

Native Forest Logging: Alternatives to native forest hardwoods

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About the Australian Rainforest Conservation Society Inc.

The Australian Rainforest Conservation Society (ARCS) is one of Australia's premier nature conservation organisations with a history of delivering science-based conservation outcomes for biodiversity, Australia's forests and our unique World Heritage.

ARCS founders Drs Aila Keto and Keith Scott were commissioned by Federal Governments to write three of Australia's successful **World Heritage** nominations - the Wet Tropics, Gari (Fraser Island), and the Gondwanan Rainforests of Australia. Dr Keto, was a formative member of the Wet Tropics World Heritage Management Board and currently contributes to management of the Gondwana Rainforests of Australia World Heritage Area through its Technical and Scientific Advisory Committees since 2007.

Our expertise includes **rainforest restoration** in areas needed to protect the core values of the Gondwanan Rainforests World Heritage Area. Our ecological restoration work on the Springbrook Plateau (Springbrook Rescue) has been showcased by IUCN as one of 12 global case studies (Keenleyside *et al.* 2012).

ARCS core focus over the past 40 years has been on the unsustainability of **native forest logging**, the availability of sustainable substitute resources and products, and, significantly increasing the protected area estate. ARCS was a partner in the international **Primary Forest & Climate Change Project** led by Professor Brendan Mackey who heads the Griffith University's *Griffith Climate Action Beacon*. Through outcomes of its research program the project contributes significantly to international policy improvements for primary forests. Our involvement ensures ARCS is up to date on the latest research on the linked biodiversity and climate existential challenges facing life on Earth and their solutions. A key message is that neither existential crisis can be effectively addressed unless we protect and restore ecosystem integrity to ensure their stability and resilience.

Fundamentally, ARCS recognises and adopts systems thinking for achieving necessary transformational systems change.

This ARCS Briefing Paper Series is published electronically at <https://savegreatergliders.org.au/woodsupply.html>

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1. SUMMARY

Native forests represent a minor and dwindling proportion (currently down to just 14%) of Queensland's timber supply. Technological innovation has dramatically changed the industry since the early '90s so the majority of structural timber in housing derives from plantation softwoods in the form of LVL (laminated veneer lumber) and glulam (glued laminated timber). Queensland native forest hardwoods are not required for the mass housing market.

Use in housing is restricted to luxury products (e.g. flooring, stairs) and decking for which there are now cost-effective, engineered products (fibre composites, 3RT Designer Wood, Radially sawn timber) many indistinguishable from traditional native forest sourced products

Exporting environmental damage to other countries e.g. to Indonesia's Orangutan habitats through increased reliance on exports is reduced by certification system import restrictions.

2. Alternatives to native forest hardwoods

The great majority of timber produced in Queensland comes from softwood plantations.

The following production volumes are for 2021–22:

- softwood plantation sawlogs 1,6111,000 cubic metres
- native forest sawlogs 265,000 cubic metres

Native forests produced just 14% of timber produced in Queensland in 2021–22.

3. Use of hardwood in housing

As a structural component in housing, hardwood has long been replaced by LVL (laminated veneer lumber) and glulam (glued laminated timber) made from plantation softwood. Its use in housing is largely restricted to flooring, stairs and decking. For the mass housing construction currently being planned, Queensland hardwood is not required

4. Plantation hardwood

There is also plantation hardwood potentially available from other states. In 2021–22, NSW produced 102,000 m³ of plantation hardwood sawlogs while Tasmania produced 439,000 m³. (Source: ABARES Australian forest and wood products statistics.

The NSW hardwood plantations are in the north of the State.

A popular plantation hardwood is Plantation Oak produced from plantation grown Shining Gum (*Eucalyptus nitens*) from Tasmania and Victoria.

5. Imports

It is not necessarily the case that Queensland native hardwood would be replaced by imported timber. That is too simplistic.

However, the industry continues to raise concerns that imported timber from SE Asia is produced under less environmentally stringent conditions than are in place in Australia. That is almost certainly out of date.

Timber production in Queensland is certified by Australian Forestry Standard now known as Responsible Wood which is internationally recognised through the Program for Endorsement of Forest Certification (PEFC).

The Indonesian Forestry Certification Cooperation is endorsed by PEFC as is the Malaysian Timber Certification Council.

Timber importers generally appear to have PEFC and/or Forest Stewardship Council (FSC) certification. Bunnings claims to sell only PEFC certified timber.

We are not for one moment endorsing PEFC or FSC. After all, the very logging we are condemning is certified by Responsible Wood and, effectively, PEFC. We are just indicating that imported timber may meet the same (unsatisfactory) standards as does Queensland native hardwood.

6. Poles and girders

There have long been substitutes for timber poles and girders. Fibre composite poles and girders are readily available and are exported worldwide. Fibre composite products are strong, long-lasting, corrosion resistant and lighter than hardwood. The images below are from the website of Wagners based in Toowoomba. They detail a wide range of applications. Current research related only to improved installation processes rather than the intrinsic properties is close to solutions for railway sleepers. Many other applications exist for fibre composites e.g. wharves, jetties, boardwalks, decking.

The following images of fibre composite poles and girders are featured on the Wagners' website.



7. 3RT Designer Wood

The 3RT enterprise has pioneered a process of converting low-value plantation resources into premium hardwoods with the look, feel and properties of 100-year old trees from native forests. Development of this technology since the formation of 3RT in 2014 has involved collaboration with Flinders University, a subsidiary of Henkel Adhesive Technologies (German chemical industry giant) and Bosch Manufacturing Solutions (to globalise 3RT products). The involvement of these collaborators provides confidence in this technology.

The process is essentially 3D printing and can use 5-year old hardwood plantation trees as the source.



Wood fibre source



An end product example

Note the relative size of the ‘witch’s hat’ bottom right of the Wood fibre source image.

3RT have a licensing setup and provide the Digital Production Units which they claim will create significant value-add at a low investment cost and deliver an attractive Return-On-Investment. They take care of the technology, production process and product development.

More information on 3RT is available on request. See also *3RT Alternatives to native forest hardwoods – BP 2024-02.pdf*

8. Radially sawn timber technology

The technology developed by Andy Knörr in the 1990s has even been described as the first major innovation in milling technology since the industrial revolution (Seccombe 2018). Keith and I visited the Yarram mill during the SEQFA process and were impressed. Impressed also were award-winning architects Ric Zen, Simon Knott and Gregory Burgess, the latter famous for designing the Eltham Library, Uluru Kata-Tjuta National Park cultural Centre and Mornington Peninsula “Stone House”. Both Knörr and Burgess came to Brisbane at our invitation but the timber industry was totally resistant

to innovation. Radial sawing enables plantation hardwoods to be used from 15- to 20-year-old plantings for high value products.

Radial Timbers have also pioneered a new smart plantation strategy that mimics key features of native forests which, as a result is more productive, pest resistant, and allow a much earlier return on investment. They supply useful employment and investment statistics.

9. References

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