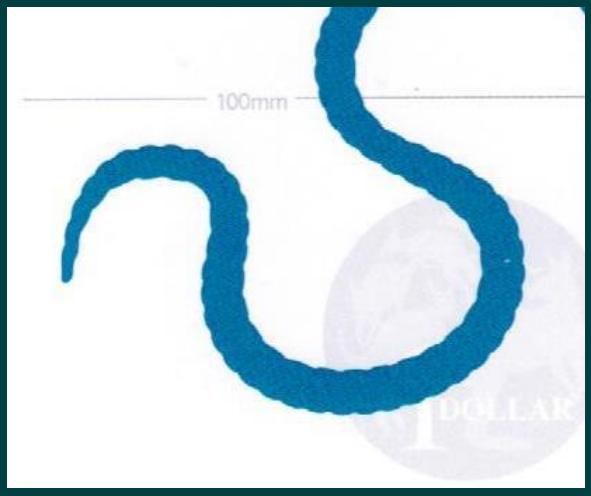
Aquatic Earthworm

Very Tolerant Bug



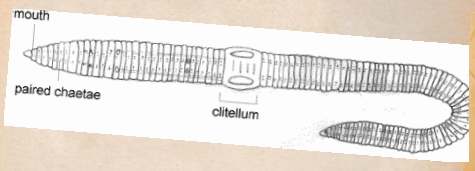


Illustration courtesy of The Waterbug Company

Class: Oligochaeta

Size: Aquatic Earthworms grow from 60 to 100 mm

Appearance: Aquatic Earthworms are segmented worms with no legs or suckers which distinguish them from leeches. Like earthworms they are usually brown, pink or red.

Habitat: Most Aquatic Earthworms burrow in the soft sediment of waterways.

Diet: Aquatic Earthworms feed on the microscopic organisms which live in the sediment such as bacteria and algae.

Movement: Aquatic Earthworms wriggle like earthworms.

Predators: Fish, invertebrates and birds

Did You Know:

- Aquatic Earthworms are very tolerant to pollution and can even be found living in sewage outflows and extremely degraded urban waterways.

Fly Larvae

Very Tolerant Bug

Photos courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Illustration courtesy of The Waterbug Company

Class: Insecta **Order:** Diptera

Size: Fly Larvae grow to 10mm

Appearance: Fly Larvae have plump segmented bodies that taper at each end.

Habitat: Fly Larvae can be found where any type of freshwater collects or flows.

Diet: Fly Larvae feed on decaying organic matter (detirvore) or on insect larvae (carnivore).

Movement: A slow wriggle like a caterpillar

Predators: Fish, wading birds, frogs and platypus

Life Cycle: Egg, larva, pupa, winged adult (complete metamorphosis)

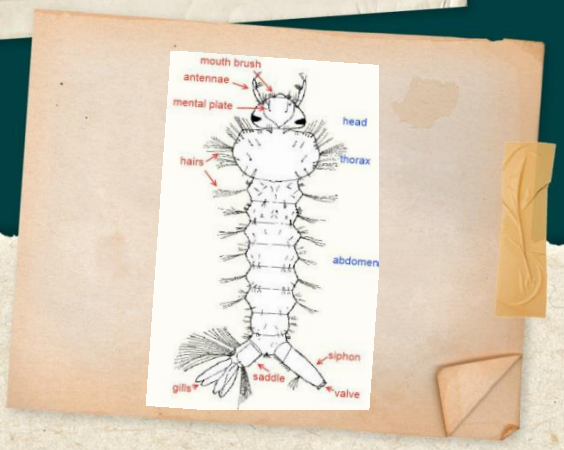
Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Larvae are usually known as maggots
- Maggots often feed day and night
- Pupation occurs on land or on plants at the water's edge
- Many aquatic larvae have short lives which allows them to grow in temporary water bodies such as puddles
- The shortest fly life cycle is completed in a little over two weeks.

Mosquito Larvae

Very Tolerant Bug



Photos courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Class: Insecta **Order:** Diptera

Size: Mosquito Larvae grow to 10mm

Appearance: Fly Larvae can be found where any type of freshwater collects or flows.

Habitat: Mosquito Larvae can often be found amongst vegetation or floating near the surface of the water with their abdomen sticking into the air so that they can breathe though a siphon on their tail like a snorkel. For this reason, Mosquito Larvae can tolerate water with very low oxygen levels and can be found in standing stagnant water of all kinds.

Diet: Mosquito Larvae are omnivores and filter-feed on algae, smaller wrigglers, bacteria, fungi and plankton using special brushes on their mouth which draw water towards them and sift out food.

Movement: Mosquito Larvae are small worm-like creatures with a distinctive swimming style that involves thrashing their body around, giving them their common name, 'wrigglers'.

Predators: Fish, frogs, tadpoles and invertebrates such as Water Boatmen.

Life Cycle: Egg, larva, pupa, winged adult (complete metamorphosis)

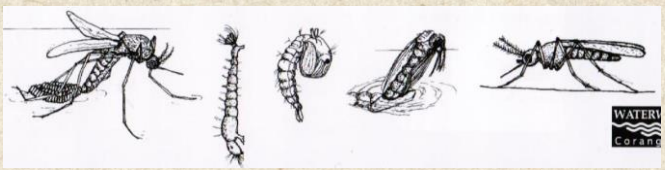


Illustration courtesy of Christine Walsh, kindly loaned from Corangamite CMA's booklet 'Now and Then'

Did You Know:

- Mosquito larvae hatch from eggs within 48 hours and have no legs
- Mosquito larvae became pupae after the fourth moult. Pupae are called tumblers and do not eat.