



Land Use Opportunities for Aotearoa

GUIDANCE DOCUMENT

SCION

Right Tree,
Right Place,
Right Purpose

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v1.1

Right Tree, Right Place, Right Purpose

MATCHING SITE, SPECIES AND PURPOSE

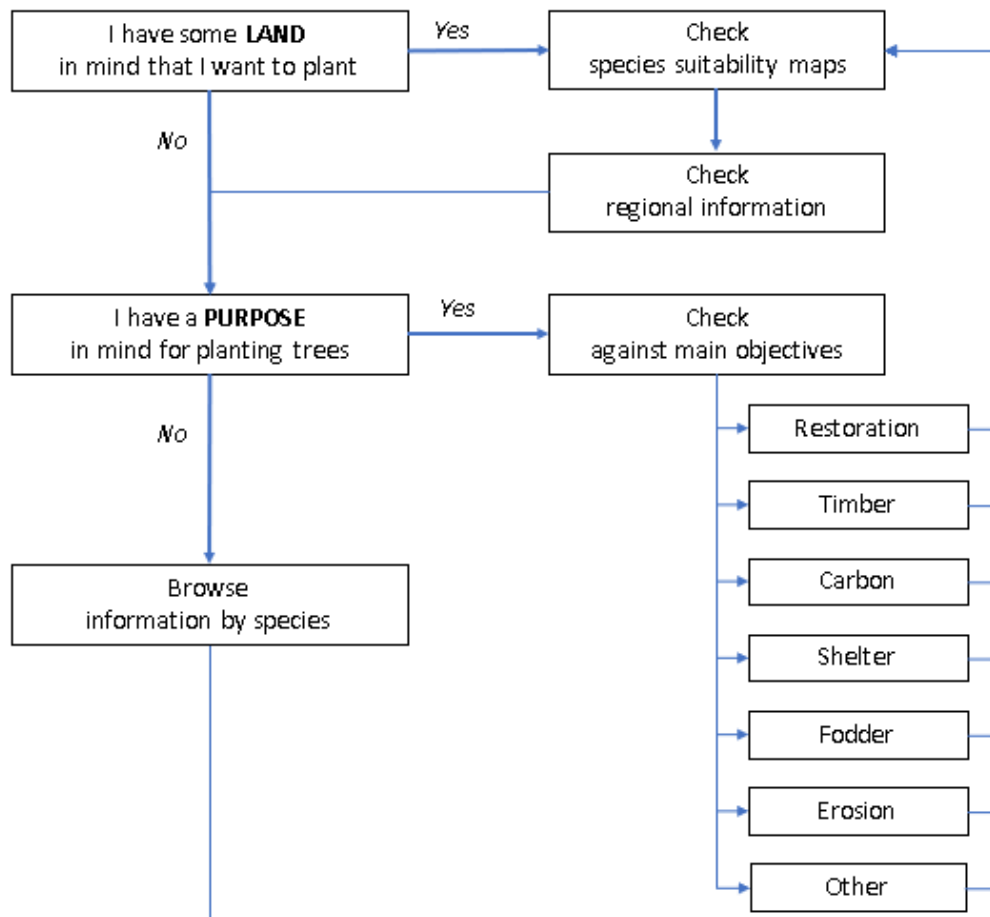
Trees provide a wide range of services, from shelter, erosion control and timber to carbon revenue and biodiversity - they are rarely planted with a single PURPOSE in mind. So how do you decide the right TREE for the right PLACE, given that landowners have limited options for where they can plant trees?

Some species are better suited to low planting densities in agroforestry situations or continuous cover forestry than others. Not all species will grow well on all sites and not all species provide the same level of services, so it is important to match site, species and purpose.

The usual questions are:

- **PLACE** first: e.g. *What can I grow in this paddock, and what will it be useful for?*
- **PURPOSE** first: e.g. *I want to sequester carbon – where is the best place on my property to do this and what should I plant?*
- **PLACE** and **PURPOSE** together first: e.g. *I need to establish shelter on this boundary – what species should I consider?*
- **SPECIES** first: It would be unusual to start by choosing a species to plant without having any outcome in mind, but perhaps: *I have been given free seedlings of a particular tree species – where will it grow and what is it good for?*

This guide provides links to information that aims to help match site, species and purpose.



Right Purpose

NATIVE FOREST RESTORATION

Adam Forbes' review of forest restoration costs	Review of Actual Forest Restoration Costs, 2021 (mpi.govt.nz)
Post-Quake Farming Project: Native Forestry Report	PQF Indigenous Forestry Report_Final.v2 (climateandnature.org.nz)
Timata report	Technical report - Retiring Farmland into Ngahere (ourlandandwater.nz)
TRC information sheet -	FRODO-#348438-v1-Information_sheet_no__61_Bush_retirement.DOC (trc.govt.nz)
Tāne's Tree Trust	Technical Handbook - Planting and Managing Trees (tanestrees.org.nz)
DairyNZ	Planting_for_biodiversity.pdf (dairynz.co.nz)

NATIVE TREES FOR TIMBER

Scion	<ul style="list-style-type: none">- IndigenousSpecies-Manuka.pdf (scionresearch.com) and other natives- IndigenousSpecies-Kauri.pdf (scionresearch.com)
Scion - tōtara	<ul style="list-style-type: none">- IndigenousSpecies-Totara.pdf (scionresearch.com)- TIP Brochure 4web (scionresearch.com)
Tāne's Tree Trust	<ul style="list-style-type: none">- Tāne's Tree Trust • Native forests for our future (tanestrees.org.nz)- Technical handbook - Planting and Managing Trees (tanestrees.org.nz)

EXOTIC TREES FOR TIMBER

NZFFA Species selection tool	NZ Farm Forestry - Species selection tool (nzffa.org.nz)
Guide for alternative exotic timber species to radiata pine	MPI Specialty Species Booklet Online3 (canopy.govt.nz)
Scion guides to commercial species	Scion - Info Sheets - Forest Science (scionresearch.com) e.g. <ul style="list-style-type: none">• Commercial-Eucalypts.pdf (scionresearch.com)• Douglas_fir_infosheet.pdf (scionresearch.com)• Redwoods_infosheet.pdf (scionresearch.com)• Commercial-Cypress.pdf (scionresearch.com)
NZ Dryland Forestry Innovation (7 key Eucalyptus species siting requirements)	Home - NZ Dryland Forests Innovation (nzdfi.org.nz) e.g. <ul style="list-style-type: none">• Choosing the right species - NZ Dryland Forests Innovation (nzdfi.org.nz)
Timber checklist	SpeciesPreferenceChecklist.pdf (scionresearch.com)
DairyNZ	Growing_trees_for_timber.pdf (dairynz.co.nz)

TREES FOR CARBON

Scion	Planted_forests_and_carbon_info_brochure_side_1a (scionresearch.com)
ETS Lookup tables	https://www.landcareresearch.co.nz/dataset/emissions-trading-scheme-standard-carbon-tables-ets-lookup-tables
Radiata pine carbon maps	Radiata pine - Spatial carbon by age and stocking - Datasets - Whitiwhiti Ora: Land Use Opportunities (landcareresearch.co.nz)
Redwood carbon maps	Redwood - Spatial carbon by age and stocking - Datasets - Whitiwhiti Ora: Land Use Opportunities (landcareresearch.co.nz)

TREES FOR SHADE AND SHELTER

Taranaki Regional Council land management sheet	Microsoft Word - 16 Shelter and timberbelt design.doc (trc.govt.nz)
Hawkes Bay Regional Council environmental topics	HBRC ET Shelter Part 1; Shelter Design for Hill (hbrc.govt.nz) ; Shelter species (hbrc.govt.nz)
Environment Canterbury	Establishing Shelter in Canterbury - A practical guide for the true Cantabrian (goughsnurseries.co.nz)
DairyNZ	- Trees_for_shade.pdf (dairynz.co.nz) - Trees_for_shelter.pdf (dairynz.co.nz)

TREES FOR FODDER

DairyNZ	Trees_for_fodder.pdf (dairynz.co.nz)
NZFFA	NZ Farm Forestry - Trees for Fodder (nzffa.org.nz)

TREES FOR EROSION CONTROL

NZFFA tool - Erosion control species choice	NZ Farm Forestry - Tree Species (nzffa.org.nz)
Dean Satchell report	Report - Trees for steep slopes (nzffa.org.nz)
Poplar and Willow Research Trust	poplars-and-willows-fodder (beeflambnz.com)
Plant and Food Research - space-planted willows and poplars	trees-farm (beeflambnz.com)
DairyNZ	Trees_for_soil_conservation.pdf (dairynz.co.nz)

MANUKA FOR HONEY AND TREES FOR BEES

Offa Miskell Manuka plantation guide	The Manuka & Kanuka Plantation Guide (trc.govt.nz)
Trees for Bees Manuka Handbook	Handbook+for+Manuka_web+version+final.pdf (squarespace.com)
Manuka plantation spacing	What+spacing+for+manuka+seedlings.pdf (squarespace.com)
Other Trees for Bees	<ul style="list-style-type: none">- Publications from the New Zealand Trees for Bees Research Trust — Trees for Bees (treesforbeesnz.org)- Handbook: Planting Trees for Bees on Farms — Trees for Bees (treesforbeesnz.org)
DairyNZ	Trees_for_bees.pdf (dairynz.co.nz)

FARM CASE STUDIES

PerrinAg series of farm case studies and videos	Case Study Summary Report Perrin Ag Consultants
Old Climate Cloud website	Document library The Centre for Climate Action on Agricultural Emissions (ccaee.govt.nz)

Right Place

SITE SUITABILITY MAPS FOR DIFFERENT TREE SPECIES

Radiata pine	Radiata pine - crop suitability maps, rules and yield information - Datasets - Whitiwhiti Ora: Land Use Opportunities (landcareresearch.co.nz)
Douglas fir	Douglas fir - crop suitability maps, rules and yield information - Datasets - Whitiwhiti Ora: Land Use Opportunities (landcareresearch.co.nz)
Eucalyptus	Eucalyptus fastigata - crop suitability maps, rules and yield information - Datasets - Whitiwhiti Ora: Land Use Opportunities (landcareresearch.co.nz)
Redwood	<i>Data supermarket and koordinates.com links to come...</i>
Cypresses	<i>Data supermarket and koordinates.com links to come...</i>
Mānuka	Honey-Manuka - crop suitability maps, rules and yield information - Datasets - Whitiwhiti Ora: Land Use Opportunities (landcareresearch.co.nz)

INFORMATION COMPILED FOR SPECIFIC REGIONS

National

NZ Landcare trust – catchment groups (map)	Map of New Zealand Catchment Groups & Environmental Community Groups - NZ Landcare Trust
QEII Trust	Home QEII National Trust
Tanes Tree Trust	Tāne's Tree Trust • Native forests for our future (tanestrees.org.nz)
NZFFA	NZ Farm Forestry - Home (nzffa.org.nz)

Regional Information

Northland Regional Council	<p>Land - Northland Regional Council (nrc.govt.nz)</p> <p>e.g.</p> <ul style="list-style-type: none">• Trees for the Land (nrc.govt.nz)• planters-handbook-for-northland-natives.pdf (nrc.govt.nz)• plantation-forestry-best-practice-for-northland-july-2020.pdf (nrc.govt.nz)• NZ Farm Forestry - Northland Branch (nzffa.org.nz)
NZFFA	
Auckland Regional Council	<p>Plant for your local ecosystem (aucklandcouncil.govt.nz)</p> <p>e.g.</p> <ul style="list-style-type: none">• Biodiversity - Eco-sourcing (aucklandcouncil.govt.nz)
Waikato Regional Council	<ul style="list-style-type: none">- Planting guides Waikato Regional Council- Indigenous biodiversity programme Restoring nature, connecting communities Waikato Regional Council- Kahikatea Green Wheel Waikato Regional Council
Bay of Plenty Regional Council	<p>https://www.boprc.govt.nz/media/29185/LandManagement-090526-Factsheet26.pdf</p>
Taranaki Regional Council	<p>Background (trc.govt.nz)</p> <p>e.g.</p> <ul style="list-style-type: none">• Resources - Wild For Taranaki
Horizons Regional Council	<ul style="list-style-type: none">- Land - Horizons Regional Council- Trees-for-Our-Region-FINAL-October-2017.pdf (horizons.govt.nz)- Poplars-Willows-and-Carbon-Summary-for-Landowners-112019.pdf (horizons.govt.nz)- Continuous-Cover-What-is-it.pdf (horizons.govt.nz)- Continuous-Cover-Forestry-A-case-study.pdf (horizons.govt.nz)
Hawkes Bay	<ul style="list-style-type: none">- Right Tree Right Place Appendices (tararoadc.govt.nz)- trees-that-count-hawkes-bay-regional-guide.pdf (treesthatcount.co.nz)
Greater Wellington	<p>Greater Wellington Regional Council — Your planting and conservation projects (gw.govt.nz)</p>

Tasman	Planting for erosion control Tasman District Council
Marlborough	<ul style="list-style-type: none"> - North Marlborough Planting and Restoration Guide - Marlborough District Council - South Marlborough Native Planting Guide - Marlborough District Council - Ecosourcing Native Plants Seed Collection Project - Marlborough District Council
Nelson	<ul style="list-style-type: none"> - 42155 Nelson 52pp - Nelson-Biodiversity-Forum-Eco-sourcing-brochure-A154167.pdf - Sustainable Land Management Resources - Nelson City Council
Canterbury	<ul style="list-style-type: none"> - Tree planting guide: Christchurch City Council (ccc.govt.nz) - Christchurch City & Lowland Canterbury Streamside Planting (ccc.govt.nz)
Otago	<ul style="list-style-type: none"> - orc-riparian-plant-guide_east_digital.pdf - Our Planting Sites - Whakatipu Reforestation Trust (wrtqt.org.nz) - Native planting in Dunedin - Dunedin City Council
Southland	<ul style="list-style-type: none"> - Good management practices - Environment Southland <p>e.g.</p> <ul style="list-style-type: none"> • A guide to creating a farm woodlot.pdf (es.govt.nz) • A guide to planting for bees.pdf • Shelter - Environment Southland (es.govt.nz) • A guide to shelter planting and costs.pdf (es.govt.nz) • INTRODUCTION (es.govt.nz)A guide to the benefits of planting willows.pdf (es.govt.nz) • Riparian management - Environment Southland (es.govt.nz)

Right Species

[See following table for a list of species]

GENERAL INFORMATION

- Choosing the right tree:
 - [Right_tree_info_brochure_side_1](#) (scionresearch.com)
- Commercial alternatives to radiata pine
 - [MPI Specialty Species Booklet Online3](#) (canopy.govt.nz)
- General forestry information on canopy.co.nz (Te Uru Rakau – New Zealand Forest Service):
 - [Get tree planting advice | Canopy](#)
 - [Data & research on NZ forestry | Canopy](#)

NZ FARM FORESTRY ASSOCIATION SPECIES SELECTION TOOLS

- Species selection tool – NZ Farm Forestry Association
 - [NZ Farm Forestry - Species selection tool](#) (nzffa.org.nz)
 - This tool is also linked from the NZFFA TreeFarmer planning tool menu: [FGR - TreeFarmer Application](#)
- Trees for steep slopes – species selection – NZ Farm Forestry Association
 - [NZ Farm Forestry - Tree Species](#) (nzffa.org.nz)

Name	Genus/species	MPI/FGR - exotic timber alternatives to <i>P. radiata</i> and <i>Douglas-fir</i> list MPI Specialty Species Booklet Online3 (canopy.govt.nz)	NZFFA general species selection tool	NZFFA steepland erosion control	Other
Alder	<i>Alnus</i>	-	-	NZ Farm Forestry - Alder (nzffa.org.nz)	Star Performer Bee Plants — Trees for Bees (treesforbeesnz.org)
Beech, Southern	<i>Nothofagus</i> (<i>Fuscospora</i> , <i>Lophozonia</i>)	-	- <i>Nothofagus fusca</i> , <i>Fuscospora fusca</i> - Red beech - <i>Nothofagus menziesii</i> , <i>Lophozonia menziesii</i> - Silver beech - <i>Nothofagus solandri</i> var. <i>solandri</i> , <i>Fuscospora solandri</i> - Black beech	NZ Farm Forestry - Beech, Southern (nzffa.org.nz)	https://www.tanestrees.org.nz/site/assets/files/1069/beeches_-_web.pdf
Blackwood	<i>Acacia melanoxylon</i>	-	<i>Acacia melanoxylon</i> - Blackwood	NZ Farm Forestry - Blackwood (nzffa.org.nz)	
Cedar, Japanese	<i>Cryptomeria japonica</i>	Japanese cedar	<i>Cryptomeria japonica</i> - Japanese cedar	NZ Farm Forestry - Cedar, Japanese (nzffa.org.nz)	
Cedar, Himalayan	<i>Cedrus deodara</i>	-	<i>Cedrus deodara</i> - Himalayan cedar	-	
Cypress, Mexican	<i>Cupressus lusitanica</i>	<i>C. lusitanica</i>	<i>Cupressus lusitanica</i> - Lusitanica	NZ Farm Forestry - Cypress (nzffa.org.nz)	

Cypress, Monterey (macrocarpa)	<i>Cupressus macrocarpa</i>	<i>C. macrocarpa</i>	Cupressus macrocarpa - Macrocarpa	NZ Farm Forestry - Cypress (nzffa.org.nz)	
Cypress, hybrids		Hybrid cypresses	-	NZ Farm Forestry - Cypress (nzffa.org.nz)	
Douglas-fir	<i>Pseudotsuga menziesii</i>	-	Pseudotsuga menziesii - Douglas fir	NZ Farm Forestry - Douglas-fir (nzffa.org.nz)	
Eucalyptus, durable	<i>Eucalyptus, Corymbia</i>	<ul style="list-style-type: none"> - <i>Eucalyptus bosistoana</i> (coast grey box) - <i>Eucalyptus cladocalyx</i> - sugar gum - <i>Eucalyptus globoidea</i> (white stringybark) <i>Eucalyptus microcorys</i> - tallowwood - <i>Eucalyptus muelleriana</i> - yellow stringybark - <i>Spotted Gum (Corymbia)</i> 	Eucalyptus pilularis - Blackbutt	NZ Farm Forestry - Eucalyptus (nzffa.org.nz)	<ul style="list-style-type: none"> - <i>E. bosistoana</i> - NZ Dryland Forests Innovation (nzdfi.org.nz) - <i>E. globoidea</i> - NZ - Dryland Forests - Innovation (nzdfi.org.nz) - <i>E. quadrangulata</i> - NZ Dryland Forests Innovation (nzdfi.org.nz) - <i>E. cladocalyx</i> - NZ Dryland Forests Innovation (nzdfi.org.nz) - <i>E. argophloia</i> (Western white gum) - <i>E. machrorhyncha</i> (red stringybark) - <i>E. tricarpa</i> (red ironbark)
Eucalyptus, non-durable	<i>Eucalyptus</i>	<ul style="list-style-type: none"> - <i>Eucalyptus fastigata</i> - brown barrel - <i>Eucalyptus nitens</i> - shining gum - <i>Eucalyptus regnans</i> - mountain ash 	Eucalyptus regnans - Mountain ash	NZ Farm Forestry - Eucalyptus (nzffa.org.nz)	

Fir, silver	<i>Abies alba</i>	-	-	NZ Farm Forestry - Fir, silver (nzffa.org.nz)	
Fir, Grand	<i>Abies grandis</i>	-	<i>Abies grandis</i> - Grand fir		
Kahikatea	<i>Dacrycarpus dacrydioides</i>	-	<i>Dacrycarpus dacrydioides</i> - Kahikatea	-	
Kauri	<i>Agathis australis</i>	-	-	NZ Farm Forestry - Kauri (nzffa.org.nz)	https://www.tanestrees.org.nz/site/assets/files/1069/kauri_-_web.pdf
Larch	<i>Larix</i>	-	- <i>Larix decidua</i> - European larch - <i>Larix kaempferi</i> - Japanese larch	NZ Farm Forestry - Larch (nzffa.org.nz)	
Mānuka	<i>Leptospermum scoparium</i>	-	-	NZ Farm Forestry - Manuka (nzffa.org.nz)	
Pine, radiata	<i>Pinus radiata</i>	-	<i>Pinus radiata</i> - Radiata pine	NZ Farm Forestry - Pine, radiata (nzffa.org.nz)	
Pine, Norfolk Island	<i>Araucaria heterophylla</i>	-	<i>Araucaria heterophylla</i> - Norfolk Island pine	-	
Poplar	<i>Populus</i>	Poplars	- <i>Populus deltoides</i> x <i>yunnanensis</i> - Kawa poplar - <i>Populus euramericana</i> - Veronese poplar	NZ Farm Forestry - Poplar (nzffa.org.nz)	Home - NZ Poplar & Willow Trust (poplarandwillow.org.nz)
Redwood, coast	<i>Sequoia sempervirens</i>	Redwood	<i>Sequoia sempervirens</i> - Coast redwood	NZ Farm Forestry - Redwood, coast (nzffa.org.nz)	
Sequoia, giant	<i>Sequoiadendron giganteum</i>	-	<i>Sequoiadendron giganteum</i> - Giant sequoia	NZ Farm Forestry - Sequoia, giant (nzffa.org.nz)	

Tōtara	<i>Podocarpus totara</i>	-	<i>Podocarpus totara</i> - Totara	NZ Farm Forestry - Totara (nzffa.org.nz)	https://www.tanestrees.org.nz/site/assets/files/1069/totara_-_web.pdf
Willow	<i>Salix</i>	-	- <i>Salix matsudana x alba</i> - Moutere willow - <i>Salix matsudana x alba</i> - Tangoio willow		Home - NZ Poplar & Willow Trust (poplarandwillow.org.nz)