TĀNE'S TREE TRUST
Native Forests for our Future | Hereherea te Wao-nui-a-Tāne

Establishing Native Forests

TĀNE'S TREE TRUST FACTSHEET SERIES

Getting ready for planting

FACTSHEET 4, 2022 – by Mike Bergin & David Bergin

Refer to the other factsheets in this series for more about successfully establishing native forests.

Online version of this document with clickable links: https://docs.tanestrees.org.nz/1256/



Introduction

Before the planting spade hits the ground, there are important issues to consider when planning a native planting project, whether you are planting a few natives for a community-based restoration project or establishing native forest on a large scale. This factsheet covers the basics of preparing a planting project on-the-ground, essential to both small and large planting programmes. Aspects include whether the planting project is to be undertaken by community volunteers or by contract planters, options for planting time, transporting and storage of plants at the planting site, and methods for laying out plants to achieve the desired planting pattern for tree spacing and species mix.

Volunteer and contractor planting

- Many natives are established successfully as part of community-based projects where volunteers undertake planting either as part of occasional mass-public planting events or as regular planting bees by small dedicated groups.
- For large-scale plantings (i.e., thousands of plants), which is often on private or Maori land and in remote locations, planting is usually done by experienced contractors.
- Whether utilising community volunteers or planting contractors, the basics of good planting methods is still an essential component of successfully establishing a native forest.



Community-based planting

- Voluntary labour greatly reduces costs and encourages community involvement but depending on experience may require supervision to ensure high quality planting.
- Where community volunteers are involved in the management of a restoration site, it provides continuity and opportunities for locals to contribute to all stages from planning to implementation – they take 'ownership'.
- Indeed, community planting groups can have a wide range of skills, energy and commitment.
- Those newly starting a community project may lack experience and will make mistakes; therefore, input from experts (including supervision) is recommended, which can require a lot of commitment and time.
- Davis and Meurk provide advice on management of community-based planting projects, particularly large community events:
  - Circulate clear information well before events to inform volunteers of the nature of the work, the location of the planting project, starting time, and what to bring such as tools, sun protection, warm clothing and lunch.
  - As an incentive providing a BBQ lunch and refreshments can boost participation.
  - Project organisers must provide all the Health and Safety requirements including drinking water, extra supplies of sunscreen and first-aid materials, and carry out any Health and Safety briefings.
  - Volunteers need careful supervision and guidance; project supervisors will need to demonstrate the correct planting technique and may need to reinforce this several times.
- Community planting is often small scale and dedicated volunteers are often encouraged to see fruits of their labours quickly by planting larger seedlings with greater chance of success, plus a reduced need for post-plant weeding required for small plants. Volunteers are likely to keep coming back if they see good plants growing well.

Contract planting

- For large-scale planting programmes that are well resourced, contracting experienced planters is often a practical option.
- Ensure contractors are experienced in planting native tree and shrub species. Some only have experience planting exotic pines and are not aware of the extra care required for natives – they will need to modify planting practices for establishing larger native plants raised in containers.
- As with community-based volunteers, planting programmes involving contractors still require good planning and supervision including ensuring plants are on the site in time, adequate site preparation has been carried out, planters are fully informed of what to plant and where, and some form of quality control is undertaken.



Optimum planting season

Seasonal and climatic conditions influence the success of planting programmes differently depending on the region. Time of planting depends on how prone the site is to drought and frost, and also on the species being planted – this is especially important when planting open, exposed sites. Recommendations include:

- Cool upland sites and more southerly regions are best planted in early spring when the heaviest frosts are over, otherwise newly establishing plants will struggle to survive during harsh winter conditions if planted in autumn or early winter.
- In warmer districts where frosts are light, plant native trees and shrubs from late autumn to early spring.
- Where winters are mild and summers are expected to be dry, autumn planting is likely to be more successful because seedlings have time to establish well-developed root systems prior to summer dryness.
- Autumn planting may become more appropriate where there is increasing occurrences of prolonged summer drought due to climate change.
- Unexpected droughts can increase mortality substantially and out-of-season frosts can cause considerable damage to newly flushing foliage of many natives but may not always kill seedlings; staggering planting over several years may minimise losses in larger programmes where there is a year with an extreme climatic event.
- The planting season can be extended in cold climates where natives are being planted within the shelter of existing vegetation or after earlier plantings have established sufficient cover.
- Planting near wetlands and on moist stream banks should only take place after the water table has fallen in late spring to early summer.
- Planting season can be extended significantly either side of winter in high-rainfall regions like the West Coast of the South Island.
- Planting on hot, sunny or windy days should be avoided wherever possible.

Transporting and storing plants



Care is required in transporting and storage of native plants to ensure they do not dry out or get damaged. Taking extra care of your plants during transport and storage will mean they get to the planters and planting spots in top condition. Recommendations include:

- Seedlings should be watered thoroughly before transporting to the planting site.
- Avoid packing seedlings too tightly for transport – use containers or trays to assist in packing and transporting.
- Shelter plants from the wind and keep them moist during transport; use covered trucks and trailers to transport seedlings from the nursery to secure, sheltered drop-off points at or near the planting site.
- Store plants out of the sun and under cover. Black plastic containers heat up quickly, causing the potting mix to dry out and potentially cause plant death – use a breathable cover such as shade cloth if stored in the open, or store under the shade of existing vegetation.
- Plants in storage must be watered regularly and thoroughly – as often as every 2 days in hot weather, otherwise every 3 to 4 days.
- If plants are stored for an extended period within the same planting season, avoid excessively sheltered sites as they will lose hardiness required for planting, particularly on difficult sites. Holding stock over until the following planting season will result in root bound, unthrifty plants and is not recommended.

Check your plants at the nursery – are they top quality?



Nurseries should have adequate quality control in place to ensure seedlings they supply are fit for purpose in terms of meeting the height and root collar stem diameter of seedlings ordered for the grade of container, as well as good plant health and vigour. Also, of critical importance is an assurance that the roots are binding the potting mix adequately without being root bound or too loose allowing the container to fall off during transport and while being laid out at the planting site.

Unfortunately, there are instances where ‘undercooked’ seedlings are often sent out from the nursery gate where root systems do not hold containers in place. For large scale projects, if seedlings cannot be handled by the stems for carrying to the planting site in bunches, then they are placing substantial extra workload on handlers and planters. No one wants to carry one tree at a time or to mollycoddle seedlings by distributing containerised seedlings at the planting site in trays because the containers will fall off. Planters have the right to reject trees that cannot be picked up by the stems without root systems disintegrating. Quality control at the nursery to ensure good quality nursery-raised seedlings are supplied is important.



Getting seedlings to planting spots

- Planning is required on how to get seedlings to the planting spots from the central drop-off area, or storage area, to the planters stationed across your planting site. This is particularly important for large-scale planting projects.
- The closer you can get your plants to the planting site by vehicle and trailer or quad bike, the less time it takes for planters to carry seedlings or to distribute seedlings to the planting spots.
- Note that natives are raised in a wide range of containers, which needs to be factored into transport logistics.
- A network of tracks for 4WD vehicles throughout the planting site will help facilitate the delivery of seedlings as close as practical to planters, therefore, avoiding long walking distances.
- Use planter boxes or bags for carrying plants to planters or for laying out plants ahead of planters.
- There is the option for planters to remove seedlings from containers at the pick-up site for packing into planter boxes but root systems must be adequately developed to bind the potting mix; this is generally better suited to smaller grades of stock.
- For large, containerised stock, extra help is required to keep planters supplied with plants or to layout plants ahead of the planters.
- Native seedlings raised as bare-root transplants can be easily accommodated in planter bags and boxes.
- Seedlings should already be soaked in water as close as practical to planting time so the potting mix and root ball is moist.



Laying out plants

- Before planting, brief planters and those laying out plants on the average plant spacing and pattern of planting for the mix of species to be planted.
- Planting maps are useful for large-scale operations where different groups of plant species will be planted on different types of microenvironments located across the planting site.
- There are two options for laying out plants depending on the scale of planting and size of planting stock:
    - Planters collect seedlings using planter boxes or bags to carry from central drop-off points to their planting spots; this can be practical where small seedlings and containers are used; or
    - Have designated helpers to lay out plants at each planting spot ahead of planters, especially if large containerised seedlings are used.
- Decide if there is scope to take the seedlings out of the containers at the central drop-off points for placement in planter boxes or bags by planters as they pick up each load; debagging away from the planting hole may not be practical if potting mix falls from root systems.
- Alternatively, containers can be removed either by those laying out the plants just ahead of the planters or by the planters as they plant each seedling. Avoid laying out too early ahead of planters where black plastic containers can heat up in the sun or especially where exposed root balls of debagged plants can dry out before planting.
- Most plantings comprise 70-80% of shrub species with the balance of 20-30% tree species. Set out the tree species first at an even spacing to cover the planting site, or get planters to plant these at that desired spacing. Then infill by planting with shrub species to obtain the targeted overall spacing.
- Don’t get hung up on planting in precise rows especially if the site is variable – planters need to have flexibility in choosing the best planting spots, i.e., avoiding rocks, subsoil or any existing natives scattered across the planting site.
- Planting pattern will appear random eventually, especially as most native planting will be a mix of tree and shrub species.

Don’t forget to collect the pots and plastic planter bags after planting for recycling.





Conclusions

- For large-scale planting, decide if you need a professional planting gang to do the job.
- Make sure planters, whether landowners, community groups or professional planting gangs, are up to speed with planting natives as this is different from planting radiata pine.
- Decide on the best time to plant your site from early autumn to late spring to maximise opportunity for success that suits your site and expected climatic conditions, e.g. if spring or early summer droughts are the norm, plant in autumn; if heavy frosts are expected, plant in late spring.
- Inspect planting stock at the nursery and check they meet your requirements of height and vigour; root systems should fully occupy and hold onto the containers to allow easy transport and handling without falling of without being root-bound; inspect root systems of a sample by removing containers before accepting seedlings for planting.
- Refer to the planting plan factsheets for how to set out shrubs and trees at different spacing and proportions of species to achieve different planting scenarios, e.g. plantations, seed islands, conservation planting, etc.
- Ensure planting equipment and boots are clean when starting at a new planting site to reduce spread of weeds and soil borne diseases.
- Check out the factsheet on correct planting techniques.
- There is also a factsheet on site preparation.
- The only way you will measure the success of your planting is if you regularly check on their survival and growth so implement a monitoring plan.
- The biggest killer of native plantings is weed growth and browsing by pest animals, so check out essential maintenance of planted natives.
- **Good luck with your planting!**

Information sources

- For detailed information covering all aspects of planting natives including Tane's Tree Trust, Trees That Count and Department of Conservation.
- Websites of most Regional Councils and some District and City Councils offer local advice on planting and managing natives to meet a range of objectives and scales of programmes.

Native forest factsheets series

These factsheets on establishing native forest have been compiled by Tāne's Tree Trust with funding from Te Uru Rākau's One Billion Tree Partnership Fund with support from The Tindall Foundation and Trees That Count. Others providing information and undertaking peer review include Scion, Auckland University of Technology, Northland Totara Working Group, iwi, landowners and selected local authorities and government departments.

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Cite this factsheet as: Bergin M, Bergin D. 2022. Getting ready for planting. Establishing Native Forests factsheet series, Factsheet No. 4. Tāne's Tree Trust. 8 pp. https://docs.tanestrees.org.nz/1256

Te Uru Rākau New Zealand Forest Service

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