Coffs Harbour Regional Landcare

What is Bush Regeneration?

Bush regeneration is the restoration and maintenance of natural ecosystems which have suffered some level of degradation, by removing or reducing threatening processes and weed species which are having a detrimental impact on these areas. A specific set of principles and techniques are used to enhance ecological processes and encourage the natural regeneration of local native plant species.

Retain first	**Conserving existing natural areas is the first priority. Efforts should be directed to protecting these areas from threatening processes such as weeds, grazing, stormwater, mowing,**
Regenerate second	**Where bushland is degraded by threats such as weed invasion, grazing, or other disturbances, regeneration is the primary goal. This involves mitigating threats such as weed inva-**
Replant last	**Planting should only be considered after a site's natural ability to regenerate has been assessed as very poor.**

Basic principles of bush regeneration

1. Work from good bush to bad

You'll often hear healthy, weed free bushland referred to as 'good bush' and degraded and weedy bushland is often referred to as 'bad'.

The reality is that it is rarely, if ever, as black and white as that and the bushland we see around us will lie somewhere on a wide spectrum of grey.

Each site will vary enormously, it may have very degraded and weedy areas and metres away may be quality weed free bushland.

When we say work from good bush to bad, what we are saying is rather than focus on the weeds, focus on and build upon the strong and resilient part of the site first and gradually work outwards, increasing the healthy patch of bushland.

By doing this, we are helping the bushland to 'help itself'. Working slowly from the good bush out, allows the native plants to re-establish around the perimeter of good bushland with minimal disturbance or encouragement to weed invaders.

2. Don't overclear

Once you start to know which plants are weeds you will start to see them everywhere! The hard bit will be to try and resist the urge to pull out and remove large amounts of weed material in an effort to see results quickly. This point can't be overstated. Bushland needs time to heal and regrow and we need to understand and work with nature's timeframes, not our own.

Once weeds are removed there is often open ground and this will be vulnerable to further weed invasion.

The reason many weeds are so successful is that they have quick germination times and can often colonise areas quicker than the natives. You may well find that you have to continue to remove weeds from the patch you have cleared many times, before native species have successfully regrown.

Listen to and observe nature, find out what its timeframes are and work in partnership to achieve the best results.

3. Buffer the bush from the boundary

A buffer is a barrier or a shock absorber, a defence between good bush and what is impacting on it from its surrounds. The surprising thing in this instance is that it may be weeds that form this protective buffer. So what we are saying is we are using weeds to protect our Landcare site. Doesn't sound quite right? Feels counter intuitive? If we start to understand that not all weeds are the same and that different weeds need to be treated differently, then we can also understand that many weeds can be used to our benefit. An example of this may be the use of Lantana as a buffer for the edge of a bushland reserve. Lantana can play a very important role in inhibiting the invasion of many other weeds into otherwise good bush. The Lantana in itself is relatively easy to treat and remove when the circumstances allow. Lantana can successfully inhibit invasion of exotic grasses and other weeds and provide habitat to small birds and mammals and prevent unwanted pubic access, while in itself remaining a relatively small and contained weed area.

4. Follow up, follow up, follow up

This next point can be the hardest part of bush regeneration. It requires patience, commitment and a long term plan. Once we have removed all visible weeds from an area this doesn't mean all weeds are gone for good. In the area that had weeds, the soil will have weed seeds (referred to as a weed 'seed bank') and other growth parts such as tubers, rhizomes and stem fragments. Weeds will continue to grow until all these sources of weed growth have been exhausted or germination is inhibited. This can be demoralising as it can appear that our efforts are having no impact.

The important thing is to follow up and work on one area many times and not to underestimate how much weeds can regrow. Many new weed species can appear once we have started to 'open up' an area, introducing space and light. If we start small and recognise the limits of what is manageable with the time and resources we have, and follow up consistently and continuously, then you will start to see great results.

Lantana can be a useful barrier around restored areas

5. Plant ID – when in doubt check it out

Plant identification is a lifetime pursuit. Those who can identify the many hundreds of plants in our bushland have been learning probably for the majority of their life. All of us in Landcare come from many different backgrounds and interests and there is no expectation that you will know the names of many, or indeed any, plants when you start out.

The important thing is that there are resources to help you, not only to identify plants, but help you develop the skills to identify plants for yourself.

Plant identification books often work to a 'Plant Key' which can help you work through a process of identifying a plant based on its physical characteristics. There are native plants that look similar to weeds, and you may also have threatened species appear once a bushland area returns to favourable conditions.

If you are in doubt about the identity of plant always make sure you confirm what it is before removing it from your Landcare site.

You can send photos of plants to the CHRL office or take samples to the herbarium at the Coffs harbour Botanic Gardens.

The Bigger Picture

Site Plans

Most of CHRL work sites are on public land. In order to ensure that our work is agreed to by the land manager (Council or National Parks), each site has a site plan that maps out the problems occurring on your site and lays out a plan to address each problem in a considered and manageable way.

Monitoring and recording

An important part of the work we do is to monitor and record what is happening on site. Your trainer will show you how to set up photopoints. These are an important tool for monitoring and your site may already have established photopoints. These are specific points (they may be pegged with a stake or taken from a permanent landmark at your site) with orientation recorded. Photos are then taken at these locations, preferably before work commences, and then at regular intervals thereafter. This will show a history not only of the work you have done but your progress over time.

We may also monitor and record the plants and animals at each site. For example, increasing numbers of small birds (largely lost in urban environments) at our sites is a wonderful indicator that the bushland is providing a safe and welcoming sanctuary, a sure sign you are on the right track.

Weeds as habitat

What can you do to support wildlife habitat while working in the bush:

- Try not to 'tidy up' the bush, leave logs and dead branches/sticks lying in situ in the bush.
- Look out for ringtail possum dreys (roosts) in lantana and balloon vine.
- You may have old brick and concrete lying on your site – this could be habitat for reptiles. Even old fridges and sheet metal also provide important refuge.
- Be mindful that thickets of low growing weedy shrubs and rubbish and mature weed trees often provide the only habitat for native fauna species.
- Establish replacement habitat before removing rubbish and weeds.

Volunteer Safety

Personal Protective Equipment (PPE)

CHRL supplies all volunteers with

- Insect repellent clothing
- Gloves
- Hat

In addition to this, the site coordinator can access safety glasses and has all hand tools for the group. Each coordinator also has a First Aid Kit on site during working bees.

Safe working condition and methods

CHRL's Volunteer Manual contains our WH&S policy which is also available on our website. The site coordinator will alert volunteers to any specific potentially dangerous conditions on site and how to deal with those / or avoid them. Volunteers are expected to consider their safety and that of fellow volunteers and act accordingly.

Integrated Weed Management

This term describes activities and measures that combine/integrate to reduce the occurrence, re-occurrence and impact of weeds. These include the initial removal of the weed, the provision of an environment that encourages native and other desirable plants to take up the vacant space,
biological controls, farm/site hygiene, follow-up weed control and more. Good weed management always takes more than one action or approach to deal with a weed.

Weed control methods

Manual, mechanical and chemical weed control can complement each other. Chemical methods should only be employed where non-chemical methods are not effective, feasible or realistic. In manual weed control, all sections of the plant capable of reproducing must be removed. This can include seed, tubers, parts of the stem and even leaves and it is plant specific.
Follow up is the key to successful restoration after the initial weed control and is essential.

Use of herbicides

Only two types of active ingredients of herbicides are used by CHRL volunteers: Glyphosate and metsulfuron-methyl. Most volunteers will only use glyphosate applied on a cut surface using a dripper bottle.
The product strength assumed for the recommended herbicides is 360g/L for glyphosate and 600g/kg for metsulfuron-methyl.
Metsulfuron-methyl must always be applied with a non-ionic surfactant/wetting agent as recommended on the label.
Spraying herbicide as CHRL volunteer is limited to those who have the appropriate training, certificate and who have been approved by CHRL to spray.
Herbicides are either sprayed onto the foliage to the point of run-off, painted onto a cut or scrape within seconds, or injected into a wound within seconds.
For information about other herbicides and their applications, consult with your local weeds officer or publications by the NSW Department of Primary Industries.
Personal Protective Equipment is very important when using herbicides. Gloves, long sleeves and pants as well as boots are the minimum required.

Herbicide application methods

Herbicides should only be applied to plants that are actively growing and have good foliage.
Weak, dry or frosted plants will not absorb and translocate the herbicide well and the herbicide will have little or no effect.
Protective clothing must be worn when using herbicides to avoid contact with skin, eyes or mouth.
We also recommend to use a dye in the herbicide as a marker.

Resources:

CHRL youtube videos:

These weed control methods are carefully demonstrated in our youtube videos:
https://www.coffsharbourlandcare.org.au/category/resources/video/

There is also a very useful presentation on common weeds and their native look-alikes.

Bushregeneration Manuals:

We have two full training manuals on file which we can reproduce for you on demand.

Methods for herbicide application in Bush Regeneration

Cut & Paint

(woody weeds, shrubs, some vines, small trees)

- Cut stem horizontally close to the ground and below the first branch.
- Apply 100% glyphosate with a brush or dropper bottle to the cambium layer (between bark and wood) immediately (within 10 seconds).

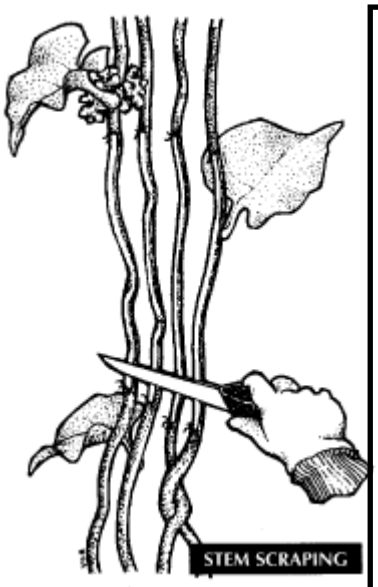
Considerations

* Cuts should be horizontal to prevent herbicide from running off the stump. Sharp angle cuts are hazardous.
* Herbicide must be applied immediately before the plant cells close and translocation of herbicide ceases.
* If plants resprout, cut and paint the shoots after sufficient regrowth has occurred.
* Stem scraping can be more effective on some woody weeds (Ochna etc)

Stem Scrape

(e.g. Madeira Vine, Morning Glory)

- Scrape the bark off the vine stem for 15 - 30cm to expose vascular tissue in strips.
- Don't ringbark the entire stem.
- Start at ground level and work up as high as you can reach.
- Create a staggered pattern with the scraped strips.
- Apply glyphosate with a brush onto the wounds immediately (within 10 sec onds).
- Leave plant in place until completely dead and re-apply if necessary.



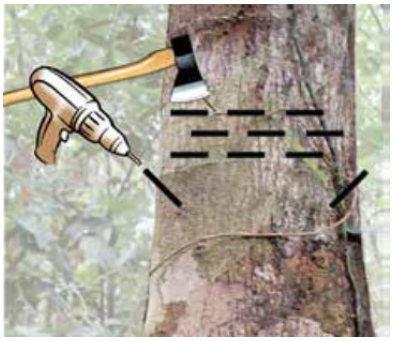
Considerations

* A maximum of half the stem diameter should be scraped. Do not ring bark.
* Larger stems (>1 cm) should have two scrapes opposite each other.
* Aerial tubers on madeira vine should die with the plant when stem scraping is used. Those that fall from the plant in the scraping process need to be bagged.
* Vines can be left hanging in trees after treatment.

Stem Inject

(larger woody weeds, camphor laurel, privets)

- Cut horizontally into the cambium layer with a small axe or drill.
- Drill or cut at 45° to the ground to avoid herbicide dripping out again.
- Apply 1–2ml of 100% glyphosate immediately into cuts or holes.
- Cut or drill at 10cm intervals for a minimum of two rows around the entire stem below the first branch.
- Stagger the cuts/holes and don't create a continuous cut like a ringbark.
- Large trees or trees with multiple stems may require additional injection points for effective control.



Considerations

* Plants should be healthy and actively growing. Deciduous plants should be treated in spring and autumn when leaves are fully formed.
* For multi-stemmed plants, inject or chip below the lowest branch and/or treat each stem individually.
* Herbicide must be injected immediately before the plant cells close (within 30 seconds) and translocation of herbicide ceases.