



3 What we need to do now

3.1 Overview

As a community, to help protect our remnant bushland there are a few key bushland management principles that we need to adopt and put into practice in our efforts to sustainably manage our remnant vegetation.

Recognise that Shoalhaven's remnant vegetation is a valuable resource that requires a commitment from our community to protect its value.

Retain remnant vegetation in areas of size and shape that will enable the existing flora and fauna communities to survive in the long term.

Protect and enhance the habitats of native flora and fauna, especially threatened species.

Protect and enhance habitat corridors and links with another remnant vegetation.

Protect and enhance remnant along natural drainage lines, watercourses and foreshores to protect, maintain and enhance water quality.

We need to protect and enhance remnant vegetation of scenic value and retain the unique visual character of the landscape of the Shoalhaven.

Encourage and promote community involvement and cooperation in the management of the Shoalhaven's remnant vegetation



3.2 Linking Remnant Patches of Vegetation

3.2.1 Fragmentation in the Berry locality

The Berry region has experienced substantial urban development which can be seen in Figure 1: 'Land Use', with significant agricultural and rural developments occurring in the Berry locality, particularly, south-east of the Berry township. This development increases the pressures already placed on existing vegetation through rural residential development and sub-division, road construction, over-clearing and removal of trees. As a result, it is evident in Figure 2: 'Vegetation' of the Berry locality, that many vegetative communities are currently isolated and fragmented, perpetuating the threatened status of residential species. Based on this, it is critical as a Berry landholder, that even the smallest patch of native vegetation on your property is preserved and linked to either pre-existing patches within your land or adjoining neighbours, to ensure the long-term survival of threatened species, specifically within the Berry Wildlife Corridor.

3.2.2 Creating a successful biodiversity link

In order to create a successful biodiversity link throughout the corridor, regeneration within remnant patches must occur. This can be implemented by using the surrounding bushland as a key indication of the vegetation composition that can be achieved and then applying the appropriate management practices such as weed and pest control. Where possible, remnant patches of native vegetation should be linked to surrounding Threatened Ecological Communities (TEC's).

Please use the following maps to identify where your property is situated in relation to surrounding TEC's, what vegetation types are situated in close proximity and how the surrounding land is used. This will assist you in determining which management practices should be implemented to achieve regeneration and create a successful biodiversity link between patches throughout the corridor. Keep in mind however, that regeneration can be a complex process as vegetation composition is not static but continually changes over time, even within vegetation strata as a result of changing landscape culture and climate.

3.2.3 The significance of landscape culture on vegetation composition

After close assessment of the 'Vegetation' map, you will notice the significant presence of Eucalypt species (a fire adapted species) throughout the Berry area. This is because the majority of vegetation within the Berry area has been pre-exposed to burning, implemented by the local indigenous people for a variety of reasons, resulting in altered vegetation composition and unexpected extinctions with no resources to extinguish runaway fires. In a modern-day context, we incorporate these management practices and often implement controlled burning for seed germination of fire adapted species and as a preventive method to reduce the threat of bushfires to agricultural and rural residential areas. However, floristic change will occur if this fire management is ceased, allowing for the emergence of pre-existing vegetation such as the Illawarra sub-tropical rainforest. Therefore, it is important to consider the management and use of surrounding land and how this can potentially alter vegetation composition when attempting to regenerate remnant patches of native vegetation within your land.



State of the Environment map

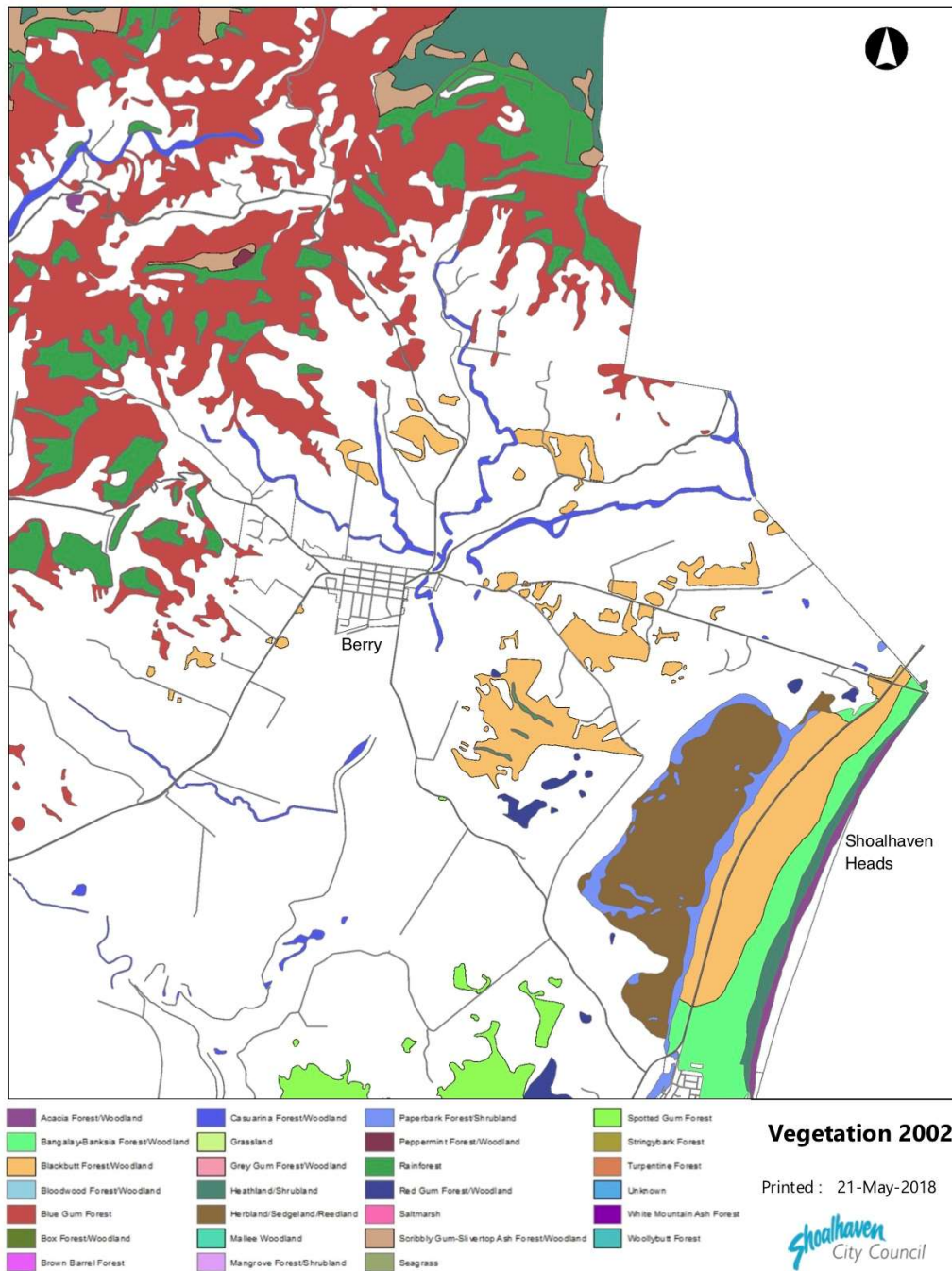
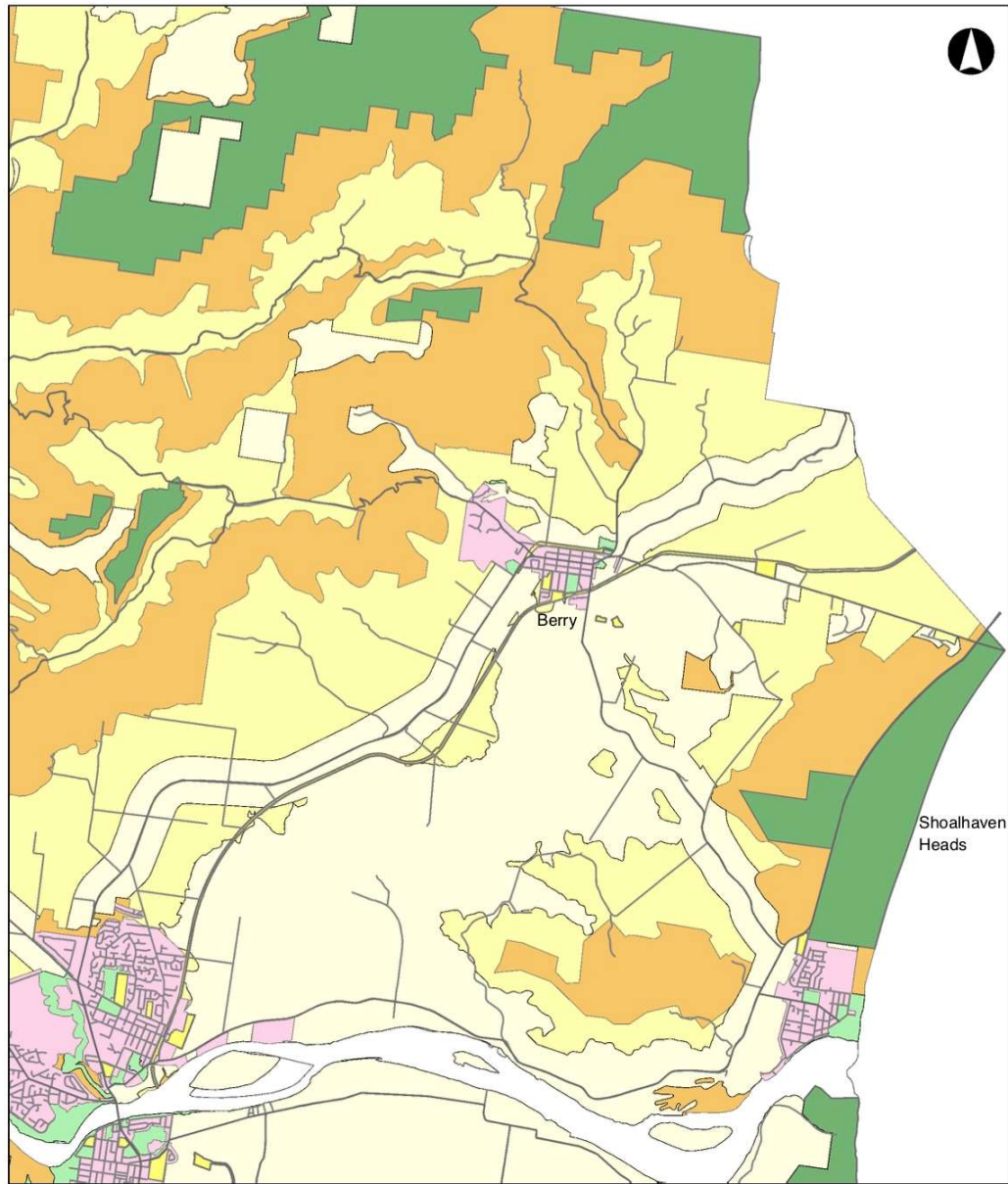


Figure 29: Vegetation types present within the Berry locality as of 2002. Adapted from Shoalhaven City Council, 2018.



State of the Environment map



- | | |
|--------------------------|---------------|
| Agriculture | Rural |
| DIPNR Lands | Special Uses |
| Environmental Protection | State Forests |
| National Park | Urban |
| Open Spaces | |

Landuse

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Figure 30: Land use within the Berry locality. Adapted from the Shoalhaven City Council, 2018.

Map Source

<https://www.shoalhaven.nsw.gov.au/Planning-amp-Building/Maps-Online/SOE>



3.3 Protecting Your Patch

3.3.1 Describing Native Vegetation

Broadly speaking the vegetation in the Berry area can be divided into the Coastal zone, coastal plain, and lower and upper escarpment. A more detailed description of these general categories is found at <https://blog.growingillawarranatives.org/p/about-region.html>.

Vegetation types

The maps in Section 3.2.3 show where different vegetation types are to be found.

Shoalhaven city council [Endangered Ecological Community Mapping](#) January 2010 lists the vegetation communities identified during the survey of the Berry area. These are:

- **Swamp Sclerophyll Forest - EEC**
- **Illawarra Subtropical Rainforest - EEC**
- Blackbutt – Turpentine forest
- Blue Gum – Turpentine forest
- Early successional wet sclerophyll forest / rainforest
- Mixture of native forests - dry to wet sclerophyll open forest types
- Blue Gum – Grey Ironbark Forest

Maps of vegetation types in the Shoalhaven are found at

https://geo.seed.nsw.gov.au/Public_View/index.html?viewer=Public_View&locale=en-AU&runWorkflow=AppendLayerCatalog&CatalogLayer=SEED_Catalog.178.NSW%20Formations,SEED_Catalog.178.NSW%20Classes,SEED_Catalog.178.Labels,SEED_Catalog.178.Biometric

3.3.2 Native Vegetation Condition

There are quick and simple ways to determine the condition of your native vegetation.

Use an aerial map of your property. This is easy to obtain by saving or printing a map of your property using Google maps. Another source is NSW six maps - <https://maps.six.nsw.gov.au/> - where you can type in your address or your Lot/DP.

Use this property map to identify property boundaries and where the main features of your property are, such as cleared areas, bushland, dams, fences etc.

Look at your vegetation to identify the extent of weed invasion. An easy way of categorising the extent of weeds invasion on your property is to mark out areas and use a colour code to colour them in. The commonly used code is

- RED – dense weeds
- ORANGE - medium density
- BLUE – low density
- GREEN. – little or barely any weeds

If you are doing weed control, mapping this from time to time will hopefully show you where things are improving.

Such a map helps you determine what areas to focus on.



3.3.3 Habitat Value

Understanding the wildlife habitat values on your property is important. Many native fauna species are reducing in number due to loss of habitat. It is enjoyable to have and watch wildlife on your property and to understand how the area is used by fauna. Maintaining and improving habitat features can be part of managing your property.

Where your property sits in the landscape will add habitat values. This is especially so if your property is part of a corridor of native vegetation, if it includes habitats that are uncommon, or supports one or more of the many threatened native animals.

Important habitat features on your property include healthy native vegetation; old native trees, especially if they have tree hollows; fallen timber; succulent fruiting native species, rivers, streams and wetlands; and rocky outcrops.

Apply these principles to manage habitat:

- retain,
- restore,
- expand and connect.

There are many more habitat features which are described in the Conservation Management Note – *Assessing wildlife habitat* on the NSW Department of Planning, Industry and Environment website. Find this note at <https://www.environment.nsw.gov.au/resources/cpp/AssessHabitat.pdf>.

3.3.4 Monitoring Native Vegetation

Monitoring your native vegetation allows you to see improvements if you are carrying out bush regeneration, and to be alerted if problems are arising.

Once you have assessed your site, you can repeat an assessment and map from time to time, to see changes.

Photo-points can be set up. By taking photos from the same point and in the same direction from time to time, you can visibly see changes. You will need to record where your photos were taken so that you can accurately take a photo from the same place.

There will be major changes if you are weeding or planting areas, and you might want to take a photo every 6 months.

Over time the changes will not be so noticeable, and photos will not be needed so often.

Record the species on your property both fauna and flora, and both native and feral animals and weeds. Date your sightings. This way you can see changes over time and be alerted if feral animals and weed growth required attention. If you are unfamiliar with species identification, contact Berry Landcare at berrylandcare@gmail.com and also take photos of the species you do not know, especially when they are flowering or fruiting to help others identify them.

3.3.5 Three Steps to Better Management

To achieve sustainable management of your land, the following steps should be implemented:

- Retain Existing Vegetation – Retains ecosystem complexity
- Manage Key Threats – Weed removal is vital
- Restore and Expand – Connect species habitats



3.4 Getting Involved: Landcare and other groups

3.4.1 Berry Landcare

Berry Landcare is a group of locals that aim to achieve sustainable land management to prevent the degradation of and protect local ecosystems. This is achieved via working with private landowners on their land, preventing over clearing of native vegetation, weed management, regeneration of vegetation whilst engaging and working with the Berry community. Berry Landcare organises events, such as displays and talks to raise community awareness of environmental and ecological issues.

Berry Landcare includes groups working under Shoalhaven City Council's Bushcare and Parkcare Programs, together with privately owned sites (Landcare groups). Currently, there are over 100 volunteers operating at 14 worksites within the area, involved with projects including the 'Berry Corridor' and 'Plant Local'.

The objectives of Berry Landcare are:

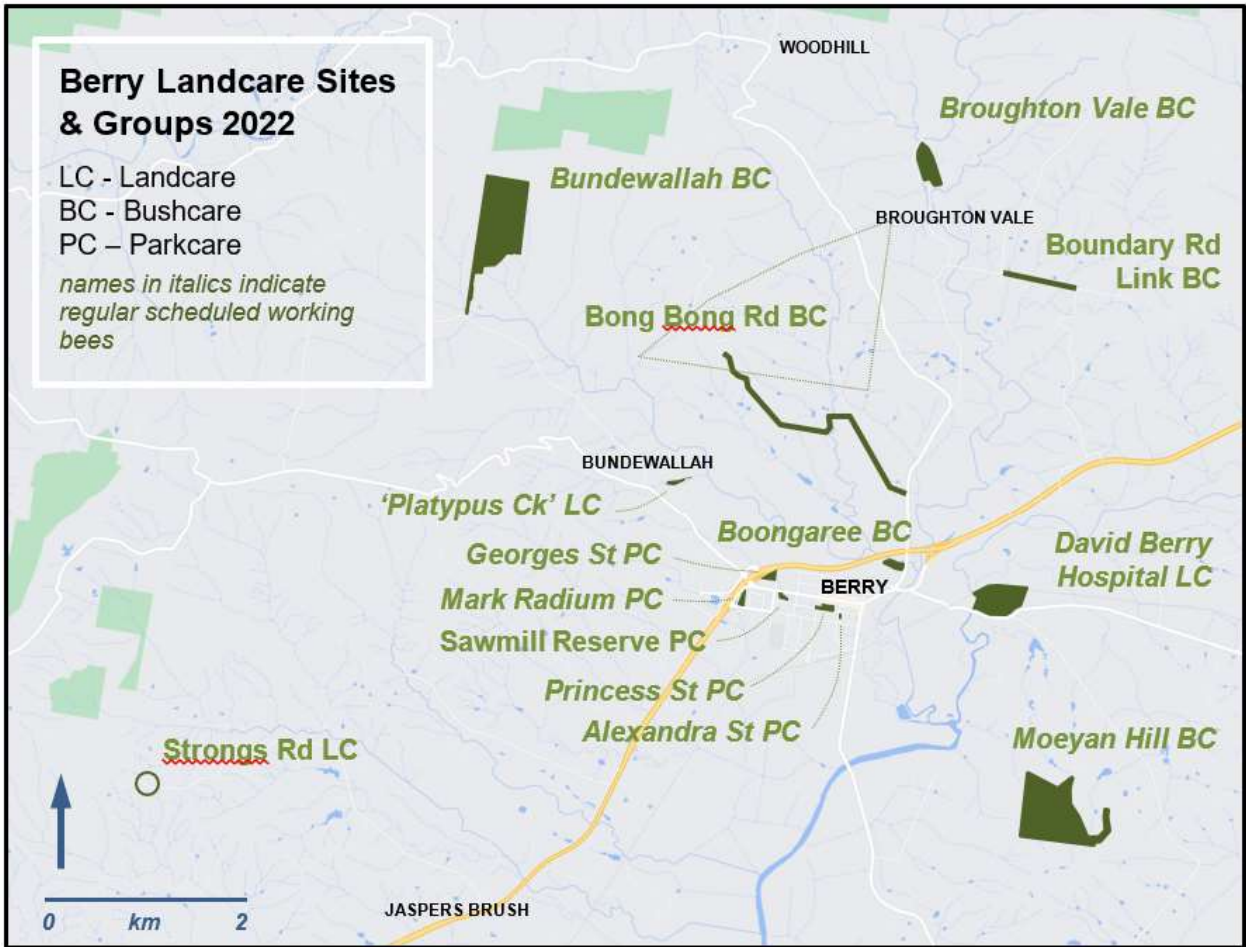
1. Working to protect our natural environment and prevent and repair degradation of our natural resources, by action which includes:
 - a) restoration of creek and river banks,
 - b) weed management,
 - c) prevention of over clearing of native vegetation and soil erosion,
 - d) planting of appropriate native vegetation.
 - e) promotion of the planting of locally indigenous plant varieties
2. Engaging members of the Berry Community in educational and fundraising activities, harnessing community skills and creating public awareness.
3. Working with the Berry Community to achieve a sustainable and resilient natural environment with vegetation connections supporting the movement of wildlife between the coast and the escarpment.
4. Engaging community members in caring for country at Landcare, Bushcare and Parkcare sites, through working bees and other activities
5. Sharing information on Natural Resource management and sustainable agriculture
6. Establishing appropriate and nurturing existing partnerships with the Berry Alliance, Shoalhaven City Council, Southern Rivers Catchment Management Authority and the Shoalhaven Landcare Association

Berry Landcare Email: berrylandcare@gmail.com

Website: <https://landcare.nsw.gov.au/groups/berry-landcare/>



Berry Landcare Sites





SITE	INFORMATION
Boongaree Bushcare	Bush regeneration and woodland along Bundewallah Creek, Boongaree Nature Play Park
Bundewallah Rainforest Reserve Bushcare	Illawarra subtropical rainforest remnant. Regeneration of rainforest remnant and restoration of walking track.
David Berry Hospital Rainforest Remnant Landcare	Unique EEC Illawarra subtropical rainforest remnant with a wide range of species.
Georges St Reserve Parkcare	Parkland established and supported by the Berry Garden Club
Moeyan Hill Reserve Bushcare	36 ha reserve with Illawarra subtropical rainforest and tall open woodland. High conservation value with wildlife corridor and local biodiversity.
Mark Radium Park Parkcare	'Arboretum' of locally indigenous rainforest trees.
'Platypus Creek' Landcare	Weed management and regeneration along the riparian corridor of a tributary of Bundewallah Creek, shared between a group of residential lots
Sawmill Reserve Bushcare	Weed management and regeneration within an urban reserve and former Sawmill site
Town Creek Parkcare: Princess Street Park	Removal of rampant weeds
Town Creek Parkcare: Alexandra Street Park	Removal of rampant weeds
Tindalls Lane Bushcare 'The Link'	Local residents remove weeds and maintain Boundary Road link between Tindalls Lane and Tulloch Road.
Broughton Vale Bushcare	Weed removal and revegetation in 'The Common' along Broughton Mill Creek.
Strongs Road, Jaspers Brush Bushcare	Weed management
Bong Bong Road Bushcare	Weed management



3.4.2 Form a new Landcare group

If there is no Landcare group in your area or you feel you have specific issues that would require the formation of a new group, there are a few simple steps you need to consider.

1. Talk to your neighbours, friends or surrounding property owners about your ideas.
2. Contact Berry Landcare for support and advice.
3. Contact nearby Landcare Groups to get some advice on how they got started and how they did it.
4. You may need to hold a public meeting to let others in the community know of your intention.
5. Your new group will need to work with the Berry Landcare coordinator to draw up a plan of action that can guide your group into the future.

3.4.3 Bushcare

A number of Berry Landcare Groups are under Shoalhaven Council's Bushcare Program. These groups work on council owned or managed land, with council support. The aim of this program is to promote and implement ecologically sustainable management of the bushland within the Shoalhaven area.

For information on the Bushcare Program, how to join a group, how to start a group and the support council provides visit <https://shoalhaven.nsw.gov.au/Environment/Bushcare> or call the Environmental Services Team on (02) 4429 3610.

3.4.4 Parkcare

Parkcare groups are also part of Berry Landcare (noted on the active site list), and are based in Berry township. Parkcare is a volunteer program supported by the Shoalhaven City Council with the aim to promote and facilitate the implementation of ecologically sustainable management of parks and reserves within the area.

If you would like to become involved in Parkcare please talk to Berry Landcare and visit <https://www.shoalhaven.nsw.gov.au/For-Residents/Sports-Recreation/Parkcare>.



4 Bush Regeneration

4.1 Regenerate or Revegetate: A Landholders Approach

4.1.1 Native vegetation restoration

Restoring native vegetation can be achieved under two main approaches:

Bush regeneration also known as **Assisted Natural Regeneration** – Damaged ecosystems bounce back under the right conditions (weed control, stimulation of seed germination)

Revegetation – Ecosystems are too damaged to regenerate naturally (plants reintroduced with indigenous stock via planting or direct seeding)

Bush regeneration, or assisted natural regeneration, can be defined as the practice of restoring bushland by strengthening and re-establishing the systems' natural regeneration processes. The aim to create a natural system which can maintain itself in a stable condition with minimal human intervention.

4.1.2 Site resilience

The resilience of your site should also be taken into consideration in order to implement the most appropriate form of land management. Building resilience can be as simple as fencing off areas with vegetative condition improving quickly if resilience is strong, however, conditions that result in reduced resilience will need to be remedied before successful regeneration. Refer to the table below for common indicators of strong or reduced resilience.

Strong Resilience	Reduced Resilience
Older trees that offer a seed source	Few living trees
Native vegetation present in various strata	Increased presence of weed species
Native regrowth	High nutrient levels from fertilisers
Natural watercourses	Stormwater runoff from urban areas
Intact soil profiles	Soil erosion
A healthy abundance of leaf litter and humus	Salt scalding

Source:

This information was sourced from The Office of Environment and Heritage, 'Conservation Management Notes – Managing Bushland and Wildlife Habitat'

<https://www.environment.nsw.gov.au/resources/cpp/RestoringVeg.pdf> .



4.1.3 Choosing a Vegetation Management Approach

Assessing resilience takes skill, experience and the ability to identify local native plant species at various life stages along with recognising the effects of past disturbances. We have included a basic guide to assist landholders in determining the appropriate vegetation management approach. Keep in mind, that resilience may differ between strata for example, grasses, shrubs and trees. Threats including weeds, grazing livestock and drift from herbicides should be managed. An understanding of how wildlife uses the site is also vital when enforcing management strategies, for example, some species of birds may use weeds and invasive plants as a form of shelter and nesting. We suggest weed removal be performed in a mosaic style patterns to allow fauna to move through undisturbed areas whilst restoration is implemented.

Bush regeneration will be beneficial within areas on your land where the capacity to germinate from a seed bank is high (presence of seed source in the soil from existing plants), irrespective of the degradation of the vegetation. This approach retains the complexity of the ecosystem and is therefore ecologically sound and the most cost effective. If the opportunity for natural regeneration exists, reintroducing vegetation via planting should be avoided

Choosing a vegetation management approach: a basic guide				
<i>First assess vegetation condition and hence its resilience. Column 3 suggests the appropriate strategy, with vegetation which is less degraded being more suitable to strategies involving natural regeneration. Where vegetation is more degraded, the appropriate strategy may be either a combination of assisted regeneration and revegetation or revegetation alone.</i>				
Vegetation condition	Vegetation resilience	Restoration Approach	Actions	Priority
Near-natural.	Intact.	Protect.	Continue existing management.	1
Little disturbed.	Intact.	Protect.	Continue existing management. Increase protection.	
Modified — generally not deliberately cleared or fertilised, but subject to prolonged disturbance.	Largely intact.	Natural regeneration.	Increase protection. Remove causes of degradation. Monitor to see if regeneration starts or if a trigger is needed.	2
Degraded — likely to have non-native ground cover, and may have been fertilised.	Depleted.	Assisted natural regeneration.	Increase protection. Remove causes of degradation. Provide a regeneration trigger.	3
Highly degraded. Most of the original biodiversity is missing.	Severely depleted.	Assisted natural regeneration for some species. Revegetation.	Increase protection. Remove causes of degradation. Provide a regeneration trigger. Reintroduce plant materials.	4
Totally cleared — native plant communities have been completely removed, and soil-stored seed may no longer exist.	Absent.	Revegetation.	Increase protection. Remove causes of degradation. Reintroduce plant materials.	5

Source

This table has been sourced from the Office of Environment and Heritage 'Conservation Management Notes – Managing Bushland and Wildlife Habitat'

<https://www.environment.nsw.gov.au/resources/cpp/RestoringVeg.pdf>



4.1.4 Assisting natural regeneration

Bush regeneration or assisted natural regeneration can occur when sites are left to regenerate after the removal of weeds or other adverse impacts such as altered water flow. However some sites can benefit from further intervention to assist the regeneration process. Natural regeneration can occur from the seed bank stored in the soil, or from seed being brought onto the site by fauna, wind, or water. We can encourage regeneration after the removal of weeds by facilitating the natural processes. Follow-up weeding is essential to remove the competition so native plants can survive.

Attracting seed spreading native fauna

In rainforest, weed removal is the first step, but we can use existing weed to attract native fauna which import native seeds. In rainforest sites, we can leave dead trees, (which could be poisoned weed trees) to provide perches for native birds and other fauna which will import native seeds.

Stimulation of Native Seed Germination Using fire or smoke

In sclerophyll forests or other vegetation, which is adapted to fire, we can use fire to promote regeneration. This need to be carefully planned and often permission must be obtained to use fire in this way. Contact your local Rural Fire Service.

Smoke treatments are also used for triggering germination of dormant seed banks when applied directly to sites containing native plants species. Typically, the germination of native seeds after treatment will occur in 6-8 weeks depending on a number of plant attributes.

Smoke can be applied as 'smoke water' directly to bushland soil (using automated sprayers), with a combination of dry and green foliage plant material producing useful smoke. The benefit of applying the smoke treatment is that the process can be defined to the desired area. In addition, it is also useful for soil seed bank auditing and stimulating rare species.

Smoke treatment can also be used for germination seed for plant propagation. Go to <https://www.abc.net.au/gardening/factsheets/smoke-your-own/9440844>.

Water flows

Wetlands often needs episodes of flooding and drying to promote regeneration. Where water flows across the landscape might remove top soil and seed, placing brush of native species can slow water flow and provide niches which allow seed to collect and germinate.

4.1.5 Bush Regeneration on your site

Use the information on the previous pages to determine your approach to your bushland. You can identify and mark on your aerial map where native vegetation is present and will regenerate easily. To plan your regeneration program, there are a few key points you should consider.

Weed control is usually the major work required, and Section 5 provides information on the identification and control of common weeds.

Determine how big a site you will treat initially. This needs to be over an area and at a pace so that you will have the time to remove the subsequent flushes of weed growth and maintain the area weed-free.

General principles for bush regeneration are:

- Start from the good (less weedy) areas and work outwards into the weedier areas as time and resources permit. This allows you to retain the natural diversity on site and have minimal follow-up weed removal requirements.
- Allow the health of treated sites to dictate how quickly you progress into less healthy areas.
- Try to minimise over-clearing which can make follow-up weeding a daunting task.



- Initially try and avoid excessive disturbance. Disturbance favours regrowth of both weeds and natives. When you start it is best to minimise disturbance so that weed regrowth is limited and manageable.
- Before controlling weeds consider if the weeds are providing a positive function such as habitat or are the weeds helping stabilise soil, minimising erosion and protecting creek banks. In these cases do not over-clear. Allow some areas to regenerate before treating the entire site

Follow-up

- Follow-up to remove weed regrowth is essential. Done regularly the weed regrowth and the time required to control it should reduce over time. Regular inspection after preliminary weed removal means that most work will only involve hand pulling of weeds. Even 1 metre high lantana seedlings can easily be removed.
- It is important to disturb the soil as little as possible as this can lead to further weed infestation. Disturbance favours regrowth of both weeds and natives. When you start it is best to minimise soil disturbance so that weed regrowth is also minimised. Once you know your site and weeds are management, you may want to use techniques to trigger native regeneration especially if regeneration is limited.

More about bush regeneration

Growing Illawarra Native Bush Regeneration Basics

<https://blog.growingillawarranatives.org/p/bush-regeneration-basics-for-illawarra.html> .

Conservation Management Note – Natural Regeneration

<https://www.environment.nsw.gov.au/resources/cpp/NaturalRegen.pdf> .

Read about the **Bundewallah Regeneration Project** here:

<https://landcare.nsw.gov.au/groups/berry-landcare/bundewallah-regeneration-project-1/>

Bundewallah is one of the Bushcare site with Berry Landcare. The Fact Sheet provides a good picture of how a bush regeneration project is being implemented and what the group have learnt about their site.

4.1.6 Berry Landcare and bush regeneration

Berry Landcare implements various regeneration and revegetation projects that work to protect our natural environment and prevent and restore land degraded from urbanisation and agricultural activities within the Berry region. Berry Landcare can assist with how you, as a landholder, can achieve ecologically sustainable management of your patch of land, when your land makes up part of the Berry wildlife corridor, contains threatened species or has remnant patches of land that are vital to the connectivity of threatened species habitats. This is implemented through the stimulation of natural regeneration of native species, weed management, and when needed, promotion of the planting of locally indigenous plant species.

For more information or an assessment of your patch of land, please visit

<https://landcare.nsw.gov.au/groups/berry-landcare/> or email berrylandcare@gmail.com.



4.2 Getting to Work – Removing Weeds

4.2.1 Getting to know weeds

Weeds fall into four categories:

- ❖ Small hand pull-able plants
- ❖ Soft leafy plants with underground reproductive parts
- ❖ Woody plants with tap or lateral root systems
- ❖ Climbers or scramblers

Weeds can be treated in a variety of ways. Generally bush regenerators either remove weeds by hand or use herbicides. Neither method is correct all the time. Several factors should influence your choice:

- Time in the life cycle of the plant.
- Available tools.
- Weather conditions.
- Surrounding plants (can herbicide be used safely).
- Accessibility of the weed
- Often a combination of methods needs to be used.
- Growth Habits of the plant

4.2.2 Weed invasion

As a community, we must change the way we think about weeds. Weeds are not those troublesome little plants that sprout amongst the garden shrubs. They are in fact one of Berry's most urgent environmental problems — and one that is least acknowledged.

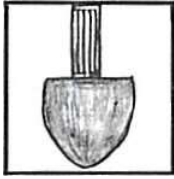
Weeds invade the bush through dumping, birds, wind and runoff. They turn feral by setting roots and shedding huge quantities of seed. Weed invasion is most severe along the boundaries of remnant bushland and cleared and developed areas, quickly invading and taking the place of our unique native plants, degrading and destroying the habitat of our native fauna, reducing biodiversity and permanently changing ecosystems.

4.2.3 Preventing invasion

To assist in the prevention of weed invasion on your property and surrounding bushland, you can begin by removing identified weeds or pruning spent flowers before they form seed, composting if possible, planting local native species as alternatives or joining a Landcare or Bushcare group to stay up to date and gain hands-on experience.

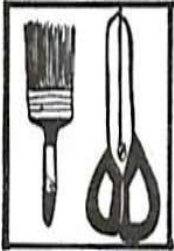


4.2.4 A Summary of weed removal techniques



Dig

As this symbol suggests, this is a hand removal technique. Using an implement that suits the job i.e.. a hand trowel for small tubers and roots. A Peter Lever for crowns such as Asparagus Fern, and a shovel for larger roots.



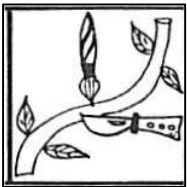
Cut and Paint

Use the most suitable cutting implement, such as a chainsaw for large species like Privet and Coral trees, loppers for small woody stems, secateurs and/or knives for vines. Usually undiluted glyphosate is painted onto the cut surface with a paintbrush or suitable applicator. Apply the poison mix as soon possible as some plants seal their wounds within 30 seconds. Don't waste poison on large stumps by painting the whole stump, instead just paint the outer rings (cambium) as this is where the plants nutrient transport system is located



Spray

Following the manufacturer's instructions, mix herbicide solution. Using a pump spray pack, wet the foliage of the target species to the point of run off. A small garden WPE sprayer is usually sufficient.



Scrape and Paint

Scrape and paint is a technique usually used on vines. It allows a larger surface area to be treated therefore more herbicide can enter the vines nutrient transport system. Using a knife scrape, away a length of outer bark, then paint the wound quickly with herbicide using a suitable applicator.



Frill/Drill and Chip

This technique is useful for treating larger shrubs and tree species. Making a series of chips at approximately 45-degree angle fill each chip with herbicide, usually undiluted. **DO NOT RING BARK** the plant. Tree injection can also be used as a substitute for this method - drill holes at a 45-degree angle and fill with herbicide using a syringe.



4.2.5 Herbicides

Herbicide is a valuable tool for treating certain types of weeds; large trees, rampant vines and persistent weeds like blackberry and onion weed. It is also useful in tackling densely infested sites and area prone to erosion.

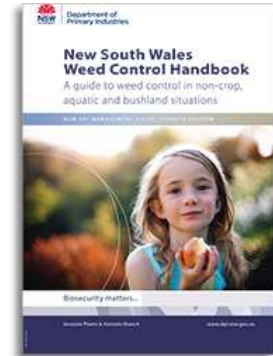
The most widely accepted herbicide for bush regeneration is glyphosate, marketed under the trade names Round-Up®, Zero® and Glyphosate 360®. Round-Up Bi-active® contains a different surfactant additive and is safer to use near waterways. Like all herbicides, it should be treated with extreme care in line with the directions on the label. If herbicides are being used on public land the regulations of the Pesticides Act must be followed.

Alternatively, there are a number of other herbicides that can be applied, each only certified for specific weeds and methods of application.

The best book on weed control and herbicides is the NSW Weed Control Handbook from NDE Department of Primary Industries. Download from <https://www.dpi.nsw.gov.au/biosecurity/weeds/weed-control/management-guides/noxious-enviro-weed-control>

This handbook also provides information on weed control methods that do not use herbicides. Contact [Berry Landcare](#) for information about Biological Control.

If you wish to undertake Chemical Safety Awareness training, contact Local Land Services to find out where you can do this.



4.2.6 Native Plants as Weeds

There are some problem native species in the Berry region. These originate from other parts of Australia that have now become problem plants that compete and sometimes dominate our local native species. The main problem native species in the region are:

Acacia baileyana (Cootamundra Wattle, Baileys Wattle)

This wattle is endemic (or native to a restricted region) in southern NSW. It is characterised by its silvery green or mauvish foliage. Still sold in local nurseries, this species is very fast growing and is invasive in some local bushland areas.

Acacia podalyriifolia (Queensland wattle, Mt Morgan wattle, Pearl Acacia)

This large wattle (to 7 metres) is endemic to north-eastern Australia but has been marketed in nurseries throughout the country. It has silvery, oval phyllodes (leaves). Like *Acacia baileyana* this species is very fast growing and is invasive in some local bushland areas.

Acacia saligna (Golden Wreath Wattle, Weeping Wattle)

This wattle is endemic to the dryland areas of Western Australia. Introduced to NSW in the 1970's as a coastal dune stabilising plant, it has now become a 'problem plant' dominating and competing with local dune vegetation.

Grevillea robusta (Silky oak, Silk oak)

Silky oak has been a long-time ornamental favourite, particularly in rural areas. It is large (up to 50 m) fast growing tree that can easily self-propagate and now is seen escaping into many bush land areas around the Shoalhaven.

Pittosporum undulatum (Sweet pittosporum)

This is a native plant and is found in the Shoalhaven. It has been widely planted and has frequently become invasive in forests and bushland outside its natural range, and at rainforest edges.



4.2.7 Weeds of the Berry Region

There are a number of sources that can help you identify the weed on your property and provide advice on their control.

Berry Landcare weed fact sheets

Berry Landcare had a set of fact sheets that give you advice on weeds found in the local area. In the **Appendix of this Kit (Section 12)** there are **41 Weed Fact Sheets** for common weeds of the Berry area.

NSW Weed Wise

The NSW Department of Primary Industries has a program NSW WEED WISE. This program contains key information to help users reduce the impact of over 325 weeds in New South Wales. You can access this at the [NSW Weed Wise web page](#), or you can download the app.



DPI Weed control handbook

Download this handbook from the NSW Department of Primary Industries.
<https://www.dpi.nsw.gov.au/biosecurity/weeds/weed-control/management-guides/noxious-enviro-weed-control>

Weed Photos

The International Environmental Weed Foundation (IEWF) has an easy weed, environmental weed and invasive plant identification system. Here you will find many weed photos. Go to http://www.iewf.org/weedid/iewf_front_id.html

4.2.8 The Biosecurity Act and Weeds

In NSW, weed management is under the *Biosecurity Act 2015* (which replaced the *Noxious Weed Act*).

This Biosecurity Act is to

- prevent the entry of new pests, diseases and weeds into NSW
- quickly find, contain and eradicate any new pests, diseases and weeds
- effectively minimise the impacts of pests, diseases, weeds and contaminants that cannot be eradicated by implementing robust management arrangements.

The NSW Department of Primary Industries (DPI) plays a major role and works with Local Land Services and Local Government to management of biosecurity risks.

There is a general biodiversity duty under this act.

Any person who deals with biosecurity matter or a carrier and who knows, or ought reasonably to know, the biosecurity risk posed or likely to be posed by the biosecurity matter, carrier or dealing has a biosecurity duty to ensure that, so far as is reasonably practicable, the biosecurity risk is prevented, eliminated or minimised.

Information on this act and also weeds is available from the Agencies involved.

Shoalhaven City Council. <https://www.shoalhaven.nsw.gov.au/For-Residents/Our-Environment/Pests-Weeds/Weed-Management-Biosecurity>.

This includes information on Priority weeds.

Department of Primary Industries <https://www.dpi.nsw.gov.au/biosecurity/weeds>

This includes the WeedWise program.



There is also a section on Weed categories. This included Weeds of National Significance where you can download a management manual for some of the weeds.



5 Revegetation

5.1 Revegetation: The right tree, in the right place, at the right time

5.1.1 The importance of revegetating

Where there is no possibility to regenerate and retain existing vegetation on your land, revegetating using local seed proves to be an effective secondary approach in linking patches of native vegetation to surrounding bushland. Connecting remnant patches of land creates a mosaic of ecosystems across the landscape and is thus vital to the connectivity of threatened species habitats.

You, as a Berry landholder, can link patches of vegetation on your land, to assist the movement of species such as the Greater Glider (an arboreal mammal), which is currently locally extinct between Seven Mile Beach NP and the Illawarra escarpment. You can improve the success of the Berry Corridor by planting local native species along with learning how to assess the quality of your land in regard to identifying weeds.

5.1.2 Selecting species for revegetation

When you have found the area you want to revegetate, the best guide is, if possible, to find an area of native vegetation nearby to see what species of native plants are growing. Include fast growing colonisers, shrubs and trees. Seek advice from plant nurseries which propagate local native species from local plants and also [Growing Illawarra Natives](#). The Berry Species list below will give you an idea of the species in the area.

5.1.3 Berry Landcare Species List



Berry
Landcare

BERRY LANDCARE SPECIES LIST

The whole Berry area was previously covered by dense rainforest. From various reports and surveys, Berry Landcare has compiled a list of the plant species that are found in the berry locality, including the Illawarra Subtropical Rainforest remnant at the David Berry Hospital and the 36-hectare public reserve on Moeyan Hill.

TREES

<i>Acacia binervata</i>	Two-veined hickory	<i>Archontophoenix cunninghamiana</i>	Bangalow palm
<i>Acacia maidenii</i>	Maiden's wattle	<i>Baloghia inophylla</i>	Brush bloodwood
<i>Acacia mearnsii</i>	Black wattle	<i>Banksia integrifolia</i>	Coast banksia
<i>Acmena smithii</i>	Broad-leaved lilly pilly	<i>Brachychiton acerifolius</i>	Flame tree
<i>Acronychia oblongifolia</i>	White aspen or Tic tac	<i>Brachychiton populneus</i>	Kurrajong
<i>Allocasuarina littoralis</i>	Black she-oak	<i>Callistemon salignus</i>	Pink tips
<i>Alphitonia excelsa</i>	Red ash	<i>Casuarina cunninghamiana</i>	River oak
<i>Angophora floribunda</i>	Rough-barked Apple		



<i>Casuarina glauca</i>	Swamp oak
<i>Ceratopetalum apetalum</i>	Coachwood
<i>Cinnamomum oliveri</i>	Oliver's sassafras
<i>Citronella moorei</i>	Churnwood
<i>Croton verreauxii</i>	Green native cascarilla
<i>Cryptocarya glaucescens</i>	Jackwood, Native Laurel
<i>Cryptocarya microneura</i>	Murrogun
<i>Cyclophyllum longipetalum</i>	Brush canthium
<i>Dendrocnide excelsa</i>	Giant Stinging Tree
<i>Diospyros australis</i>	Black plum
<i>Diospyros pentamera</i>	Myrtle ebony, Grey persimmon
<i>Diploglottis australis</i>	Native tamarind
<i>Doryphora sassafras</i>	Sassafras
<i>Ehretia acuminata</i>	Koda
<i>Elaeocarpus kirtonii</i>	Pigeonberry ash
<i>Elaeocarpus reticulatus</i>	Blue berry ash
<i>Elaeodendron (Cassine) australe</i>	Red-fruited olive plum
<i>Emmenosperma alphitonioides</i>	Yellow ash/Bonewood
<i>Endiandra sieberi</i>	Corkwood
<i>Eucalyptus botryoides</i>	Bangalay
<i>Eucalyptus quadrangulate</i>	
<i>Eucalyptus maculata</i>	Spotted Gum
<i>Eucalyptus paniculata</i>	Grey Ironbark
<i>Eucalyptus pilularis</i>	Blackbutt
<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus saligna</i>	Blue gum
<i>Eucalyptus saligna X botryoides</i>	

<i>Eucalyptus tereticornis</i>	Red Forest Gum
<i>Eucryphia moorei</i>	Pinkwood
<i>Euroschinus falcata</i>	Ribbonwood
<i>Ficus coronata</i>	Sandpaper fig
<i>Ficus macrophylla</i>	Moreton Bay fig
<i>Ficus obliqua</i>	Small-leaved fig
<i>Ficus rubiginosa</i>	Port Jackson / Rusty fig
<i>Ficus superba</i>	Deciduous fig
<i>Geijera salicifolia</i>	Brush wilga
<i>Glochidion ferdinandi</i>	Cheese tree
<i>Gmelina leichhardtii</i>	White beech
<i>Guioa semiglauca</i>	Guioa
<i>Leptospermum laevigatum</i>	Coastal tea tree
<i>Litsea reticulata</i>	Bolly gum
<i>Livistona australis</i>	Cabbage tree palm
<i>Melaleuca decora</i>	White feather honey myrtle
<i>Melaleuca linariifolia</i>	Snow-in-summer
<i>Melaleuca quinquenervia</i>	Broad-leafed paperbark
<i>Melaleuca styphelioides</i>	Prickly paperbark
<i>Melia azedarach</i>	White cedar
<i>Melicope micrococca</i>	Doughwood
<i>Myoporum acuminatum</i>	Boobiella
<i>Notelaea longifolia</i>	Native olive, Large Mock-olive
<i>Pararchidendron pruinosum</i>	Snow wood
<i>Pennantia cunninghamii</i>	Brown beech
<i>Pisonia umbellifera</i>	Birdlime tree
<i>Pittosporum undulatum</i>	Native Daphne
<i>Planchonella australis</i>	Black apple



<i>Podocarpus elatus</i>	Plum pine
<i>Polyosma cunninghamii</i>	Featherwood
<i>Polyscias elegans</i>	Celery wood
<i>Polyscias murrayi</i>	Pencil cedar
<i>Quintinia sieberi</i>	Poosumwood
<i>Sarcomelicope simplicifolia</i>	Yellow aspen
<i>Schizomeria ovata</i>	Crab apple
<i>Scolopia braunii</i>	Flintwood
<i>Sloanea australis</i>	Maiden's blush
<i>Stenocarpus salignus</i>	Scrub beefwood
<i>Streblus brunonianus</i>	Whalebone tree
<i>Symplocos thwaitesii</i>	Buff hazelwood
<i>Syncarpia glomulifera</i>	Turpentine
<i>Synoum glandulosum</i>	Scentless rosewood, Bastard Rosewood
<i>Syzygium australe</i>	Brush cherry
<i>Syzygium oleosum</i>	Blue lilly pilly
<i>Syzygium paniculatum</i>	Magenta cherry
<i>Toona ciliata</i>	Red cedar
<i>Tristaniopsis collina</i>	Water gum
<i>Wilkiea huegeliana</i>	Wilkiea

TREE/SHRUBS

<i>Acacia binervia</i>	Coast Myall
<i>Acacia floribunda</i>	White sallow wattle
<i>Alectryon subcinereus</i>	Native quince
<i>Androcalva (Commersonia) fraseri</i>	Brown Kurrajong
<i>Backhousia myrtifolia</i>	Grey myrtle
<i>Banksia ericifolia</i>	Banksia
<i>Callicoma serratifolia</i>	Callicoma

<i>Claoxylon australe</i>	Brittlewood
<i>Duboisia myoporoides</i>	Corkwood
<i>Hedycarya angustifolia</i>	Native mulberry
<i>Homalanthus populifolius</i>	Bleeding heart tree
<i>Mallotus philippensis</i>	Red kamala
<i>Melaleuca armillaris</i>	Bracelet honey myrtle
<i>Melaleuca ericifolia</i>	Swamp paperbark
<i>Myrsine (Rapanea) howittiana</i>	Brush muttonwood
<i>Myrsine (Rapanea) variabilis</i>	Muttonwood
<i>Notelaea venosa</i>	Veined Mock-olive, Smooth Mock-olive
<i>Polyscias sambucifolia</i>	Elderberry Panax
<i>Prostanthera lasianthos</i>	Victorian Christmas tree
<i>Rhodamnia rubescens</i>	Brush turpentine
<i>Exocarpos cupressiformis</i>	Cherry Ballart
<i>Trema tomentosa</i>	Native peach
<i>Trochocarpa laurina</i>	Tree heath

SHRUBS

<i>Abrophyllum ornans</i>	Native hydrangea
<i>Abutilon oxycarpum</i>	Lantern Bush
<i>Acacia sophorae</i>	Coastal Wattle
<i>Acacia suaveolens</i>	Sweet Wattle
<i>Breynia oblongifolia</i>	Little breynia
<i>Bursaria spinosa</i>	Sweet Bursaria
<i>Citriobatus pauciflorus</i>	Orange Thorn
<i>Clerodendrum tomentosum</i>	Hairy clerodendrum
<i>Coprosma quadrifida</i>	Prickly coprosma
<i>Correa alba</i>	White correa
<i>Dodonaea viscosa</i>	Broad-leaf Hop bush



<i>Einadia hastata</i>	Berry salt bush
<i>Eupomatia laurina</i>	Bolwarra
<i>Goodenia ovata</i>	Hop goodenia
<i>Goodia lotifolia</i>	Clover tree
<i>Hibiscus heterophyllus</i>	Native hibiscus / Rosella
<i>Hibiscus splendens</i>	Pink hibiscus
<i>Homolanthus stillingifolius</i>	Small-leaved bleeding heart
<i>Indigofera australis</i>	Indigofera
<i>Kunzea ambigua</i>	White Kunzea, Tick Bush
<i>Melaleuca hypericifolia</i>	Red-flowering paperbark
<i>Melicytus (Hymenanthera) dentatus</i>	Tree violet
<i>Monotoca elliptica</i>	Tree broom heath
<i>Myoporum boninense</i>	Common boobialla
<i>Ozothamnus diosmifolius</i>	Everlasting Flower, Rice flower
<i>Persoonia linearis</i>	Narrow-leaved Geebung
<i>Pittosporum multiflorum</i>	Orange thorn
<i>Pittosporum revolutum</i>	Rough-fruited pittosporum
<i>Platylobium formosum</i>	Handsome flat pea
<i>Plectranthus parviflorus</i>	Cockspur flower
<i>Psychotria loniceroides</i>	Hairy psychotria
<i>Pultenaea blakelyi</i>	Graceful bush pea
<i>Rhagodia candolleana</i>	Sea berry salt bush
<i>Sambucus australasica</i>	White elderberry
<i>Santalum obtusifolium</i>	Sandalwood
<i>Senna acclinis</i>	Rainforest senna
<i>Solanum aviculare</i>	Kangaroo apple

<i>Tasmannia insipida</i>	Brush pepper bush
<i>Westringia fruticosa</i>	Coastal rosemary
<i>Zieria smithii</i>	Sandfly zieria

GROUND LEVEL

<i>Ajuga australis</i>	Austral bugle
<i>Aneilema acuminatum</i>	Aneilema
<i>Austrocynoglossum (Cynoglossum) latifolium</i>	Forest hound's tongue
<i>Carpobrotus glaucescens</i>	Pigface
<i>Coronidium (Helychrysum) elatum</i>	Paper daisy
<i>Dichondra repens</i>	Kidney weed
<i>Elatostema reticulatum</i>	Rainforest spinach
<i>Pelargonium australe</i>	Native Storksbill
<i>Pollia crispata</i>	Pollia
<i>Pseuderanthemum variabile</i>	Pastel flower
<i>Tetragonia tetragonoides</i>	Warrigal greens
<i>Veronica plebeia</i>	Trailing Speedwell
<i>Viola hederacea</i>	Native violet

GRASSES/CLUMPING

<i>Alocasia brisbanensis</i>	Cunjevoi
<i>Arthropodium milleflorum</i>	Pale vanilla lily
<i>Austrostipa ramosissima</i>	Stout bamboo grass
<i>Crinum pedunculatum</i>	Swamp lily
<i>Dianella caerulea</i>	Blue flax lily
<i>Gymnostachys anceps</i>	Settler's flax
<i>Libertia paniculata</i>	Branching grass flag
<i>Lomandra longifolia</i>	Mat rush
<i>Themeda triandra (australis)</i>	Kangaroo grass



RUSHES/SEDGES

<i>Carex appressa</i>	Tall sedge
<i>Carex longibrachiata</i>	Common sedge
<i>Ficinia (Isolepis) nodosa</i>	Knobby club rush

CYCADS

<i>Macrozamia communis</i>	Burrawang
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ORCHIDS

<i>Dendrobium kingianum</i>	Pink rock orchid
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SCRAMBLER/VINES

<i>Billardiera scandens</i>	Apple dumpling
<i>Cissus antarctica</i>	Water / Kangaroo vine
<i>Clematis aristata</i>	Old man's beard
<i>Deeringia amaranthoides</i>	Deeringia
<i>Eustrephus latifolius</i>	Wombat berry
<i>Geitonoplesium cymosum</i>	Scrambling lily
<i>Gynochthodes jasminoides</i>	Morinda
<i>Hardenbergia violacea</i>	Hardenbergia

<i>Hibbertia scandens</i>	Golden guinea vine
<i>Kennedia rubicunda</i>	Dusky coral pea
<i>Marsdenia rostrata</i>	Common milk vine
<i>Parsonia straminea</i>	Silky or Monkey pod vine
<i>Sarcopetalum harveyanum</i>	Pearl vine
<i>Stephania japonica</i>	Snake vine
<i>Trophis (Malaisia) scandens</i>	Burnie vine

FERNS

<i>Adiantum aethiopicum</i>	Maidenhair fern
<i>Adiantum formosum</i>	Giant maidenhair fern
<i>Cyathea australis</i>	Rough Tree Fern
<i>Cyathea cooperi</i>	Straw tree fern
<i>Davallia solida</i>	Hare's foot fern
<i>Pellaea falcata</i>	Sickle fern
<i>Pteris tremula</i>	Tender brake
<i>Zealandia (microsorium) pustulata</i>	Kangaroo fern

5.1.4 Site Preparation and Maintenance

- Before planting, carry out weed control. You may need to stabilise the soil if on a slope or rip if the soil compacted.
- Use tree guards or fence the area to limit grazing and browsing.
- If planting a large area, consider allowing space between plants for weed control by mowing/slashing.
- Control weeds regularly especially when plants are small. You may need to focus on problem weeds which are highly invasive.
- Have access to water so that seedlings can be watered during the first few months
- Take photos so you can see the change over time.
- Once larger plants are established consider planting understorey species.

Further information:

A Conservation Management Note on **Revegetation** can be found at <https://www.environment.nsw.gov.au/cpp/ConservationManagementNotes.htm>



5.1.5 Berry Area Nursery Contacts

The following nurseries are local businesses that grow local provenance plants and are sources of local native plants for the Berry Bush Links project. Some of these nurseries receive seeds from Berry Landcare volunteers and from the Landcare Illawarra seedbank. Berry Landcare does not run its own nursery, but rather, has chosen to support these local businesses. Use the following list as a starting point for sourcing local provenance plants.

LOCATION	CONTACT
Berry Public School Plant Propagation Program at the school nursery	Lyn Clark - P: 4464 3911 E: Lyn-clark@outlook.com.au Berry Plant Prop Facebook Page
Mountain Echo Landscape and Horticulture, Berry	Katie Wright & Ryan Hogan KW M: 0424 236 235 RH M: 0409 743 828 Email: Mountainecho1@hotmail.com Website: https://mountainecho.com.au
Currys Mountain Estate, Willow Vale	John McNamara & Andrew McNeil AM M: 0404 086 040 E: currysmtn@bigpond.com
A Taste of Paradise Farm, Berry	Tim Francis - M: 0414 641 085 E: info@atasteofparadise.com.au
Jamberoo Native Nursery, Curramore	P: 4236 0445 E: sales@jamberoonatives.com.au Website: http://jamberoonatives.com.au Minimum order \$500
Oyster Tree Nursery, Broughton Village	M: 0412 536 118
Wirin Wirra Nursery, Tomerong	P: 4443 4029 https://www.wirinwirra.com/
Located in Kiama Downs	Carl Gleister - M: 0420 813 284
Located in Tongarra	Stuart Alexander - M: 0438 560 099