

Landscaping for Water Quality

Where Does Your Drinking Water Come From?

Within Byron Shire, Rous County Council provides bulk water to all urban areas, with the exception of Mullumbimby which is supplied by Byron Shire Council's Laverty's Gap Weir.

WHAT WE DO IN OUR CATCHMENT AFFECTS THE QUALITY OF OUR REGION'S DRINKING WATER.

Stormwater flows either directly across the landscape into creeks and rivers, or through stormwater drains and underground pipes into our waterways, carrying a range of pollutants and increasing the potential for erosion. This not only affects river health but within a drinking water catchment, this affects drinking water quality by introducing:

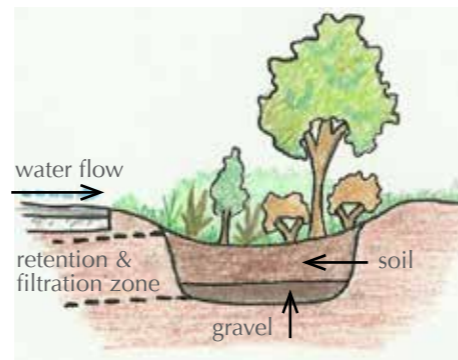
- Sediments from erosion and runoff - harms aquatic life, clogs streams and burdens the drinking water treatment process;
- Pathogens from pet waste and inadequate septic systems;
- Nutrients from lawn and garden fertilisers - promotes the growth of aquatic plants and cause toxic algal blooms; and

- Chemicals from garden pesticides, herbicides, car fluids or washing detergents.

TECHNIQUES TO HELP PROTECT WATERWAYS

Water Sensitive Urban Design (WSUD) seeks to minimise these impacts by using a holistic approach to town planning and development, which embraces the management and conservation of water. WSUD can be incorporated in your property to capture, treat and reuse stormwater. By doing this you can:

- Filter pollutants, sediment, pathogens, nutrients and chemicals from stormwater;
- Reduce the volume of stormwater;
- Improve the health of our waterways and our local water supply;
- Minimise demand on the reticulated town water supply system;
- Enhance the beauty of your property
- Mitigate the impacts of floods; and
- Maintain healthy waterways for future generations to enjoy.



Water Sensitive Urban Design - What You Can Do!

- Build a raingarden
- Install a rainwater tank
- Use porous landscaping materials
- If you have a creek or river on your property, replant the bank with native species



CREATING A RAINGARDEN

Raingardens (bio-retention systems), are garden beds that capture, filter and treat stormwater from your drive way or roof using a coarse or porous soil mixture of sand or gravel beneath a bed of native plants. Raingardens reduce flooding by sending the water back underground rather than into the street. They also promote biodiversity by providing habitat for wildlife.

When building a raingarden in your backyard remember:

- On flat sites, raised planter boxes make ideal raingardens. On steeper areas with enough depth for drainage, raingardens can be excavated;
- Try to capture and treat stormwater from the greatest impervious area;
- Locate the raingarden as close as possible to the roof downpipe and stormwater drainage system to minimise the plumbing work needed; and
- Choose native plants with deep fibrous roots that can tolerate short periods of wet conditions, followed by longer dry periods.

Wildlife in your Garden

Why our gardens matter for the future...

Our gardens are all part of the Northern Rivers biodiversity landscape. Everything we plant adds to a bigger picture of connectedness for our wildlife. Adding plants to your garden that provide food and shelter for native fauna can help to create habitat stepping stones connecting isolated islands of bushland. Biologists call these wildlife corridors and they are critical for our fauna to find the food, shelter, and breeding opportunities they need to thrive. Every backyard, no matter how small, becomes part of the solution.

BIODIVERSITY HOT SPOT

We are lucky enough to live in a biodiversity hotspot – an area that is incredibly rich in its variety of plants and animals. We live in the wet subtropics bioregion which covers SE QLD and NE NSW. This region has the highest diversity of marsupials and bats of all Australian bioregions. We also have the equal highest diversity of frogs and the second highest diversity of birds. The area is also of major significance to migratory and nomadic birds and flying foxes with autumn and winter flowering species providing nectar and pollen when food resources are scarce elsewhere.

We have 145 threatened species of flora and 183 threatened species of fauna, including insects in Byron Shire.



KOALAS ARE AN ICONIC THREATENED SPECIES

Koalas are now vulnerable to extinction. Human activities and habitat destruction are their greatest threats. Many of the remaining eucalypt corridors along traditional koala routes are severely fragmented by development. This increases koala susceptibility to disease, motor vehicle accidents and dog attacks. Our koalas are under great stress because food is harder to find and they need to spend more time on the ground as food trees are further apart.

HOW CAN YOU HELP?

By creating and restoring koala habitat. Remove weeds such as lantana and invasive vines that can inhibit koalas accessing food and shelter trees. If you live in koala habitat and have enough clear land to accommodate tall growing species, plant food and shelter trees that create corridors. These are the four local preferred food trees:

Forest Red Gum *Eucalyptus tereticornis* – coastal, ridges and ranges

Tallowwood *Eucalyptus microcorys* – hinterland, ridges and ranges

Swamp Mahogany *Eucalyptus robusta* – coastal floodplains and swamps

Small-fruited Grey Gum *Eucalyptus propinqua* – northern ridges.

Secondary browse trees and shelter trees are also important in corridors. When planting koala food trees, it's important that they are grown from seed collected locally and preferably from trees known to be eaten by koalas.

Pouched Frog (left)
Photo: Steve Wilson

Koala mother and joey (top right)
Photo: Michael Bingham
Albert's Lyrebird (bottom right)
Illustration: Suzi Lechner



KOALA RESCUE

If you see a sick or injured koala please call Friends of the Koala 24hr rescue service 6622 1233

IS THAT KOALA SICK OR HEALTHY?

Healthy koalas have: a thick grey and white coat; a full rounded belly; bright alert eyes; are responsive when startled; and spend most of their time in trees.

Sick koalas have: a brown, dry matted coat; crusty, red or pussy eyes; and dirty or wet bottoms. They often remain fairly low in a tree for a number of days, are unresponsive and have difficulty climbing.

For more information and local nursery listings, refer to the resources section.



How can I attract Wildlife to my Garden?

NATIVE WILDLIFE ARE WELCOME VISITORS TO OUR GARDENS AND CHOOSING NATIVE PLANTS THAT PROVIDE FOOD AND PROTECTION IS A GREAT START. HERE ARE SOME SIMPLE IDEAS TO MAKE OUR GARDENS EVEN MORE WELCOMING FOR ANIMALS, BIRDS, FROGS, LIZARDS, BUTTERFLIES AND OTHER INSECTS.



CREATING STRUCTURAL HABITAT FEATURES

Features such as logs, rocks, leaf litter and ponds create important structural features that will make your garden more inviting to a range of wildlife. Mulch, leaf litter, sticks and bark forms the basis of the food pyramid in the ecosystem of your garden. They provide habitat for worms and insects and these in turn provide a food source for lizards, birds, frogs, bandicoots and echidnas. Logs and rocks placed in protected areas will provide a home for frogs and lizards while a rock placed in the morning sun will be appreciated by the local skinks. A birdbath placed in an open sunny spot with clean water will attract birds and provide them with somewhere to cool off in summer. A shrub located nearby will provide a safe retreat from predators. And it's not just birds that require water! Water bowls placed on the ground will provide water for lizards, mammals and even bees. Remember to add some rocks or logs so that if an animal falls in they can climb out again (see pond management page 33). Retain important habitat trees, especially any with hollows or that produce fruit and nectar.

Yellow Tail Black Cockatoos
Photo: Byron Shire Council



NEST BOXES

Nest boxes in backyards can fill the gap where there are no tree hollows. They can encourage many birds to your garden and can give your local possum an alternative home to your roof. At least 10 mammal, 15 bird and 8 microbat species as well as some reptiles have been recorded using nest boxes in Australia. Many of these species play an important part in our ecosystem through pollination of plants, dispersal of seeds and regulating insect populations. Did you know a microbat can eat 500 mosquitoes in 1 hour!

When deciding what sort of box to install, identify what hollow-using fauna occur in your area and use this to guide what type of box is appropriate. It is not recommended to provide homes for some animals within urban areas and near busy roads, due to the possibility of road kill and attacks by domestic pets. In these areas bird and bat nest boxes located high in trees are a good option. Refer to the resources section for more information.

Squirrel Gliders
Photo: Mark Evans & Nick Sanderson



HABITAT FOR NATIVE BEES

Native bees are an important part of our ecosystems as they are a major pollinator of many of our food plants as well as native plants. Bees, along with all pollinators, are under threat from newly arrived pests and diseases, habitat loss and chemical pollution. More information on how to attract pollinators to your garden, what trees and plants to conserve and plant on your property, and when plants produce nectar and pollen to provide food for native bees is contained in the resources section.

Grey Headed Flying Fox
Photo: Angus Underwood
Blue Banded Bee Photo: James Mayson
Barn-Owl Photo: Deborah Pearse



FUNGI IN THE GARDEN

Fungi are a little known but vital component of all local ecosystems. In any forest system, fungi rot down wood and leaf litter making nutrients available for plants to grow. It is estimated 80-90% of all plants form mycorrhizal partnerships with fungi – a mutually beneficial relationship where plants can acquire moisture and minerals sooner from fungi than they could get themselves, whilst the fungi find shelter in the tree roots – both a critical survival strategy during droughts. More information on Australian fungi is in the resources section.



NATIVE LAWNS AND UNDERSTOREY

Many local species are suitable as ground covers and for creating a lawn that can be mown. Often native species come up self-sown after the removal of more competitive exotic lawns such as buffalo, kikuyu and carpet grasses and increase the biodiversity in your garden. Native grasslands in the wild are often a “matrix of herbs and grasses”, so a native lawn can include low growing sedges, grasses and herbs. Many native grasses and herbs have attractive flowers and seed heads, so interesting effects can be achieved by leaving areas of your lawn unmown to create a colourful meadow (much less work!). They are also an important food for wallabies and pademelons, butterflies and pollinating and pest controlling insects.

Different plants will do well in different positions in your garden. **In moist, shady conditions:** Basket Grass *Oplismenus aemulus*, *O. imbecilis* form great lawns and respond well to mowing. Other species include Pygmy Panic *Panicum pygmaeum*, Pademelon Grass *Ottochloa gracillima*, Native Kidney Weed *Dichondra repens*, Native Viola *Viola hederacea*, Centella *Centella asiatica*, Speedwells *Veronica plebia*,

Whiteroot *Pratia purpurescens* and Pennywort *Hydrocotyle laxiflora*. Most of these can be easily spread by dividing up clumps and replanting. Other grass species are Weeping Meadow Grass *Microlaena stipoides* and Wiry Panic, Bordered Panic *Entolasia spp.*. Most of these plants will grow in drier conditions, though their vigour and habit may be reduced. **In drier conditions:** Kangaroo Grass *Themeda australis*, Flax Lily *Dianella sp.*, and Mat Rushes *Lomandra spp.*

WILDLIFE FRIENDLY FENCING

Consider wildlife and only fence where needed or change your type of fencing. www.wildlifefriendlyfencing.com

LAND FOR WILDLIFE

The Land for Wildlife program is a voluntary property registration scheme for landowners who wish to manage areas for biodiversity and wildlife habitat. www.brunswickvalleylandcare.org.au/land-for-wildlife/

Mt Chincogan
Photo: Alison Ratcliffe
Coral Fungi
Photo: Rainer Hartlieb