

# A GUIDE TO RESTORING NATIVE VEGETATION IN THE BYRON SHIRE



This guide is intended for anyone planning to restore native vegetation in the Byron Shire, whether in a backyard or on acreage, with references to existing resources.

“Everyone, no matter how little land you have influence over, can and should do something to drawdown CO2 and increase the number and diversity of native plants in their environment. All efforts at restoration and carbon sequestration have positive impacts. Even on a small-scale, establishing native plants in your home garden supports wildlife and will attract native animals.” Mark Dunphy

## OUR GOAL

Zero Emissions Byron’s target for carbon drawdown is to support revegetation of 6.6% (1518 ha) of the Shire’s already cleared and grazed land. ZEB is committed to supporting the drawing-down of carbon in a way that restores Byron Shire forests to as close to its pre-European state as possible. This will also maximise benefits for biodiversity, stabilise and improve soils and increase water quality.

**Replant Byron Alliance (RBA)** is an initiative of Zero Emissions Byron. It supports all projects and stakeholders across Byron Shire to increase, account for and clarify the significance of atmospheric carbon removal through native tree planting, vegetation management and regenerative agriculture.

RBA members include land holders, professional bush regenerators, not-for-profit tree planting organisations, and businesses that supply native plants. New members are welcome.

Please follow the QR code to the RBA Membership form here, selecting the option that best suits you:



## BRUNSWICK VALLEY LANDCARE (BVL)

A valued community group established in 2003, Brunswick Valley Landcare (BVL) “...works to see our region build on its attributes of diverse vegetation, sub-tropical rainforests, sclerophyll forests, coastal heathlands, beaches and dunes, and its pristine waters.”

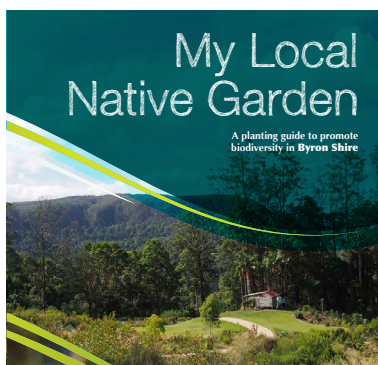
It supports 32 locality groups of volunteers across the Byron Shire, working extensively to restore many sites in the shire, and resourcing landholders to undertake restoration projects. BVL has regular planting days with many locality groups. Join in and contribute, whether or not you have access to land.

**My Local Native Garden** is a 44-page booklet published by BVL. It is packed with information to help you design and maintain your garden, including ways to attract wildlife.

Hard copies are available for a donation from the Byron Shire Council office, or by requesting one from BVL’s Support Officer, Alison Ratcliffe, 02 6626 7028 (Mon, Tues, Wed), or email [aratcliffe@byron.nsw.gov.au](mailto:aratcliffe@byron.nsw.gov.au)

**MORE INFORMATION:**

<https://brunswickvalleylandcare.org.au/native-plants/>

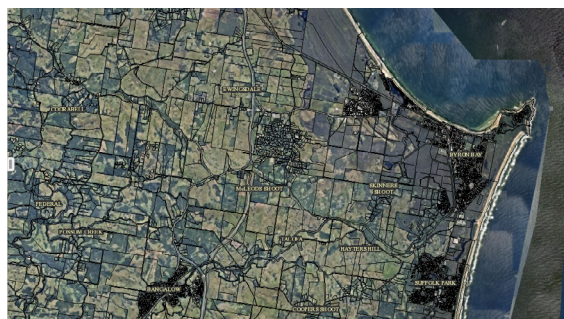


## PROFESSIONAL ASSISTANCE FOR RESTORATION PROJECTS

It is important to seek professional assistance when restoring existing forests, because many forests and remnants have difficult weeds, may contain rare and endangered species and may be part of an Ecological Endangered Community.

Fortunately, there is a well-established ecological restoration industry in the Byron Shire involving many highly skilled people, with excellent knowledge of the plants and forest types. They also know efficient and effective ways to establish and manage restoration projects, big and small.

Replant Byron Alliance-registered professionals include East Coast Bush Regeneration, Firewheel Rainforest Nursery and bush regenerator Dave Rawlins.



### THIS MAP CAN GIVE YOU GUIDANCE.

<https://maps.byron.nsw.gov.au/Html5Viewer/index.html?viewer=ByronMaps>

Click on the Layers to see – Environmental-Vegetation communities

## SITE ASSESSMENT

Much of Byron Shire's cleared land is on former rainforest, wet sclerophyll or swamp forest vegetation types. The forest type is determined primarily by soil, topography and rainfall. It is important to determine what sort of forest occurred on the site and whether the site is still capable of supporting that forest type.

If there is any existing vegetation on the property, then regenerating this forest should be a priority over planting trees. This involves removing weeds and fencing from stock. This may not be as exciting as planting trees, but for quickly establishing forests, creating habitat for wildlife and for carbon sequestration, this can be more effective.

The soil is the key indicator of the vegetation type it supports, it may be red ferrosol soil, yellow or orange clays or black alluvial coastal lowland soils. Other key variables are the steepness of the slope, the aspect and proximity to the coast with corresponding high and salt laden winds. The existing vegetation whether native or weeds can give useful clues. For example, broad leaved paperbark (*Melaleuca quinquenervia*) on site usually indicates a water-logged forest type.

## PLANNING

Create achievable stages. Identify areas for **assisted bush regeneration** (removing weeds and encouraging natural recruitment) and/or areas for **revegetation** (planting and weed maintenance.)

Concentrate efforts on building the resilience of existing native vegetation first, and expand out from there. Prioritise areas along watercourses, creating or linking corridors for wildlife movement and natural recruitment of vegetation and expanding vulnerable parts of remnants. Other priority zones are steep hillsides, which are prone to erosion, or areas containing threatened species of flora or fauna.

Identify existing species, appropriate species for planting, as well as the weeds and control methods.

### SEE BYRON SHIRE COUNCIL BUSH REGENERATION GUIDELINES

<https://www.byron.nsw.gov.au/Services/Environment/Fire-and-flood/Bush-regeneration>





## WEEDS AND BROWSERS

Most weeds compete with native vegetation for light and nutrients, but some simultaneously provide structure or conditions for some recruitment of native vegetation. Some weed species provide habitat values such as food resources, roosting sites and shelter for fauna. These weeds should be replaced in stages to minimise the impacts of loss of these resources on resident fauna. Camphor Laurels, for example, sequester large quantities of carbon, provide food for frugivorous birds and create shade for some rainforest species to regenerate.

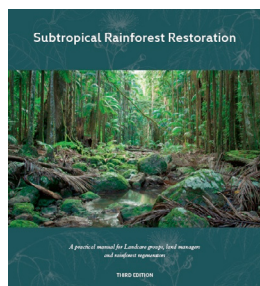
Some projects are managed without herbicides, like our Community Forest at The Farm, but this requires a more intensive and expensive maintenance schedule.

For medium to large-scale projects, weeds that compete with natives are most effectively controlled by targeted use of low residual herbicides. Herbicides are used strategically and judiciously while the native plants grow to create conditions where the weeds can no longer germinate and grow. This may be by creating a canopy, by eliminating the weed seed source, or by dominating the ground layer with natives that don't allow weeds to grow.

Stock will need to be excluded from revegetated areas as they will trample and eat planted and naturally regenerating native plants. Other animals such as wallabies, hares and pigs can be a problem for restoration and plantings, and may need to be controlled or the plants protected with fences or guards.

## ASSISTED NATURAL REGENERATION

'Assisted natural regeneration' or 'bush regeneration' is the practice of working with natural processes to assist that ecosystem to naturally regenerate and recover. This is achieved through reducing or removing weeds, stock and edge effects. For example, without the removal of weeds from most of the Big Scrub rainforest remnants, Endangered Ecological Communities would have been irretrievably damaged.



The Big Scrub Landcare **Rainforest Restoration Manual** is a practical data source for Landcare groups, land managers and rainforest regenerators. It is a comprehensive guide for rehabilitating and caring for existing subtropical rainforest remnants, and re-establishing rainforest on land from which it has been cleared.

### BIG SCRUB LANDCARE'S RAINFOREST RESTORATION MANUAL

[https://www.bigscrubrainforest.org/bsls\\_rainforest\\_restoration\\_manual/](https://www.bigscrubrainforest.org/bsls_rainforest_restoration_manual/)

**Big Scrub Landcare** was founded in 1993 to focus on promoting, facilitating and undertaking long-term restoration and ongoing care of critically endangered lowland subtropical rainforest. Its efforts have restored more than 600 ha of local rainforest, which, prior to European settlement, covered 75,000ha. Of that original rainforest, almost 99% was cleared since settlement, leaving only scattered remnants.

See [www.bigscrubrainforest.org](http://www.bigscrubrainforest.org)





## REVEGETATION (PLANTING)

While assisted natural regeneration can be carried out any time of year, revegetation by planting requires good timing. The site needs to be prepared for planting by possibly fencing, slashing and removing grass and woody weeds from the site. The trees need to be planted when it's not too hot or dry. The best time is the wet season in autumn, however in good years, summer and winter can be appropriate. Plan your project with plenty of time to prepare the site and order the trees.

Species selection for the initial planting is critical to the success of the project. The initial planting aims to establish the mainframe or structure of the forest using mostly fast-growing pioneer species. If the site is frost prone, particularly degraded or exposed, the initial planting may need a limited range of hardy species to establish a canopy, provide protection from the elements and improve the soil so the full range of species that need to be there can establish and grow.

Planting trees involves deciding on mulch, fertiliser, what size plants, spacing between the trees and the ratios of each chosen species. Consult locally experienced people who have had success doing plantings of similar vegetation types.

### MAINTENANCE IS THE KEY

Planting trees is the fun easy part. Maintaining the trees until they can look after themselves is the difficult part. Many plantings have failed because grasses and weeds have smothered and killed them.

A guide is to keep the weeds and grasses below the height of the planted trees and 30 to 50cm away from the base of the tree. Targeted herbicides are the most effective way of maintaining plantings. Chemical-free methods are possible, but much more energy intensive. Maintenance will reduce dramatically after 3 to 4 years (for plantings at about 1.8 metre spacings) as the trees grow towards creating canopy and shade out the grasses and annual weeds.

Once the mainframe of the forest has been established, this can be enhanced with planting - or direct seeding - of mid-storey, under-storey or groundcover species. This will add structure, diversity and habitat niches for wildlife. Similarly, adding logs, rocks, hollows and - if possible - open or running water, will enhance the quality of your planting.

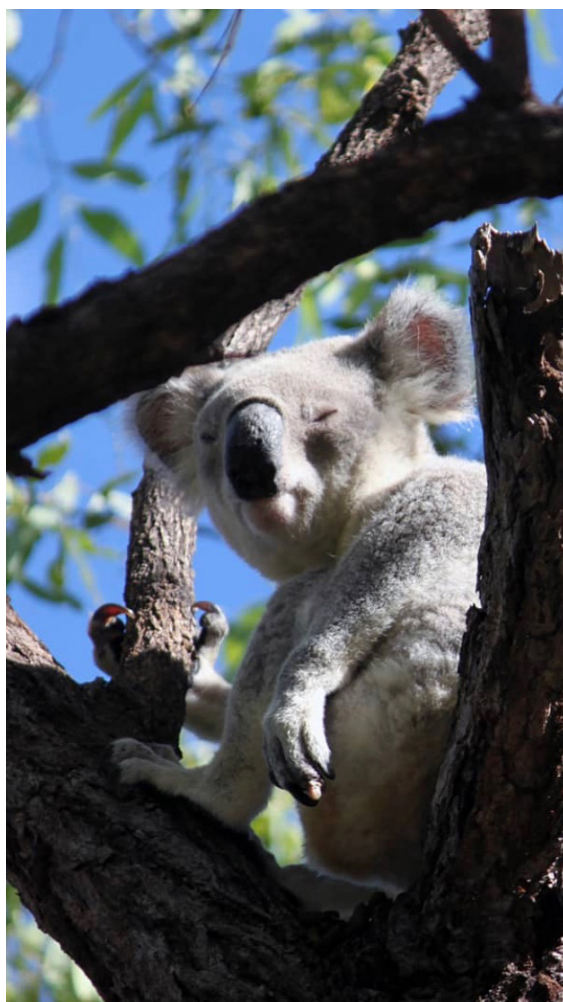
## PLANTING FOR KOALAS

Koalas are an endangered species and under threat on the north coast of NSW. Eucalypt plantings for koalas are also beneficial for carbon sequestration.

The planting of eucalypts on red ferrosol (ex rainforest soils) has proven to provide good koala habitat, though it will likely produce a camphor laurel mid-storey. The planting of rainforest trees with eucalypts will exclude camphor laurels by providing a mid-storey canopy.

However, the long-term regeneration of eucalypt forests is dependent on fire to stimulate seed germination, and a rainforest or camphor laurel mid- and understorey will prevent fire and the eucalypts will eventually die out.

The long-term persistence of koala habitat plantings on the ex-rainforest, red ferrosol soils is difficult without fire, and fire is detrimental to rich, red ferrosol soils. Byron Shire contains eucalypt dominated vegetation types that can be expanded and managed with fire for koala habitat over the long term. Download Byron Shire Council's 'Byron Coast Comprehensive Koala Plan of Management' at [www.byron.nsw.gov.au](http://www.byron.nsw.gov.au)



### BYRON SHIRE COUNCIL'S COMPREHENSIVE KOALA PLAN OF MANAGEMENT

<https://www.byron.nsw.gov.au/Services/Environment/Native-animals-and-plants/Koalas-in-Byron-Shire/Byron-Coast-Comprehensive-Koala-Plan-of-Management>

## BIODIVERSITY BENEFITS TO AGRICULTURE

If your site is flat, arable land with rich fertile soils, it may be best utilised for food production to provide for our increasing population and its demand for fresh, local food. Growing, selling and eating locally grown food reduces our carbon footprint, and the use of regenerative agriculture practices, such as diversification, crop rotation, cover cropping and cell grazing, allows soils to regenerate and sequester carbon.

Maintaining and restoring native vegetation and increasing biodiversity on agricultural land is proven to increase productivity. At present, there are two principal approaches to wider management of on-farm biodiversity;

‘Wildlife-friendly farming’: where agricultural practice is tailored to enhance populations of wildlife by creating a more integrated system.

‘Land sparing’: where portions of agricultural land are managed intensively to increase yield, allowing other land to return to a semi-natural state, which can then act as reservoirs or biodiversity.

## SUPPORT FROM BYRON SHIRE COUNCIL

Council employs an Agricultural Extension officer, Andrew Cameron, who connects with farmers and landholders to revitalise and support the Shire’s primary production sector.

The officer provides free one-on-one consultations with local farmers and landowners, to offer a range of support services, solutions, networking and funding opportunities.

Council is committed to ensuring Byron Shire land is used in a productive, sustainable way. “We want to ensure local farmers are able to work in a way that is profitable, while achieving positive environmental outcomes.”



### YOU CAN MAKE A DIFFERENCE!

You can both reduce your carbon footprint by producing food, timber, fibre and other products locally and sustainably, and can draw-down carbon through planting and regenerating native vegetation and soils.

Planting and regeneration projects, as small as a backyard garden or as big as a whole valley, achieve two major goals: they sequester carbon and restore the ecological function of our beautiful Byron Shire landscapes.

To book a free on-farm consultation, contact the officer on 02 6626 7223, or email [ancameron@byron.nsw.gov.au](mailto:ancameron@byron.nsw.gov.au)

## AUTHORS

This guide was compiled by Wren McLean and Mark Dunphy. Wren, a conservation professional, is Zero Emission Byron’s Replant Alliance Officer. Mark Dunphy has worked for nearly four decades in rainforest restoration, and established Firewheel Rainforest Nursery in 1988. Since then, it has sold more than two million native trees.

