



heartwood
UNLIMITED

Plantation Sawlog Processing Trial Results

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Forestry, farming, carbon and
conservation in
landscapes that flourish

Heartwood



- Grow naturally durable hardwood plantations in agroforestry systems
- First plantings in 1998
- Predominantly Gippsland, SE VIC
- ~50 privately owned properties
- ~3,500ha land & timber investment
- Plantation size 20-200ha
- Species matched to site and since 2015 in dual species plantings

Partnership with Radial Timber



- Innovative processing
- Located in Yarram, SE Vic
- Annual cut up to 12,000 m³
- High demand for products
- Predominantly sourced from Vic Forest until 2023
- Transitioning to plantation



Processing Young Eucalypts: Radial Sawing



Conventional Sawing



Plantation Sawlog Processing Trial



Background

- ▶ 2019 Vic Gov planned end of native forest logging by 2030 (ended 2022)
- ▶ Planned transition to plantation & private native resource brought forward
- ▶ Trial to assess recovery & quality of plantation class 1 & 2 durable timber verses public forest resource
- ▶ Expect plantation timber to have less defect (pruning) and possibly less density

The Resource

Bunyip, West Gippsland

- ▶ Predominantly Spotted Gum, planted 2000 & 2002
- ▶ Some Southern Mahogany & small areas of Yellow Stringybark & Silvertop Ash
- ▶ Ave Rainfall 1000 mm/year
- ▶ 30-50 cm DBH
- ▶ 22-28 m height
- ▶ Pruned & thinned

Hensley Park, Southwest Vic

- ▶ Spotted Gum, planted 1992
- ▶ Ave Rainfall 650 mm/year
- ▶ 40-70 cm DBH
- ▶ 15-20 m height
- ▶ Pruned & thinned

Harvesting spotted gum, Bunyip Victoria



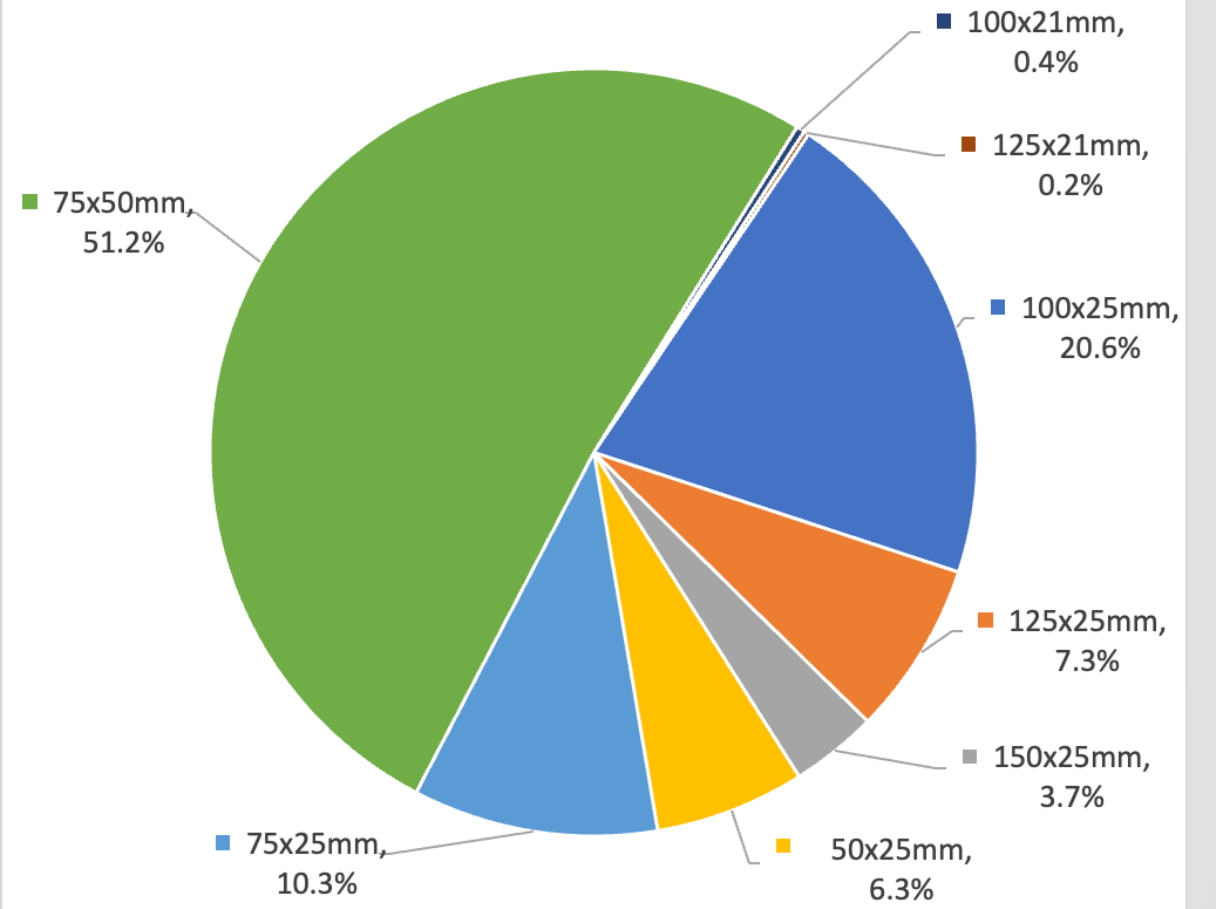
Processing the Resource

- ▶ 487 sawlogs
- ▶ SED >25 cm (27 – 37 cm)
- ▶ Length 3.8 – 5.7 m
- ▶ Ave log size 0.415 m³
- ▶ Grouped by species & size
- ▶ Each log cut into range of board sizes at Radial Timber Sawmill in Yarram





Figure 1. Proportion of Board Sizes Cut



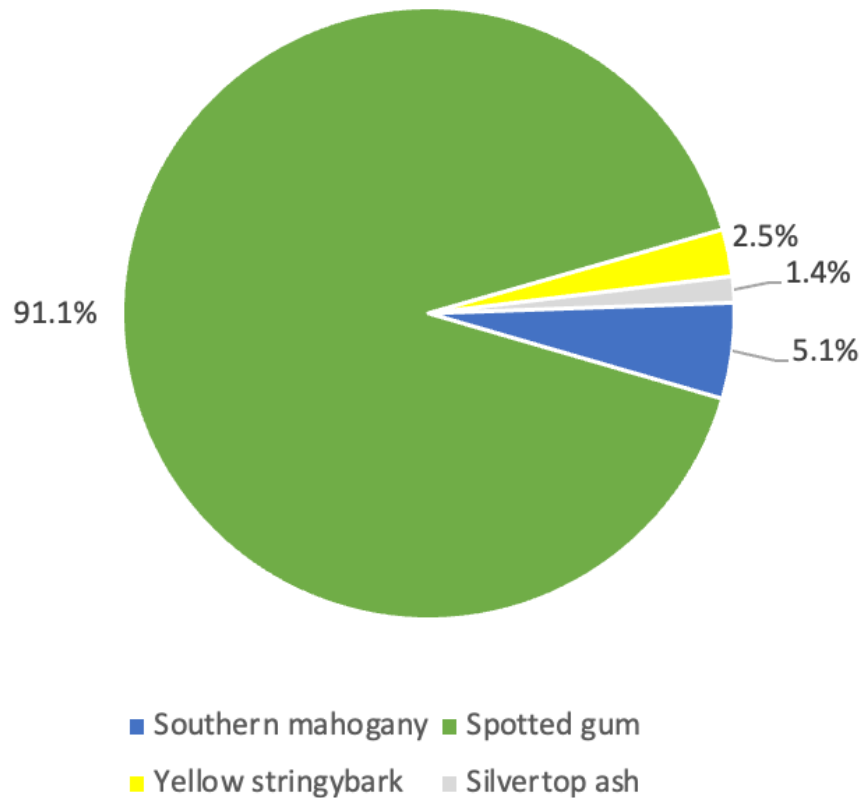


Processing & Assessment

- ▶ Air dried for 12 months
- ▶ Kiln dried & molded
- ▶ Range of products to see how they perform
 - ▶ Screen boards,
 - ▶ Shiplap,
 - ▶ Decking,
 - ▶ Lining boards
- ▶ Spotted Gum sapwood is Lyctus borer susceptible
 - ▶ outer boards treated with boron to assess long-term impacts against borer and dry recovery

Results – Green Recovery

Figure 2. Proportion of Log by Species



- 202.37 m³ sawlog
- 86.34 m³ total product
- 42.7% green recovery
- (Range 35.3% - 46.5%)

- No measurable difference in recovery between species

- Small proportion of yellow stringybark contained stem rot

Results – Dry Mill Spotted Gum

Southwest Resource

- ▶ 32 m³ log
- ▶ 2 subsets based on cutting schedules (wedge type)
 - ▶ 35.7% & 39% green recovery
- ▶ Some treated with Boron to track results of borer
- ▶ Dry Mill Results so far only for boron treated timber
- ▶ Remainder to be processed shortly



Results – Dry Mill Sawn Recovery

Results from Dry Racks processed:

- Infeed 2,182 Lm
- Outfeed 1,987.7 Lm
- Total recovery 91.1%
- Varied by product
 - 74.8% – 96.4%
- Small amount of downgrade
- Significant amount affected by borer
 - This is expected on outer boards
 - Awaiting results of inner boards (should not be affected by Lyctus, other?)

Figure 3. Total recovery % by product

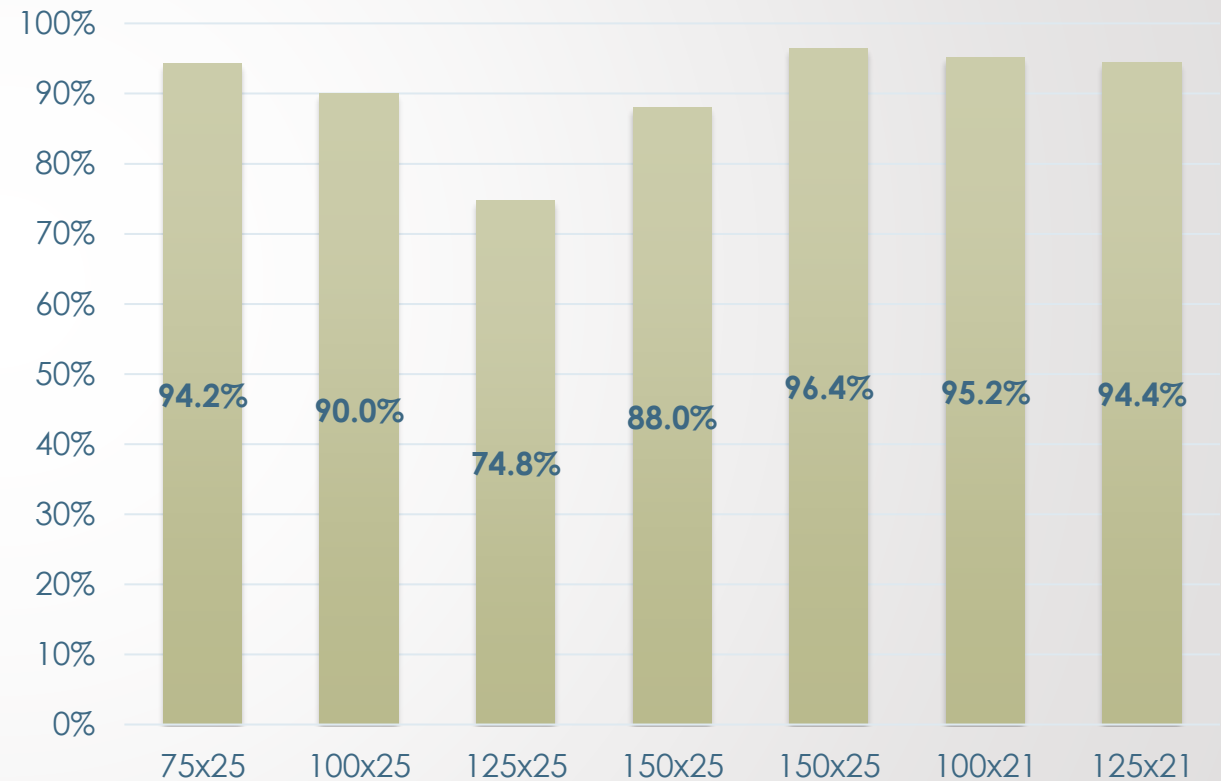
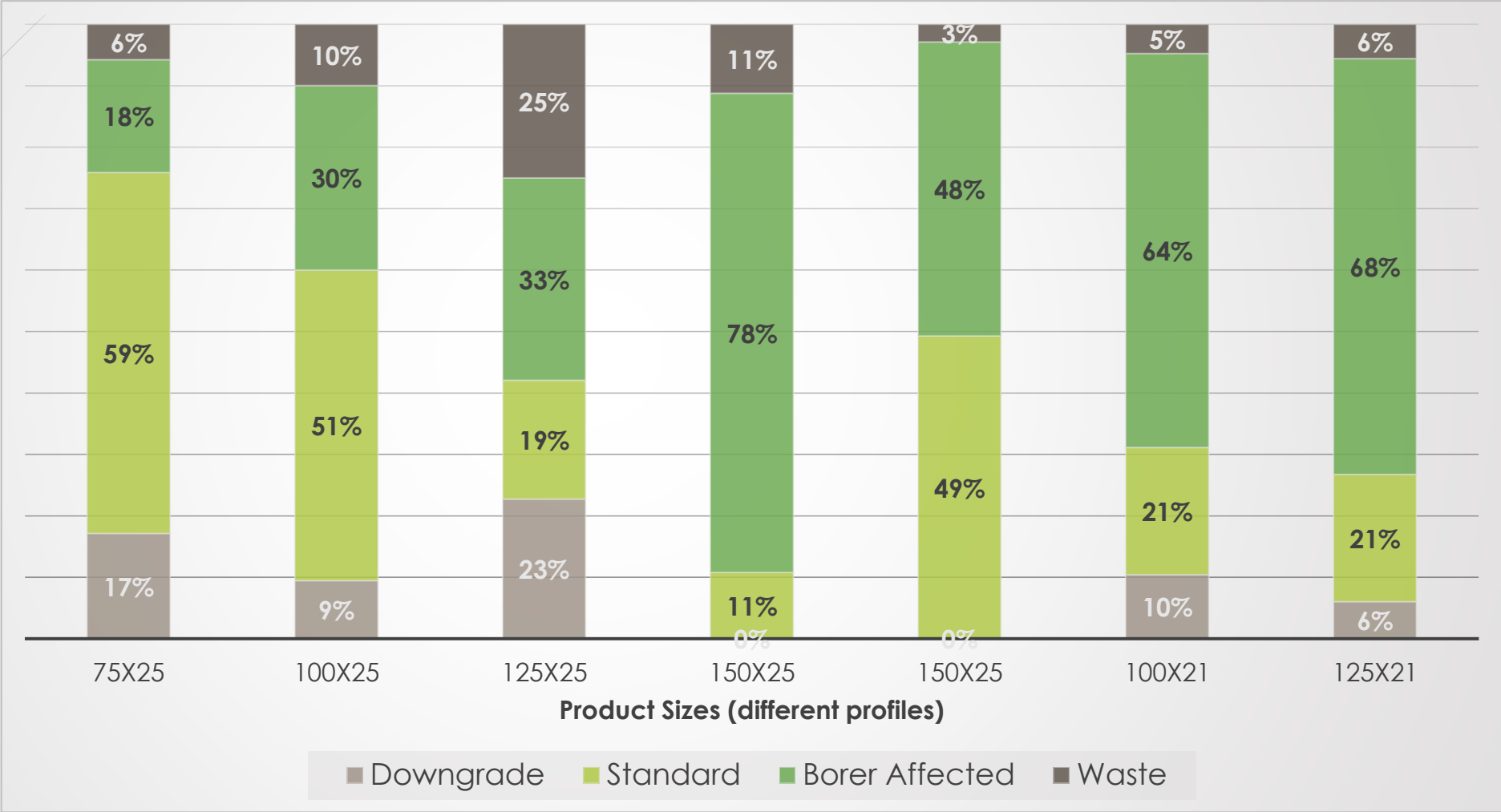


Figure 4. Within Product Recovery Results

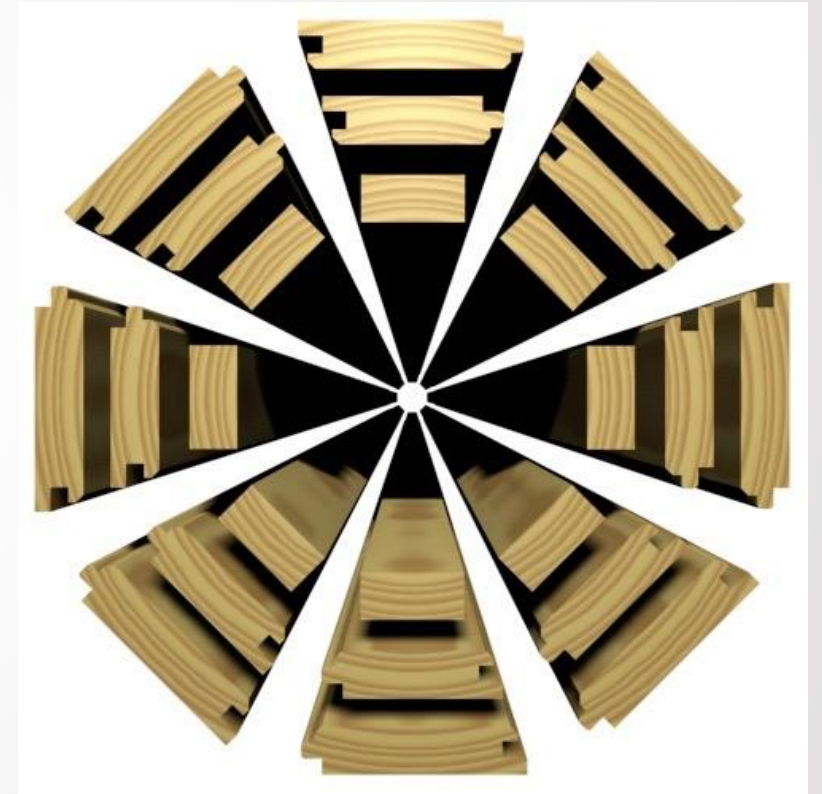


Green Recovery - Key Outcomes & Discussion

- ▶ Fundamental importance that plantations were thinned and pruned
 - ▶ Minimal defect from tension, knots & gum
- ▶ Significance of plantation management to achieve high green recoveries despite small log sizes
- ▶ Green recoveries in line with older-age logs supplied by VicForests
- ▶ As expected, larger sapwood band than public forest resource
- ▶ Spotted Gum sapwood is *Lyctus* borer susceptible

Green Recovery - Key Outcomes & Discussion

- Majority of logs cut into 45 degree wedges then back sawn into boards
- 29 spotted gum logs cut into 90 degree wedges
- Latter produced higher recovery 44%
- Difference in dry recovery yet to be determined



Dry Recovery – Key Outcomes & Discussion

- Good total recovery on limited amount processed so far
- Borer issues
- More results once all processed
- Anecdotally:
 - Cut up beautifully – some of the best they have handled
 - More gum associated with spotted gum (just species or due to plantation unknown)





Conclusion

- Managed 20 to 30-year-old plantations of select *Eucalyptus* and *Corymbia* species can be radially sawn into high-value appearance timber products and achieve excellent Green & Dry recovery

