

# Water Bug Detective Guide

## Water bugs typically found in NSW waterways

Some water bugs are sensitive to pollution and may not survive it. Other bugs can tolerate some types of pollution. Healthy streams have highly sensitive bugs.

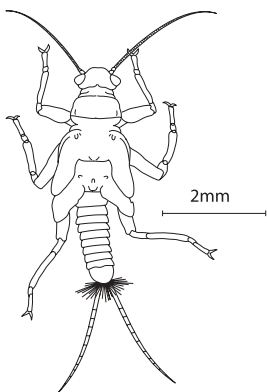
Water bugs are rated according to their sensitivity to pollution. 'Pollution rating' numbers from 1 to 10 indicate how sensitive each bug is.

There are four 'grades':

- Very sensitive – 10, 9
- Sensitive – 8, 7, 6
- Tolerant – 5, 4, 3
- Very tolerant – 2, 1.

These numbers are used to work out a Stream Pollution Index, that will tell you how healthy your water is.

## VERY SENSITIVE BUGS - 10, 9



### Stonefly Nymph (10)

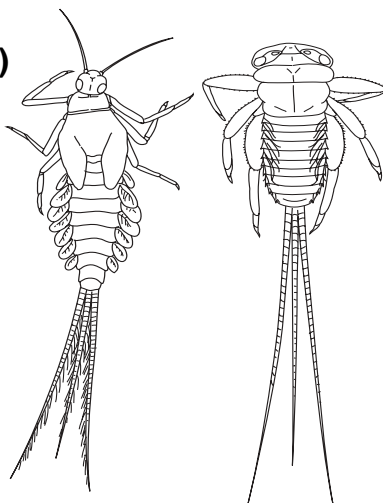
- two tails
- antennae on head
- three pairs of legs, each leg with two claws

**Size: Up to 50 mm long**

### Mayfly Nymph (9)

- usually three long tails
- short antennae
- three pairs of legs, each leg with single claw

**Size: Up to 20 mm long**



## SENSITIVE BUGS - 8, 7, 6

### Alderfly Larva (8)

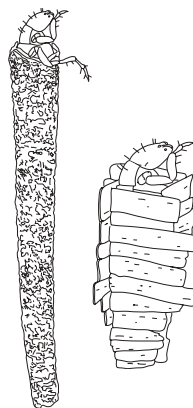
- caterpillar-like
- three pairs of legs with tiny pinchers at the end of each
- seven pairs of lateral gills
- a straight, single feathery tail



**Size: Up to 20 mm long**

### Caddisfly Larva (8)

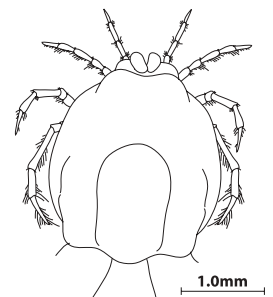
- Looks like a caterpillar
- Sometimes found in cases
- three pairs of well-developed legs on the three thoracic segments
- Hooks on the last segment



**Size: Up to 25 mm long**

### Water Mite (6)

- looks like a fat little spider
- flat, round body
- four pairs of hairy legs
- moveable head attached to body by a hinge

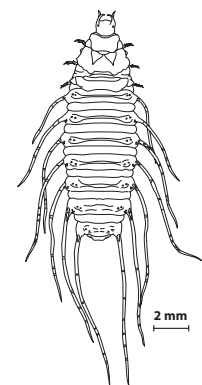


**Size: Tiny! 1-5 mm long**

## TOLERANT BUGS - 5, 4, 3

### Beetle Larvae (5)

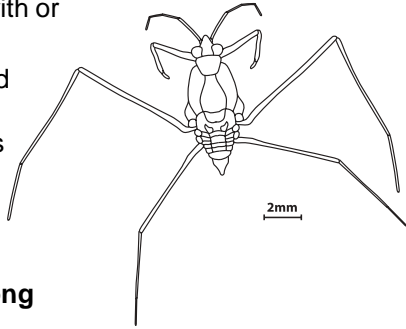
- look very different from adult beetles
- cylindrical, segmented body with six legs
- distinct head but no wing pads
- there are different kinds of beetle larvae, but all share the above traits



**Size: 2-20 mm long**

### Common Water Strider (4)

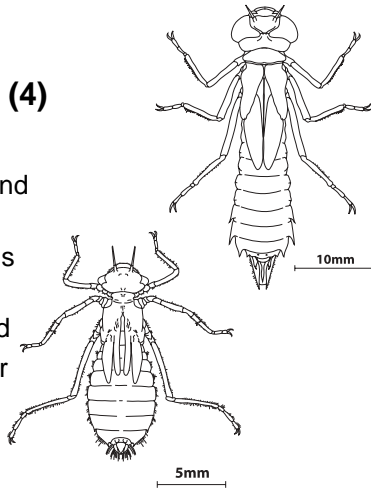
- flat and long, with or without wings
- middle and hind pairs of legs almost twice as long as body
- bigger than the water treader



Size: 8-12 mm long

### Dragonfly Nymph (4)

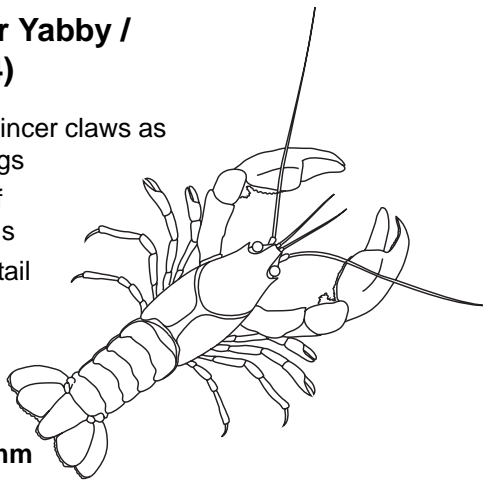
- similar to Damselfly nymphs, but short and chunky
- have no external gills
- extendable jaws underneath the head
- six legs located near the head



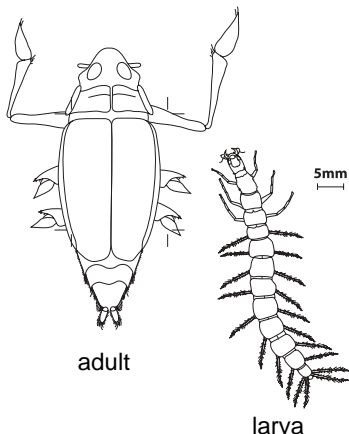
Size: 18-49 mm long

### Freshwater Yabby / Crayfish (4)

- two large pincer claws as the front legs
- four sets of walking legs
- long, thick tail
- their shell can be rough or smooth



Size: 2-400 mm long



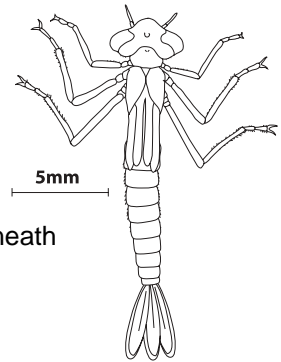
### Whirligig Beetle and Larva (4)

- streamlined, oval body
- two pairs of hind legs, short and flattened like oars
- long front legs
- supports itself on the water surface

Size: Up to 25 mm long

### Damselfly Nymph (3)

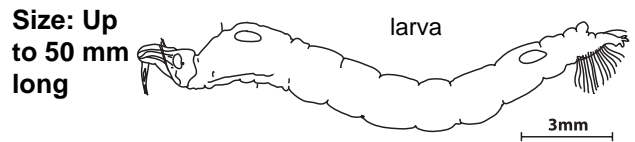
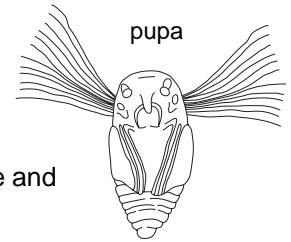
- similar to Dragonfly nymphs but more slender and three tails
- large, multifaceted compound eyes
- six legs near the head
- extendable jaws underneath the head



Size: 16-33 mm long

### Fly Larva and Pupa (3)

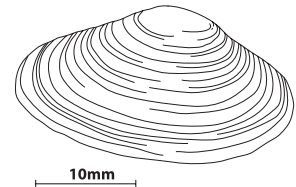
- worm-like
- Black fly larvae are dumb-bell shaped and soft
- Crane fly larvae are large and fleshy with very short "tentacles" for breathing



Size: Up to 50 mm long

### Freshwater Mussel (3)

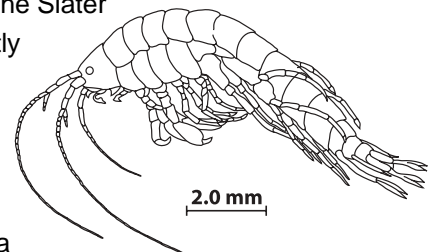
- two shells hinged together, typically closed when found
- thick, dark shell
- round or oblong



Size: 40-180 mm long

### Freshwater Sandhopper (3)

- looks like the Slater
- body slightly curled and flattened sideways
- hard body segments, each with a pair of legs

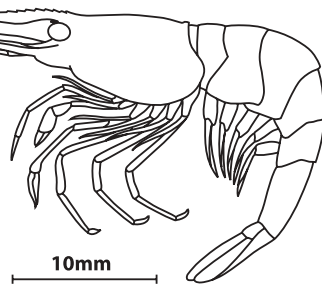


Size: 6-20 mm long

## VERY TOLERANT BUGS - 2, 1

### Freshwater Shrimp (3)

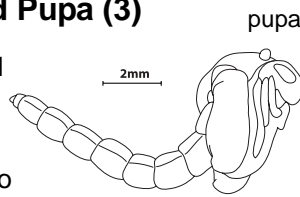
- large spine sticking out the front of the head
- fan tail
- ten jointed legs on the thorax
- thin, smooth outer shell
- body compressed side-to-side and translucent



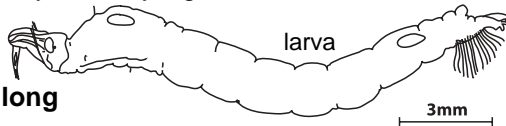
**Size: Up to 35 mm long**

### Midge Larva and Pupa (3)

- are very small and worm-like
- often C-shaped
- may be attached to debris by their tiny legs



**Size: Up to 50 mm long**



### Nematode (3)

- a thin worm
- no body segments
- usually see-through
- many move with a whip-like motion

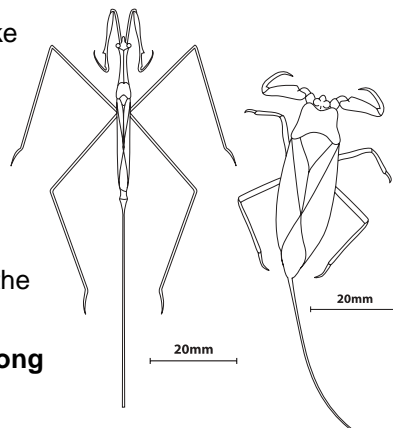
**Size: Up to 10 mm long.**



### Water Scorpion / Needle Bug (3)

- grasping, pincer-like forelegs
- some have a body like a large leaf
- some are thin and stick-like
- usually a breathing tube at the end of the abdomen

**Size: Up to 50 mm long**

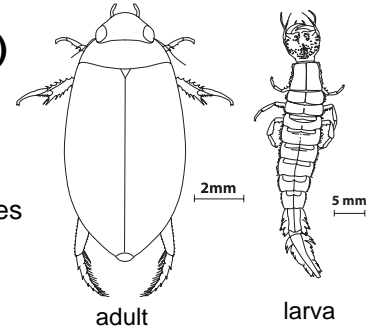


Needle Bug      Water Scorpion

### Diving Beetle (2)

- smooth, oval, streamlined body
- hairy hind legs shaped like paddles

**Size: Up to 40 mm long**



adult

larva

### Flatworm (2)

- looks like a flat, trodden-on worm!
- no body segments
- soft skin with hair on the sides
- small species wave hair to swim while larger species glide

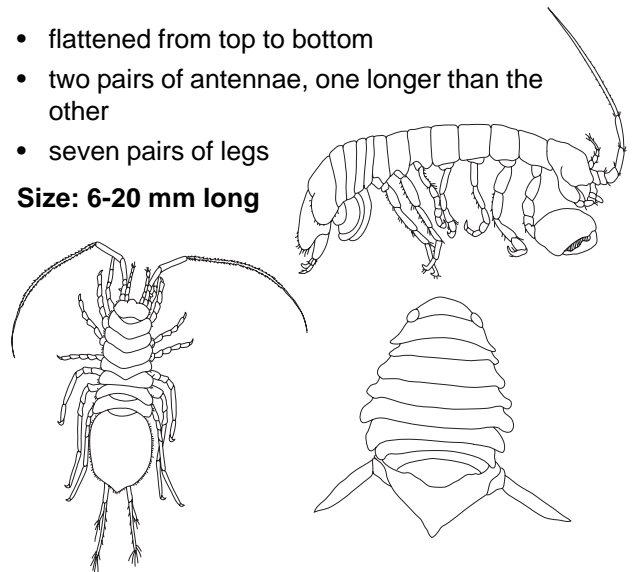
**Size: up to 10 mm long**



### Freshwater Slater (2)

- flattened from top to bottom
- two pairs of antennae, one longer than the other
- seven pairs of legs

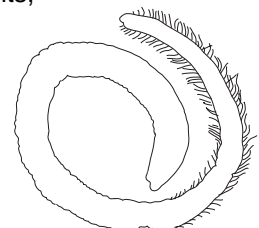
**Size: 6-20 mm long**



### Freshwater Worm (2)

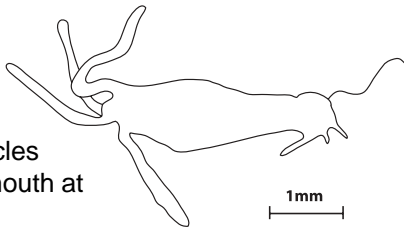
- body has many segments, rounded ends and no suckers or legs
- many are red or flesh coloured and look like earthworms

**Size: 1-30 mm long**



## Hydra (2)

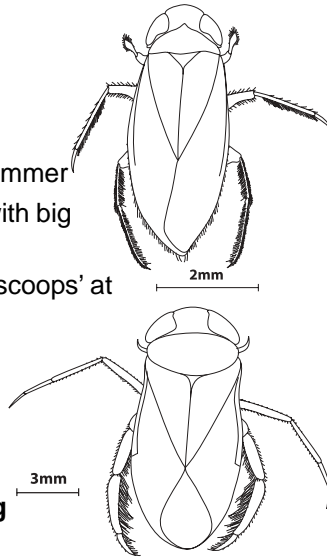
- small and cylindrical with a soft body
- bunch of tentacles surround the mouth at one end
- a disk for attaching to stones or plants on other end



**Size: Up to 25 mm long**

## Waterboatman (2)

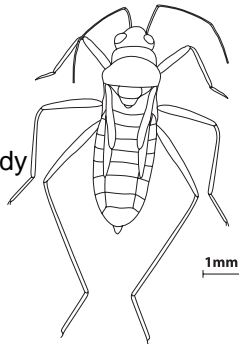
- looks like the backswimmer
- wide, rounded head with big eyes
- front legs have hairy 'scoops' at the end
- middle and hind legs have hairy fringe
- short antennae, not easily seen



**Size: Up to 10 mm long**

## Water Treader (2)

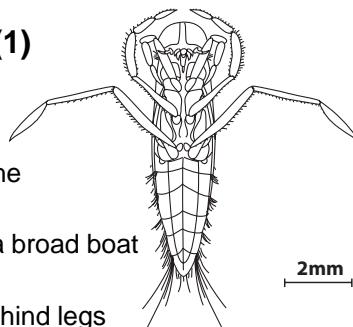
- run or walk on water surface
- smaller than the water strider
- back legs longer than their body
- shorter front legs



**Size: Up to 5 mm long**

## Backswimmer (1)

- swims on back
- large eyes occupy most of the head
- abdomen is like a broad boat 'keel'
- long pair of hairy hind legs
- two pairs of shorter legs

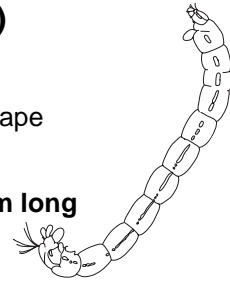


**Size: Up to 11 mm long**

## Bloodworm (1)

- wormlike
- curled in a C-shape
- deep red colour

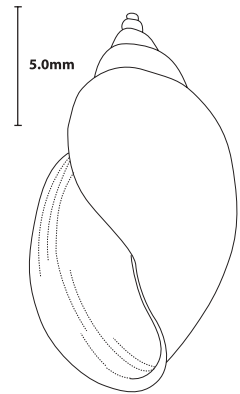
**Size: Up to 20 mm long**



## Freshwater Snail (1)

- similar to slugs but with a spiral shell enclosing a soft body

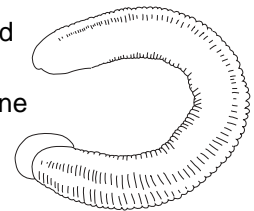
**Size: 3-25 mm long**



## Leech (1)

- segmented, worm-shaped like a cylinder
- a sucker on either end, one being a mouth, the other a foot
- body shape depends on whether their muscles are relaxed or taut

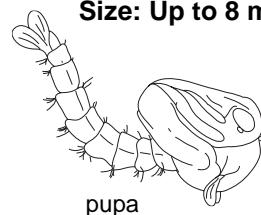
**Size: 7 mm long to 80 mm (extended)**



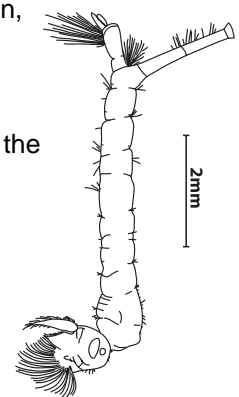
## Mosquito Larva and Pupa (1)

- looks like a hairy maggot
- larva hangs upside down, suspended from water surface
- pupa are enclosed in a cocoon that covers half the body

**Size: Up to 8 mm long**



pupa



larva