

WORKING WITH TREES AND WOOD IN A CLIMATE EMERGENCY

an architect's perspective



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2025

Australia's National Climate Risk Assessment



The Australian Climate Service is a partnership of:



Case study: Temperate eucalypt forest growth

Most of Australia's temperate eucalypt forests already grow in temperatures higher than the optimal mean annual temperature for tree growth of around 11°C (Bowman et al., 2014; Prior & Bowman, 2014a, 2014b).

Above or below this temperature, growth is slower. This is especially the case for large trees that grow in areas above this temperature. By a future warming scenario of +3.0°C, tree growth rates in these forests are likely to drop substantially (22%), as will the amount of carbon stored, with a reduced rate of recovery from disturbance such as wildfire. Many of the largest trees also grow in the cooler, wettest areas. The hazard projections of higher temperatures, less rainfall, more time in drought and increased frequency of fire weather mean that less water will be available, and fires will become more frequent and intense. This trend will result in slower-growing trees with shorter average life spans, potentially shifting away from the species that define the current ecosystems that have developed with long fire-return intervals and high water availability. Loss of old trees will have negative flow-on effects with our tree-dwelling animals, especially those species that require tree hollows to nest in (Figure 85). Tree hollows are directly correlated with age of the tree.

This case study and related evidence can be found in the Natural Ecosystems Technical Report.



Figure 85: Mature temperate eucalypt forest showing tree hollows.
(Photo by Dana Bergstrom. Used with permission)

MAKE IT **WOOD**

Do your world some good

PLANET ARK

**WOOD
IS
GOOD**



**Responsible
Wood**

RW/1-21-26

WOOD
**The Ultimate
Renewable™**

Wurundjeri/Gunaikurnai/Taungurong country

Matlock VIC

2021



Toogee/Nuenonne country

Geeveston TAS

2021



Opinion: Michelle Freeman – Australia's emission target is viable if we get forests right

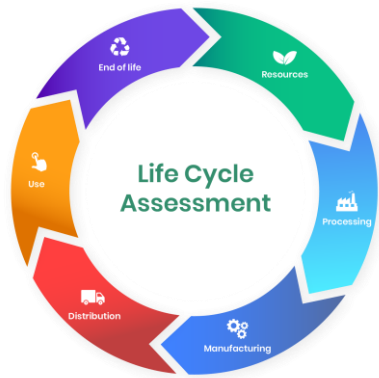
03 October 2025



Dr Michelle Freeman

Australia's new emissions reduction target of 62-70 per cent by 2035 is ambitious, but achievable – if we get forests right.

Meeting this goal depends on a massive boost in land-based carbon removals. Healthy, well-managed forests are our most powerful natural tool for absorbing and storing carbon from the atmosphere. Put simply, we must grow more trees. But for that to work, we need policy grounded in science and honesty



NET ZERO

Key Assumptions

Forestry: All breakdown of forest matter after harvest is modelled as aerobic and therefore carbon neutral as carbon sequestered is released as carbon dioxide. Any burning of forestry material left behind after logging is modelled as being carbon neutral, aside from the trace emissions of various organic gases (Commonwealth of Australia, 2016). All forestry is assumed to be sustainably managed and as such there are no carbon emissions associated with land use change. Loss of carbon from the soil is assumed to be zero (i.e. no significant erosion). It is assumed that all timber will be replanted (plantation forest) or will regrow (native forest) after bushfires.



Environmental Product Declaration Hardwood Timber



Environmental Product Declaration (EPD)
in accordance with ISO 14025 and EN 15804
EPD Registration No. S-P-00561 | Version 1.2
Issued 13 August 2015 | Revised 8 December 2017 | Valid until 8 December 2022
Geographical Scope: Australia



Dynamic carbon balance resulting from cyclical clearfell harvest of native Tas Oak and NSW plantation pine forests across the fading timeframe we have remaining for impactful atmospheric CO2 drawdown.

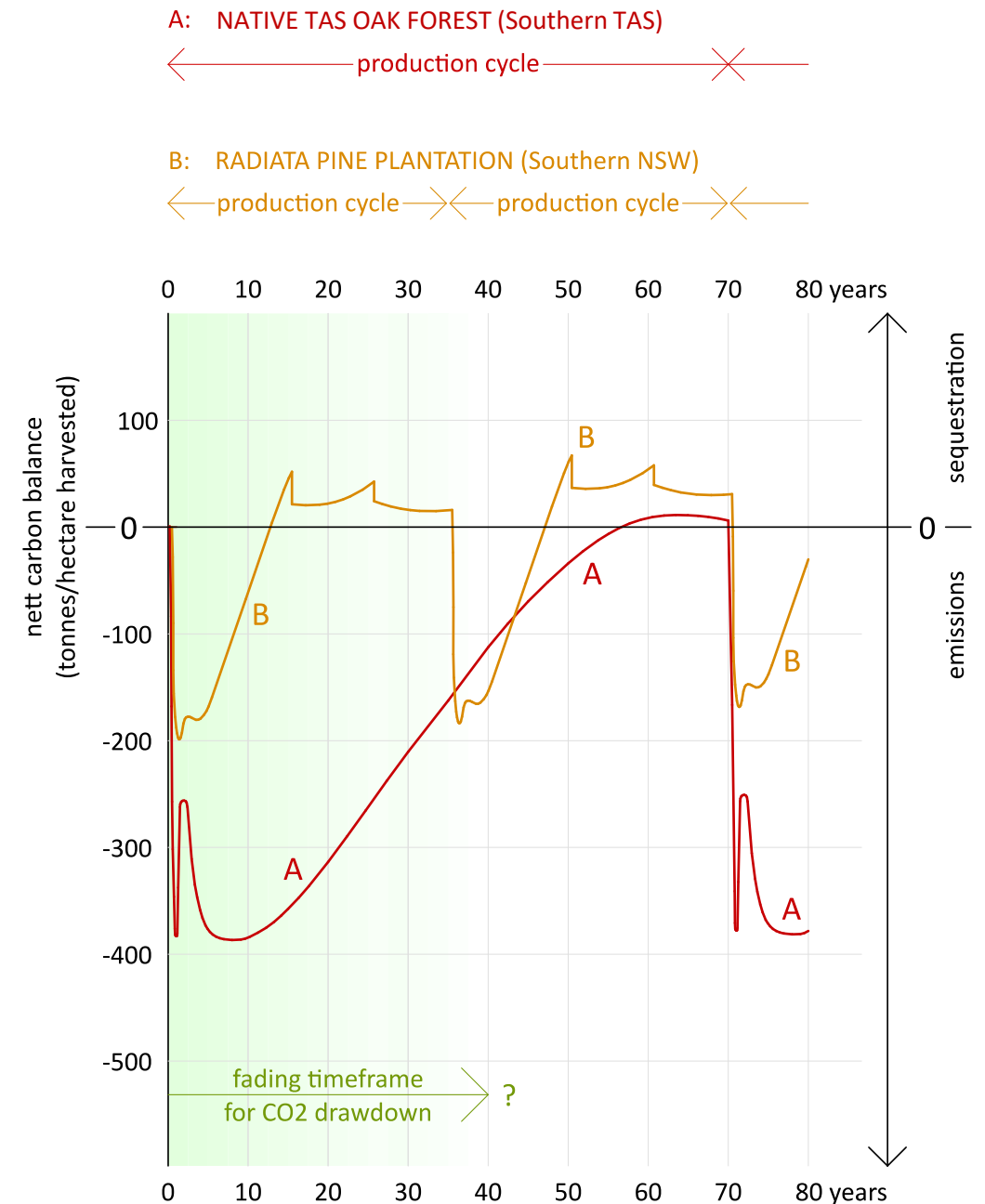
Indicative nett carbon balance accounts for:

- carbon emissions in post-harvest slash burning and decay, burning of wood waste in production, construction and service life as well as aerobic decay of timber and paper products
- carbon sequestered post-harvest in forest regrowth
- carbon emissions and sequestration in mid-cycle plantation thinnings (to slash, pulp and particleboard product)
- carbon stored in timber and paper products as well as in waste in anaerobic landfill.

Haar (2023)

Counting the Carbon Footprint of Timber Products
Perspectives for a Climate Emergency

<https://mecla.org.au/mecla-presentations/>



SELECTION HARVESTING

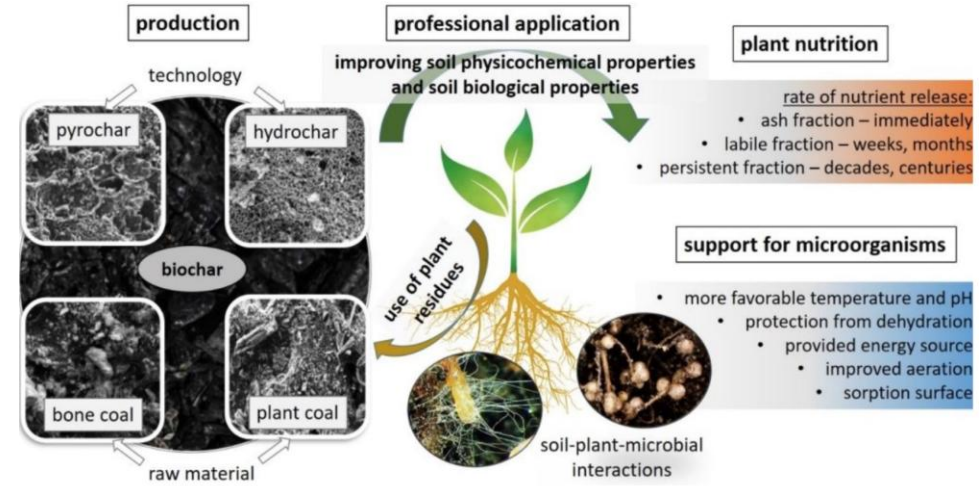


high-grading
or taking the best from the forest



ecological thinning
or leaving the best in the forest

Biochar application in sustainable land use



Wurundjeri/Gunaikurnai country
Icy Creek VIC
2022

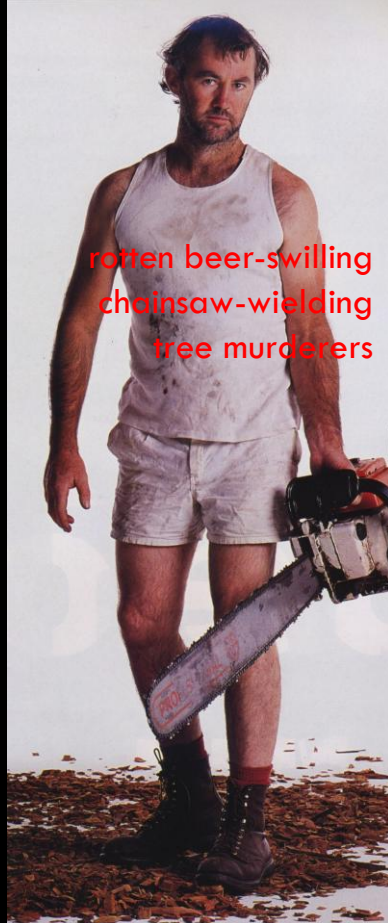


Bibbulman country
Donnelly WA
2022





rampant tree-hugging
pot-smoking
hippies



rotten beer-swilling
chainsaw-wielding
tree murderers

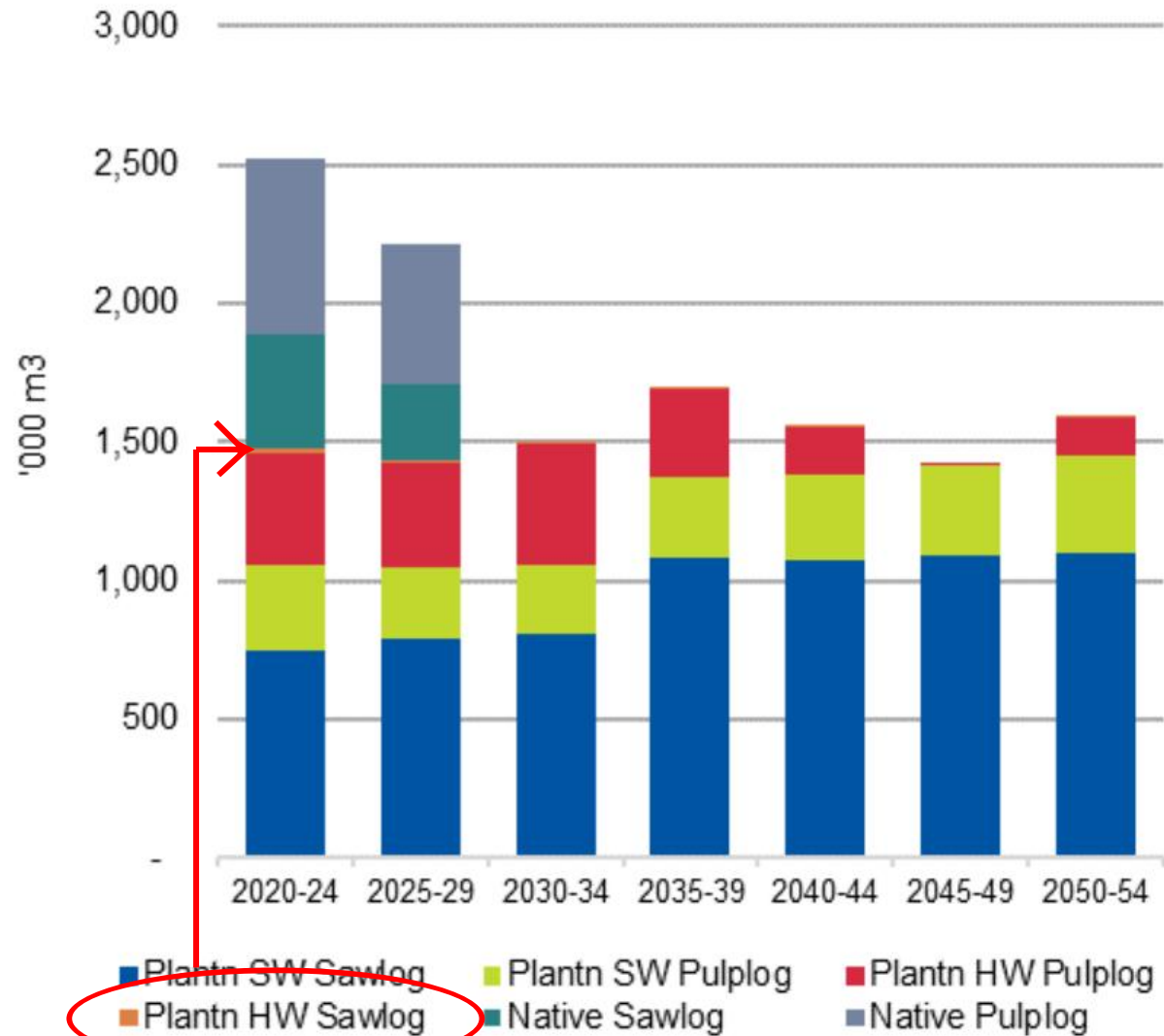


victor steffensen
fire country



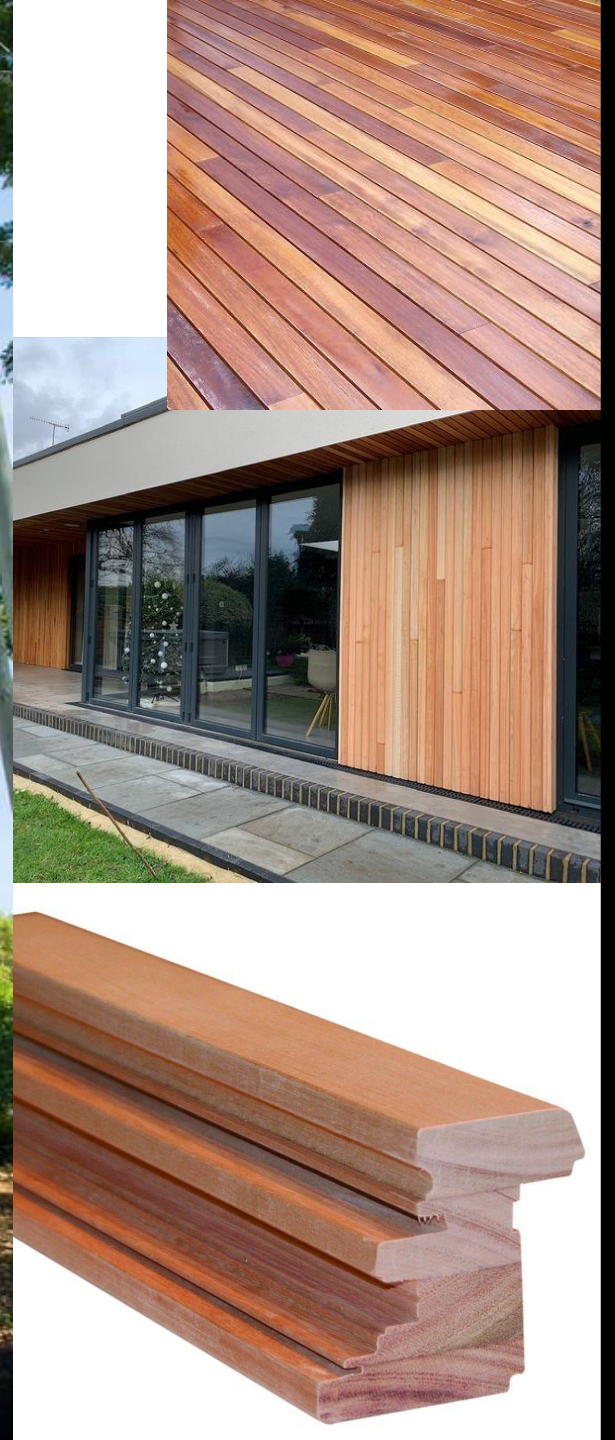
Gippsland Region's Estimated Wood Supply: 2020 - 2054 ('000 m³)

Source: ABARES and IndustryEdge

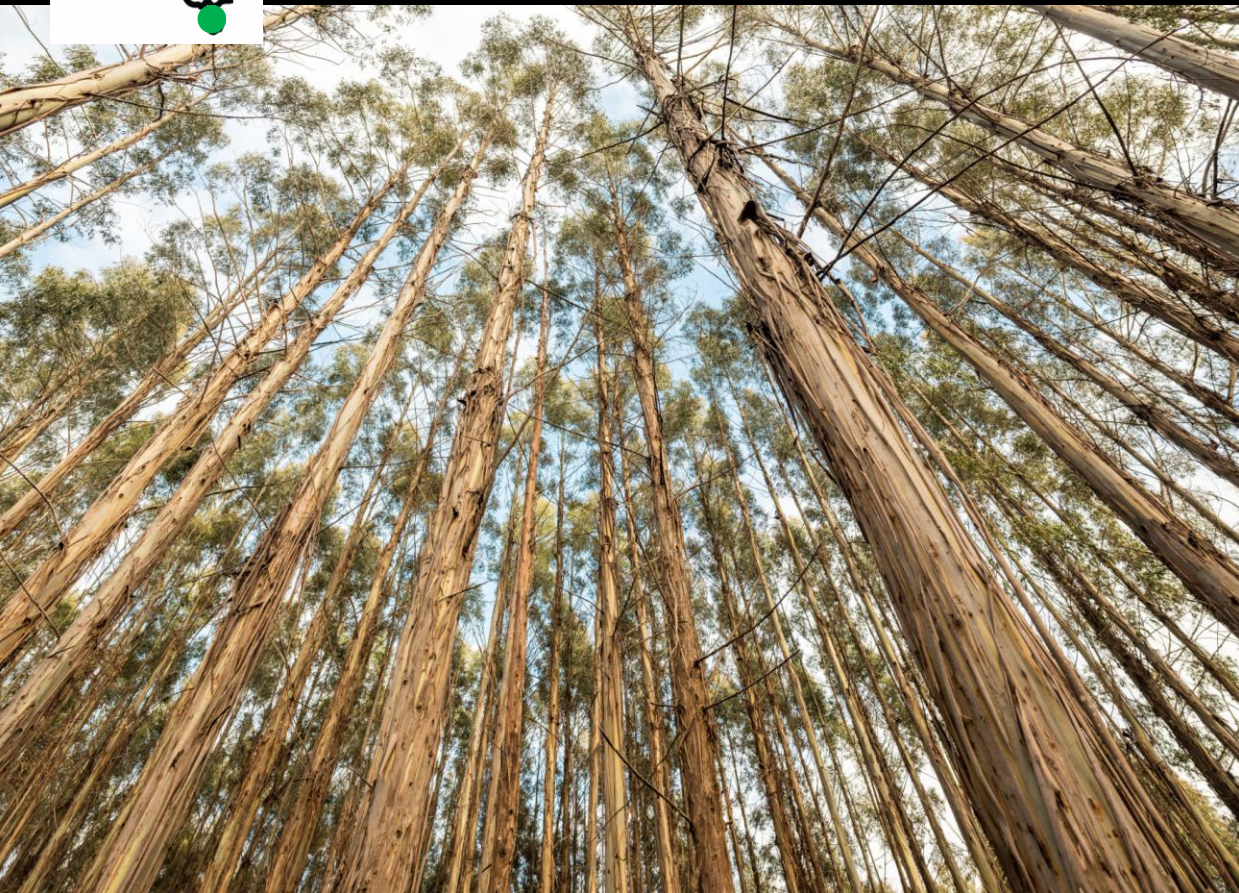




Rose or Flooded Gum (*Eucalyptus grandis*) is grown in vast plantations in Uruguay, milled and dried there, then machined here into decking, wall cladding, window and interior joinery.



Peerapper/Tommeginne country
Wynyard TAS



Boonwurrung country
Ryanston VIC
2024



Gunaikurnai country
Nowa Nowa VIC
2023

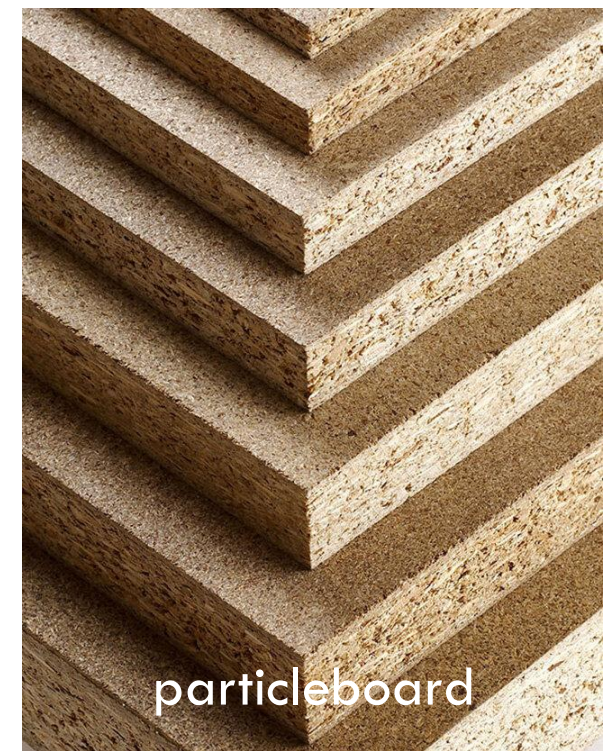


ecological thinning trial in native forest
(leaving the best to grow on)

Gunaikurnai country
Carrajung Lower VIC
2023



high pruning of mixed eucalypt species
(heartwood plantations)





laminated
veneer
lumber
(LVL)

mass timber posts
comprising five screw-bonded LVL billets



rotary peeled hardwood sheet (Yarram VIC)



glue bonded
mass ply panel



spindleless lathe
rotary peeling
small hardwood log



mass ply
roof construction

Red Gum

(*Eucalyptus camaldensis*)

weighs approx. 1,050kg/m³

holds approx. 1.7 tonnes of sequestered CO₂ per cubic metre
(at 12% moisture content)



Radiata Pine

(*Pinus radiata*)

weighs approx. 500kg/m³

holds approx. 0.8 tonnes of sequestered CO₂ per cubic metre
(at 12% moisture content)



Shining Gum

Tasmanian plantation wood



Mountain Ash

Tasmanian native forest wood



colac victoria

ABOUT AKD SOFTWOODS



Associated Kiln Driers Pty Ltd (trading as AKD Softwoods) is a 100% Australian owned and operated integrated forestry and timber processing company with operations in Victoria, New South Wales and Queensland.

AKD is distinctive amongst its key competitors for its reputation as a high quality producer, its exceptional customer service and its vertically integrated operations which comprise:

- Six sawmills processing in excess of 1,000,000m3 of sawlog per annum
- Over 9,000 hectares of radiata pine plantations located in Victoria and South Australia
- Three preservation businesses
- A softwood chip export operation
- Multiple log export locations

AKD Company Brochure

Building an excellent reputation on its quality, service and flexibility, AKD has a wide range of products, and an end to end planning process that enables products to be made to order and dispatched on its own truck fleet, to customers across Australia.



lotsa miles

40km



waurn ponds victoria



Radiata Pine

all plantation wood

grows very fast in temperate climates
of Australia and New Zealand

Baltic Pine or Spruce

from managed or intact natural forest

grows very slowly in cold climates of
Russia, Baltic states, western Europe, Scandinavia and Canada



Villach, Austria



Arkhangelsk Oblast, northwest Russia





LVL BEAMS AND OSB WALL BRACING

now mostly of Baltic Pine and Spruce
from managed or intact boreal forest

growing slowly in cold climates
of Russia, Baltic States, Scandinavia and western Europe

PLYWOOD BRACING

from VIC and NSW
Radiata Pine plantations



BETTER CHOICES

WESBEAM LVL

from AUS plantations
of Pinaster & Radiata Pine





very slow grown Baltic Pine and Spruce from cold-climate northern hemisphere forests

ATLASSIAN HEADQUARTERS

Sydney NSW

a celebrated high-rise timber building
currently under construction

in truth a structure primarily of steel and concrete

infill between massive concrete floor plates
utilises cross-laminated timber
sourced from very slow grown Spruce
from cold-climate northern hemisphere forest

can high-rise ever be
environmentally or socially sustainable?









Portable salvage sawmilling
by Paul Cox & Paul McKay

ceresfairwood.org.au



CERES stock of joinery timbers



farm forester John Lord



Sugar Gum



fence posts (durability class 1)



Hayden at Fair Wood warehouse



farm forest of high-pruned Blue Gum



Boonwurrung country
Ranceby VIC





heartwood
plantations *Since
1995*



radialtimber

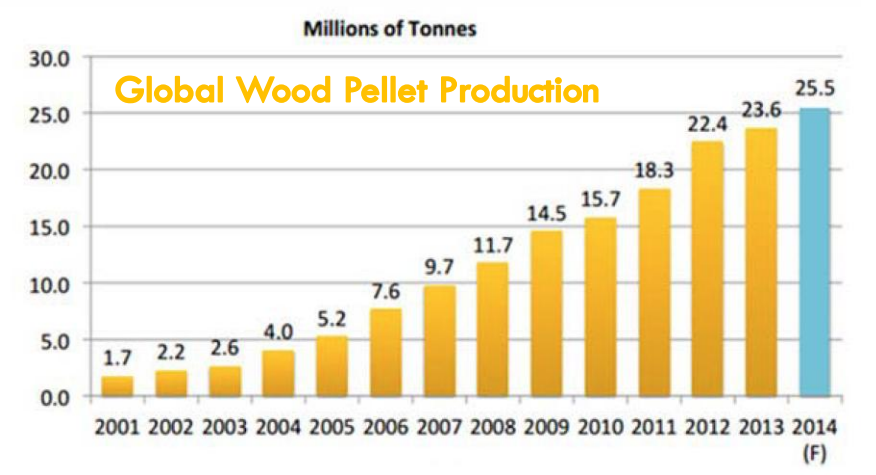
USING WOOD WISELY



SCRIMBER
(IP sold 1985)

PARALLEL STRAND LUMBER
(product imported to AUS since 2015)



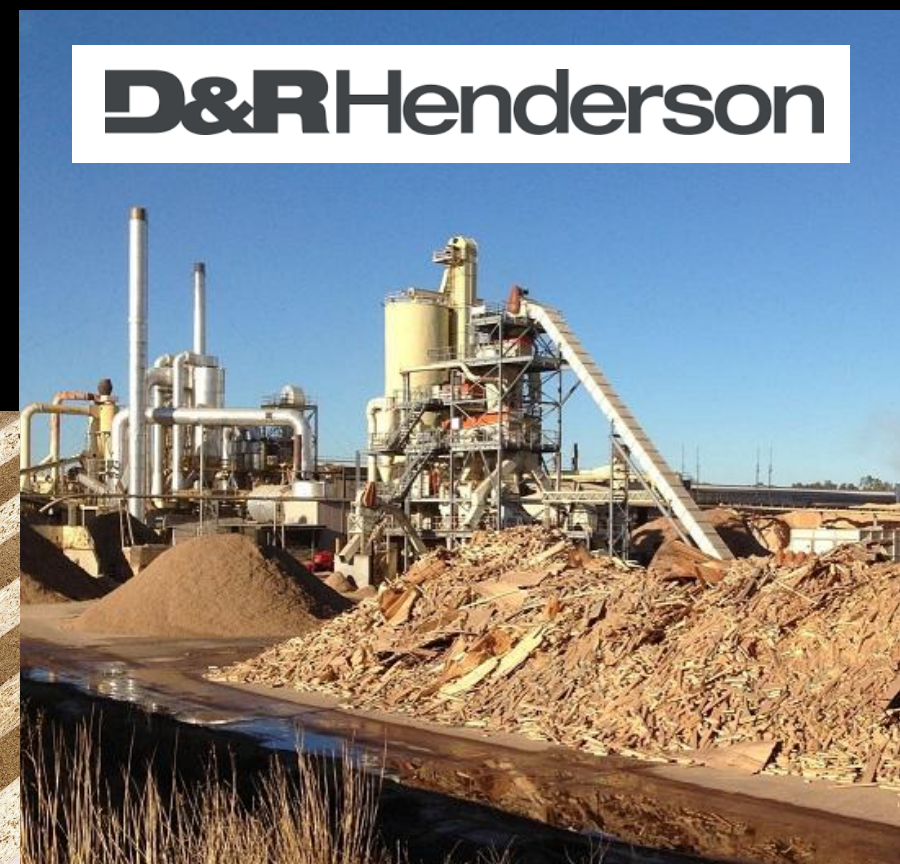
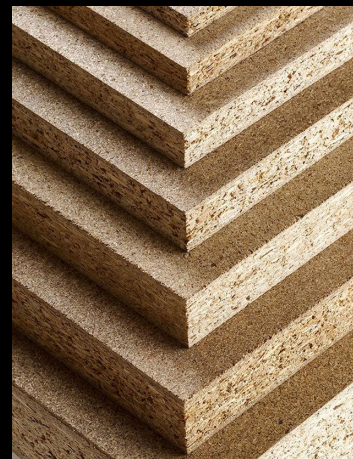


forest wood waste
burnt as bioenergy
emits more CO₂-eq.
per unit heat generated
than dirty brown coal

CARBON AT THE GRAVE



particleboard
made from 100%
post-consumer
wood waste





PILOT PARTNERS



CERES URBAN FORESTRY SERVICE

Trees, Communities,
Timber and Jobs

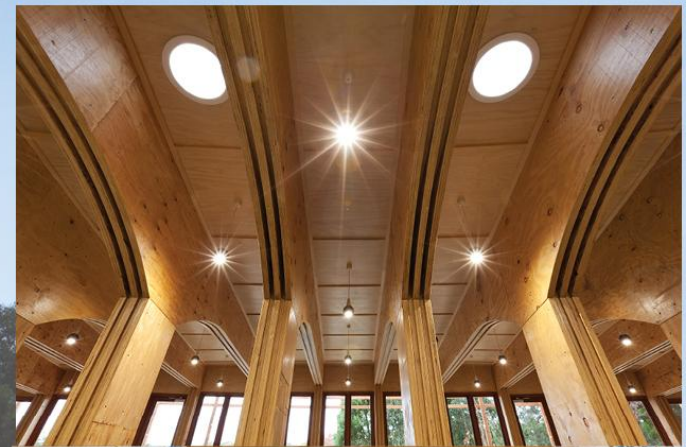
FAIR WOOD



candlebark school library

(2009-2011)

design for wildfire
thermal performance
environmentally responsible timbers



lot 43



lot 41



lot 41



mullumcreek.com.au

lot 32



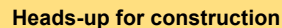
lot 32



lot 32



haarchitecture.com.au/timber-products



Over the past few years, there's been a growing prevalence of softwood (mainly Pine and Spruce) from Scandinavia, the Baltic States and Russia entering the Australian market as structural pine for floor, wall and roof framing. It's found in packs of sawn wood, in pre-fabricated wall frames, floor and roof trusses, and in engineered wood products - glue laminated lumber (LGL), laminated veneer lumber (LVL) and oriented strandboard (OSB).



In Australia, copper chromate arsenate (CCA) is the most common chemical mix used for preserving timber with limited resistance to fungal (rot) and insect (termite and borer) attack. And Radadia Pine is the species most commonly treated with CCA. However developing awareness of the serious and cumulative environmental and human health impacts associated with the widespread use of this chemical (its links to cancer, constrained prospects for recycling and toxicity as waste) has seen it banned in several countries including Switzerland, Vietnam and Indonesia. Japan, Sweden and Germany have also severely restricted its use. Although Australia is slow on the uptake, some small measures have been taken, as noted in AS1604 – 'Specification for Preservative Treatment'.

The ubiquitous use of CCA treated pine has left huge volumes of wood waste in landfill, with arsenic and chrome (the really nasty elements) leaching into surrounding soil and water. For these reasons the **use of CCA treated wood products is prohibited at Mullum Creek.**

MULLUM CREEK
OFFICIAL SELLER/IMPORTER/EXPORTER

Simple sawn wood				
Radiata Pine	• AKD Softwood • Carter Holt Harvey (CHH) Laserframe • Dongwha Timbers • Hyne Timber • OneFortyOne Wood Products • RedStag Timber • Timberlink • Wespine • Whitehead Timber Sales (WTS)	Australia New Zealand		A
Kiln Dried Hardwood	• Australian Sustainable Hardwoods (ASH) • McCormack Hardwood Sales • Neville Smith Timber (NST)	Australia (VIC or NSW)		B
Baltic Red or White Pine	• Ilm • Setra • Stora Enso • VIDA Wood • Ziegler Group	Scandinavia, Russia or Northeast Europe (Baltic States)		C
Oregon	RedStag Timber	New Zealand		A

Laminated strand lumber (LSL)			
Oregon	• ITI LP SolidStart LSL	USA or Canada	E



REGENERATIVE ENTERPRISE WITH TREES AND WOOD



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