



Upper Lachlan
Landcare

Local Native Planting Guide



*Your handy guide to successfully establishing native vegetation in
Upper Lachlan.*

Acknowledgements

Contained within these pages is all the local knowledge and experience we could bring together from Upper Lachlan landholders who have been successfully undertaking revegetation projects for decades. We acknowledge the tremendous work of our local tree planting pioneers and celebrate their foresight embarking on these projects since the early 1980s. The legacy of their work endures across the landscape today and serves as an inspiration to all of us who follow.

We make particular note to thank contributions from;

Alex James, Brian Faulkner, Brian Rawlinson, Colin Price, Emily Clarke, Garry Kadwell, Hugh Klem, Maia Gould, Margaret and David Chaffey, Nerida Croker, Robyn Alders, Sean Proudman, Susan Reynolds, Tim Hayes, Tom McCormack, and Wendy Husband.

Cover Photo: Maia Gould.

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Upper Lachlan Landcare acknowledge and pay our respects to the Traditional Owners of the lands where we gather, work and live.



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Introduction

Whether you are undertaking a planting project to provide shelter for stock, increase habitat and connectivity, restore a degraded area or enhance your view, planting natives makes sense. Natives offer co-benefits by providing habitat value. The branches and leaves still allow air, or wind, to move through the shelterbelt but all the foliage slows the wind speed down. They are adapted to the local environment. And when established, they provide a consistent view across the landscape.

In 2022 Upper Lachlan Landcare engaged Dr Tony Saunders to prepare the Upper Lachlan Habitat Connectivity Prioritisation Plan (ULHCPP). This document acknowledges Upper Lachlan contains diverse and significant biodiversity. However, much of this has become very fragmented and degraded. The ULHCPP identifies areas where revegetation projects may provide maximum conservation benefit to reconnect landscapes and restore habitat connectivity.

https://upperlachlanlandcare.org.au/images/UL_HCP_Report-compressed.pdf

https://upperlachlanlandcare.org.au/images/ULHCPP_Report_Summary_2022_FINAL.pdf

Even if your property doesn't align with one of the identified priority areas, all native revegetation efforts make a significant contribution towards restoring biodiversity and habitat connectivity within the Shire.

Restoring native vegetation patches and the connectivity between them, also improves the health and well-being of our community by increasing the availability of green spaces, mitigating pollution and reducing the risk of pests and diseases affecting our daily lives. Revegetating ridgelines and creek lines helps retain moisture in the landscape and boosts soil nutrient cycling.

We offer the information in these pages with good intention. We acknowledge personal preferences will vary and different techniques may suit one individual, or site, better than another. However, all the suggestions provided here have been used successfully in the paddock to establish a native planting in Upper Lachlan.

Fundamental to any successful planting project is planning. Whilst you can get lucky, to achieve consistent and reliable success, the value of taking time to plan and prepare cannot be over-emphasised. We encourage you to take your time to read this guide thoroughly. Ask others you know who have experienced success and consult additional information sources as required.

We commend you on your intention to embark on a planting project. Improving conditions for livestock, restoring degraded landscapes and improving habitat connectivity and abundance are extremely worthwhile endeavours. We hope this guide can help you along your way!

Planning at the Kitchen Table

Why are you undertaking a Planting Project?

Answering this important question will help to guide the design of your planting, the location and the species you plant.

Well designed, functioning shelterbelts can slow wind speed up to 80 per cent. Their effect can extend 20 times their height across the landscape, with best results within 10 times the height. Pasture growing next to the shelterbelt may be reduced for a distance approximately 2 times the height of the shelterbelt, however the benefits of reduced evaporation over a much greater area offset these losses.

Habitat plantings can take the shape of a block planting or a corridor. Corridors are the same shape as shelterbelts, however plants are more randomly spaced and contain a wider mix of understorey and midstorey species. Habitat corridors and block plantings support native fauna and provide pathways for them to move through the landscape.

Habitat stepping stones are another way native fauna can move across our landscape, and can be achieved with individually spaced paddock trees. Guidelines for planting paddock trees in Upper Lachlan are available from the Upper Lachlan Landcare website at this address; <https://upperlachlanlandcare.org.au/publications-downloads/useful-links>

Plantings along waterways can filter sediment and nutrients from surrounding landscapes. Screen plantings are useful to block noise or a particular view, and should be densely spaced.

Of course, it is probable you are seeking multiple outcomes from your planting, such as shelter and increased bird habitat. Fortunately, multiple benefits can often be achieved!



A shelterbelt beside a dam providing wind protection, native habitat and connectivity to the remnant patch behind. Photo: Ruth Aveyard

The Value of a Property Plan

Taking a property wide view helps you to identify different soil types, native plant communities, higher ridges, low lying areas, existing patches of vegetation and direction of prevailing winds. This can influence the species selection, shelterbelt alignment and options to connect existing patches of remnant vegetation.

Aerial or topographic maps can be accessed easily with Google Maps:

<https://www.google.com/maps> or websites such as Six Maps: <https://maps.six.nsw.gov.au/>

Most contain a digital measuring tool to calculate distances and area. It can be very rewarding to save a map image of your planting site and compare back to this map in a few years' time when your plants are established to see your progress.

Local Land Services (LLS) have some great resources available to help with developing a property plan;

<https://www.lls.nsw.gov.au/what-we-do/our-major-projects/every-bit-counts/resources/rural-property-ownership/property-management/farm-planning-setting-your-vision-for-your-land>

Upper Lachlan's local LLS Office is Goulburn: 159 Auburn St. P: 02 4824 1900. Open 8.30 to 4.30 pm weekdays. Other nearby offices are in Boorowa: 6-8 Market St and Yass: 13 Mitchell St.

Species Selection

Planting species adapted to your local conditions provides the best opportunity for success. Narrowing in on plants sourced from a similar geographic location, what's known as provenance, is also important. For instance, Yellow Box is a local species that can also be found growing in Southern Queensland where winters are milder and summers hotter. Plants sourced from Qld may struggle to survive the frosts in Upper Lachlan.



It can be very rewarding to collect and propagate your own seed from plants growing locally for your planting project. Connecting with local groups such as the Southern Tablelands Australian Plants Society; <https://austplants.com.au/Southern-Tablelands> can help you learn and refine the techniques for successful propagation. Alternatively, source your tubestock or seed from local suppliers, but always make sure to check the source of the seed they used.

Planting local species also means your planting project will enhance and extend habitat for local populations of insects, birds, reptiles and mammals.

Understanding plant communities and the species each one supports, can seem like a big undertaking. There are so many! But you really only need to be familiar with the ones on your property. This may be just one, or up to 3 or 4, depending on your property size and the landscape variability.

Trees Near Me is a handy, free App developed by NSW Government Department of Planning and Environment: <https://treesnearme.app/> It can be used to identify your location, your local plant communities and provide you with a species list including trees, midstorey, understorey and ground covers. This list can be refined by observing and identifying native plants growing in nearby remnant vegetation patches, along roadsides or nearby TSRs (Travelling Stock Reserves). Help with plant identification can be provided by Landcare groups, Local Land Services or Southern Tablelands Australian Plants Society. Try and collect buds, nuts, leaves and/or flowers with your sample to help your obliging expert.

Species selection also varies with the position in the landscape. A successful shelterbelt planting for instance, would probably have different species on the ridgeline to the ones you would plant in the low-lying areas. Inland Scribbly Gum for instance, won't tolerate wet feet and can survive on the shallower soils, however Ribbon Gum prefers wetter sites and deeper soil types.

A permeable shelterbelt of natives is most effective because it allows some wind through and does not encourage turbulence. Dense shelterbelts of pine trees create turbulence both upwind and downwind of the shelterbelt. Turbulence is more damaging to pasture and uncomfortable for stock than wind from one single direction.

If your planting is to screen noise then species with denser foliage would be a preferred choice. Planting projects in saline areas will need to seek specific advice about suitable salt tolerant species. Species suitable to plant along waterways will also be different to the surrounding landscape. They will need to be adapted to occasional inundation and able to tolerate wet feet.



More specific information on suitable species can be found under "Species List" further on in this booklet.

Tubestock species used in a local planting project near Narrawa.
Photo: Margaret and David Chaffey

Planting Design and Spacing

If your planting project is a shelterbelt, to be effective it must be positioned at right angles to the prevailing, or problem, wind direction. Planting along the contour will also provide better function and result in a more natural look. Positioning a shelterbelt higher in the landscape will maximise the area of shelter provided.



Planting project near Narrawa. Photo: Margaret and David Chaffey

Plants will need to be spaced closely enough to create an effective break of wind speed, yet also allow enough growing room so plants can bush up. If plants are spaced too closely together there will be competition as they grow, lower branches will thin out, individuals may die and this creates tunnels. If shelterbelts are short or contain gaps, wind speed can pick up around the edges or between the gaps reducing their effectiveness.

Planting mid and understorey species on the outside of rows provides consistent shelter for the full height of the shelterbelt. It also reduces the chance fallen Eucalypt limbs will damage fences.

If your planting project is focused on habitat outcomes then the first important consideration is what already exists at your site. If a degraded patch of native vegetation already existing, fencing this area off to exclude stock and undertaking some weed control, may be all that is required to support natural regeneration at the site.

Better habitat outcomes are achieved when the planting project design mimics the patchiness of existing remnant vegetation areas. Clumping of similar species, gaps, height variation and a higher component of understorey species are all features of a habitat patch. Incorporating any existing trees into your planting project will support their good health and create more diversity in your patch. Including fallen timber and rocky outcrops will also increase complexity of your patch.



Incorporating fallen timber and existing trees into your planting project will enhance its habitat value. Photo: Ruth Aveyard

It can be helpful to observe native habitat patches that exist nearby to help with designing your planting. Trees tend to be spaced thicker on ridgetops and can be as far as 20 meters apart in lower grassland areas. Variation within your patch, depending on the topography it covers, can replicate this.

Planting projects along a waterway are similar to a habitat patch. Variation in design will result in a more natural, looking area and a more functional habitat space. Avoid planting within the channel area because this will obstruct water flow and may cause turbulence leading to erosion. Site preparation techniques should be low disturbance to also avoid erosion risks. Allowing 20 metres on either side of a waterway for the riparian zone should reduce fence damage from flooding and provide adequate filtering of any surface water runoff.



This mature Yellow Box *Eucalyptus melliodora* tree gives some idea of the size mature trees can reach!
Photo: Ruth Aveyard

When you next find yourself in the shade of a mature eucalypt tree, pace around the canopy circumference to get an idea of its size. It can be hard to imagine a small seedling ever needing so much room! There will almost certainly be losses in your planting project and some people like to compensate by planting at a higher density than the desired end result. If required thinning can be done later and the timber used for firewood or other projects around your property. However most people try to get the spacing correct from the start and replace any early losses to keep their shelterbelt consistent. Replacing losses in habitat plantings is not so critical.

Illustrated here are some suggested planting designs, depending on the desired outcome from your planting project.

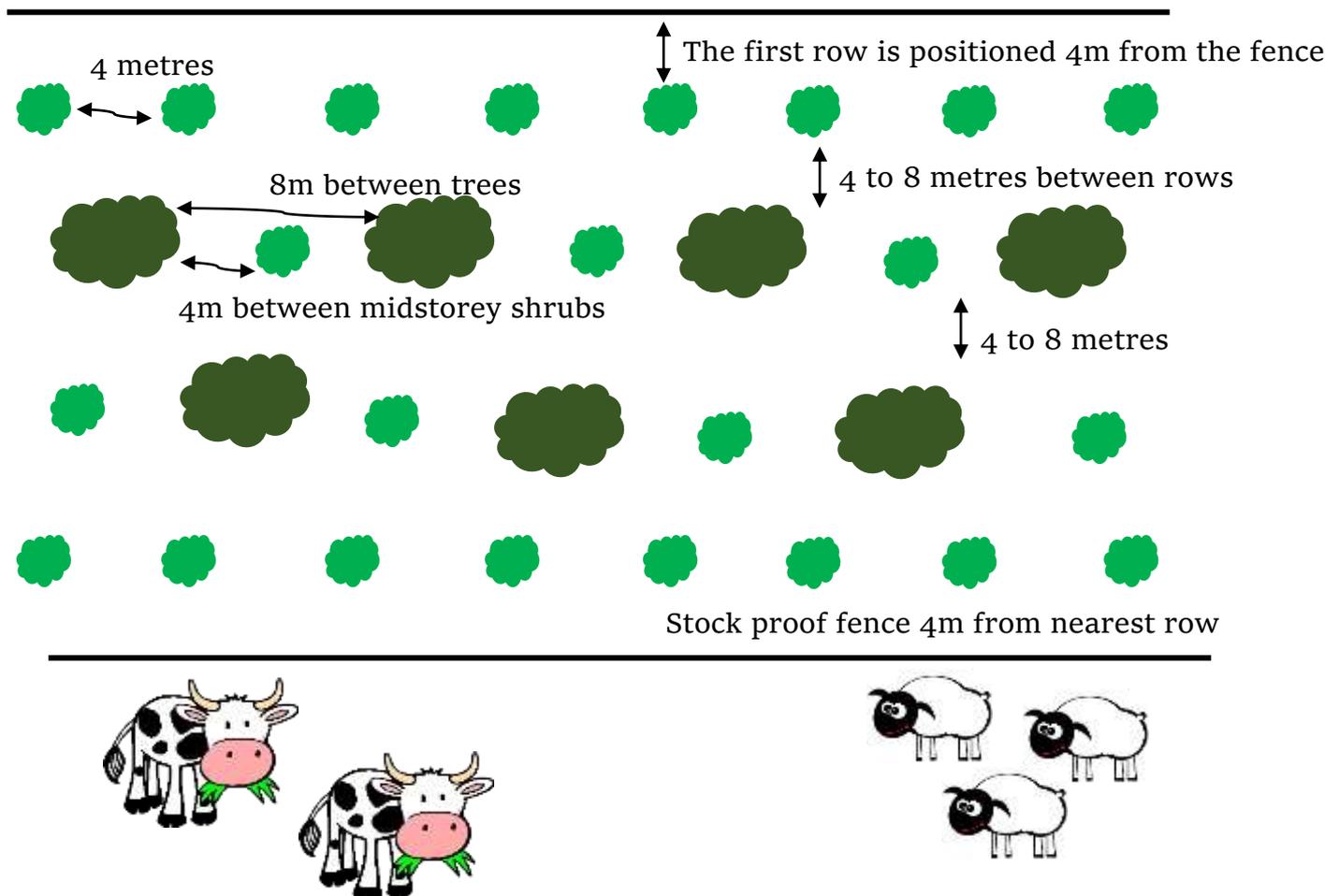
Suggested Shelterbelt Planting Design



Large dark green clumps are trees



Smaller light green clumps are midstorey shrubs or small trees



This shelterbelt design positions trees in the centre rows to reduce fence damage, and this will also reduce competition with nearby pasture. Trees and midstorey shrubs are used to provide consistent foliage cover and are positioned offset to each other to prevent tunnelling. The distance between trees should be a minimum of 4 meters. A more generous tree spacing of 8 metres allows for a mature canopy. The distance between rows should also be between 4 and 8 meters. A shelter belt needs to be a minimum of at least 3 rows. Four or five or six rows is better for effective wind reduction. Shelterbelt length should be 12 times the mature tree height, or greater.

Suggested Habitat Planting Design



Large dark green clumps are trees



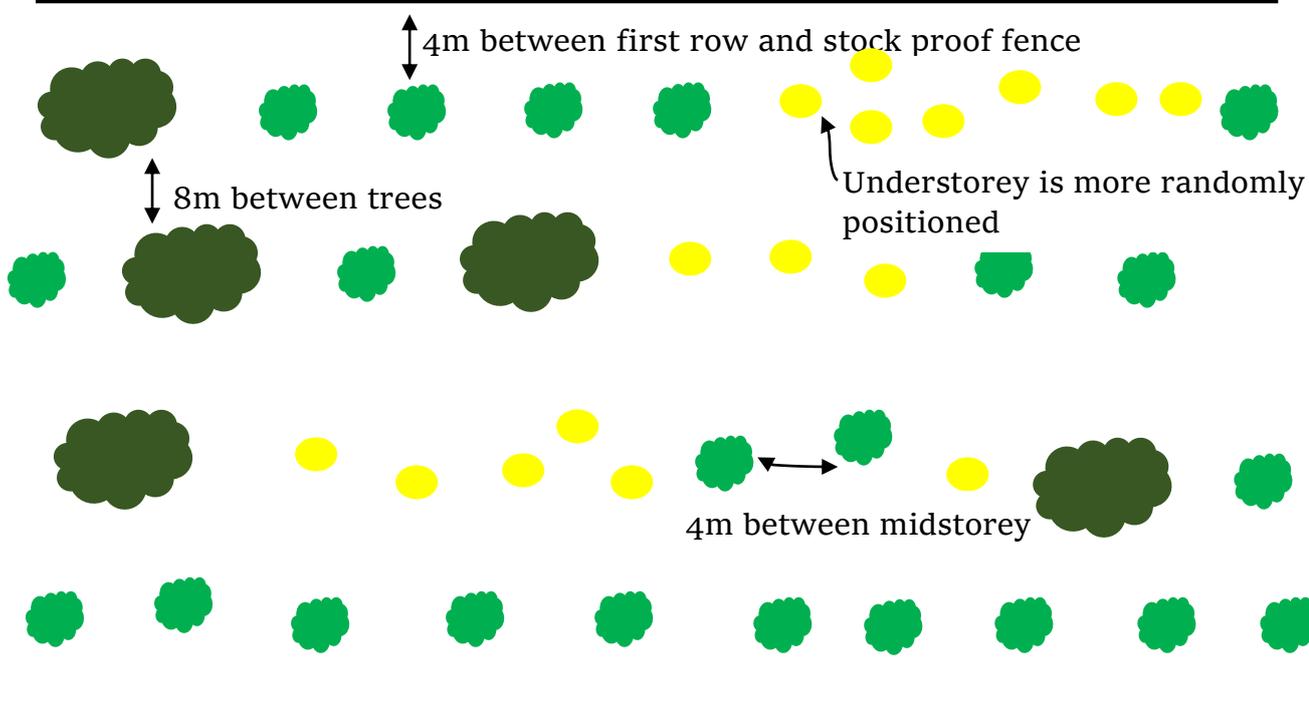
Smaller light green clumps are midstorey shrubs or small trees



Yellow circles are ground covers or understorey plants



Fenceline



This habitat patch is illustrated as a rectangle or row, but in reality, a habitat patch can be a block, curved, triangular or any shape you like. We suggest a minimum size of 0.25ha or 25m x 25m. Smaller patches are still useful as stepping stones. Larger patches provide more opportunity for fauna to stay and forage and breed. Larger patches also have less edge effect. Edge effect recognises habitat at the edge of a native vegetation clump is different, more simplified, to what is found deeper within the clump. This design above provides open spaces for birds to forage and ground covers to establish. Spacings can be variable, however trees should ideally be no closer to each other than 8 metres. Midstorey trees and shrubs should be no closer than 4 metres. Grasses and groundcovers can be randomly positioned in the open areas.

Timeline

Consult the calendar and schedule your planting project activities. Activities to mark on the calendar include;

- Ordering tubestock, weed mat (if using) and guards
- Ordering fencing materials
- Installing a stock proof fence
- Spray dates
- Planting days
- Follow up checks to monitor survival, weed growth and soil moisture.

The question of planting in Spring or Autumn can go down with some of the all-time greats, such as; what is applied first, the jam or the cream? Or which game is better, rugby league or union? Soccer or AFL?



This planting project is helping to stabilise an erosion area. Photo: Margaret and David Chaffey

Whilst some maintain, absolutely, that one time of the year is better than another, most would agree it depends on the season. The Upper Lachlan landscape varies with altitudes as high as 1050 metres above sea level, down to 350m at our lowest. Recent years' rainfalls have varied from below 500mm, to others that have well exceed 1,000mm. Dry conditions can be the nemesis of the spring planter, while frosts and cold weather can thwart the efforts of an Autumn planter.

Spring planters recommend plenty of soil moisture, and being prepared to follow up

water if required. A fair argument can be made that when conditions are drier, plants send down extensive roots to source whatever moisture is available, accelerating their establishment compared to a wetter time.

Autumn planters recommend ensuring tubestock have been 'hardened-off' well (more about this in the planting section, page 20) before being planted out in the paddock. They have observed plants taking the full winter season to settle in, establish their roots and be ready to burst forth with growth as soon as the warm spring weather inches forth. The reduced evaporation and plant transpiration rates help their establishment.

If you are still uncertain, ask around. Your neighbours or local Landcare group who have experienced success can guide you on what planting time suits your specific local conditions. A well-seasoned tree planter from Taralga area even recommends splitting plantings. Doing the frost hardy species in Autumn and the remainder in Spring. Or stagger your planting throughout your season of choice. For example, plant one third of your tubestock every month over the planting season. This way you get to check back on what you have planted and follow up water at the same time you are watering in the new ones.

Important Considerations

If your revegetation project has been funded, partly or fully by a third party, such as Local Land Services or Landcare, it is important to check and clearly understand any requirements they may have on the design of your planting project.

Powerlines and underground services such as gas lines may have requirements about how close plantings can be to their infrastructure. Essential Energy advise to always plant trees at least 15 metres away from powerlines or a distance equal to its mature height – whichever is greater. For more details call Essential Energy P: 13 23 91 or visit their website: <https://www.essentialenergy.com.au/our-network/managing-the-network/plan-before-you-plant>

Dial Before You Dig can advise about the location of underground cables. They can be contacted by P: 0011 or visit the website: <https://www.byda.com.au/>

Performing an Aboriginal Heritage Information Management Systems (AHIMS) search is also worthwhile, to prevent damage or destruction of important indigenous sites in your chosen planting area. This can be done for free online (or ask your Local Land Services office for assistance) by searching your Lot and DP number or a grid reference:

<https://www.environment.nsw.gov.au/awssapp/Login.aspx?ReturnUrl=%2fawssapp>



Areas with no overhead powerlines are ideal for a planting project. Photo: Garry Kadwell

If your planting project is along a waterway there may be approvals required. If the project area is subject to flooding, it is worth considering a strategy. For instance, plant quick growing, flexible plants that are better able to recover from being underwater and covered with sediment.

If your intended planting site is already supporting a native grassland community, it may actually be illegal to clear the site for planting trees and unnecessary. Simply fencing the area to exclude stock might be all that is required to encourage natural regeneration. Sites that have been previously cleared, are vegetated with exotic pasture, or weeds, or support a very degraded and fragmented native population (and likely to have a depleted seedbank) are all suited to a planting

project. Local Land Services website and Officers can provide further information about land clearing rules:

<https://www.lls.nsw.gov.au/help-and-advice/land-management-in-nsw/resources>



Preparation in the Paddock

Fencing

To enable plants to establish, stock will need to be excluded. Even when established, if stock have access to shelterbelts the lower branches will be damaged and wind tunnels could open up. Occasional, strategic grazing can sometimes be used to reduce grass height. These areas can also offer occasional refuges in times of extreme weather. However, allowing any stock access needs to be strictly managed or you risk undoing all your good work.

Ideally fences should not contain any top barb wires. Barb wire is notorious for catching the wings of gliders, microbats and nocturnal birds. However, this may not be your preference if running cattle.

Fenced planting areas will experience increased pressure from stock leaning over to reach the longer grass. Rotational grazing will reduce this pressure. However, it is still best to ensure steel star pickets are positioned inside the fenced area, with wire attached to the *outside* to reduce wear and tear on your fence.

Fences should be located at least 4 metres out from the nearest planting row. This reduces future maintenance when plants mature and drop branches. It also allows room if you need access for watering or maintenance, so remember to also include a gate.

It may be possible to reduce fencing costs by incorporating existing fences. Positioning a shelterbelt along the same line of an existing fence for instance. Or if your planting project is a habitat patch you could position this into the corner of an existing paddock as a triangle shape, and two sides of your triangle will already be fenced.

If you don't run any stock on your property, you may be interested in a grazing deterrent as an alternative to fencing. Sen Tree is a trademarked product designed to deter browsing of native seedlings by kangaroos, wallabies and rabbits. This product is available from Field's Environmental Solutions and has been used by Greening Australia for some of their native habitat projects.

Spraying

Spraying reduces competition for your establishing natives. Moisture, nutrients and sunlight are all vitally important commodities to something 20cm tall growing in an open paddock. It is essential you give your tubestock a fighting chance. After one or two years of help, your natives will have established a deep and extensive root system, meaning it can then outcompete weeds and pasture on its own.

Reducing herbicide use can only be a good thing. So, while the use of herbicides is critical to success, the overall amount used can be reduced when applied strategically. Alternatives such as hot steam weeding machines are on the market but we are not aware of anyone

using these machines locally. They seem more targeted for urban use such as by local Councils.

Depending if you are planting in Spring or Autumn the first application of general, all-purpose knockdown herbicide, such as glyphosate, should occur 4 to 5 months before the intended planting day. This means in about May if planting in Spring, and about November if planting in Autumn. Remember plants need to be actively growing for glyphosate to be effective.

Depending on the season and the amount of growth, it may be helpful to graze the area low or slash a couple of weeks before spraying.

A second application of herbicide should be applied 1 to 2 weeks before the intended planting day. Some landholders like to include a pre-emergent herbicide at this time but it is important to check rates and withholding periods with your agronomist or supplier.

This can feel like an uncomfortable process. 'No bare ground' is a sound and consistent message, and here we are deliberately creating it! We are making a perfect bed for weeds to establish and by their nature, they are very competitive, and can be an ongoing source of seed to the surrounding area. The goal is to clear a path for the native planting to establish, monitor and manage the site to reduce reinvasion by weeds and encourage the re-establishment of perennials.

A locally successful technique has been using a small spray boom to apply the herbicide, such as one that would fit on the back of a side by side. And to leave a strip of perennial pasture in between the spray rows. Another way to achieve this is to block a couple of spray nozzles on a larger boom. The effect, from those who have used this technique, is less weed species establish in the fenced planting area. As the natives establish and the surrounding grasses and ground covers gradually re-establish, the component of perennials is higher.



This shows the strips of perennial pasture between the spray rows at a planting project site near Crookwell.
Photo: Ruth Aveyard

Ground Preparation

Ground preparation serves to increase soil moisture, provide an easy pathway for root establishment and in the case of direct seeding, offer some weed control. Ripping is helpful for compacted planting sites, however some landholders have observed tree roots will grow along the rip line and not extend out into the undisturbed soil, providing a weaker foundation for the mature tree. Sites that have been rotationally, time-managed, grazed and experienced many years of a perennial dominated pasture may consider alternatives to ripping, explained below. Basalt soils are very receptive to moisture and are generally accessible for roots, so may not require ripping either.



The view from the front seat! This planting project will be a very effective 6 row shelterbelt with wide row spacings.
Photo: Garry Kadwell

tractors, and a ripper implement on a grader, backhoe or dozer. Bigger machines are able to reach lower depths. The practice of ripping aims to loosen the soil to a depth of at least 30cm and about half a metre wide. Two passes are generally required to reach this depth. To reduce stress on soil structure and equipment it is advisable to rip when there is some soil moisture, but not so much that there is a risk of getting bogged.

Once ripping is completed, it is advisable to pass over the ripped area with the wheel of the machine to avoid large air pockets. The resulting shape should be a depression or channel in the planting zone with slightly higher mounds on either side to increase soil moisture around the tubestock.

Ripping

Using a single tined, or multi tined (depending on the size of your planting area) deep ripping implement, will break up compacted layers enabling good moisture penetration and root establishment. This technique is not suitable for sites vulnerable to erosion, such as eroding sodic soils, on hillcrests, ridges or slopes with gravelly shallow soils.

Depending on what is possible to access, local landholders have used both a single tined ripper behind a



Using a single tined ripper to prepare rows and making a second pass to reach a lower depth. Photo: Susan Reynolds

Some landholders have additionally passed over the ripped area with a rotary hoe, small plough or harrows to reduce clods and further prepare an ideal planting bed for the new tubestock. However, this technique needs to be used carefully. The aim is to keep the planting zone reasonably narrow to maximise soil moisture available to the establishing tubestock.

Performing the ripping step several months before planting (3 to 6mths is ideal) also allows the soil to settle, air pockets to reduce and moisture to accumulate.

Aeration

Several people are moving away from the practice of ripping, uncomfortable with exposing the ground to potential erosion and stimulating conditions for weed seed germination. An alternative to consider is aeration. Using a particular implement, such as the one pictured below, that is towed from a tractor over the surface of the planting area.

The aeration implement pictured here is strategically used to create impressions into the soil surface approximately 10cm deep and 2cm wide. It needs to be used close enough to recent rain to ensure the impressions are created, and remain for up to 2 years. These impressions fill with additional water with every rainfall event, increasing soil moisture at the planting site. This technique is only suitable at sites with no existing compaction issues.

The landholders using this implement find passing over the planting area twice creates a sufficient number of impressions. Their preference is to use the aeration implement up to one month before the day of planting. The timing depends on when a rainfall event creates the desired soil moisture to create the impressions. It can be as close as one or two days before planting.



The aerator implement and the deep impressions created when used with the correct amount of soil moisture.
Photo: Ruth Aveyard

Individual Holes

Yet another alternative is using a small excavator, dingo or something similar with a ripping tine or auger implement to dig individual holes. This again reduces soil disturbance and weed invasion. Care needs to be taken with auger holes that the walls don't become glazed and prevent roots from extending out. This will be influenced by soil type and moisture.

One landholder shared they had used a tracked bobcat, to avoid soil compaction, with an auger attachment to prepare over 10,000 holes for their large planting project. Holes were about 20cm deep and 60-70cm wide and it took 3 weeks (stopping and starting for machine repairs, and other interruptions) to drill all 10,080 holes.



The tracked bobcat in action drilling one of the 10,080 holes and an Acacia seedling freshly planted deep within the hole. Due to the rocky, granite based country some machinery repairs were necessary. Photo: Colin Price and Emily Clarke

Low-disturbance and Localised Enhancement Techniques



Branches of Early Wattle *Acacia genistifolia* with a heavy crop of opened seed pods. Just before opening, a couple of these branches would have been ideal to transfer to a nearby location ready for revegetation. Photo: Ruth Aveyard

In sensitive areas highly prone to erosion, or existing native habitat patches in poor condition, some localised, low-disturbance revegetation techniques may be useful. Small spot areas can be sprayed and individually prepared with a rake or hoe. Seed, seed bearing branches or even leaf litter from nearby areas with greater diversity, can be gently pressed into the soil. Results are generally poor, but if you are keen and the site is difficult to tackle any other way, this labour-intensive technique may prove useful.

Row Spacing

You will have already considered row spacing and distance between plants in your design. Now is the time to start putting your plan into place.

Just pacing out the distances is usually accurate enough to identify row spacings and planting intervals. Remember to allow room around the outside of your planting project, about 4m for access. If your habitat patch is large, it might be helpful to leave some open space in the centre, including a circle to turn a vehicle.



This planting project has allowed a generous amount of room between rows for tree growth, vehicle access and for perennial pasture. Photo: Garry Kadwell



This planting project used individual holes into a native grassland. Spacings were very generous and positioning was random. This technique caused minimum disturbance to the existing vegetation. Photo: Ruth Aveyard

Direct Seeding

Direct seeding is a cheaper technique for establishing native vegetation patches, however results are mixed. Seeds can continue to germinate for many years after the seeding event. However, even with a successful germination rate, the spread of species within the planting area can be patchy. This establishment method is well suited for a habitat area. For a shelterbelt planting the potentially patchy result may create gaps and density inconsistencies, making the shelterbelt less effective.

Ground preparation for direct seeding varies depending on site and depending on individual preference. Spraying the site using a similar spray scheduled described above and some light cultivation of the area being sown, will create a suitable seed bed and reduce weed competition.

A technique called scalping involves removing, by essentially scraping off, the top 5cm of soil containing the bulk of the existing seed bank. It reduces competition for the incoming seeds. This high disturbance technique should be used cautiously!

Using a direct seeding machine, or by hand broadcasting, seed is dispersed into the planting site. Some pre-treatment of seeds may be required depending on the species. The sowing rate used is about 200 to 300 grams per linear kilometre.

The logic is when conditions are suitable the seeds will germinate. The seedlings that establish will be the fitter, strong seedlings, more likely to survive long term at your planting site.

We recommend you work closely with your direct seeding machine operator to determine the most suitable preparation, design and species selection for your site.



This direct seeded planting project has been very successful. However, the density of plants is now causing too much competition. Thinning may be an option to reduce density. Photo: Ruth Aveyard

Planting – *finally!*



Planting Day! Time to call in all your friends, relations, long lost acquaintances – and get stuck in! Photo: Garry Kadwell

Preparing Your Tubestock

To prepare your tubestock for the transition from cosy, protected nursery to an exposed, lonely paddock, they will need to be hardened off. This can be done gradually by positioning tubestock trays on your veranda, for instance for a few days, then out into a more open garden/lawn area and ultimately uncovered in an area similar to the planting site. This will help prepare them for the weather extremes in the paddock and greatly reduce losses from frost and sun exposure.

Sourcing tubestock from a local supplier, who has sourced seed from your local area, also helps ensure tubestock survival. Additionally, it should mean tubestock growth is aligned to the current season. For instance, tubestock with lots of soft fresh growth will be very susceptible to frost, wind and/or sun damage. If this is unavoidable, pruning tubestock before planting out should help reduce losses.

Seedlings should be well established in the tube, but not overgrown. Seedlings left in the pots too long experience distorted roots which can affect mature growth down the track.

Whether you are a Spring or Autumn planter, it is essential there is existing soil moisture when you plant. Soaking tubestock (for an hour or more) before planting is also very important to give your tubestock their best chance. Some landholders like to use a diluted sea-sol (or something similar) mix for an added boost in their soaking solution.



Soaking tubestock before planting out. Note the variety of species being used. This will create a more resilient shelterbelt or patch. Diversity of species is also a helpful strategy to manage leaf eating insect attack. Photo Ruth Aveyard

To loosen your seedling from the pot, invert the pot upside down and tap the edge on a hard surface like the side of a digging trowel. Some people squeeze the pot to loosen the soil and roots away, however others feel too much squeezing can damage the roots.

Digging Your Hole.....*Dale!* (for fans of The Castle)

Your options for getting the tubestock into the ground will depend on the site, your preparation and your access to equipment. Devices such as the Hamilton Tree Planter or the Pottiputki (pictured below), can be used directly into your well-prepared bed.

Using a Pottiputki requires tubestock to be supplied in particular sized tubes that are a compatible fit with the barrel of the device you are using. A Pottiputki should also be used in combination with special trays, called kidney trays, or a planting belt. Both devices reduce bending down to ground level to plant tubestock.



Left: The Hamilton tree planter is pushed into the ground to create a perfect, tubestock sized hole ready to take your seedling. Photo Margaret and David Chaffey

Right: A very simple but effective design. Photo Alex James



The Pottiputki can reduce bending when planting by sliding tubestock down the barrel of the device. Photo Ruth Aveyard

Digging a hole, with a long-handled shovel is another option. Knee pads and a smaller hand trowel are handy accessories for this technique.

The critical elements you are aiming to achieve are;

- the root ball sits deep within the ground, preferably with about 5cm of soil above, and
- there is good contact with the roots and the surrounding soil.

By positioning the tubestock deep into the soil it has access to the deeper soil moisture. The root ball is insulated from the above ground heat or cold. And if follow-up watering is required there is less chance the root ball will become exposed from the flushing and soil disturbance of water at pressure.

A few leaves of your seedling below the soil surface will not impact the growth of your tubestock. As long as about half the leaf area is above ground, plenty of plant is available for photosynthesis.

Providing good contact between the soil and the tubestock root ball will enable roots to easily extend out into their new home. It will reduce roots drying out and support successful establishment. A well-prepared planting area and firming down the area after planting will assist this.



Watering in tubestock at the time of planting will help the plants root ball make good contact with the soil next to it. Photo Ruth Aveyard

If using the Hamilton Tree Planter or the Pottiputki, it is important to still ensure your hole is deep enough. Surrounding soil can be pushed in around the top to protect the root ball below and then patting the surface down with your feet will help achieve good soil/root ball contact.

The Hamilton Tree Planter is also useful for planting in riparian areas where minimal disturbance is recommended. Areas subject to flooding sometimes loosen the guard, the seedling and the surrounding disturbed soil. Keeping soil disturbance to a minimum can reduce seedling losses.

Guards

What kind of guard to use? Well.....how do you have your tea?!?!

There is no shortage of options on the market, including not using a guard at all! The advantage of using a guard is it can provide shelter for the tender tubestock from wind, create a more humid and slightly moister microclimate around your plant, offer protection from hares and rabbits and make it easier to locate your planting. Guards may also offer some protection from a follow up spot spray for weed suppression. What is critically important however, is that time is taken to install the guard correctly.



Assembling guards, for use in combination with weed mat, for a planting project near Gunning. Photo Ruth Aveyard

The contrasting view is guards are labour intensive and not really worth all the effort. Planting a few more trees to account for potential losses may be a more efficient use of time.

Most local landholders we asked, do take the time to use guards. Many agreed that guards did offer some protection from hares. If using them for protection from spot spraying you had to be very, very careful. The main reason for using guards locally seems to be the advantages they offer in protecting, and promoting the tender young tubestock while the

roots are establishing and the first bursts of growth are shooting up. Many people felt using guards made a notable difference in establishing tubestock.

All guards should be removed after about 2 years. If not removed they will end up as rubbish in you paddock or water way, they can constrict growth, create a humid microclimate around the trunk attracting fungal and insect attack and deteriorate so much that they cannot be re-used.

Single use, cheaper cardboard, juice carton type guards are common. These actually contain a layer of plastic so they will not fully breakdown over time, causing some of the problems mentioned above. Complete-cardboard guards are on the market now too. Both stand out as white beacons in the landscape. Some would actually call them sirens, silently calling to all the local wombats and cockatoos to come forward and tear them to shreds!



Corflute guards have been used in this planting project near Gunning and will need to be removed in a couple of years when plants have established. Photo Ruth Aveyard

Corflute guards are more expensive, don't breakdown, but offer the advantage of being reusable. Coming in different colours, green ones don't seem to interest cockatoos and so they leave them alone. Black ones offer additional warmth to support tubestock establishment. Pink ones are said to filter sunlight to increase photosynthetic rates. Because corflute guards are stiffer, they often only require one sturdy timber stake. Compared to the double bamboo, weaker stakes used for the carton guards. However, at windy sites a firm timber stake paired with a bamboo stake on the opposite side will stop guards from spinning.

Whichever guard you choose to use, ensure time is taken for correct and secure installation. If more than one stake is used, stakes should be hammered in at a slight outward facing angle to your plant to keep your guard secure.

Weed Mat

Just when you thought you had your mind made up about tree guards, comes the question of weed mat. Landholders who use weed mat advise using a thicker version of coconut fibre weed mat, such as 1600gsm. Thinner mats require pegging down or the use of wood chips, or something similar, to hold them in place (which kind of defeats the purpose of using weed mat in the first place). The weed mat will suppress surrounding weed growth, but not eliminate it. And offer some mulching/moisture retention support for your tubestock.

Mulch

Alternative to a purpose made weed mat are wood chips, or a similar organic material, to mulch around plants. Some people also like to mix in some compost as they are planting

their tubestock. However, native plants don't like anything too 'rich'. Animal manures, for instance, are probably too high in nitrogen to put around your planting in any quantity.

Rain Catchers

Rain catchers are essentially a corflute collar that fits around the base of the plant to help funnel additional water during a rainfall event towards your seedling and provide some weed suppression. Care needs to be taken that the collar is positioned correctly or it can in fact channel water away from your seedling! This can be another helpful alternative.



Cardboard, or juice carton type guards are economical and provide adequate protection. However, they will also need to be removed once the plant is a year or two old because the plastic lining will not break down. Photo Hugh Klem

Soil Inoculants

Growing evidence recognises the soil ecology under a grazing pasture differs to a woodland soil. In some circumstances, this can make establishing a planting project challenging. Mycorrhiza fungi have a beneficial relationship with most growing plants to help them access water and nutrients from the soil. Fungi are recognised as being a particularly important feature of woodland soil biology. Some landholders have used a mycorrhiza soil inoculant at planting to enhance their tubestock survival rate. This can be applied as a powder mixed with the soil or a liquid squirted onto the tubestock root ball. Alternatively, compost added at the time of planting, that includes leaf litter and humus from a healthy woodland could be helpful.

Following Up All Your Good Work

You have contributed all this time, energy and resources – it is important to continue to look after your investment and literally watch it grow. Regularly checking your planting site will alert you early of any issues such as weed competition, moisture stress, damage from animals or mortality.

Watering

If you plant in Autumn, into soil with good moisture, evaporation rates remain low and your site receives follow up rainfall (over 10mm) within a few weeks of planting, you may not need to water at all. However to be safe, most people recommend this step.



A specially set up watering trailer such as this can be helpful for follow up watering. Photo Ruth Aveyard

If you are planting in Spring and/or the soil profile is a little dry, it is essential you water in your new tubestock, on the day of planting. Follow up watering may also be required if sufficient, regular rainfall is not received.

It is better to water your tubestock less frequently but with a larger volume, rather than a little bit of water, often. The intention is to encourage the roots to grow deep into the soil to chase the moisture

and enable the plant to become self-sufficient as soon as possible.

If there is a basin around the plant and the tubestock was planted deeply, this will make watering more efficient and reduce the chance of high-pressure water gouging holes and exposing the tubestock root ball.

Some landholders like using water crystals to help reduce moisture stress. The water crystals are usually incorporated into the planting hole at the time of planting to retain moisture around the root ball area for longer.

Weed Management

The second biggest threat to your establishing plants is competition from weeds. As described above, taking time to prepare the site correctly will have an enduring impact on suppressing surrounding competition.

Weeds will eventually begin re-establishing in your planting area. Usually, one follow up action is all that is required to get your tubestock up and outcompeting the surrounding pasture and weed growth. Using a spray shield such as a corflute triangle, a length of large

PVC pipe (90mm) or a long bucket on a stick with the bottom cut out, can be enough to protect tubestock from herbicide spray. Some landholders just use the protection of a well installed guard. Whatever your preferred technique, it is important to give this job your full attention and take your time to ensure your tubestock plants don't receive any drift, cross spray or accidental spray.



This tubestock has been carefully sprayed around the outside of the guard for weed control. Photo Ruth Aveyard

An additional note on spraying is to be mindful of your planting project even when you are spraying a little further away, for your paddock weeds. A very slight breeze, or even air movement, could drift the spray towards your planting. (Individual paddock trees can be protected by a bulka bag turned inside-out, to prevent any residue inside the bag affecting plant growth, and pulled down around the guard protecting the tree).

For those preferring not to spray, options are hand weeding and using a tool such as a hoe. Brush-cutters can also be used around

seedlings that are guarded. This will of course be labour intensive and you may want to consider your capacity to maintain your planting project when designing its size.

Tubestock Mortality

It is particularly important to pick up any tubestock mortality in a shelter belt planting. If gaps develop, they will be less effective at protecting stock and pasture from the wind. Dead plants should be replaced as soon as possible to keep the planting consistent and effective.



A new planting project near Crookwell on the right. The same plants 10 months later on the left. Photos Susan Reynolds

Taking Time to Reflect

Making Improvements

Spending time observing your planting project and monitoring how it grows will provide some excellent clues about the value of the various techniques you used. You will be able to use this information to refine and improve establishment in your next planting project. It should also give you a great sense of joy, observing what you have created with so many co-benefits across our landscape and our community.



Assessing a planting project near Crookwell. Photo Ruth Aveyard

Take Photographs!

Of all the suggestions from local landholders, one we repeatedly heard with unanimous agreement was “take more photographs”. Identify a simple landmark such as a strainer post or established tree, and return to the site at the same time each year to take a photo. Store the dated photo in the same file on your computer and you will be surprised how quickly you accumulate a valuable visual record of what you have achieved. Not to mention the warm burst of satisfaction you will feel reflecting on the positive change in your landscape.

Thank You

On behalf of all future generations, thank you for being “the wise person, planting the trees under whose shade you may not sit” (but hopefully you will, of course!). Trees in our landscape offer so many benefits to improving living (and production) conditions for stock, increasing habitat for native fauna, providing cleaner air for us all to breath, creating a visual delight across the landscape and bestow a sense of personal satisfaction and peace for our wellbeing.

You may feel a planting project is a labour-intensive undertaking. And you would be correct. Sometimes in a flurry of activity, and with all your other land management and life activities, things get missed, muddled or disturbed. However, taking time to plan and making the most of every effort by doing it correctly and thoughtfully, will make the process much more efficient and rewarding.

It takes care and perseverance to achieve reliable success. However, the rewards are multiple, long lasting and rich. We hope the insights shared in this booklet help you along your way.



Training the next generation of Landcarers. Photo Ruth Aveyard



Helpful Resources

Local Landcare Groups Located in Upper Lachlan

Crooked Corner Mulgowrie Landcare – John Brennan P:02 4835 3141

Fullerton Hadley Landcare – Nerida Croker P:02 4834 2133

Grabine Foggs Crossing Landcare – Sean Proudman P:02 4832 1566

Gunning District Landcare – contact Leah Samson (Coordinator) P:0488 027 653 E: coordinator@gdl.org.au or Scott Keyworth P:0427 440 464 or W: <https://gdl.org.au/>

Kiamma Creek Landcare – John Anderson P:0412 311 574

Narrawa Landcare – Andrew Lindner P:0427 365 256

Peelwood Limmerick Tuena Landcare – Narelle Bulmer P:02 4834 6047

Taralga Landcare – Brian Maloney P:02 4840 2235

Upper Lachlan Landcare is the network Landcare group providing support to individuals and local groups across the Upper Lachlan Shire. P:0447 242 474 E:

coordinator@upperlachlanlandcare.org.au W: <https://upperlachlanlandcare.org.au/>

Upper Lachlan Habitat Connectivity Prioritisation Plan (ULHCPP);

https://upperlachlanlandcare.org.au/images/ULHCPP_Report_Summary_2022_FINAL.pdf

Upper Lachlan Landcare Paddock Tree Planting Guidelines;

<https://upperlachlanlandcare.org.au/publications-downloads/useful-links>

Hovells Creek Landcare

Nearby HCL have a great range of information on their website in regard to establishing paddock trees including paddock tree planting notes and short videos on topics such as Spring vs Autumn planting and Hints for Successfully Establishing Kurrajong Paddock Trees - <https://www.hovellscreeklandcare.org.au/resources/paddock-trees>

Mid Lachlan Landcare

MLC have produced a very interesting video about habitat circles that can be viewed here;

<https://www.youtube.com/watch?v=prYYbFAuiJM>

Trees Near Me

The Trees Near Me NSW app, is a project of the Department of Planning and Environment, showing what plants grow now, and what used to grow, throughout our state.

<https://treesnearme.app/>

Southern Tablelands Australian Plants Society

<https://austplants.com.au/Southern-Tablelands>

Atlas of Living Australia

Scroll down to 'Explore Your Area' and enter your address. A comprehensive species list will be provided that you can refine to only include plants, or birds etc.

<https://www.ala.org.au/>

Local Land Services

The local LLS Office for Upper Lachlan is located in Goulburn
159 Auburn St. P: 02 4824 1900. Open 8.30 to 4.30 pm weekdays.

Other nearby offices are in Boorowa: 6-8 Market St and Yass: 13 Mitchell St.

The LLS planting guide for Central West, contains some useful information that is reasonably broad and still very useful for Upper Lachlan -

https://www.lls.nsw.gov.au/_data/assets/pdf_file/0003/1277517/8340_PPW_LLSPlant-your-patch_compressed.pdf

Rivers of Carbon

RoC work with landholders to manage riparian areas for improved water quality, stock health and sustainable farm management in Southeast NSW. They have produced a range of excellent information pages and guides on riparian management, including species lists for riparian areas. <https://riversofcarbon.org.au/roc-resources-hub/>

Sustainable Farms

Sustainable Farms is a research and extension initiative based in the Fenner School of Environment and Society at the Australian National University in Canberra. They support biodiversity, improved farm productivity and connecting with community. They also have an excellent range of resources available to download from their website focused on managing landscapes for productivity and improved biodiversity outcomes.

<https://www.sustainablefarms.org.au/>

NSW Biodiversity Conservation Trust

The NSW BCT offer landholder agreements, that include financial incentives, for landholders interested in prioritising the conservation value of their land. NSW BCT Officers will work with landholders to assess each sites eligibility - <https://www.bct.nsw.gov.au/>

The BCT also has a great range of information resources on their website

<https://www.bct.nsw.gov.au/info/guidelines-land-management-conservation>

Mapping

Google Maps: <https://www.google.com/maps>

Six Maps: <https://maps.six.nsw.gov.au/>

Friends of Grasslands

<https://www.fog.org.au/>

Suppliers and Materials

Where possible, we recommend you order whatever you need for your planting project well in advance. Nothing is more frustrating than having time and energy, but no materials available to get started with! Below is a **suggested** list of local suppliers.

Local Tubestock Suppliers

Wongadee Farm Trees

Lot 1 Laggan Rd Laggan NSW P:0447 373 206 E: kenandtobynwong@gmail.com

Danganelly Native Nursery

50 Towrang Rd, Towrang P: 0437 298 135 W: <https://danganelly.com.au/>

Yass Landcare Nursery

Located behind the Yass Men's Shed, at 1428 Yass Valley Way.

Contact Kath McGuirk E: kangiara@gmail.com



Using a variety of species increases the resilience and habitat value of your planting project. Photo Ruth Aveyard

McDonald's Farm Trees (only grow tubestock to order)

Whitty Rd, Darbys Falls P: 02 6345 1824 E: farmtree@tpg.com.au

Greening Australia (hosts an annual plant sale each Spring or order for bulk amounts)

Kubura Pl, Aranda ACT P: 02 6129 5400 E: cbr.admin@greeningaustralia.org.au

Cool Country Natives (not as local but stock a broad range of species)

5A Beltana Rd, Pialligo ACT P: 02 6257 6666 W: <https://www.coolcountrynatives.com.au/>

Provincial Plants and Landscapes

Cnr Pialligo & Fairbairn Av, Pialligo ACT P:02 6262 6456 E:

info@plantsandlandscapes.com.au

Turners Wholesale Nursery (open limited times)

Yass P: 0419261983 W: <http://www.turnerswholesalenursery.com/>

Local Suppliers of Fencing and Farming Materials

JDs Rural Supplies

Goulburn St, Crookwell P: 4832 1906

McGeechans Farm Supplies

139 Goulburn St, Crookwell P: 4832 1066

Taralga Rural

58 Bunnaby St, Taralga P: 02 4840 2200

Gunning Ag & Water Solutions

63/67 Yass St, Gunning NSW P: 02 4845 1113

Local Weed Mats and Guards

We are not aware of any local suppliers who stock tubestock guards and/or weed mat in bulk, however the suppliers above would stock these products and/or probably be able to source them for you. Alternatively, we have had positive experience with these bulk suppliers;

Planting Systems Australia

(Also supply rain catchers)

P: 1800 752 686 W: <https://www.plantingsystemsaustralia.com.au/>

Arborgreen

P: 1300 760 642 W: <https://www.arborgreen.com.au/>

Local Direct Seeding Operators;

Boorowa Community Landcare Group

Paul Cavanagh P: 0429 834 253 or BCLG P: 0459 681 018

E: boorowacommunitylandcare@gmail.com

Greening Australia

P: 02 6129 5400 E: cbr.admin@greeningaustralia.org.au



Species List

As explained above, the advantage of planting local species is they're already adapted to local conditions and they provide the greatest habitat value for local fauna and flora.

Finding out what your local species are can take some time. Online sites such as **Trees Near Me** and the **Atlas of Living Australia**, provide an excellent database of locally occurring species. This information can be further validated by observing what grows in your local area and where in the landscape variations occur.

We again mention the great sense of satisfaction that is on offer for anyone willing to collect seed from local plants and grow your own. Particularly those understorey and groundcover species that will be the hardest to source. Joining the mailing list for groups such as Southern Tablelands Australian Plants Society, Friends of Grasslands and Greening Australia will also alert you to any local tubestock sales which can be a good source of the less common tubestock species.

The purpose of your planting project will also influence your species mix, as explained above. Habitat planting projects could include a higher proportion (10 to 20%) of grasses and ground covers to allow forage areas for small birds and reptiles. Shelter belts want to ensure a continuous, permeable wall of foliage to slow wind speed.

This booklet offers a suggested base species mix. We have tried to include some description about where in the landscape these species occur. This is also influenced by soil type and aspect. We have tried to limit this species list to plants you would have a reasonable chance of sourcing from a nursery or tubestock provider. The list of understorey and ground cover species is very general, recognising this vegetation layer is not as variable – or sensitive to landscape variations – as Eucalypts.

Provided here is a base species mix. We recommend you consult some of the resources suggested in this booklet to refine a species list best suited to your planting project.

Dry, Rocky Tablelands Hills and Ranges

Trees;

Scientific Name	Common Name	Notes
<i>Eucalyptus dives</i>	Broad-Leaved Peppermint	extends onto slopes
<i>Eucalyptus macrorhyncha</i>	Red Stringy Bark	extends onto slopes
<i>Eucalyptus mannifera</i>	Brittle Gum	extends onto slopes
<i>Eucalyptus rossii</i>	Inland Scribbly Gum	suits shallow soils on ridges
<i>Eucalyptus goniocalyx</i>	Long-leaf Box	prefers soils a little deeper

Midstorey:

Scientific Name	Common Name	Notes
<i>Acacia dealbata</i>	Silver Wattle	Suits colder flatter areas
<i>Acacia decurrens</i>	Black Wattle or Early Green Wattle	
<i>Acacia mearnsii</i>	Late Black Wattle	
<i>Acacia melanoxylon</i>	Australian Blackwood	Suitable for exposed sites
<i>Acacia falciformis</i>	Hickory Wattle	Does better in deeper soils
<i>Acacia implexa</i>	Hickory Wattle	
<i>Allocasuarina littoralis</i>	Black Sheoak	adaptable
<i>Banksia spinulosa</i>	Hairpin Banksia	good drainage site required
<i>Bursaria spinosa</i>	Sweet Bursaria	attracts beneficial insects
<i>Kunzea parvifolia</i>	Violet Kunzea	adaptable in relation to dry/moist soils

Dry Slopes and Tablelands

Trees;

Scientific Name	Common Name	Notes
<i>Eucalyptus bridgesiana</i>	Apple Box	On deeper soils and drainage lines
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	Suits lower slopes and flats
<i>Eucalyptus cinerea</i>	Argyle Apple	
<i>Eucalyptus dives</i>	Broad-leaved Peppermint	
<i>Eucalyptus goniocalyx</i>	Long-leaf Box	
<i>Eucalyptus macrorhyncha</i>	Red Stringy Bark	
<i>Eucalyptus mannifera</i>	Brittle Gum	
<i>Eucalyptus melliodora</i>	Yellow Box	Better suited to lower slopes and flats
<i>Eucalyptus pauciflora</i>	Snow Gum	Prefers colder sites & higher elevations
<i>Eucalyptus polyanthemos</i>	Red Box	Suits shallow, stony soils
<i>Eucalyptus rubida</i>	Candlebark	Prefers deeper soils

Midstorey:

Scientific Name	Common Name	Notes
<i>Acacia dealbata</i>	Silver Wattle	Good for cold areas
<i>Acacia falciformis</i>	Hickory Wattle	Does better in deeper soils
<i>Acacia implexa</i>	Hickory Wattle	
<i>Acacia mearnsii</i>	Late Black Wattle	
<i>Acacia melanoxylon</i>	Australian Blackwood	Bushy shrub for exposed locations
<i>Acacia pravissima</i>	Wedged-leaved Wattle	
<i>Acacia rubida</i>	Red-stemmed Wattle	
<i>Acacia ulicifolia</i>	Prickly Moses	Prickly, useful for small birds
<i>Banksia marginata</i>	Silver Banksia	On deeper soils and drainage lines

<i>Bursaria spinosa</i>	Sweet Bursaria	attracts beneficial insects
<i>Dillwynia phyllicoides</i>	Small-leaf Parrot Pea	
<i>Hakea laevipes</i>		suited to woodland sites
<i>Hakea microcarpa</i>	Small Fruit Hakea	
<i>Kunzea ericoides</i>	White Teatree	suit locations near water and nearby slopes
<i>Kunzea parvifolia</i>	Violet Kunzea	adaptable in relation to dry/moist soils
<i>Leptospermum myrtifolium</i>	Myrtle Teatree	suits cold areas, tolerates a range of soils provided adequate drainage

Footslopes, Drainage lines and Deeper, Moist Soils

Trees;

Scientific Name	Common Name	Notes
<i>Eucalyptus aggregata</i>	Blach Gum	
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	
<i>Eucalyptus bridgesiana</i>	Apple Box	Has a broader range at higher altitudes
<i>Eucalyptus dalrympleana</i>	Mountain Gum	Prefers drier sites within this zone
<i>Eucalyptus melliodora</i>	Yellow Box	
<i>Eucalyptus pauciflora</i>	Snow Gum	
<i>Eucalyptus rubida</i>	Candlebark	Good honey tree
<i>Eucalyptus stellulata</i>	Black Sally	Suits cold, wet areas near creeks
<i>Eucalyptus viminalis</i>	Ribbon Gum	Tall tree, suited to growing near watercourses, needs reasonable drainage

Midstorey:

Scientific Name	Common Name	Notes
<i>Acacia falciformis</i>	Hickory Wattle	
<i>Acacia rubida</i>	Red-stemmed Wattle	
<i>Banksia marginata</i>	Sliver Banksia	
<i>Bursaria spinosa</i>	Sweet Bursaria	attracts beneficial insects
<i>Hakea microcarpa</i>	Small Fruit Hakea	
<i>Kunzea ericoides</i>	White Teatree	suit locations near water and nearby slopes
<i>Leptospermum continentale</i>	Prickly Teatree	River banks and sites that will be wet at times
<i>Leptospermum myrtifolium</i>	Myrtle Teatree	suits cold areas, tolerates a range of soils provided adequate drainage
<i>Leptospermum obovatum</i>	River Teatree	Suit near running water and drainage lines
<i>Leptospermum lanigerum</i>	Woolly Teatree	Grows in running water
<i>Callistemon citrinus</i>	Crimson Bottlebrush	Suit sites near water
<i>Callistemon pallidus</i>	Lemon Bottlebrush	Suit sites near water
<i>Callistemon sieberi</i>	River Bottlebrush	Suits river and creek slopes

Riparian Areas, close to Waterways

Trees;

Scientific Name	Common Name	Notes
<i>Casuarina cunninghamiana</i>	River Sheoak	
<i>Eucalyptus camaldulensis</i>	River Red Gum	Prefers large, permanent water bodies

<i>Eucalyptus stellulata</i> <i>Eucalyptus viminalis</i>	Black Sally Ribbon Gum	Suits cold, wet areas near creeks Tall tree, suited to growing near watercourses, needs reasonable drainage
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Midstorey:

Scientific Name	Common Name	Notes
<i>Banksia marginata</i>	Silver Wattle	
<i>Hakea microcarpa</i>	Small Fruit Hakea	
<i>Leptospermum continentale</i>	Prickly Teatree	
<i>Leptospermum obovatum</i>	River Teatree	
<i>Leptospermum lanigerum</i>	Woolly Teatree	
<i>Callistemon sieberi</i>	River Bottlebrush	

Understorey: Small shrubs, Ground covers, forbs and grasses for Habitat plantings

For slopes;

Scientific Name	Common Name	Notes
<i>Acacia genistifolia</i>	Early Wattle	
<i>Acacia gunnii</i>	Ploughshare Wattle	
<i>Bursaria spinosa</i>	Sweet Bursaria	attracts beneficial insects
<i>Chrysocephalum apiculatum</i>	Common Everlasting	
<i>Daviesia latifolia</i>	Hop Bitter Pea	
<i>Dianella longifolia</i>	Smooth Flax Lily	
<i>Dillwynia phyllicoides</i>		suits poor soils
<i>Dillwynia sericea</i>	Showy Parrot Pea	
<i>Hardenbergia violacea</i>	Purple Coral Pea	
<i>Hibbertia obtusifolia</i>	Hoary Guinea Flower	
<i>Leptospermum multicaule</i>	Silver Teatree	
<i>Leucochrysum albicans</i>	Hoary Sunray	
<i>Lomandra longifolia</i>	Spiny Mat Rush	
<i>Microlaena stipoides</i>	Weeping Grass	
<i>Platylobium montanum</i>	Flat Pea	
<i>Poa labillardierei</i>	River Tussock	
<i>Poa sieberiana</i>	Snow Grass	
<i>Themeda triandra</i>	Kangaroo Grass	
<i>Rytidosperma pallidum</i>	Red-anther Wallaby Grass	
<i>Xerochrysum viscosum</i>	Sticky Everlasting Daisy	

For Wetter areas:

Scientific Name	Common Name	Notes
<i>Poa labillardierei</i>	River Tussock	
<i>Bulbine bulbosa</i>	Bulbine Lily	
<i>Carex appressa</i>	Tall Sedge	
<i>Juncus usitatus</i>	Common Rush	
<i>Lomandra longifolia</i>	Spiny Mat Rush	

Species Notes for your Planting Project

Upper Lachlan Landcare Inc., PO Box 124 Crookwell NSW 2583. Phone 0447 242 474
www.upperlachlanlandcare.org.au - November 2023