Acknowledgements

Tweed Shire Council recognises the generations of the local Aboriginal people of the Bundjalung Nation who have lived in and derived their physical and spiritual needs from the forests, rivers, lakes and streams of this beautiful valley over many thousands of years as the traditional owners and custodians of these lands.

Tweed Shire Council acknowledges Brunswick Valley Landcare Inc. and Rous County Council for granting permission to utilise the information contained within My Local Native Garden: A planting guide to promote biodiversity in the Byron Shire (Brunswick Valley Landcare 2017).

The 2017 “My Local Native Garden” Team
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Brunswick Valley Landcare; Byron Shire Council; Rous County Council; Tweed-Byron Local Aboriginal Land Council; Lismore City Printers; Andy Baker; Andy Enkine; Angus Underwood; Annette Staniton; Brad Green; Hannah Bunkers; James Mayson; Jim Oliver; Jude Alcorn; Jude Mason; Lisa Blackley; Liz Gander; Lucinda Cox; Mandy Lisson; Mark Durlphy; Pat Skene; Rainer Hartlieb; Richard Smith; Rita De Heer; Wendy Gibney.

Disclaimer

This publication is based upon information and data sourced from various government departments, websites, articles, journals and books listed under references. The authors cannot accept any responsibility and disclaims any liability, errors, omissions, or misstatements contained in this publication, which has resulted from placing reasonable reliance on such information.


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Image Credits:
Introduction

WELCOME TO MY LOCAL NATIVE GARDEN
– A PLANTING GUIDE TO PROMOTE BIODIVERSITY IN THE BYRON SHIRE.

This publication hopes to inspire local residents and new arrivals to learn a little more about our spectacular environment. Most importantly we want you to invite the natural world into your own backyard - to share some space with our native plants and animals.

Specifically this guide will assist you to design, plant and maintain your own garden with species that are local to your area. By following our basic planting guide, your garden will not only be easier to grow and maintain, but it will also integrate into the surroundings, linking with a range of natural habitats to help support the great diversity of local wildlife. Central to this idea is to work with nature, after all our native plant communities have already proved their success to be here through millennia of evolution.

My Local Native Garden is an entry point to introduce you to just some of the incredible variety of local native plants. Ideally we want you to ignore the exotic species and focus on endemic species as these will have food value for native fauna and are less likely to become a bushland weed.

For those wishing to explore further, you can find out more detailed plant selection information by consulting the companion online resource to this publication, The Native Species Planting Guide for Tweed and Byron Shires www.tweed.nsw.gov.au/NativeSpeciesPlantingGuide. This interactive online resource will enable users to select local native species from options that meet size, flower colour and location requirements, environmental needs (e.g. salt hardy, vegetation type), availability, etc. and produce a personally selected planting list for your specific location. It will also provide links to images and further information. Additional resources can also be found at the end of this publication.

BIODIVERSITY IN THE BACKYARD – A NATURAL RESOURCE

Have you ever stopped to think how we’ve inherited clean water to drink, fresh air to breathe or how our soils continue to grow healthy food? The answer is biodiversity – literally the variety of plants and animals, their genetics and the ecosystems they live in. These plants and animals, soils and microorganisms all help to filter our water, generate our oxygen and provide the gift of healthy soils. We need to protect biodiversity for our own health as well as play our part in looking after the planet.

Increased population, poor land management practice, and pressure from land clearing and development has fragmented the original environment into small islands or remnants where species are most vulnerable to weeds, pests and predators.

When it comes to flora and fauna, we often only think of an individual species being in danger of extinction, but the reality is each individual species depends on a range of other species - a community - for their survival. This is the inter-dependence of ecosystems and why it is important to protect not just one species, but all species – biodiversity.

BY PLANTING A NATIVE GARDEN FILLED WITH LOCAL PLANTS YOU CAN CONNECT YOUR GARDEN TO THE EXISTING WILDLIFE CORRIDORS AND ENHANCE THE SURVIVAL FOR MANY NATIVE SPECIES AND THEIR ECOSYSTEMS

The Tweed Shire is recognised as a biodiversity hotspot – one of the richest and most diverse regions for flora and fauna in Australia. Sadly there are 92 plant and 122 animal species recognised as threatened, 11 Endangered Ecological Communities, one Endangered Population and one area of Critical Habitat in the Shire.

Illustration: Hannah Bunkers

Macadamia
Leaf-tailed Gecko
Glossy Black-Cockatoo

Photo: George Cornacz

Tuckeroo
Illustration: Andy Erskine

Leckery Bluestem, Pot Photo: David Mellor

Leaf-tailed Gecko
Photo: Rainer Hartlieb
My Local Native Garden Sections:

MANY FACTORS AFFECT AND INFLUENCE NATIVE VEGETATION, MAKING IT DIFFICULT TO BE PRECISE ABOUT WHAT TYPE OF VEGETATION COMMUNITY WILL THRIVE IN YOUR GARDEN. TO HELP YOU IDENTIFY WHICH NATIVE COMMUNITIES BEST SUITS YOUR LOCATION WE HAVE DIVIDED VEGETATION TYPES INTO 4 ZONES, NOT ALL LOCALITIES COULD BE INCLUDED DUE TO THE LARGE NUMBER.

COASTAL
(P 16-19)

RIVERINE & ALLUVIAL
(P 20-23)

FOOTHILLS & HINTERLAND
(P 24-27)

RIDGES & RANGES
(P 28-31)

1. Look

Look at the sections opposite (Coastal; Riverine & Alluvial; Foothills & Hinterland; Ridges & Ranges) – which best describes your property? Go to it and view the range of stunning plants that will enrich your garden.

2. Check

Check the locations under the section heading – is there one near you? Do the soil and landscape descriptions fit your place? If not, look at some other sections – your garden may draw inspiration from two or more sections.*

3. Choose

Choose from the list of striking native plants in your section, add others from the Native Species Planting Guide database www.tweed.nsw.gov.au/NativeSpeciesPlantingGuide – contact your local bush friendly nursery and ask them if they have your selection in stock.

* Remember – finding a garden type that resembles your property is a best fit – this is a general guide and your garden may include sections and plants from one, two or even three zones. If you’re unsure, try visiting your local nursery with a soil sample, get in contact with your local Landcare group or ask advice from Council.
WHAT IS A PLANT COMMUNITY?

Plant communities are a unique assemblage of flora that have evolved as a result of interactions between a variety of factors such as:

- Geology - underlying rock type and its effect on soils and nutrients
- Soil type – whether the soils are free draining (sand based) or swampy (heavy clay based); fertile or low in organic matter
- Elevation – increased altitude usually leads to cooler, wetter conditions. It can also affect temperature and exposure, all of which impacts on soil types, and can determine if an area is prone to frost.
- Aspect – particularly on slopes where one side has predominantly sun/shade and/or particular winds
- Distance from the coast – exposure to salt laden winds or in tidal zones where only those species that can handle brackish inundation can thrive
- Temperature – the variation in temperature range increases with distance from the moderating influence of the ocean
- Humidity – closer to the coast, sea breezes can moderate the effect of humidity
- Rainfall – across Tweed Shire, the high rainfall favours certain species.

Below is a list of just some of the many local ecological communities in the Tweed Shire – several of these are listed as threatened under State or Federal legislation.

EXAMPLES OF NATURAL PLANT COMMUNITIES

- Forerunes
- Themeda grasslands on seacuffs and coastal headlands
- Coastal heathland
- Coastal cypress pine forests
- Littoral rainforests
- Mangroves
- Coastal saltmarshes
- Swamp sclerophyll forests on coastal floodplains
- Swamp oak floodplain forests
- Freshwater wetlands on coastal floodplains
- Subtropical, warm temperate and cool temperate rainforest
- Wet and dry sclerophyll open forest to woodland
- Native Grassland
- Montane heathland
Tweed Shire has an outstanding palette of indigenous plants to choose from. A garden that utilises local species will look more in place with its surrounds and link up with existing habitat to ‘invite’ the native wildlife to your place.

Successful garden design begins with a site plan - a scale drawing that includes any significant features of the site such as existing trees, sheds and paths etc.

Site Analysis

Site Analysis is a pivotal stage that lists an inventory of existing and desirable features of the garden that guide the design. Typical features include:

- Trees & plants to be retained
- Problem areas to address such as soil quality & drainage
- Fences, overhead power lines & underground cables
- Water outlets

Site Analysis Example (Diagram 1)

Sadly... we've all done it... excited by a surge of plant impulse buys, we give little thought to an overall layout. The result: a garden that doesn’t function with the surrounding environment. Creating an initial design for a new garden or even renovating an existing garden will give you an overview of what to aim for, even if funds only allow realising the design gradually over time.
**DESIGN**

Once your site analysis is complete you can start to develop a concept plan. This is a simple diagram that helps you to consider where the different functional areas will be located and how they will connect and relate to one another.

Effective landscape design is about context, balance and proportion. A garden that relates to the scale of the surrounding buildings and environment helps in setting the house into the landscape. Choosing the right plants is about both the aesthetic – contrast and harmony – and about the environment – providing vital habitat for native wildlife. Native gardens are not necessarily messy gardens. Many local shrubs respond well to pruning and will develop dense regrowth – providing better protection for small birds.

**ARMED WITH YOUR SITE PLAN AND ANSWERS TO THE FUNCTIONS OF YOUR GARDEN, START DESIGNING WHERE THE FOLLOWING POINTS WILL BE ON YOUR PLAN**

- **FOCAL POINTS**
  A good design has a few focal points but not so many that they are all competing with each other. Where are the best locations to place striking specimen plants, sculptures or water features? Plenty of plain, green, bushy plants supports the more eye-catching elements.

- **STRUCTURE**
  Structural diversity is a crucial to creating an variety of habitats. Choose a range of plants and layers, i.e. groundcovers & grasses, vines & scrambles, shrubs & thickets, small and tall trees. This will increase the range of wildlife that will come to rest and play in your garden.

- **TREES**
  Trees are an essential element of design. Be considerate of neighbours - one property’s southwest is another’s northeast - so this may mean a compromise in tree height. Try to get as much information about heights and habits as you can, including root growth. Incorporate existing mature trees into the design and they will provide vital habitat stepping-stones for wildlife.

- **SHRUBS**
  Shrubs and groundcovers establish better when planted at the same time as trees. Thickly planted shrubs form excellent screens from winds or views. Smaller birds favour bushy, shrubby, prickly growth for protection.

- **GROUNDCOVERS**
  Lower plants soften hard edges and create great habitat for frogs and lizards. They also add to the garden looking complete and can help to minimise weed growth.

- **LAWNS**
  Lawns create a sense of space and are great open areas to play or entertain in. They are, however, labour intensive, so reduce their size or consider a native lawn (more info on page 37).

- **VEGETABLE GARDENS**
  Choose a position that is easily accessed from the kitchen. Intensively grown vegies will cut down on size, maintenance. Does it need to be fenced from pets or netted for birds and bats?

- **MATERIALS**
  Try to be creative - recycle materials where possible. Porous surfaces allow water to soak into the ground rather than hard surfaces that create large volumes of stormwater.

- **BACKYARD BUFFERS & RAINGARDENS**
  Densely planted native species in buffer strips and raingardens (bioretention systems) can help to filter and reduce stormwater (more info on page 34).

- **RAINWATER TANKS**
  Installing a rainwater tank is one of the easiest ways to reduce the amount of stormwater leaving your property. Rainwater tanks come in all shapes and sizes and the water can be used for watering the garden and washing vehicles. The tank can also be connected to internal plumbing for toilets and laundry.

- **GARDEN DESIGN EXAMPLE**

**Hibiscus Harlequin Bug. Photo: L Koesterke**

Think about what functions you want your garden to serve.

- Is there a place to sit and relax?
- Do you wish to attract birds, butterflies or animals?
- Do you require children’s play areas or outdoor entertaining areas?
- What about a pool, garden shed or pergola?
- Would you like a pond or water feature?
- Is low maintenance a priority?
- Do you want vegetable gardens and/or chickens?
- Do you have pets and will they need to be fenced?

Illustration: Mandy Lisson
Before you plant

- Check your soil type – does it match the description & type of garden & plants in your zone? Does the soil need any conditioning (mulch, fertilizer, organic matter) before planting?
- Choose plants – pay attention to microclimate, (e.g. full sun/shade, etc).
- Prepare the site – preliminary weeding, dig all the holes and have fertilizer, mulch and water on hand.

Correct planting technique

Check with the nursery where you purchase the plants about specific planting tips for your selected species, e.g. siting of the planting, watering & fertilizer requirements, mulching etc.

Getting help

Help can be obtained from local council, landscape designers, experienced bush regenerators, websites and nurseries. There are also a lot of great books and gardening magazines out there to help design your garden – why not put a scrapbook together of all the elements you wish to include? Most importantly, spend time in your garden, get to know the microclimates and plan your garden around its strengths and limitations.

1. Dig a hole slightly deeper and at least twice as wide as the pot size. Loosen the soil around the sides of the planting hole. Water the plant & fill the hole with water and allow both to drain away. If the water doesn’t drain from the hole you may need additional help with the addition of gypsum or build up a free draining mound of soil to plant into.

2. Gently remove the plant from the pot or tube and place in the planting hole - the top of the root ball should be level with the surrounding soil. If the roots are pot-bound gently loosen the root ball and then place in hole.

3. Backfill soil, making sure that the surface root ball is well covered and include a little slow release native plant fertilizer and water crystals. Press the backfill down with your hands and shape the soil surface slightly to hold water. Do not place organic matter or too much fertilizer at the base of the hole as this may encourage root rot or fertilizer ‘burn’.

4. Water the plant thoroughly after planting and then once a week for the first few months, (depending on season). Thereafter, water generously when the soil feels dry.

5. Mulch around the plant - 10cm thick with at least a 50cm radius - this will help to retain moisture and discourage weed growth. Avoid placing mulch against the stem of the plant as this may encourage collar rot.
Coastal

LOCATIONS INCLUDE:
BOGANGAR, CABARITA BEACH, CASUARINA, CHINDERAH, FINGAL HEAD, HASTINGS POINT, KINGSCLIFF, KINGS FOREST, POTTSVILLE, TWEED HEADS, WOOYUNG

For those of us lucky enough to live in close proximity to the sea, gardening on sandy soils in salt laden winds can be challenging - until you learn the secrets of our local plants.

Before our coastline was cleared for sand mining and coastal development, a diverse ecosystem thrived in a succession of plant communities that each lent protection to the next.

Coastal wattle to establish. This in turn provides shelter to the hind dunes and a complex root system that secures the coast against wave attack. In the lee of this, small, salt tolerant trees and heathery vines form a dense barricade and beyond a complex littoral rainforest can establish. Depending on the soil type (sand or clay), and proximity of water table variations, the type of predominant vegetation could be littoral rainforest, melaleuca wetland or fire dependent heath.

The advantages of using local coastal plants in the landscape are salt and drought tolerance, and an ability to thrive in low nutrient sandy soils – a selection of these plants are detailed in the species list that accompanies this section of your guide.

On the foredunes, spinifex grass slows and traps the wind-blown sand, allowing enough security for the low coastal wattle to establish. This in turn provides shelter to the hind dunes and a complex root system that secures the coast against wave attack. In the lee of this, small, salt tolerant trees and heathery vines form a dense barricade and beyond a complex littoral rainforest can establish. Depending on the soil type (sand or clay), and proximity of water table variations, the type of predominant vegetation could be littoral rainforest, melaleuca wetland or fire dependent heath.

The advantages of using local coastal plants in the landscape are salt and drought tolerance, and an ability to thrive in low nutrient sandy soils – a selection of these plants are detailed in the species list that accompanies this section of your guide.

CREATING A HEATH GARDEN

SOIL DESCRIPTION:
Low nutrient sand and sandy clay
The heath garden would be well suited to a highly exposed site or to frame a view. The small leathery leaves that feature in this broad grouping are salt tolerant and once established can be trained through pruning and require no irrigation. Small shrubs and trees that are fairly nondescript for much of the year will reward you with vigorous flowering in the spring and some of the heath species such as lemon scented Tea Tree (Leptospermum lividus) contain natural insect repellents. This garden will look particularly good with well placed rocks – make them look natural in their setting and try to leave a few caves and crevices for our blue-tongue lizards.

The key species… Banksias, Grass Trees, Leptospermum, Leucopogon, Barbekea, sedges and local Peas. You can even replace the lawns with a low growing form of Kangaroo Grass.

EXAMPLES: Bogangar (south of Primary School) and Cudgen NR

N.B. It should be realised before embarking on the heath garden that many of these plants are volatile; a buffer zone should be established and maintained in areas prone to bushfire. Interestingly though, there are heath plants that are non-volatile and form natural firebreaks. Further information can be sourced from the RFS & CSIRO.

CREATING A WETLAND GARDEN

SOIL DESCRIPTION:
Sandy loam to sandy clay
In its natural state, such as at Fingal Head, you’ll see a compact forest blown into a wedge shape capable of deflecting salt laden winds, and providing a surprising amount of shelter beneath. Few of us will have the opportunity to achieve this complexity in our own yards but there are some very useful species to employ in the home landscape. Utilise the sculptural forms of Pandanus, Cordyline, Banyan Palm, Ginger, Diandra and Hoya Vine. You’ll notice these are all lignat plants, which look best with similar shaped and textured plants. Lilly Pillies and other small rainforest species can provide useful hedges and background. Few of these plants flower conspicuously but can put on beautiful flushes of new growth as opportunity allows.

EXAMPLES: Wooyung NR, Fingal Head and Cabarita Headland

CREATING A LITTORAL RAINFOREST GARDEN

SOIL DESCRIPTION:
Peaty sands

If you live in the low-lying parts of the Shire, the water table may be close to the surface and wet sclerophyll plants will best suit your garden. If you have a really buggy section some of the plants that will happily occupy it and turn it into a feature include: Paperbarks, Banksia robur, Blueberry Ash, Cordyline, strappy grasses, ferns and sedges – all can be used to great effect and will require little maintenance. Plant in groups and use your taller species in the background to maximise the impression of space, whilst encouraging the pioneer species that may volunteer to add complexity to the theme. Visit the section on water features and aquatic plants (p32) for more ideas.

EXAMPLE: Stotts Island NR and West Pottsville
# Coastal Botanic

**Dianella**  

**Native Violet**  
Spreading groundcover with delicate purple and white flower.

**Flannel Flower**  
A dramatic & sculptural tree with irregular growth habit. Large woody fruit.  

**Drought Tolerant**  

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<th>HEIGHT</th>
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<th>SUN</th>
<th>SHADE</th>
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<th>DRY</th>
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<tr>
<td>Dwarf Poinciana</td>
<td>Delonix regia</td>
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<tr>
<td>Bottlebrush</td>
<td>Callistemon</td>
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<tr>
<td>Snowgum</td>
<td>Angophora</td>
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<tr>
<td>Oak</td>
<td>Quercus</td>
<td>20m</td>
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**Groundcovers & Grasses**  

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<td>Kangaroo Grass</td>
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<tr>
<td>Coastal Grass Tree</td>
<td>Xanthorrhoea macrantha</td>
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**Vines & Epiphytes**  

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<tr>
<td>Guinea Flower</td>
<td>Fribertia scandens</td>
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**Shrubs & Scramblers**  

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<td>Swamp Banksia</td>
<td>Banksia rober</td>
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<tr>
<td>Snow in summer</td>
<td>Melaleuca</td>
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<td>Midgen Berry</td>
<td>Austromyrsus</td>
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<tr>
<td>Clumping Palm Lily</td>
<td>Cordyline congesta</td>
<td>1.7m</td>
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**Trees**  

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<td>Banksia australis</td>
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<tr>
<td>Broad-leaved Lilly Pilly</td>
<td>Eucalyptus</td>
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<td>Blueberry</td>
<td>Eleaocarpus</td>
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<td>-</td>
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<tr>
<td>Bennett's Ash</td>
<td>Fenderia bennettiana</td>
<td>30cm</td>
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<tr>
<td>Celery Wood</td>
<td>Polyscias</td>
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<td>-</td>
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</tr>
<tr>
<td>Pandanus</td>
<td>Pandanus tectorius</td>
<td>10cm</td>
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**For more species see the Native Species Planting Guide for Tweed & Byron Shires at www.tweed.nsw.gov.au/NativeSpeciesPlantingGuide**
RIVERINE AND ALLUVIAL

LOCATIONS INCLUDE:
CHINDERAH, COBAKI, COBAKI LAKES, CONDONG, CRYSTAL CREEK, EVIRON, MURWILLUMBAH, NUNDERI, SLEEPY HOLLOW, SOUTH MURWILLUMBAH, STOTTS CREEK, TUMBULGUM, TWEED HEADS WEST

The riparian zones and alluvial plains of Tweed Shire are some of the most altered and disturbed areas of the north coast. Prior to development they supported a rich mosaic of plant alliances. Remnants of majestic eucalypt-based forest still exist in drier areas. Broad-leaved paperbark forest, swamp oak communities and sedge-lands thrive in areas of wetlands, and, nearer the estuary, communities of mangroves and other salt tolerant plants harbour exceptional biodiversity. All of these species, (except mangroves, which require brackish or salt water) can still flourish near dams, soaks or in gardens on the riverside plains.

By choosing from the plant communities native to the riparian and alluvial plains of Tweed Shire, you can make your property part of a region-wide wildlife corridor. Doing this, you will invite an incredible diversity of flora and fauna into your backyard. Planting in swatches, to slow runoff and catch silt, will help prevent erosion that in turn helps maintain the health of the whole length of the waterway, encouraging the movement of all life forms that rely on the rivers and floodplains for their survival.

WILDLIFE:
ECHIDNA, POSSUM, WATER DRAGON, PLATYPUS, FLYING FOX, INSECTIVOROUS BAT, SWAMP WALLABY, VARIOUS NATIVE FROGS AND FISH, AND A WIDE VARIETY OF BIRDS INCLUDING THE PACIFIC BAZZA

CREATING A CREEK-SIDE RAINFOREST GARDEN
SOIL DESCRIPTION:
From gravels near the headwaters to fine clays near the estuary and all the gradations of particle size in between

Many gardens border creeks, streams and ephemeral watercourses. By recreating the structure of the natural vegetation communities with trees for canopy cover, under-planted with shrubs, ferns and sedges, it is possible to create your own patch of riparian rainforest.

Plant tussocky Lomandras mixed with the beautiful Crinum Lilies to protect the creek sides from erosion. Interplant with shrubs such as Native Mulberry, a butterfly host and Velvet Leaf whose berries attract small birds, interspersed with local riparian tree species such as Weeping Lilly Pilly and Creek Sandpaper Fig. Finish off with a sward of native groundcovers such as Basket Grass and Native Commelina, which can both be mown to help sieve sediments from runoff before it hits the creek. No rainforest garden is complete without a vine or two trained along fences and pergolas to enjoy their showy flowers. Mulch is essential as it mimics the original forest’s nutrient processing, keeps the soil moist, and inhibits the growth of weeds.

EXAMPLES: Highway verge adjoining Stotts Island NR

CREATING AN ALLUVIAL PLAINS GARDEN
SOIL DESCRIPTION:
Silt-based, usually dark grey clays, tendency to crack if allowed to dry out.

Depending on their access to moisture, these lands once supported a variety of forests. Drier ground: The Eucalypt species (e.g. E. terreticornis) that once dominated these areas are potentially very large trees. Due to bushfire constraints and the danger of falling branches these species are not safe to plant near buildings. However there are hundreds of other plants to choose from including: Black She-Oak, which when mature will attract the Black Cockatoo; Kangaroo Grass and Paper Daisies which are low growing groundcovers, whilst Blue Tongue, Breynia and Orange Thorn are all mid-sized shrubs and scramblers. Diligent weeding of exotic species may even revive one or two ground orchids.

Wet or boggy ground: A broad-leaved paperbark forest will flourish where the ground water is close to the surface or the ground is frequently inundated. Plant species consist of River Oaks and Butternutwood as well as Weeping Bottlebrush and Paperbark Tea Trees. Poorly drained soils support a large variety of sedges, rushes and ferns as well as such beauties as Sundews, Karamat and Violets.

EXAMPLES: Pottsville Environment Park
## Riverine and Alluvial

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>HEIGHT</th>
<th>WIDTH</th>
<th>FULL SUN</th>
<th>PARTIAL SHADE</th>
<th>FULL SHADE</th>
<th>FROST TOLERANT</th>
<th>FLOOD TOLERANT</th>
<th>DROUGHT TOLERANT</th>
<th>TOLERATES HEAVY CLAY SOILS</th>
<th>TOLERATES SANDY SOILS</th>
<th>FLOWER SEASON</th>
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<td>✓</td>
<td>✓</td>
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CREATING YOUR OWN RAINFOREST

For those with more space on their property who wish to establish their own patch of rainforest, a site-specific planting design and careful species selection is essential. A full description of this process is beyond the scope of this book but here is a brief overview.

The first step is to establish planting pioneer, fast growing trees, which can handle full sun and are generally short-lived in terms of a rainforest (10-30 years). Plant the pioneers 3-4m apart to form a canopy in 2-5 years depending on the site and conditions. Interplanted through these pioneer trees, secondary and mature phase trees are planted. These are slower to establish but can live for hundreds of years and in time will form the rainforest habitat. Once the canopy is established, the final stage planted will contain a diverse mix of trees, shrubs, vines and groundcovers. Where possible, try to source the species that grow naturally in your area – talk to your local native nursery and ensure you are also planting species with local population genetics. By planting in this manner, you will extend the existing habitat for local species encouraging them to move into the new areas that you have provided.

Over time you will notice trees and other plants regenerating naturally. These are brought in by birds and the wind and germinate in the favourable conditions provided by the forest canopy.

More information about planting a rainforest can be found in the book published by the Big Scrub Landcare Group Subtropical Rainforest Restoration. This book is essential for anyone looking at undertaking this process, providing a detailed overview of the many factors to consider, as well as a list of appropriate species to plant.

Creating a Rainforest Garden

SOIL DESCRIPTION: Deep, well-structured red/brown krasnozems, high clay content, often acidic - may benefit from the addition of gypsum or lime

A rainforest garden in a moist sheltered part of your property can produce a cool, lush oasis full of verdant foliage. Create a multi-layered rainforest structure by grouping together a range of trees, shrubs, palms and groundcovers sheltered from full sun, frost and prevailing winds.

For a smaller garden, trees such as a Macaranga or Native Frappé street and a few large Bangalow Palms can provide shade. If space is at a premium, plant utilising the shade from your house or fence line. Within this shelter, dense, mass plantings of large glossy-leaved species such as Native Ginger, Cordyline and Cunjevoi look impressive, interspersed with Dianella.

Finger Lime and Midgen Berries to provide food and occasional colour. If you need a hedge, Scrub Cherry can be a good choice with dense foliage that can be pruned and it also provides tasty pink berries. Lomandra can form a dense edge that helps keep your garden weed-free. Vines such as the Flower Vine and Purple Coral Pea can grow in a sunny spot and both have a showy display of flowers.

The Birdwing Butterfly Vine likes partial shade and provides essential habitat for the amazing Birdwing Butterfly. In the shade shrubs such as Narrow-Leaf Gardenia and Hairy Psychotria have distinct flowers and can provide a shaded ground layer where Native Violets will spread rapidly and display small purple flowers in summer.

Large feature trees may include Flame Tree, Coolamon and Native Teak, all of which have stunning flower displays. Always ensure large trees are positioned well away from buildings.

Mulch is an important component of a rainforest garden and mimics the humus layer found on the forest floor. The decomposing organic matter forms the basis of the garden ecosystem by adding nutrients to the soil, holding moisture and providing habitat for soil microbes and invertebrates, which in turn provide habitat and food for lizards and birds. Many rainforest plants have a network of surface roots that rely on the nutrients and moisture provided by the mulch.

Examples: Mt Warning NP, Hogan’s Scrub NR, Upper Durobly and Limpinwood NR

Locations Include:
Banora Point, Bilambil, Burringbar, Byrrill Creek, Chillingham, Couchy Creek, Crystal Creek, Cudgera Creek, Eviron, Farrants Hill, Kunghur, Limpinwood, Mooball, Pumpenbil, Smiths Creek, Stokers Siding, Tomewin, Tyalgum, Urlup, Crystal Creek, Cudgera Creek, Eviron, Farrants Hill, Kunghur, Limpinwood, Mooball, Pumpenbil, Smiths Creek, Stokers Siding, Tomewin, Tyalgum, Urlup.

WILDLIFE:
Wompoo Pigeon, Rose-Crowned Fruit Dove, Brown Cuckoo Dove, Figbird, Currawong, Bar-Shoulder Dove, Emerald Dove, Fairy Wren, Silver Eye, Various Honeyeaters, Green Tree Frog, Peron’s Tree Frog, Rocket Frog, Microbat, Sooty Owl, Variety of Lizards and Insects

Foothills
and Hinterland

The ‘foothills and hinterland’ vegetation zone includes the heavily eroded near coastal hills and undulating lower slopes of the Tweed River catchment below the upper elevations of the Caldera ranges and ridges. The high rainfall and rich soils of this zone create the perfect conditions for rainforest plants to thrive. Previously the vegetation comprised wet sclerophyll forests and lowland subtropical rainforest. The remaining small isolated remnants of rainforest are now protected as an Endangered Ecological Community.

The elevation of the zone ranges from 40m adjacent to river flats at Mooball, Stokers Siding and Tumbulgum, which may register winter frosts, up to 300m around Bilambil, Terranora, Chillingham, Burringbar, Eungella and Uki. Above this height soil type may change and rainforest often transitions to wet sclerophyll forest. Sub-tropical rainforest forms a dense canopy of large trees above mid and under storey layers of dense lush foliage. The range of plants present is extremely diverse and includes trees, shrubs, vines, palms, orchids, epiphytes, fungi and groundcovers. This layered canopy structure creates a cool, moist, shady microclimate which reduces light and wind intensity, and evaporation.

Locations Include:
Banora Point, Bilambil, Burringbar, Byrrill Creek, Chillingham, Couchy Creek, Crystal Creek, Cudgera Creek, Eviron, Farrants Hill, Kunghur, Limpinwood, Mooball, Pumpenbil, Smiths Creek, Stokers Siding, Tomewin, Tyalgum, Urlup
**Foothills & Hinterlands**

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<th>SCIENTIFIC NAME</th>
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**Native Ginger**

Lush clumping plant with large foliage age and bright blue berries. Flowers in spring/summer. Attracts wildlife. Small variety. Alpinia arundeliana also available.

**Rainforest Lomandra**

Native clumping grass with cream flowers and orange capsules in spring. Attracts wildlife. Smaller than other Lomandra species preferring more shade. The larger Lomandra hystrix could also be used.

**Soft Water Fern**

Attractive clumping fern with a red flush on the new growth.

**Ground Lily**

Unique-lookign scramble with shiny green leaves and small purple flowers.

**Native Raspberry**


**Birdwing Butterfly Vine**

Essential habitat for Birdwing Butterfly. They lay their eggs on the leaves and larvae eat the leaves after hatching. Flowers summer/autumn.

**Bower Vine**

Great climber with showy white/pink flower in spring/summer. Attracts wildlife. Frost sensitive.

**Finger Lime**

Edible citrus, great in salads and with fish. Bushfood.

**Broad-leaved Palm Lily**

Large lush leaves and bright red berry in summer. Bird attracting fruit. Bushfood.

**Glossy Laurel**

Shrubby tree with glossy foliage and large red fruit in spring/summer. Attracts wildlife.

**Tree Fern**

Spectacular species with delicate, shiny foliage often used as a feature plant in landscaping.

**Bolwara**


**Hairy Psychotria**

Delicate white flowers in summer. Fruit attracts birds.

**Bangalow Palm**

Classic local palm with bright red fruit in autumn. Bird attractant and a must for any rainforest garden.

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**My Local Native Garden**

Ridges and Ranges

LOCATIONS INCLUDE:
CEDAR CREEK, EUNGELLA, GLENGARIE, HOPKINS CREEK, NUMINBAH, TOMEWIN, Tyalgum Creek, Upper Burringbar and Upper Crystal Creek

The spectacular ranges, ridges and gullies of the upper Caldera slopes provide distinctively different vegetation communities to elsewhere in the Shire. Tall open forests in this zone are dominated by Eucalypt, Turpentine, Casuarina and Brushbox, supporting a well-developed often moist mid storey of tree ferns, rainforest and sclerophyll species and pea flowered shrubs and an understorey of lush ground ferns. On drier north facing sites Grass trees, cycads and grasses may dominate the under storey. Cool temperate rainforest, dry rainforest and montane heath also occur at these elevated sites.

The plant communities of this zone have developed to handle unique environmental conditions including exposure to wind, extremes of cold and heat, moisture laden cloud shrouding, and periodic drought and fire. Fires are an integral part of the Australian bush but it is a delicate balance - while it can stimulate germination and growth of new species, fire can also destroy homes, property and in some cases, reduce the diversity of native species and promote weeds recruitment in their place.

WILDLIFE:
KOALA, RING-TAILED POSSUM, SPOTTED-TAIL QUOLL, WEDGE-TAILED EAGLE, POWERFUL OWL, BARKING OWL, GLOSSY BLACK COCKATOO, YELLOW-TAILED BLACK COCKATOO, LACE MONITOR, A VARIETY OF SKINKS & REPTILES, BLUE AND BROWN BUTTERFLY.

Creating a Ridge-Top Garden

SOIL DESCRIPTION:
Red/brown soils, well-drained and often gravelly, slightly acidic and often leached of humus from high rainfall, runoff and exposure to wind. The addition of mulch is always helpful to retain moisture, add organic matter and keep weeds under control.

The major consideration in designing a ridge-top garden is to avoid creating a fire prone environment. An asset protection zone (APZ) is essential in providing a firebreak between your ‘assets’ (house, shed etc.) and ‘fuel’ (vegetation). Check Planning for Bushfire Protection (RFS 2016) or Council for recommended setbacks.

Although most Eucalypts are not suitable near the house, a ridgeline garden can provide a shady cooling environment. If you have the space and can set back far enough from the house, Eucalypts do make spectacular feature trees – local native Flooded Gum are beautiful in wet gullies and Tallowood are a favourite for koalas. A smaller canopy of trees could include the Mountain Bottlebrush, Banksias, Forest Oak and Blueberry ash – all will provide colour, and a range of foliage and shade for the understorey to establish. Try planting masses of ground ferns interspersed with a variety of shrubs such as Grass Trees, Hovea, Narrow-leaved Palm Lily, Tree ferns, Cycads or Giant Spear Lily to provide a contrast of foliage. Shaded or moist spots with rocks may help to establish native Orchids, Bird nest and Elkhorn Ferns.

EXAMPLES: Mt Warning and Mt. Jerusalem National Parks
Factors to consider near your house:
Do not plant garden adjacent to built structures which may transmit fire. Avoid tall, fire loving trees like Eucalypts, in the house garden. Avoid plants with a fibrous bark. Use plants that can be trimmed and that resist
go from lignotubers (e.g. some Banksias). Rainforest plants are good to include, especially climbers such as Bower vine (Pandorea jasminoides) and Snake vine (Hibbertia scandens), which are effective weed barriers for edges of the garden.

Space taller plants further apart and don’t allow taller shrubs and trees to hang over the roof and gutters. Keep gutters clear of leaves and branches. Carefully arrange the taller plants to avoid a continuous canopy, thus avoiding a fire prone garden, even though a dense canopy is a feature of the natural environment. Use Sweet Pittosporum (Pittosporum undulatum) for low cover and shade. Position lawns, garden walls, paved areas, swimming pools and other fire retardant features such as water features and ponds nearer the house or on the side closest to the fire threat. The native Basket Grasses (Opilinorum spp.) make excellent lawns in shady places when mowed regularly. Use mulches that break down quickly (finely chopped tea tree or gravels).

FEATURE PLANTS FOR RIDGES AND RANGES

- Bird’s Nest Fern
- Cycad
- Grass Trees
- Coast Banksia
- Harpin Banksia
- Flooded Gum
- Cliff Bottlebrush
- Giant Spear Lily
- Hovea
- Narrow-leaved Palm Lily
- Tree Fern

My Local Native Garden
Ridges and Ranges

Blue Flax Lily
- Great clumping grass. Edible blue berries, bushfood.

Kangaroo Grass
- Fine foliage, coppery seed heads. Attracts butterflies.

Lomandra
- Draught tussock-like grass with fine foliage. Great edgework. Other species include Lomandra hirsuta and L. multiﬂora.

Rainbow Fern
- Groundcover, lush foliage. Many native ferns such as the Harsh Ground Fern (Hypolepis muelleri) are ideal to plant as a sea of understory.

Basket Grass
- Great native groundcover. Soft leaf and can be lightly mowed

Bird’s Nest Fern
- Can grow on ground or be attached to tree. Features for trees, habitat for frogs, lizard and other reptiles. A striking alternative is the Staghorn (Platycerium bifurcatum).

Grape Ivy
- Shiny leaved climber, good screen hedge or fire retardant.

Snake Vine
- Twining shrub-like plant. Hardy plant. Large yellow flowers, good groundcover or on fence lines.

Garden Tree
- Twinning shrub-like hardy plant. Large yellow flowers, good groundcover or on fence lines.

Poached-leaf Hovea
- Fine open shrub; purple pea flowers in late winter; prefers filtered light; deeper soils.

Cliff Bottlebrush
- Small bushy tree 2m. New foliage pink with nectar-rich red flowers throughout year. Attracts wildlife.

Weeping Pea Tree
- Shrub or small tree with drooping leaves and fragrant yellow pea flowers.

Blueberry Ash
- Attractive white ‘lily of the valley’ flowers.

Forest Oak
- Major food tree for the endangered Glossy Black Cockatoo.

For more species see the Native Species Planting Guide for Tweed & Byron Shires at www.tweed.nsw.gov.au/NativeSpeciesPlantingGuide
Aquatic Plants

Ponds, Dams and Wetlands

Aquatic plants may be floating or emergent - those that are rooted in the soil but which can tolerate being partially submerged.

<table>
<thead>
<tr>
<th>Aquatic Plants</th>
<th>Image 1</th>
<th>Image 2</th>
<th>Image 3</th>
<th>Image 4</th>
<th>Image 5</th>
<th>Image 6</th>
<th>Image 7</th>
<th>Image 8</th>
<th>Image 9</th>
<th>Image 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Habit</td>
<td>Sun Requirements</td>
<td>Water Requirements</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Nardoo</td>
<td>Nymphoides indica</td>
<td>Perennial water lily with floating stolons and leaves</td>
<td>Full sun or part shade</td>
<td>Grows in still and slow flowing water up to 2 m deep</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Azolla</td>
<td>Azolla filiculoides</td>
<td>Perennial free-floating aquatic fern</td>
<td>Full sun or shade</td>
<td>Grows in still or slow flowing water with adequate nutrient levels</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Duck Weed</td>
<td>Lemma spp.</td>
<td>Perennial free-floating plant</td>
<td>Sun or shade</td>
<td>Grows in still or slow flowing water with adequate nutrient levels</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Frogmouth</td>
<td>Phlyctenium Linnaeanum</td>
<td>Perennial emergent aquatic plant which grows to 2m</td>
<td>Sun or partial shade</td>
<td>Grows on edge of ponds and dams, shallow water &amp; wet soils</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Tassel Sedge</td>
<td>Carex gracilis</td>
<td>Perennial emergent aquatic plant up to 1m</td>
<td>Semi-shade</td>
<td>Grows in wet soil or on the edge of dams or slow flowing waterways</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Water Primrose</td>
<td>Ludwigia peploides</td>
<td>Perennial emergent plant</td>
<td>Full sun or partial shade</td>
<td>Grows in dams or slow flowing waterways</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

SAFETY & HEALTH

Whenever installing ponds, dams or wetlands make sure they are safe, especially for young children. Details on safety and water bodies can be obtained from state and local government agencies. Another health consideration is to ensure that mosquitoes are not breeding in your pond.

POND MANAGEMENT

Many native animals including birds, frogs and dragonflies often visit small ponds, and if you are lucky, frogs may even breed in your pond. However be careful that you are not breeding cane toads.

There is a fact sheet to keep toads out of your pond at www.frogs.org.au for more information. Another consideration is that an overabundance of plants can cause the water to deoxygenate, so you may need to install an aeration system.

Water Primrose

Flowers vary in colour between species though usually white or pink. These species readily regenerate naturally in ponds and dams. The species pictured is Sander Knotweed and is a native species. If you have knotweeds regenerating, check that they are one of the native species.

Dainty Green Tree Frog: Cudgen Lake; Wandering Whistling Duck. Photos: Tanya Fountain

Water garden and supplement its habitat values. This section lists some of the more common and accessible local native plants that are suitable to grow in and around your water feature. Aquatic plants may be

Ponds, Dams and Wetlands

1. **Water Snowflake**
   - White flowers in spring-autumn
   - Leaves vary from light green to rustic brown

2. **Nardoo**
   - Leaves vary from light green to rustic brown
   - Perennial water lily with floating stolons and leaves
   - Full sun or part shade
   - Grows in still and slow flowing water up to 2 m deep

3. **Azolla**
   - Perennial fern with four clover-like floating leaflets
   - Full sun or semi-shade
   - Grows in still or slow flowing water up to 60 cm deep

4. **Duck Weed**
   - Perennial free-floating aquatic fern
   - Full sun or shade
   - Grows in still or slow flowing water with adequate nutrient levels

5. **Frogmouth**
   - Perennial emergent aquatic plant which grows to 2 m
   - Sun or partial shade
   - Grows on edge of ponds and dams, shallow water & wet soils

6. **Jointed Twig-rush**
   - Perennial emergent aquatic plant which grows to 2.5 m
   - Full sun
   - Grows in water up to 1 m deep in deep mud

7. **Common Spike-rush**
   - Perennial emergent aquatic plant less than 1 m
   - Prefers full sun
   - Grows in water up to 45 cm deep

8. **Tassel Sedge**
   - Perennial emergent aquatic plant to 1 m tall
   - Prefers full sun
   - Grows in edge of ponds and slow flowing waterways

9. **Water Primrose**
   - Perennial emergent plant
   - Full sun or partial shade
   - Grows in edge of ponds and slow flowing waterways

10. **Smartweeds or Knotweeds**
    - Perennial emergent aquatic plants
    - Full sun or part shade
    - Grows in water up to 1 m deep
Landscaping for Water Quality

**Where Does Your Drinking Water Come From?**

Tweed Shire supplies bulk water to all urban areas via its treatment plants at Uki and Bray Park on the Tweed River and Tyalgum on the Oxley River. It maintains a large impoundment at Clarrie Hall Dam.

**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 burnders 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.

**Creating a Rain Garden**

Rain gardens (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. Rain gardens 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 rain garden in your backyard remember:

- On flat sites, raised planter boxes make ideal rain gardens. On steeper areas with enough depth for drainage, rain gardens can be excavated;
- Try to capture and treat stormwater from the greatest impervious area;
- Locate the rain garden 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 variety of plants and animals. We live in the wet subtopics 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 flooding foxes with autumn and winter flowering species providing nectar and pollen when food resources are scarce elsewhere.

Half of the Shire (68,571 ha) is covered by bushland of which 80% has high conservation status.

**Koalas are an iconc 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 microcarpa – 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.

**Koala Rescue**

If you see a sick or injured koala please call Friends of the Koala’s 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 locations, refer to the resources section.
How can I attract Wildlife to my Garden?

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 bird bath 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, shrubs and plants to conserve and plant your property, and when plants produce nectar and pollen to provide food for native bees is contained in the resources section.

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.

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.

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 LAWS AND UNDERSTORE

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. inceptus form great lawns and respond well to mowing. Other species include Pygmy Panic, Panicum pygmaeum, Pademelon Grass, Ochotona gracilis, Native Kidney Weed, Dichondra repens, Native Viola viola, Viola hederacea, Centella Centella asiatica. Speedwells Veronica plebeia, Whitemoor Pratia purpureascens and Pennyworth Hydrocotyle lalibera. 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, Enhalasia 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, Eremandra sp.

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.


Mt Chincogan

Photo: Alison Ratcliffe

Coral Fungi

Photo: Rainer Hartlieb
WHAT IS AN ENVIRONMENTAL WEED?

Some of the most invasive species with the biggest impact on our native bushlands have escaped from gardens. These plants are environmental weeds and Australia’s 2011 State of the Environment Report identified weed invasion as a threatening process for one-third of rare species in Australia.

Environmental weeds are plants growing outside of their natural distribution that have a negative impact on the natural ecosystems and the plants and animals within those ecosystems. These weeds are introduced into new areas by human activities. Sometimes this is accidental such as via transport but most often, plants are bought for the home garden and then escape. In fact one hundred and twenty four environmental weed species are still being sold in nurseries across New South Wales!

HOW DO THE PLANTS ESCAPE FROM GARDENS?

Garden waste dumping is a serious threat to native bushland as weeds are directly spread into new areas. But environmental weeds may also be spread indirectly. Seeds can be dispersed by birds or bats, some may be wind-blown or spread by water and still others have sticky seeds that cling to clothing, pets or even vehicles. Plants such as the Madeira Vine spread vegetatively and even a small leaf is enough to start a new infestation. So no matter how careful you are, environmental weeds in your garden can still spread to natural ecosystems. It’s best not to have them in the first place.

NOT ALL INTRODUCED SPECIES ARE A PROBLEM

Many exotic species of plants from other parts of the world pose no threat at all. Roses, gardenias and azaleas are all exotic plants but none of these have the potential to become invasive species.

INVASIVE SPECIES ARE INTRODUCED SPECIES THAT HAVE NATURALISED AND HAVE AN ADVERSE EFFECT ON NATURAL ECOSYSTEMS. MOST PEOPLE KNOW THAT BOXES, RABBITS, CANE TOADS AND INDIAN MYNAS ARE ALL INVASIVE SPECIES. BUT INVASIVE SPECIES ALSO INCLUDES PARASITES, FUNGI, INSECTS AND WEEDS.

INVASIVE FAUNA

Indian mynas and cane toads are two of the most destructive invasive species and may be found in your garden. There are several things you can do to help limit the populations of toads and mynas.

1. Grow your lawn longer because toads and mynas love short manicured lawns.
2. Don’t feed these pests; this includes not leaving unattended pet food outside.
3. Toad proof your ponds and dams.
4. Join the Indian Myna trapping program.
5. Join a toad buster group.

PETS

It is important to remember that pets such as cats and dogs are introduced species and need to be managed in a way that doesn’t adversely affect our native fauna. Don’t let your pets roam freely and keep cats in the house, especially at night.

WHAT CAN YOU DO TO STOP THE SPREAD OF ENVIRONMENTAL WEEDS?

1. Learn which plants are environmental weeds.
2. Don’t plant environmental weeds and gradually remove weeds.
3. Plant local native species.
5. Carefully dispose of environmental weeds and their seeds.
6. Join your local Landcare or Dunecare group.

CAMPHOR LAUREL

Camphor laurels have become very common in our region. Camphors now serve a role in our environment - many rainforest birds have adapted to feed on the seeds and local wildlife, including koalas, use them for shelter and stepping stones to move across the landscape. If all the camphors are removed on a property at once, without a seed bank being present, then you will probably end up with an even worse weed problem than when you started. However if you kill an area of camphors that are surrounded by native bush using a camphor conversion technique, then amazing results will be achieved. Camphors on creek banks are not ideal as their roots do not hold the banks together. Native species such as watergum, casuarina, fisg and Iomandra have matting fibrous roots and are also able to withstand the large pressure of water when our rivers flood.

WEEDS – THE GOOD NEWS

Nature doesn’t like gaps. Wherever there is space to grow, something fills it, usually weeds. Weeds can provide an important role in binding the soil together and providing habitat for native species. There is nothing as bad as bare soil – this is an invitation for loose precious topsoil and the runoff can lead to pollution of waterways. Whether you are doing natural regeneration (is there a native seedbank still active in your soil!), or planting, it is imperative to have a plan when attacking weeds.

HOW TO TACKLE WEEDS?

Each site is different and will have a different weed story. Look and think which are your biggest weed priorities. Start small and watch and learn what nature does on your site. Each site is different and will have priorities. Start small and watch and learn what nature does on your site. Good questions to ask are:

• Does the weed strangle or smother?
• What is going to happen when I remove all these weeds?

Examples of exotic garden escapees that have become serious environmental weeds. Photos: Byron Shire Council.
Other Points for Consideration

CULTIVARS
When a naturally occurring plant has been selected or changed by the intentional actions of humans, it is called a cultivar (under the International Code of Nomenclature for Cultivated Plants). Humans have been ‘improving’ nature by cultivation for thousands of years; orange trees, tomatoes and wheat are good examples. It is important to recognise that cultivated native plants are not the same as local natives or naturally occurring species.

Cultivars often have fancy names like Callistemon Perth Pink, which is a selected form of Callistemon salignus, a local native plant. Cultivars can be identified where the abbreviation ‘cv’ is used. They are often bred to flower more prolifically than true natives and if they are not sterile, may produce viable seed. For this reason, cultivars should never be reintroduced to bushland situations, or used in revegetation. If you live near natural bush, be aware that the cultivars and exotics in your garden may influence native vegetation through the spread of seeds by birds or seedlings over time.

Cultivars are very popular for gardens as they are seen as improvements to the wild species. However they have potential to hybridise or cross with the native species, thus changing the genetics forever. The dangers in this are that the new species may not have the genetic characteristics (resilience) to survive over time; frost hardiness or drought tolerance may be reduced. We ask you to please consider the importance of the natural ecology and genetic integrity when designing your garden.

PLANT PROPAGATION & SEED PROVENANCE
Growing your own native plants can be immensely rewarding and cost saving. Many Australian plants require specific treatments before they will germinate. Care should be taken when collecting seeds to propagate, that they are collected from a nearby, existing, healthy area of native vegetation. Provenance is based on the idea that local plants are genetically adapted to local environmental conditions. Provenance is difficult to predict across different species. This means seed should always be sourced from a large, healthy population even if this means sourcing seed from a larger population that is further away but from a similar environment. Local nurseries that collect and grow wild seed are worth supporting. Local nurseries are often better placed to adapt to the local conditions and therefore better adapted to growing plants that suit the local conditions. If you do choose to purchase seed from these nurseries, please make sure it is produced from a nearby, healthy, existing area.
REFERENCES & RESOURCES

NATIVE FLORA
Australian Fungi: www.anbg.gov.au/fungi
Caldera Fungi: www.calderafungi.blogspot.com
Floralbank - native species seed management: www.floralbank.org.au
Fungimap - online field guide for fungi: www.fungimap.org.au
How to Propagate Australian Plants: www.anbg.gov.au/PROPCCAT/plant01.htm
PlantNet-NSW Flora Online: www.plantnet.rbgsyd.nsw.gov.au

NATIVE FAUNA
Backyard Buddies - creating a habitat haven in your backyard: www.backyardbuddies.org.au
Biodiversity in my Backyard (by Rita de Heer): www.mullumfernsblog.org
Birds in Backyards - online Bird Finder: www.birdsinbackyards.net
Build your Own Nest Box booklet: www.brunswickvalleylandcare.org.au/resources
Flora for Fauna: www.floraforfauna.com.au
Frogs Australia: www.frogs.org.au/frogs/nSW/The_North_Coast
Hollow Log Homes nest boxes: www.hollognshomes.com
Native Bees: www.sugarbag.net
Reptiles: www.reptilesaustralia.com

WILDLIFE EMERGENCY NUMBERS
Australian Seabird Rescue 02 6686 2852
Friends of the Koala Rescue 02 6622 1233
Tweed Valley Wildlife Carers 02 6672 4789

PEST ANIMALS

WEEDS & BUSH REGENERATION
Australian Association of Bush Regenerators: www.aab.org.au
Bushland Friendly Nursery Scheme brochure: Available from Tweed Shire Council
Weeds of the North Coast of NSW: free to download from www.brunswickvalleylandcare.org.au/weeds available for a donation from Brunswick Valley Landcare 6626 7028

LOCAL ORGANISATIONS
Big Scrub Landcare: www.bigsclurchainforest.org.au
Brunswick Valley Landcare: www.brunswickvalleylandcare.org.au
Caldera Environment Centre: calderaenvironmentcentre.org.au
Department of Primary Industries - Biosecurity: www.dpi.nsw.gov.au/biosecurity
Landcare Australia: www.landcareonline.com.au
Landcare NSW: www.landcarensw.org.au
National Parks: www.nationalparks.nsw.gov.au
North Coast Local Land Services: www.northcoast.lls.nsw.gov.au
Tweed Landcare Inc. - tweedlandcare.org.au

ONLINE RESOURCES
www.bionet.nsw.gov.au
The Atlas of NSW Wildlife - BioNet search:
Mangevines to Mountains 2009. Logon River Branch 5 S & R (Qld Region) Inc.
Rainforest Trees and Shrubs
Rainforest Climbing Plants

LOCAL NURSERIES (BUSH-FRIENDLY)

My Local Native Garden 43