

# OUR VISION

The NZ Dryland Forests Initiative (NZDFI) is a collaborative research and development project formed in 2008. Our vision is that New Zealand develops a sustainable multi-regional hardwood industry by planting 60,000 hectares of improved eucalypt forests.

Based on 2021 values this industry could generate over \$1 billion GDP annually from 2050 onwards.

## Regional wood supply catchments to be planted from 2021 to 2050

The NZDFI proposes a strategy for the establishment of 12 regional wood supply catchments of 5,000 ha each. Regionally agreed annual planting targets will be set between 2021 and 2050.

These forests could then produce a sustainable annual log supply of over 620,000 m<sup>3</sup> for a future network of regional wood processing industries.

### Market opportunity

- Sawn timber** – domestic substitution of CCA treated timber for outdoor use.
- Posts and poles** – substitution of CCA treated posts for vineyards, agriculture and horticulture.
- Hardwood imports** – substitution of high value hardwood imports – over 29,000 m<sup>3</sup> lumber, 3,000 m<sup>3</sup> sleepers and 5,000 m<sup>3</sup> posts/poles (MPI 2017).
- Exports** – significant lumber and log export potential to substitute Australian and tropical hardwoods.
- Veneer** – as a component of high value and high strength laminated veneer lumber.

### Market value 2021

- \$280-320 million per annum based on retail value of \$700-800 per m<sup>3</sup>.
- \$210-240 million per annum based on retail value of \$700-800 per m<sup>3</sup>.
- \$53.3 million in 2017. Five-year average value of over \$1400 per m<sup>3</sup>.
- Annual export value of 100,000 m<sup>3</sup> of hardwood could be \$140 million.
- International value of high strength veneer is \$400 - 500 per m<sup>3</sup>.

## Developing sustainable regional hardwood industries

The only path to developing sustainable regional hardwood industries is by achieving strategic annual planting targets in wood supply catchments with centrally located processing sites suitable for future investment.

NZDFI has identified 12 potential wood supply catchments with potential to establish durable eucalypt forests. In each catchment, a central five-hectare industrially zoned site with good transport connections is needed for a processing plant.

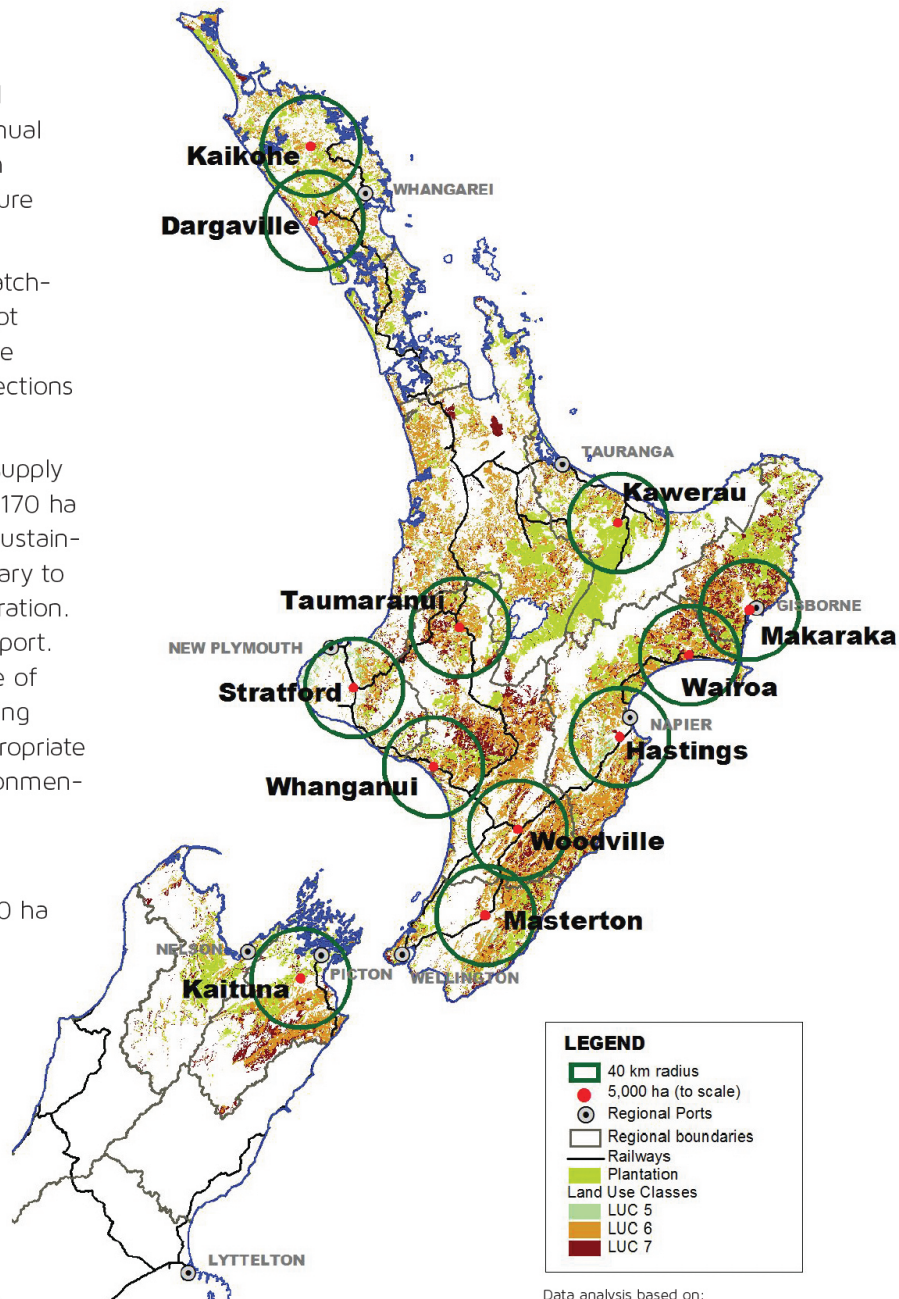
The annual planting target to establish a wood supply catchment of 5,000 ha over 30 years is around 170 ha per year. The catchment could then produce a sustainable annual log supply of 60-80,000 m<sup>3</sup> necessary to support investment in a regional processing operation. Any surplus log supply would be available for export. Land suitable for establishing a regional resource of eucalypts can include LUC classes 5-7, and existing plantation forestry land, provided sites have appropriate topography and access for harvesting and environmental conditions suitable for NZDFI's species.

### The projections – twelve catchments:

- Total hardwood forest to plant: 60,000 ha
- \*Log supply required for 12 hardwood processors: 624,000 m<sup>3</sup> /yr
- Production of hardwood lumber: 360,000 m<sup>3</sup>/yr
- Contribution to GDP: \$1.022 billion/yr.
- Direct employment: 2400 FTEs.
- \*\*Return on capital employed ~25%

\* Integrated sawmill and remanufacturing operation

\*\*2020 capital set up cost of \$27 million per business.



Data analysis based on:  
NZLRI Ed.2  
LUCAS v6 (2016)

Ref: Assessment of afforestation and future wood processing opportunity with non-radiata species - Wairoa District, Peter Hall, Scion, 2020

Potential regional wood supply catchments to support a sustainable hardwood industry



The XyloGene brand

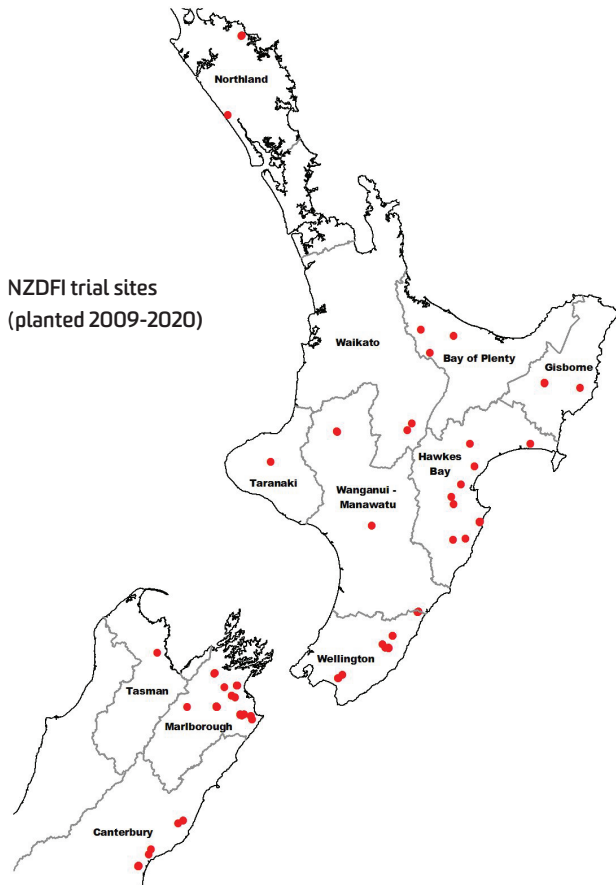
NZDFI's genetically improved seed and nursery stock are being sold under the 'XyloGene' brand so growers can select plants to ensure high productivity and wood quality in their forests.

There is potential for the XyloGene brand or trademark to be used for branding future naturally durable hardwood products that have been sustainably grown and can supply high-value markets. Systems for product traceability and certification as ways of adding value to products that have originated from Xylogene planting stock will be investigated in future.

## Breeding durable hardwood – Whakatipu taikākā mauroa

NZDFI's partners have been working since 2008 to produce improved trees – trees that grow fast and straight, producing high volumes of durable timber suitable for a range of applications and markets.

The foundation of this work is NZDFI's extensive trial network on both farmland and cut-over forestry land. The trials contain over 600 permanent sample plots (PSPs).



**Breeding trials:** most progress has been made on two key species – *Eucalyptus bosistoana* and *E. globosa* – with others under development. Breeding trials are closely monitored, and high-performing families identified. These are families which exhibit exceptional:

- growth and form
- heartwood and durability
- ease of processing.

The top-performing families have formed the core of our first generation of improved planting stock.

**Demonstrations trials:** these multi-species trials enable us to assess adaptability and productivity of a



wide range of species across many site types. Key site conditions that growers need to consider are frost, wind, rainfall, and soil characteristics. Trial results and site/species research enable us to guide growers on species choice for their site.

## Improved nursery stock production

NZDFI partner Proseed NZ Ltd has established seed orchards and is developing propagation of clonal nursery stock. In 2021, the first improved seedlings and clonal nursery stock from our breeding programme will be available. New generations of improved plants will be released over time.



## Wood-quality research

Researchers at the University of Canterbury School of Forestry have developed world-first techniques to test young trees for heartwood, extractives (the key determinant of durability) and ease of processing, enabling superior families to be identified for breeding populations. Stem taper and heartwood volume models are under development. Research into our key target products – veneers, posts and poles – continues.



## Integrated pest and disease management

Research is underway at the School of Forestry to better understand how different NZDFI species tolerate insect defoliation in different environments. Selections are being identified of more tolerant families for inclusion in our breeding programme. NZDFI acknowledges Scion's research into finding biological controls of key pests.

## Modelling productivity and economic feasibility

Models being developed:

- growth & yield for low & high productivity sites
- volume of heartwood timber produced under different regimes
- economic feasibility of different regimes.

## Potential negative impacts of eucalypt plantations

NZDFI accepts that there are some perceived negative consequences of eucalypt plantations. These include the impact of eucalypts on fire risk, water availability and quality, vineyard taint, and the risk of wildings. These risks warrant further consideration and investigation.

# Developing sustainable regional hardwood industries



Our koru symbolises new life, strength and perpetual growth of NZDFI since its inception in 2008. Developing sustainable hardwood forests and industries will continue that growth and become part of a new multi-regional, circular bio-economy.



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