

# Aquatic Macroinvertebrate Identification Key



Government of South Australia  
South Australian Murray-Darling Basin  
Natural Resources Management Board

**1** Microscopic  
Bigger than Microscopic? Go to **2**

Green, white or black. Swims with smooth motion.  <b>Seed Shrimp</b> NR	Teardrop shape, jerking movement.  <b>Copepod</b> NR	Swims with a jerk using antennae.  <b>Water Flea</b> NR
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**2** Shell  
No Shell? Go to **3**

Single Shell			Double Shell	
Flattened Shell with small hump.  <b>Freshwater Limpet</b> 4	Spiral Shell, opening on the left.  <b>Pouch Snail</b> 1	Spiral Shell, opening on the right.  <b>Gilled Snail</b> 1	Small, pale delicate shell.  <b>Pea Shell</b> 5	Small, darker shell with ridges.  <b>Little Basket Shell</b> 4

Got Legs? Go to **4**

**3** No Legs

Worm-like						Tentacles, brushes or tails						
Green to Red, twisting movement. (Bloodworm)  <b>Non-biting Midge larvae</b> 3	Segmented, no suckers, may have bristles.  <b>Segmented Worm</b> 2	Long, very thin, swims in 'S' shape, can't coil.  <b>Biting Midge Larvae</b> 4	Suckers, expands & contracts.  <b>Leech</b> 1	Hair-like, swims in 'S' shape.  <b>Roundworm</b> 3	Slides along bottom.  <b>Flatworm</b> 2	Six fleshy lobes at end of body.  <b>Cranefly Larvae</b> 5	Breathing tube at rear. Wriggles!  <b>Mosquito Larvae</b> 1	Large head. Wriggles.  <b>Mosquito Pupae</b> 1	Grub-like with no obvious head.  <b>March Fly Larvae</b> 3	Sucker on end of body, waves head.  <b>Blackfly Larvae</b> 5	Slender with tentacles, attached to solid surface.  <b>Hydra</b> 2	Hangs from surface by ring of hairs.  <b>Soldier Fly Larvae</b> 2

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The original Macroinvertebrate Key this poster is based on was designed by Ron Simms and Amy Blaylock in 2002 and adapted by Steve Walker in 2006. Assistance with the original Key was provided by staff of the SA Museum: Dr Errol Matthews, Dr Chris Watts and Mr Robert Hamilton-Bruce.

\* Sensitivity Ratings from SIGNAL2 system in "New sensitivity grades for Australian River Macroinvertebrates" by Bruce C Chessman. Marine & Freshwater Research 2003, 54, 95-103.

**Pollution Sensitivity\*:**

NR = Not Rated

10 - 8 = Very Sensitive

7 - 6 = Sensitive

5 - 4 = Tolerant

3 - 1 = Very Tolerant

**Invertebrate Size:**  
Average actual length/size indicated by black line:  
  
(unless otherwise stated)

**4** More than 3 pairs of legs  
Only 3 pairs of Legs? Go to **5**

More than 4 Pairs of legs					4 Pairs of Legs	
Lobster-like, brown or black or even blue.  Actual size: 10cm+ (adult) <b>Yabby</b> 4	Swims with back up.  Actual size: 5cm+ (fully grown) <b>Freshwater Shrimp</b> 3	Walks on bottom or swims by flicking tail.  Actual size: 5cm+ (fully grown) <b>Freshwater Prawn</b> 4	Shrimp-like, swims on side.  Actual size: 5cm+ (fully grown) <b>Scud (sideswimmer)</b> 3	Looks like a slater bug & sometimes attached to a shrimp.  Actual size: 5cm+ (fully grown) <b>Isopod (sow bug)</b> 2	Tiny, swims in water, red, orange, brown.  Actual size: 5cm+ (fully grown) <b>Watermite</b> 7	Runs on top of water.  Actual size: 5cm+ (fully grown) <b>Fishing Spider</b> 2

**5** Has Wings  
No Wings? Go to **6**

Soft Wings, piercing mouth parts (Bug)								Hard Wings, Jaws (Beetles)			
Flat oval body and head. Grasping arms.  <b>Creeping Water Bug</b> 3	Swims fast, right side up. Streamlined body shape.  <b>Water Boatman</b> 2	Swims on back, jerky motion.  <b>Backswimmer</b> 1	Runs on surface of water, Black.  <b>Water Strider</b> 4	On water surface and grass edges.  <b>Small Water Strider</b> 3	Long, stick-like, lives on surface.  <b>Water Measurer</b> 3	Long breathing tube, grasping front legs.  Actual size: 9cm+ (adult) <b>Needle Bug</b> 3	Scorpion shape, long tail.  Actual size: 9cm+ (adult) <b>Water Scorpion</b> 3	Swims moving hind legs alternately.  <b>Water Scavenger Beetle</b> 2	Back legs move at same time.  <b>Predacious Diving Beetle</b> 2	Swims on surface, often in fast circles.  <b>Whirligig Beetle</b> 4	Crawls through water plants.  <b>Crawling Water Beetle</b> 3

**6** Tails or NO Tails

Two Tails... OR			Three Tails... OR			NO OBVIOUS TAIL				
Found in fast water and stream edges.  <b>Stonefly Nymph</b> 10	Plate-like tails, no gills on abdomen.  <b>Damselfly Nymph</b> 3	Long thin tails. Gills on abdomen.  <b>Mayfly Nymph</b> 9	Can't swim, can only crawl.  <b>Riffle Beetle Larvae</b> 7	Usually brown, prefer to crawl rather than swim.  <b>Marsh Beetle Larvae</b> 6	Large mouthparts (nippers), 7 pairs of gills on side.  <b>Scavenger Beetle Larvae</b> 2	Spines on side, large mouthparts.  <b>Whirligig Beetle Larvae</b> 4	Large Body, hinged mouth.  <b>Dragonfly Nymph</b> 3	Hangs from surface, large mouthparts.  <b>Predacious Diving Beetle Larvae</b> 2	Small and hops on surface and in plants.  <b>Springtail</b> 1	Hiding in tube/stick/case or free-living.  <b>Caddisfly Larvae</b> 8