NATIVE TREE AND SHRUB PLANTING GUIDE

UPPER SNOWY LANDCARE NETWORK

DESIGNED FOR LANDHOLDERS TO ESTABLISH FARM BIODIVERSITY PLOTS IN RESPONSE TO TREE DIEBACK ON THE MONARO

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Dieback revegetation plot at The Burren, Berridale

Upper Snowy Landcare Network wish to thank the Platts from the **Monaro Native Tree Nursery** for their personal investment in our trial plots, their on-ground experience and knowledge and for sharing with us their tried and true methodology for planting on the Monaro. We have built their knowledge into this guide. We encourage you to arrange a visit to the Platts' property and nursery to take a look at what is possible. You can visit their website at www.monaronativetreenursery.com.au

We also wish to thank the NSW Environment Minister's Conservation Fund for contributing $5,000 towards the production of this booklet and its launch.

More than 2,000 sq km (size of the Australian Capital Territory) of the Monaro is declared dieback affected and important connective vegetation has been lost. While mostly *Eucalyptus viminalis* (Ribbon/Manna Gums) are affected, evidence is coming to hand that other species of Eucalyptus trees are suffering a similar rapid decline. The outlook is grim.

This massive tree dieback event has prompted us to produce this step by step guide so you (the land owner/manager) can establish your very own native plant revegetation plot and push back against tree dieback. We strongly believe that it will take a combined planting effort by many Monaro landholders over many years to make an impact.

Unfortunately, the actual cause of this tree dieback event is not fully understood. Read more about this and what is being done on the back page of this booklet.

Whether you intend to grow a native tree plot for shade and wind shelter; to attract native birds and wildlife to your property; for water retention benefits, local climate moderation or simply for your own pleasure in watching the trees grow, successful planting is not as simple as you think - especially on the Monaro.

Insect damaged eucalyptus leaf. Illustration by Sharon Field

And the old adage ...

prior preparation prevents poor performance - also applies to *planting*

As farmers and gardeners know, prior preparation is critical for a successful outcome. The same goes for establishing native plants. With the help of revegetation experts, USLN has trialled planting out a number of 1 ha plots across the Monaro in response to the dieback event and are delighted to offer you this best practice planting guide.

Front page: Michael Platts, daughter Lily, and crew from Monaro Native Tree Nursery on one of the USLN revegetation plots

Fenced revegetation plot at Severn Park. Photo: Charles Massy

12-step planting recipe for best results

Before you start, remember there are always going to be losses. Plants, like many things, have a habit of dying for no apparent reason. So even if you follow this 12 step guide you are likely to experience some loss of plants. However, by following these steps there is a good chance of more than an 80% success rate. It helps to add a dash of good luck too!

First up you need to budget and plan.

- How much are you willing to spend?
- Can you get a Council or Government grant?
- How much time do you have to put into this project?

Oh, and the verdict over an Autumn verses a Spring planting is still not in. It is all subject to weather variations at the time so it is best to plan according to your own availability. Or split the job into both seasons to hedge your bets.

1 **Select your site.** Take a good look around to isolate a suitable location on your property - perhaps a corner of a paddock to minimize additional fencing.

Your plot can be as big as you like but keep it realistic especially considering the costs involved (see indicative prices on page 6). Also, it is best to not make your plot too small (less than 1/4 hectare) if you are wanting a biodiversity outcome which we hope you do. Preferably, find a site that connects two areas of existing vegetation. Small bush birds will thank you for extending their range.

Make sure your site is not going to impact intact native grassland or woodland vegetation. If the site contains more than 50% native species (including native grasses) look elsewhere. Also, exclude areas where there are vulnerable or endangered native flora or fauna. Be guided by a Local Land Services officer and/or research the latest legislation at the NSW Office of Environment and Heritage Department. Sheep camps are good for tree plots and a weedy patch is perfect.

Planting recipe for best results continued ...

2 **Perform an Aboriginal Heritage Information Management System (AHIMS) search** to prevent the destruction of important indigenous sites on your chosen plot that may put you in breach of the law. This can be done free online. You can find the AHIMS search system by going to the website www.environment.nsw.gov.au

3 **Dial Before You Dig** is another legal requirement to prevent damage to underground cables in the ripping stage of the project. You can do this by ringing 0011 or go to www.1100.com.au to do a search on the plot and outer boundary. This is a critical step and failure to do so can be financially costly if you or your contractor rip up underground lines.

It is a good idea at this stage to create a digital satellite map of your site and particularly if you do this in Google Earth you will capture an image of what the site looks like before you get started. Later you can capture the same image area and see how you have improved the patch.

4 **Order your seedlings**. This is an important step that should be done 3 - 6 months prior to planting. Make sure you order species that already grow in your locale and ask your supplier to use seed sourced from the area. Order a broad mix of species - 50% eucalyptus and 50% shrubs (including wattles). Factor purchasing up to 1000 seedlings per hectare but consider obstacles such as rocks and trees in the plot which will reduce plant numbers. Take a look at species ideas on the last page.

5 **Engage a bulldozer driver to rip lines** across the contour of the site to a depth of 60 cm. A tractor is usually not able to rip to this important depth. These rip lines become water retention reservoirs. Ideally ripping should be done 3 - 6 months prior to planting leaving time for soil and air pockets to settle and collect moisture.

Rip line rows should be about 3 metres apart. Remember to leave an un-ripped area around the perimeter of the plot - wide enough to drive fully around it to attend to trees and repair fences.

6 **Fence the plot from stock** and include a gate so you can access the site by vehicle. Ideally, the site will need to be kept stock proof for 10 years but after the trees have grown to a couple of metres then the plot may benefit from intermittent grazing.

7 **Spray over the top of rip line** with a straight glyphosate (Roundup) mix that will knock down all grasses and weeds. This can be done soon after ripping by you or your contractor in a 1 metre wide strip application. Spraying out competing plants will mean more moisture will remain in the rip line.

8 While you wait until your desired planting season - Autumn or Spring - check with your plant supplier on how your seedlings are growing and **purchase your tree guards**. There is a large range of tree guards on the market. USLN has tested many guards (particularly the low-cost versions i.e., plastic sleeves & milk cartons) in plots scattered across the Monaro, and it is the corflute guard that provides best protection and value for money in the long run. Even better, they can be reused multiple times. Be sure to purchase the correctly sized stakes for your guard. There should be a primary hardwood timber stake and a secondary stake (usually bamboo) to prevent guard rotation.

9 **Spray over rip line for a second time with a mixture of glyphosate and Simazine (pre-emergent) 4 weeks prior to planting**. The pre-emergent chemical will suppress germination of weeds and grasses for up to 12 months giving the new seedling maximum opportunity to benefit from nutrients and moisture in the soil during its most vulnerable stage. Check with your agronomist on application rates for your vegetation and soil type.

10 **Pre-soak plants in a water/Seasol mix for an hour or more before planting but also try to plant your native seedlings after a decent rain event.** Alternate one eucalyptus tree with one shrub, each 3 to 4 metres apart to mimic the natural woodland mix. Create a hole in rip line just prior to planting using a suitable digging tool - some planters use a hand-held pencil auger or specialist tool but a shovel does well too. The hole should be deep enough to cover up to half the length of the seedling or more. It might seem strange to bury the plant so deep but it protects drying of the root ball. Depending on the seedling, cover lower leaves and branchlets with soil. There is little risk of collar rot around the stem in our drier climate.

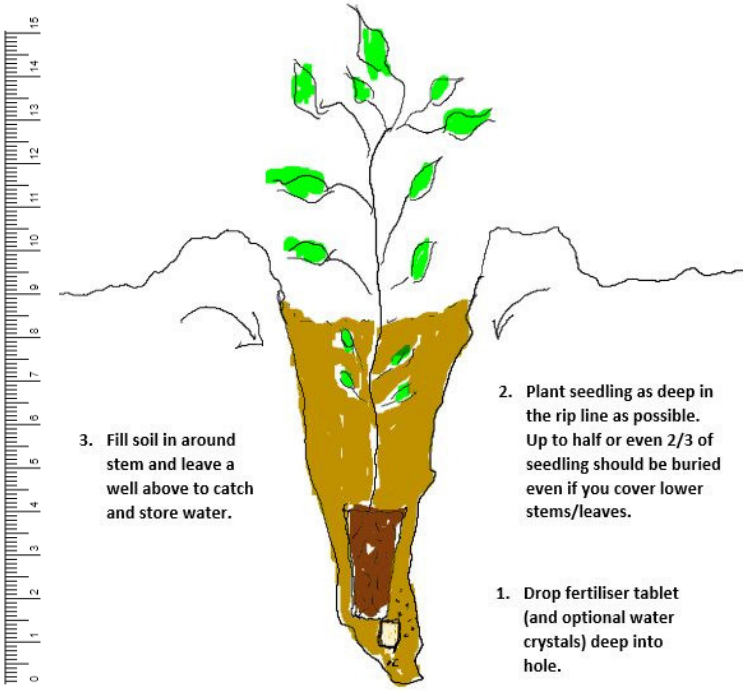

Diagram above to show how deep to plant your seedling (cm).

11 **Place tree guard securely around the plant.** Tree guards are known to blow off especially in our windy country but they are necessary to give the seedling protection from the conditions and browsing animals (e.g. rabbits).

12 **You may need to water your seedlings if conditions demand** but ultimately the methodology we advocate here should negate this step if there has been a good rain event prior to planting and some follow up showers. This is where that little bit of luck is so helpful.

Tree guards securely staked and then pinned down

It's not over yet...

Monitor your plot and take the time to remove by hand any weeds that grow up inside the guards. Depending on the weed burden, it may also be worthwhile to carefully spot spray around the guard again to reduce competition with your seedling. Replace guards as they come off and of course, you will need to remove them when the plant is large enough. Enjoy watching your plot grow.

Take regular photographs from a stationary spot (corner post). Photo: Fiona Hamer

So how much does it cost?

There is definitely an expense to establish your own native revegetation plot but we are convinced you won't regret it. In saying this, there are often opportunities for local, state and federal grant funding to assist. Ask your Local Land Services officer or Landcare group or search on-line for native vegetation grants.

Trust us - putting in your own biodiversity plot could set you on a new path in bird watching, developing species identification talents, bush walking for therapy and fitness, not to mention the seed collecting opportunities into the future. The whole process can be very rewarding.

And just think, in time, your plot will contribute to the return of native habitat lost to tree dieback and an increase in farm productivity through higher animal survival and enhanced water retention. All animals need shelter.

Scarlet Robin, a bird you are likely to attract to your revegetation plot. Photo: Elena Guarracino.

Ballpark costs (as at 2017) for 1000 seedlings in a 1 hectare plot are:

Ripping: Approx. $1,800 - $3,000 per ha

Strip chemical spray x 2 applications: Approx. $1,200 - $1800

Seedling purchase (1000): Approx. $1,200 - $2,500
There are a number of suppliers of native seedlings on the Monaro.
Take a look online, talk to your local Landcare group and ask around for local suppliers.

Fertiliser tablets (1000): Approx. $250
There are many online suppliers. Also, speak to local native plant nursery staff or an agronomist about the most suitable tablet for your soil and seedling type. You may also wish to add water crystals.

Tree guards and stakes: Approx. $1,000 - $4,000
Again, there are many online suppliers. Remember to make sure you order the correct stakes for your choice of tree guard. Some local native seedling suppliers can also advise and sell you the most suitable guard. From USLN experience, it is worth buying the corflute guard and two stakes to secure it down.

Planting: This may be done by yourself, with family members and/or willing local volunteers or you can contract experienced planters for this job. Deep sow your plants (see diagram page 4). If you do pay for planting and guarding, you may need to add on an approx. $1000 - $2000.

Remember to follow the above 12-step planting recipe and ensure your contractors do the same.

Suitable plant species for the Monaro:

The mix of Monaro specific species below will provide a good basis for building your plot.

Acacia dealbata - Silver Wattle
A. falciformis - Broad-leaved Hickory Wattle
A. mearnsii - Black Wattle
A. rubida - Red Stem Wattle
A. melanoxylon - Blackwood Wattle
Bursaria spinosa - Australian Blackthorn
Callistemon pallidus - Lemon Bottlebrush
Cassinia longifolia & aculeata - Shiny/Common Cassinia
Dodonaea viscosa & angustissima - Giant/Narrow-leaved Hopbush
Daviesia mimisoides - Leafy Bitter-pea

Eucalyptus viminalis - Ribbon/Manna Gum
E. rubida - Candlebark Gum
E. rossii - Scribbly Gum
E. pauciflora - Snow Gum
E. bridgesiana - Apple Box Gum
E. dives - Peppermint Gum
E. aggregata - Black Gum
E. mannifera - Brittle Gum
E. stellulata - Black Sally
Hakea microcarpa - Small Fruit Hakea

A good way to fine-tune your species list is to go to the Atlas of Living Australia www.ala.org.au and search for species in your area. Put in your property address and a comprehensive mix of species will be provided. Use the images on this site to quickly improve your plant and animal identification skills.

So why have the trees died?

The global answer - it is complicated. A myriad of possible reasons abound. The Australian National University (ANU), Greening Australia and other research bodies such as the CSIRO are continuing to look at the Monaro tree dieback episode but already the thinking suggests a combination of factors.

Based on previous dieback science from Australia, other countries and from people on the ground across the Monaro, some of these factors include: the past drought caused the *E.viminalis* trees to weaken and become more prone to excessive Eucalyptus weevil (native bug) attack which ultimately kills the trees; lack of seasonal cool burning that would return nutrients into the soil and prompt germination of native shrubs and new generations of Eucalyptus trees; a possible soil fungus; or perhaps the Monaro *E.viminalis* trees have died because they are located in one of the coldest and driest pockets in the country.

One local considers that tree loss coincided with the incursion of European wasps into the area with the knowledge that they can displace local wasps known to control the Eucalyptus weevil. Many long-term Monaro landholders say that dieback comes in waves and from a particular direction and the same tree species was affected by dieback in the 1940s and another wave in the 1960s!

In the mix of these possible factors sits the popular position that there is a serious lack of small bush birds to predate on the bugs that defoliate trees. If this is the case, then we can all act quickly to provide habitat to encourage breeding and entice these birds back.

Despite the lack of a definite smoking gun, USLN will continue to invest in the establishment of 1 ha mixed species biodiversity plots and provide continued support to the above-mentioned bodies to trial growing healthy and robust *E. viminalis.*

We look forward to keeping you posted.

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