

CATCHMENTS

TEACHER RESOURCE BOOKLET



Image: Jeff Wright, © QM.

Giant Water Bug, *Lethocercus insulanus*



Image: Jeff Wright, © QM.

Water Scorpion, *Laccotrophes sp.*



Image: Steve Wilson, © QM

Eastern Water Dragon, *Physignathus lesueerii*



Image: Stephen Barnett, Creative Commons, BY.

Azure Kingfisher, *Alcedo azurea*



Image: teejaybee, Creative Commons, BY, NC, ND.

Broad-palmed Rocket Frog, *Litoria latopal mata*



Image: kookr, Creative Commons, BY, NC.

Wandering Percher Dragonfly, *Diplacodes bipunctata*

CATCHMENTS WATERWAY NASTIES

Weeds are a major threat to protected bushland and waterways. They spread quickly, blocking sunlight from native plants and reducing the food and shelter available for wildlife. Aquatic weeds block waterways, increasing risks of flooding. They obstruct recreational access, provide breeding grounds for mosquitoes, pollute the water, and kill native fauna.

Flora foliage and fruit specimens of aquatic weeds included in this kit are:

BROAD-LEAFED PEPPER TREE (*Schinus terebinthifolia*)

This tree infests coastal wetlands, watercourses and other low-lying areas. Its fruit is highly toxic to humans, birds and mammals.

CAMPHOR LAUREL (*Cinnamomum camphora*)

These trees form dense masses along waterways replacing native blue gums, a favoured food of the koala. The fruit is toxic to native pigeons.

CAT'S-CLAW CREEPER (*Macfadyena unguis-cati*)

This woody vine grows aggressively and smothers other vegetation. It covers tree trunks and threatens riparian and rainforest habitats.

CHINESE ELM (*Celtis sinensis*)

This fast-growing species forms dense pockets along creek banks and competes with native riparian vegetation. Leaves that drop into the water affect water quality. Its seeds are spread by birds, flying foxes and water.

MADEIRA VINE (*Anredera cordifolia*)

This weed invades riparian areas and tall open forests smothering native trees. It reproduces by knobby tubers that grow along the stem.

OCHNA (*Ochna serrulata*)

Ochna is a hardy shrub with fine-toothed and wavy leaves. Birds spread the seeds to native bushland where the plant forms dense thickets that smother and displace native species. Ochna is a Class 4 Noxious Weed.

SALVINIA (*Salvinia molesta*)

This highly invasive aquatic fern was introduced from Brazil and is now commonly found along waterways. Its fast growth rate means it forms thick mats covering lakes, slow-moving rivers and other waterways.

SINGAPORE DAISY (*Sphagneticola trilobata*)

This plant is a vigorous ground cover and out-competes native species. It has been declared a Class 3 plant pest under Queensland legislation.

WATER HYACINTH (*Eichhornia crassipes*)

This floating water weed is a Class 2 plant pest. It is one of the world's worst aquatic weeds clogging waterways, limiting transport, reducing dissolved oxygen and providing breeding grounds for mosquitoes.

CATCHMENTS RIPARIAN VEGETATION

Riparian vegetation covers the land immediately alongside creeks, rivers and lakes, including the land up to 30m back from the waterway. It plays a key role in ecosystems by maintaining bank stability and controlling riverbed erosion which can be directly linked to water quality. These plants reduce the amount of sediment and pollutants entering the stream by stabilising the river bank.

Examples of riparian vegetation included in this kit are:

WEeping BOTTLEBRUSH (*Callistemon viminalis*)

This is a weeping, small to medium-sized tree with light green foliage and sprays of bright red bottlebrush flowers in spring and summer. Many different varieties have been developed from this species which grows naturally along watercourses.

CREEK SANDPAPER FIG (*Ficus coronata*)

This tree grows along creeks in subtropical and dry rainforest habitats. The leaves feel like sandpaper, hence its name. The fruit is edible when fully ripe but the furry skin should be removed first.

HARD QUANDONG (*Elaeocarpus obovatus*)

This medium to large tree is found in subtropical, dry and rainforest areas of Queensland. The fruit is blue and attractive to birds, such as silvereyes. After eating the flesh, some Aboriginal groups make necklaces out of the seeds.

WEeping MYRTLE (*Syzygium floribundum*)

This is the dominant species along the creek banks in Enoggera in Brisbane. It forms a beautiful canopy, produces deep shade and its roots stabilize creek banks.

MAT RUSH- spiny-headed (*Lomandra longifolia*)

Mat rush can grow in a range of sandy soils, in swamps, along the banks of creeks, rocky hillsides and in open forests. It is drought-tolerant but can also withstand occasional flooding. Some Aboriginal groups eat the base of the leaves as well as using the leaves to make strong nets and baskets.

RIVER SHE-OAK (*Casuarina cunninghamiana*)

This she-oak is a large and fast-growing tree with dark green foliage. It occurs naturally along watercourses and is often used in park and embankment plantings. These trees attract a wide range of bird species.

RIVER TEA TREE (*Melaleuca bracteata*)

This is a fast-growing tea-tree of drier watercourses and may dominate stream-side vegetation. It has grey furrowed bark and fine, dark green foliage.

CATCHMENTS **AQUATIC MACRO-INVERTEBRATES**

An invertebrate is an animal that does not have a backbone. Macro-invertebrates are animals that can be seen with the naked eye. That is, a microscope is not needed to see them.

Some examples of macro-invertebrates include insects, worms, snails, crayfish and spiders. The larval stages of many insects are found in creeks, rivers and streams. The type of these animals found in waterways gives an indication of water quality. Some larvae are sensitive which means they are found only in areas with good to excellent water condition. Others are more tolerant of pollutants and so can be found in poorer quality water.

Some examples of animals that can be found in local waterways are given below with an indication of the quality of the water that they require.

Water Quality Rating	Examples of Macro-Invertebrates
Excellent	<u>Very Sensitive animals:</u> Stonefly nymphs Mayfly nymphs Freshwater shrimps
Good	<u>Sensitive animals:</u> Mussels Freshwater prawns Freshwater crayfish Dragonfly nymphs Damsel fly nymphs Caddis fly nymphs Water mites
Fair	<u>Tolerant animals:</u> Beetles True bugs Leeches Freshwater snails Flatworms
Poor	<u>Very Tolerant animals:</u> Black fly larvae Mosquito larvae Fly larvae Non-biting midges Freshwater worms

CATCHMENTS**USEFUL WEBLINKS**

- ***Water bug & riparian vegetation snapshot*** (PDF, 370 kB)
http://www.qld.waterwatch.org.au/resources/pdf/bug_id_parta.pdf
- ***Water bug identification booklet*** (PDF, 1.04 MB) — Guide to Identifying Macro-invertebrates. This booklet has been taken from the *Queensland community waterway monitoring manual*.
http://www.qld.waterwatch.org.au/resources/pdf/bug_id_partb_web.pdf
- ***Record sheet – basic level*** (PDF, 108 kB) — Use this sheet to record which water bugs have been found in the waterway you are monitoring. It also includes a simple method for deciding how polluted the waterway is.
http://www.qld.waterwatch.org.au/resources/pdf/bug_id_record_sheet_basic.pdf
- ***Queensland community waterway monitoring manual*** (2007)
<http://www.qld.waterwatch.org.au/>
- ***Health and safety guidelines for community-based waterway monitoring*** (2006)
<http://www.qld.waterwatch.org.au/>
- ***Fun Activities- Help Freckles the Frog Now!***
<http://www.qld.waterwatch.org.au/>
- ***Waterwatch Queensland community estuarine monitoring manual*** (2005)
http://www.qld.waterwatch.org.au/resources/monitoring_tools.html#monitoring_manual
- ***Waterwatch Queensland stream quality slide*** (2006)
http://www.qld.waterwatch.org.au/resources/monitoring_tools.html#monitoring_manual
- **Background Information**
<http://www.nrw.qld.gov.au/education/teachers/catchment/background.html>
- **Activities**
<http://www.nrw.qld.gov.au/education/teachers/catchment/activities.html>