

Understanding outdoor durability of specialty species Assessments for 2024 & 2025

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Executive summary

The problem

A key barrier to the wider use of New Zealand's specialty species in outdoor environments is the limited durability data available to support market approval. Durability is a defining performance attribute for exterior wood products, shaping service life, structural reliability, and commercial viability. It may be inherent in naturally durable species or achieved through modification processes such as thermal treatment. This project addresses the data gap by undertaking accelerated outdoor trials to benchmark and compare durability under realistic exposure conditions. Although these trials are designed to hasten decay relative to typical service environments, multi-year assessments are still required to generate meaningful results. By building a robust evidence base, the project will expand the range of high-value products that can be manufactured from New Zealand-grown specialty species. This broader product offering will strengthen grower confidence, open new market opportunities, and encourage the planting of diverse forest species.

This project

Since 2016, outdoor durability trials of selected specialty species—both modified and unmodified—have been installed at the Whakarewarewa test site on the Rotorua campus of the Bioeconomy Science Institute (BSI). This report consolidates results from durability assessments conducted in 2024 and 2025 of trials set up by the Specialty Wood Products Partnership (SWP). Although samples were evaluated in 2024, no formal report was prepared at that time; therefore, this document integrates findings from both years to provide a comprehensive overview of product and species performance across multiple trial types.

Key results

- Thermal modification improves durability and stability: *Cupressus* and Douglas-fir heartwood consistently resisted decay better than unmodified controls and *P. radiata*, with reduced checking and greater dimensional stability (e.g., less cupping in weatherboards).
- Surface degradation remains a weakness: Despite improved decay resistance, thermally modified samples were more prone to mould and weathering, and Douglas-fir heartwood showed no improvement in surface performance.
- Treatment parameters are critical: Douglas-fir modified at 220 °C outperformed 230 °C treatments in accelerated trials, and sapwood benefits were limited compared with heartwood, underscoring the need for process optimisation.
- Untreated *Eucalyptus fastigata* laminated veneer lumber (LVL) surpasses the decay performance of untreated solid *E. fastigata* heartwood framing after four years of exposure, though it remains less durable than industry-approved species such as *C. macrocarpa* and larch.

Implications of results for the client

Early results indicate that thermal modification significantly improves decay resistance and dimensional stability in *Cupressus* and Douglas-fir, positioning them as viable alternatives to traditional durable species and chemical treatments. However, surface degradation and treatment optimisation remain challenges. While premium references (Kebony, Accoya) still outperform, thermal modification provides a promising pathway to expand specialty timber resilience and market opportunities with reduced reliance on chemical preservatives.

Further work

Many of the installed trials remain at an early stage in generating the data needed for market approval of these products. It is therefore recommended that all outdoor trials continue to be assessed for the foreseeable future. Framing trials, however, can be considered complete at this stage and could be disestablished.

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Introduction

Durability is a critical performance attribute for specialty wood products intended for outdoor applications. It influences product longevity, structural integrity, and market viability—whether derived from naturally durable species or achieved through modification processes such as thermal treatment. To evaluate and compare the durability of these materials under realistic exposure conditions, accelerated outdoor testing provides essential insights. Although these tests are designed to expedite decay processes relative to typical service environments, they still require multi-year assessment cycles to yield meaningful data.

This report presents the results from annual durability assessments conducted in 2024 and 2025 of trials set up as part of the Specialty Wood Products Partnership (SWP). While samples were assessed in 2024, no formal report was prepared that year; therefore, this document consolidates findings from both years to provide a comprehensive overview of product and species performance across multiple test types.

A key focus of this work is the evaluation of thermally modified wood—specifically *Cupressus lusitanica*, *C × ovensii*, and Douglas-fir. Thermal modification, which involves heating wood to high temperatures in the absence of oxygen, has demonstrated potential to enhance the durability of both non-durable and moderately durable species. Previous SSIF-funded research at BSI Rotorua has shown that thermal treatment improves the decay resistance of *C. lusitanica* heartwood and sapwood, potentially enabling broader utilisation of sapwood in outdoor products and extending the service life of heartwood components. Similarly, SWP-funded laboratory testing of thermally modified Douglas-fir has indicated promising improvements in durability, suggesting expanded application potential beyond low-hazard interior use.

To validate these findings under outdoor conditions, several accelerated decay tests—flat panel, weatherboards, lap-joints, L-joints and decking—have been initiated. The flat panel and weatherboard tests provide an indication of suitability for cladding applications, while the combined results from flat-panel and decking tests inform the performance expectations for decking products. Lap joint and L-joint tests provide an indication of the products performance for joinery such as window frames. These assessments represent a critical step in the development and commercialisation of thermally modified wood products for exterior use.

In parallel, natural durability remains a key focus of the breeding programmes for both eucalypts and cypresses. Natural durability is influenced by the concentration of extractives and potentially by growth rates, both of which are known to vary with genetic makeup and environmental conditions at growing sites. This variability necessitates the assessment of multiple replicate trees to accurately assign durability performance to a species.

Developments in the breeding programme have made it possible to evaluate new hybrid cypress materials. Trees from *Cupressus × ovensii*, a clone of the hybrid *C. lusitanica × C. nootkatensis* (Nootka cypress), are now reaching sufficient size to yield meaningful quantities of processed timber. Leyland cypress (*Cupressus × leylandii*), a hybrid with macrocarpa/lusitanica and nootka parentage, is also under evaluation. Given the importance of durability in cypress timber, understanding the performance of these hybrids is essential for future utilisation. To assess their in-ground durability, a stake trial was established at the Whakarewarewa outdoor test site.

Additionally, a stake and stakelet trial was established for durable *Eucalyptus* species selected by the Eucalypt Action Group of Farm Forestry New Zealand. These trials, initiated in 2016 at the BSI Rotorua campus, included untreated radiata pine sapwood, CCA-treated radiata pine, and untreated European beech sapwood for comparative purposes.

The *Eucalyptus* species included in the trials were:

- *Eucalyptus bosistoana*
- *Eucalyptus quadrangulata*
- *Eucalyptus pilularis*
- *Eucalyptus sphaerocarpa*
- *Eucalyptus globoidea*

- *Eucalyptus muelleriana*

Complementing these efforts, an additional trial was established to determine the decay resistance of New Zealand-grown alternative species in framing using an accelerated decay test developed by BSI Rotorua (Hedley et al., 2009; Singh et al., 2014) and described in the Australasian protocols for assessment of wood preservatives (Australasian Wood Preservation Committee, 2015). This test method simulates the common framing joint in house construction—specifically between studs and nogs—where moisture ingress in leaky buildings can create conditions conducive to fungal decay.

The groups of samples assessed in 2024 and 2025 were:

- *Eucalyptus fastigata*, mixed heartwood/sapwood, untreated
- *Eucalyptus fastigata*, LVL, untreated
- *Cupressus macrocarpa*, young trees, heartwood, untreated
- *Cupressus macrocarpa*, old trees, heartwood, untreated
- Larch, heartwood, untreated
- Douglas-fir, mixed heartwood/sapwood, untreated
- Radiata pine, mixed heartwood/sapwood, untreated
- Radiata pine, mixed heartwood/sapwood, H1.2 boron treated

Together, these trials contribute to a broader understanding of durability performance across a range of species and treatments, supporting the development of resilient, high-performance wood products for New Zealand's specialty timber sector.

Materials and methods

Milestone 1: FT 41 – Thermally modified *Cupressus lusitanica* L-joints

Materials and sample preparation

An L-joint trial was installed for *Cupressus lusitanica*. Samples of *C. lusitanica* were thermally modified (TM) before exposure. Samples were either mixed sapwood/heartwood or heartwood and were either uncoated or painted. Untreated and treated (CCA) radiata pine were included in the trials for comparative purposes. A commercial benchmark of Accoya was included in the trial. The trials were installed in the Whakarewarewa test site on the BSI campus, Rotorua in February 2022. The L-joint groups included in the test are shown in Table 1.

Table 1: Groups of L-joints included in the test

Group	Species	Heart/sap mix	Treatment	Coating
1	<i>Cupressus lusitanica</i>	Mixed	-	None
2	<i>Cupressus lusitanica</i>	Mixed	-	Painted
3	<i>Cupressus lusitanica</i>	Heartwood	-	None
4	<i>Cupressus lusitanica</i>	Heartwood	-	Painted
5	<i>Cupressus lusitanica</i>	Mixed	TM ¹ 220°C	None
6	<i>Cupressus lusitanica</i>	Heartwood	TM 220°C	None
7	Accoya	Sapwood	Acetylation	None
8	Accoya	Sapwood	Acetylation	Painted
9	Radiata pine	Sapwood	-	None
10	Radiata pine	Sapwood	-	Painted
11	Radiata pine	Sapwood	H3.1 LOSP	None
12	Radiata pine	Sapwood	H3 CCA	None
13	Radiata pine	Sapwood	H3 CCA	Painted

¹ TM indicates Thermal modification treatment

This report includes results for L-joint tests from the 2025 (3 year) assessment (assessment was not funded in 2024)

Milestone 2: Test 109 - Cypress stakes

Materials and sample preparation

Stakes (20 x 20 x 500 mm) were prepared as shown in Table 2. Appendix 2 records a description of each stake.

Table 2: Stake groups in test

Group	Source	Number of stakes	Comments
<i>Cupressus x ovensii</i>	Rotoehu	30	Three 22-year-old trees
	Riverhead	30	One 24-year-old tree
<i>Cupressus x leylandii</i> Leyland cypress	Northland	30	Sawn at Ruapehu sawmill
CCA H4 treated radiata pine	-	10	
Untreated radiata pine sapwood	-	10	

Rotoehu *C. x ovensii*

The selection and harvesting of these trees is covered in the file note SWP-FN084 (Stovold et al., 2019). The trees were 22 years old and were grown as part of a cypress clonal trial. The graveyard stakes were cut from three trees. Stakes were cut at BSI Rotorua, from inner and outer heartwood at three heights up each tree:

- The bottom of the first 6 m log (approx. 0.5 m up the tree)
- The top of the second 6 m log (approx. 11.5 m up the tree)
- The top of the first 6 m log (approx. 5.5 m up the tree). In a few cases suitable samples couldn't be found, so stakes were cut from the bottom of the second log (approx. 7 m up the tree)

Riverhead *C. x ovensii*

These trees were grown by Audrey Hayes, Riverhead and were 24 years old at the time of harvest. Details of the trees were published in New Zealand Tree Grower in February 2013, and can be found on the New Zealand Farm Forestry Association Website (Satchell, 2013). These stakes were supplied to BSI Rotorua in final dimension and came from the head log of one tree (approx. 8 m up the tree).

Leyland Cypress

Eighteen lengths of Leyland cypress were supplied to BSI Rotorua by Ruapehu sawmill as boards for structural testing. Half the boards were 150 x 40 mm and half were 150 x 25 mm. The boards were nominally 4.8 m long, but many boards were longer. The boards came from trees grown in Northland, and no further details are known about the trees. Stakes were cut at BSI Rotorua from all 18 boards, with between 1 and 3 stakes cut from each board. The board number and the end of the board where the stake was cut was recorded. For five boards, it was possible to cut stakes from either end of the board.

Installation

Stakes were installed in the Whakarewarewa test site in Rotorua in April 2021.

Assessment methods

The stakes are assessed yearly and the stakelets are assessed at three monthly intervals. Assessments are made using a rating system based on ASTM D-1578 as shown in Appendix A.

Milestones 3 & 7: Test 104 - Eucalypt stakes and stakelets

Materials and sample preparation

The test method used in this study is based on the protocols for assessment of wood preservatives produced by the Australasian Wood Preservation Committee (AWPC; 2015), and ASTM standard test methods (ASTM 2006).

Timber, approximately 25 x 25 mm of differing lengths, and from six different *Eucalyptus* species was supplied by Dean Satchell of the Farm Forestry Group to produce stakes and stakelets for durability testing. Timber had been sawn from four different trees for each species, and the supplier informed BSI that the trees were 15 years old and grown in Northland. The lengths of timber had been marked with the tree number and whether the timber was from inner or outer heartwood. Some lengths of timber were marked as inner\outer or mixed. Table 1 shows the number of boards supplied for each tree whether the boards contained inner or outer heartwood. BSI relied on the supplier for tree age and origin information.

On arrival at BSI, the wood strips were air dried in a heated laboratory for five weeks. At the time of installation, the samples were dry.

Ten stakes were cut for each tree, five from the inner heartwood and five from outer heartwood. Some of the trees did not have 5 inner and 5 outer heartwood samples. In this case extra stakes were cut to give a total of ten stakes for each tree.

Stakes were machined to 20 x 20 x 500 mm from each length as shown in Table 3. Some stakes were slightly undersized leaving a rough sawn surface. It was observed that the stakes from tree 4 (*E. bosistoana*) appeared darker in colour than stakes cut from the other three trees of the same species.

Table 3: Timber supplied to prepare stakes

Eucalyptus species	Tree number	Log number	Number of lengths supplied I = Inner heartwood, O = Outer heartwood M = Mid heartwood
<i>E. bosistoana</i>	1	1	1-I 4-O 1-I/O Quite a few short pieces
<i>E. bosistoana</i>	2	1	2-I 3-O
<i>E. bosistoana</i>	3	1	6-I 7-O
<i>E. bosistoana</i>	4	1	3-I 5-O
<i>E. quadrangulata</i>	5	1	4-I 4-O
<i>E. quadrangulata</i>	6	1	4-I 4-O
<i>E. quadrangulata</i>	7	1	7-I 5-O
<i>E. quadrangulata</i>	8	1	3-I 4-O
<i>E. pilularis</i>	9	1	4-I 4-O
<i>E. pilularis</i>	10	1	4-I 6-O 2-M
<i>E. pilularis</i>	11	1	4-I 4-O
<i>E. pilularis</i>	12	1	8-I 8-O
<i>E. sphaerocarpa</i>	13	1	8-I 8-O
<i>E. sphaerocarpa</i>	14	1	7-I 8-O
<i>E. sphaerocarpa</i>	15	1	5-I 6-O
<i>E. sphaerocarpa</i>	16	1	4-I 7-O 1-I/O
<i>E. globoidea</i>	17	1	6-I 6-O
<i>E. globoidea</i>	18	1	4-I 3-O 1-M
<i>E. globoidea</i>	19	1	8-I 8-O 9-M
<i>E. globoidea</i>	20	1	8-I 6-O 8-M
<i>E. muelleriana</i>	21	1	7-I 8-O
<i>E. muelleriana</i>	22	1	8-I 8-O
<i>E. muelleriana</i>	23	1	7-I 8-O 5-M 1 short
<i>E. muelleriana</i>	24	1	8-I 8-O

Untreated radiata pine and European beech (*Fagus sylvatica*) stakes were also included in the trial for comparison purposes. The radiata pine and European beech stakes were taken from previously machined stock held at BSI. Stakes were also cut from CCA treated radiata pine treated to H3.2 and H4 obtained from a local retailer.

Each stake was tagged with a unique number and randomly allocated a plot position in the Whakarewarewa test site. Notes were made about each stake, including stakes that were undersized or contained knots and kino.

Stakelets (10 x 5 x 160 mm) were machined from each of the *Eucalyptus* trees and from radiata pine sapwood, European beech heartwood and CCA treated radiata pine. They were installed in the prepared soil bed in the Accelerated Decay House (with a controlled temperature of 27°C and a

relative humidity of 85%). Before installation into the soil bed, all the stakelets were soaked in water for approximately 30 minutes. Samples were labelled with a unique number and installed randomly in the soil bed at least 60 mm apart. Each specimen was buried to half its' length in the soil. The soil beds were refreshed at the three-monthly inspection times.

Installation

The stakes were installed in the Whakarewarewa test site in Rotorua on 24 June 2016. The European beech and treated radiata pine stakes were installed on 23 August 2016.

The stakelets were installed in the Accelerated Decay House on 5 July 2016.

Assessment methods

The stakes are assessed yearly and the stakelets are assessed at three monthly intervals. Assessments are made using a rating system based on ASTM D-1578 as shown in Appendix A.

Milestone 4: FT43 – Thermally modified cypress

Materials and sample preparation

A range of above ground trials were installed in 2022 and 2023 with thermally modified *Cupressus x ovensii* and *C. lusitanica* with unmodified *C. x ovensii*, *C. lusitanica* and *C. macrocarpa* as controls.

Flat Panels

Flat panels were installed on 24 August 2022. Flat panels were mounted on the aluminium racks, using an untreated radiata pine trough at the bottom of the samples, and a CCA treated batten for support behind the top edge of the samples. Samples filled one row on the aluminium racks.

Decking

Decking was installed on 21 August 2022 on one treated and one untreated bearer at ground level.,

Lap joints

Lap joints were installed in August 2022 on aluminium racks following the AWPA E27-15 (American Wood Protection Association, 2021) field trial method.



Figure 1: Installed lap joints showing narrow faces exposed at the surface with wide faces below.

Weatherboards

Cypress shiplap weatherboards were installed on a vertical rack in the Whakarewarewa test site on 1 June 2023 with two screws in each weatherboard sample. There was a treated bearer at the top and bottom edge of the samples and a steel roof above top edge of the samples. Samples were attached in groups of six, with the first sample from each group (6 samples), followed by the second sample from each group. A half width piece of macrocarpa weatherboard was installed at each end of the row of weatherboards to protect the end weatherboards.

Assessment methods

All trials are assessed annually using the rating scales in Appendix A.

Weatherboards are also assessed for distortion using a dial gauge (Mitutoyo Digital Indicator).

To allow for differences in width the following equation was used to standardise cup measurements:

$$c1 = c2.(w1/w2)^2$$

C2 is the cup measured on a board of width w2, and c1 is the level of cup you would expect if the board width was w1. W1 was set to 200 mm.

Milestones 5 & 7: FT38 Thermally modified Douglas-fir above ground and stakelets

Materials and sample preparation

Flat Panels

Samples of Douglas fir were thermally modified (TM) before exposure in a flat panel trial. Samples were either heartwood, or a heart\sap mix, and were uncoated. Untreated and treated (CCA, LOSP) radiata pine were included in the trials for comparative purposes along with naturally durable benchmarks of *Cupressus macrocarpa* and Western Red Cedar (*Thuja plicata*). Premium commercial products Accoya, Kebony, Vulcan and Linea were included in the trial. Macrocarpa is the only reference species that is a code compliant acceptable solution under NZS3602 for cladding.

The trials were installed in the Whakarewarewa test site, Rotorua in July 2021. The flat panel groups assessed in this test are shown in Table 4.

This report includes results for flat panel above ground tests from the 3rd and 4th year assessments.

Table 4: Groups of flat panels included in the test

Species	Heart\sap mix	Treatment	Coating
<i>Cupressus macrocarpa</i> (young)	Heartwood	-	None
<i>Cupressus macrocarpa</i> (old)	Heartwood	-	None
Douglas-fir	Heartwood	-	None
Douglas-fir	Heartwood	TM 230°C	None
Douglas-fir	Heart/sap mix	TM 230°C	None
Radiata pine	Sapwood	-	None
Radiata pine	Sapwood	-	Stained
Radiata pine	Sapwood	H3.1 LOSP	None
Radiata pine	Sapwood	H3.1 LOSP	Stained
Radiata pine	Sapwood	H3 CCA	None
Radiata pine	Sapwood	H3 CCA	Stained
Western red cedar	Heartwood	-	None
Western red cedar	Heartwood	-	Stained
Accoya	Sapwood	Premium commercial product	None
Accoya	Sapwood	Premium commercial product	Stained
Kebony	Sapwood	Premium commercial product	None
Kebony	Sapwood	Premium commercial product	Stained
Vulcan TM radiata pine	Sapwood	Premium commercial product	None
Vulcan TM radiata pine	Sapwood	Premium commercial product	Stained
Linea fibre cement	-	-	None
Linea fibre cement	-	-	Stained

¹ TM indicates Thermal modification treatment

Decking

Samples of *C. lusitanica* and Douglas-fir were thermally modified (TM) before exposure in a decking trial. Samples were either solely sapwood or heartwood and were uncoated. Untreated and treated (CCA) radiata pine were included in the trials for comparative purposes along with *C. macrocarpa* heartwood. Premium commercial products Accoya and Kebony were included in the trial. Macrocarpa is the only reference species that is a code compliant acceptable solution under NZS3602 for cladding.

The trials were installed in the Whakarewarewa test site, Rotorua in September 2021. The decking groups included in the test are shown in Table 5.

This report includes results for decking tests after 3- and 4- years outdoor exposure.

Table 5: Groups of decking included in the test

Species	Heart\sap mix	Treatment	Coating
<i>Cupressus macrocarpa</i> (young)	Heartwood	-	None
<i>Cupressus macrocarpa</i> (old)	Heartwood	-	None
Douglas-fir	Heartwood		
Douglas-fir	Sapwood	TM 230°C	None
Douglas-fir	Heartwood	TM 230°C	None
Accoya	Sapwood	Premium commercial product	None
Accoya	Sapwood	Premium commercial product	Stained
Kebony	Sapwood	Premium commercial product	None
Kebony	Sapwood	Premium commercial product	Stained
Radiata pine	Sapwood	-	None
Radiata pine	Sapwood	-	Stained
Radiata pine	Sapwood	H3 CCA	None
Radiata pine	Sapwood	H3 CCA	Stained

¹ TM indicates Thermal modification treatment

Milestone 6: FR 25 - Framing trial

This trial was established to determine the decay resistance of New Zealand grown alternative species using an accelerated decay test developed by BSI (Hedley et al, 2009; Singh et al 2014) and described in the Australasian protocols for assessment of wood preservatives (Australasian Wood Preservation Committee, 2015). The species that were assessed in 2024 and 2025 are shown in Table 6.

Table 6: Framing trial samples assessed in 2024 and 2025

Species	Heart\sap mix	Treatment
<i>Eucalyptus fastigata</i>	mixed heartwood\sapwood	untreated.
<i>Eucalyptus fastigata</i>	LVL	untreated.
<i>Cupressus macrocarpa</i>	heartwood young trees	untreated.
<i>Cupressus macrocarpa</i>	heartwood old trees	untreated.
Larch	heartwood	untreated
Radiata pine	mixed heartwood\sapwood	untreated.
Radiata pine	mixed heartwood\sapwood	H1.2 boron treated.

This test method simulates the common framing joint in house framing between studs and nogs, where in a leaky building, moisture may become trapped and provide suitable conditions for fungi to establish. Samples were exposed to fungi in the Accelerated Decay House in November 2021.

This report presents the decay assessment after 3- and 4-years outdoor exposure.

RESULTS AND DISCUSSION

Milestone 1: FT 41 – Thermally modified *Cupressus lusitanica* L-joints

After three years of outdoor exposure, uncoated thermally modified and unmodified *C. lusitanica* heartwood continues to perform well against decay, showing resistance comparable to commercially available products such as Accoya and H3.2 CCA-treated pine, and slightly superior performance to uncoated H3.1-treated pine (Figure 2). The uncoated thermally modified *C. lusitanica* heart-sapwood mix exhibits decay resistance similar to that of coated heartwood, with only marginal improvement over unmodified material.

In contrast, coated *C. lusitanica* samples have generally shown reduced decay resistance. This decline is likely associated with coating degradation over time, which may allow moisture ingress while simultaneously slowing drying rates relative to uncoated samples, resulting in elevated moisture contents and increased susceptibility to decay.

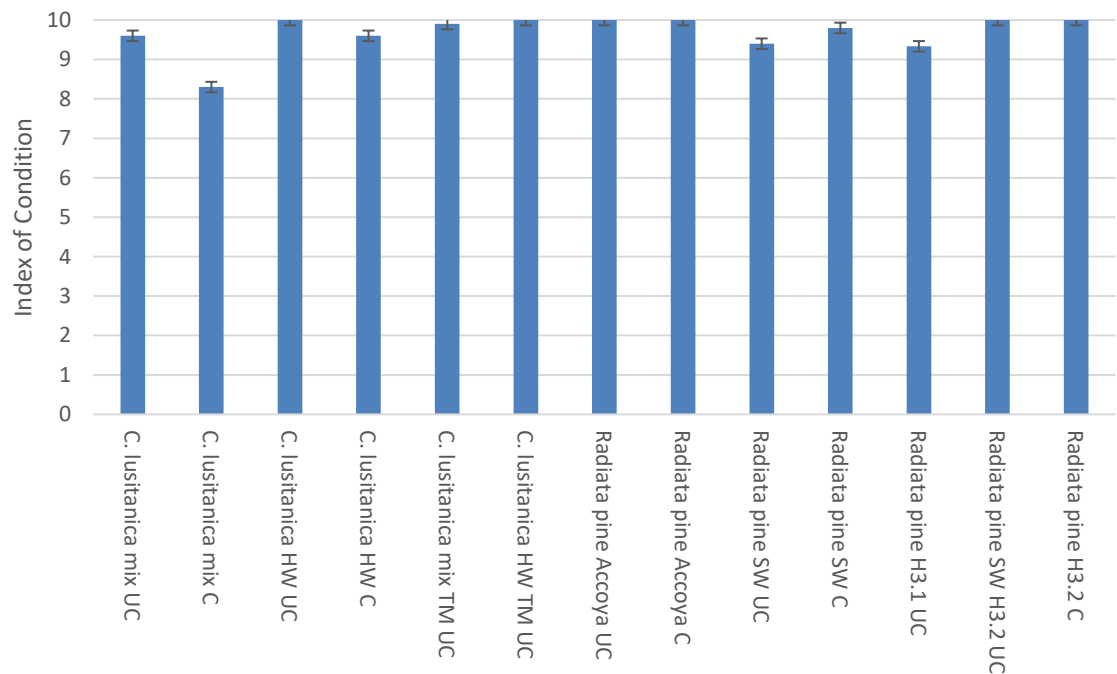


Figure 2: Index of Condition (decay) of L-joints after three years outdoor exposure. Error bars represent standard error.

Uncoated thermally modified *C. lusitanica* has exhibited minimal surface degradation to date, performing comparably to Accoya and H3.2-treated samples and outperforming coated *C. lusitanica* specimens (Figure 3). After three years of exposure, all samples in the test remain largely free from checking.

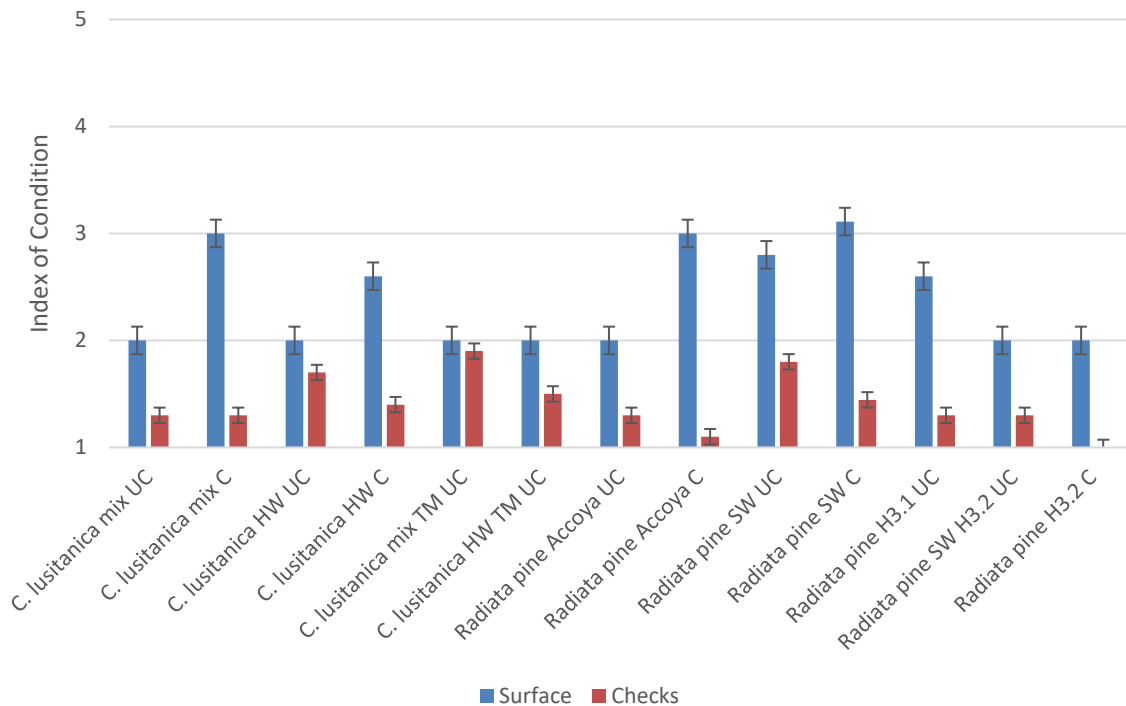


Figure 3: Index of Condition of the surface (surface degrade and checking) of L-joints after three years outdoor exposure. Error bars represent standard error.

Milestone 2: Test 109 - Cypress stakes

After four years of in-ground exposure, all *Cupressus* species are performing similarly, although the Rotoehu-sourced *C. x ovensii* shows slightly greater degradation than the other groups (Figure 4). All untreated radiata pine samples failed within three years, confirming strong decay potential at the test site. Overall, the *Cupressus* species are performing below the level of the H4 CCA-treated reference samples. The difficulty in separating heartwood and sapwood in this species when dry could have contributed to these results.

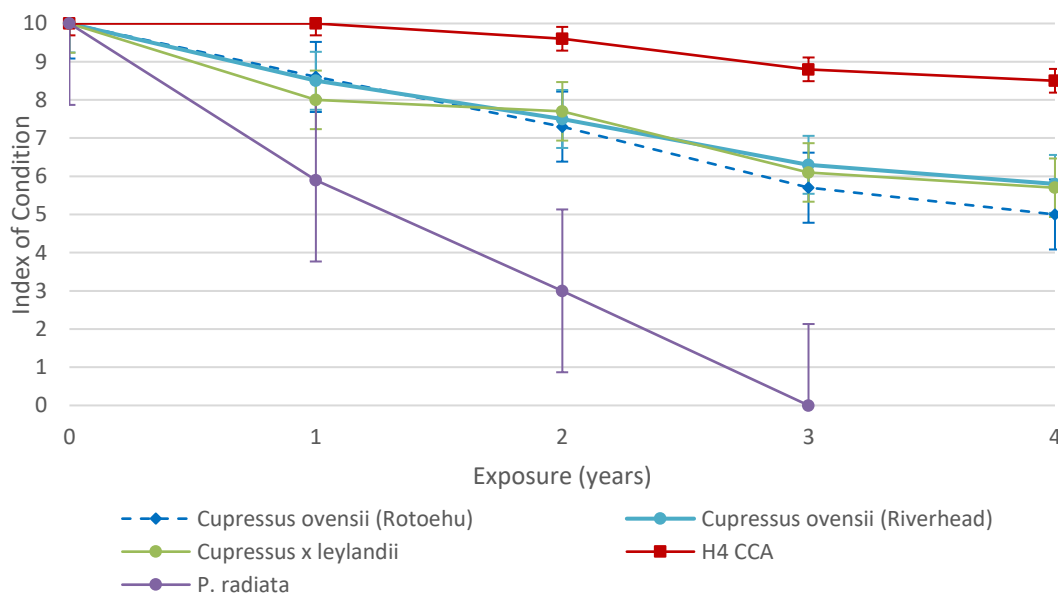


Figure 4: Index of Condition (decay) of cypress stakes after four years in-ground exposure. Error bars represent standard error. Radiata is sapwood.

Milestones 3 & 7: Test 104 - Eucalypt stakes and stakelets

In-ground exposure of *Eucalyptus* stakes has revealed a clear spread of durability performance among the species assessed (Figure 5). After nine years in service, *E. boisistoana* and *E. sphaerocarpa* exhibit the highest durability within the *Eucalyptus* group, although both remain outperformed by the H3.2 and H4 reference samples. At the lower end of the spectrum, *E. muelleriana* shows the least durability of the *Eucalyptus* species. The rapid failure of untreated radiata pine and European beech reference stakes—at three and four years respectively—highlights the strong decay hazard present at the test site. Notably, the apparent performance of the H3.2 and H4 reference stakes suggests that these samples may have been mis-labelled in previous assessments. Consequently, chemical analysis was carried out to confirm treatment levels, and the correct labels have now been applied to each group.

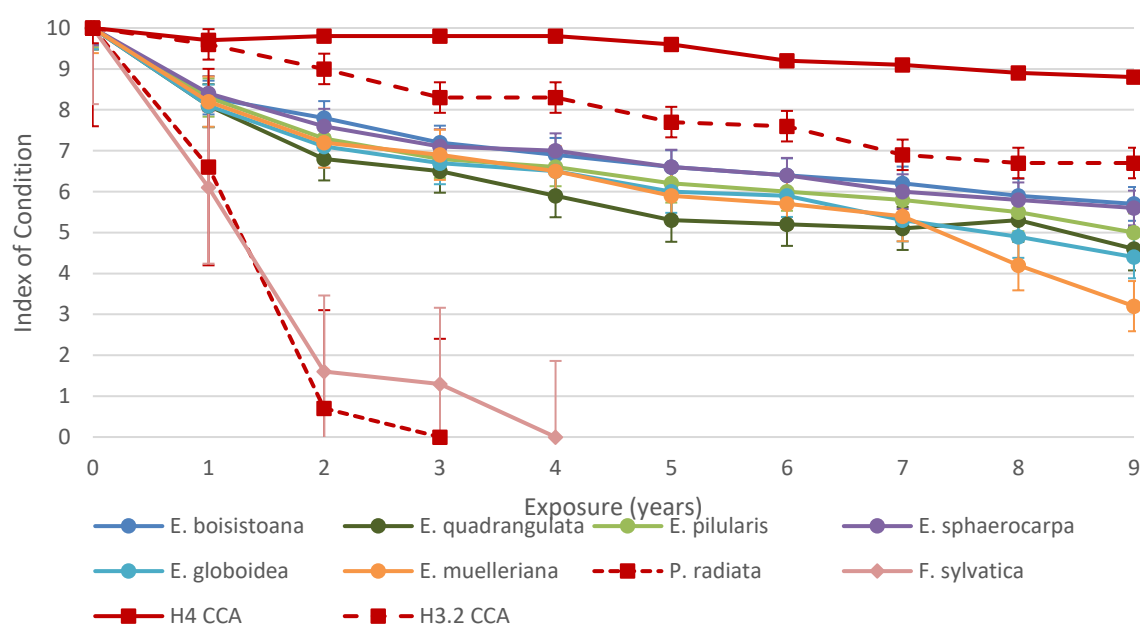


Figure 5: Index of Condition for *Eucalyptus* stakes after nine years in-ground exposure. Error bars represent standard error.

Stakelet trials reinforce the durability trends observed in the in-ground exposure test, with species ranking similarly across both methodologies (Figure 6). This trial is nearing completion, with only the H4 reference standards remaining in test. Table 7 presents predicted natural durability classes derived from the stakelet results using EN350-2016 (European Committee For Standardisation, 2016), alongside the corresponding natural durability classifications reported in AS5604-2005 (Standards Australia Limited, 2005).

Durability class (EN350) is calculated as:

$x \text{ value} = \text{average life of stakes} / \text{average life of the more durable set of reference stakes}.$

Durability Class (DC)	Description	Results of field tests expressed as x values
DC1	Very durable	$x > 5.0$
DC2	Durable	$3.0 < x \leq 5.0$
DC3	Moderately durable	$2.0 < x \leq 3.0$
DC4	Slightly durable	$1.2 < x \leq 2.0$
DC5	Not durable	$x \leq 1.2$

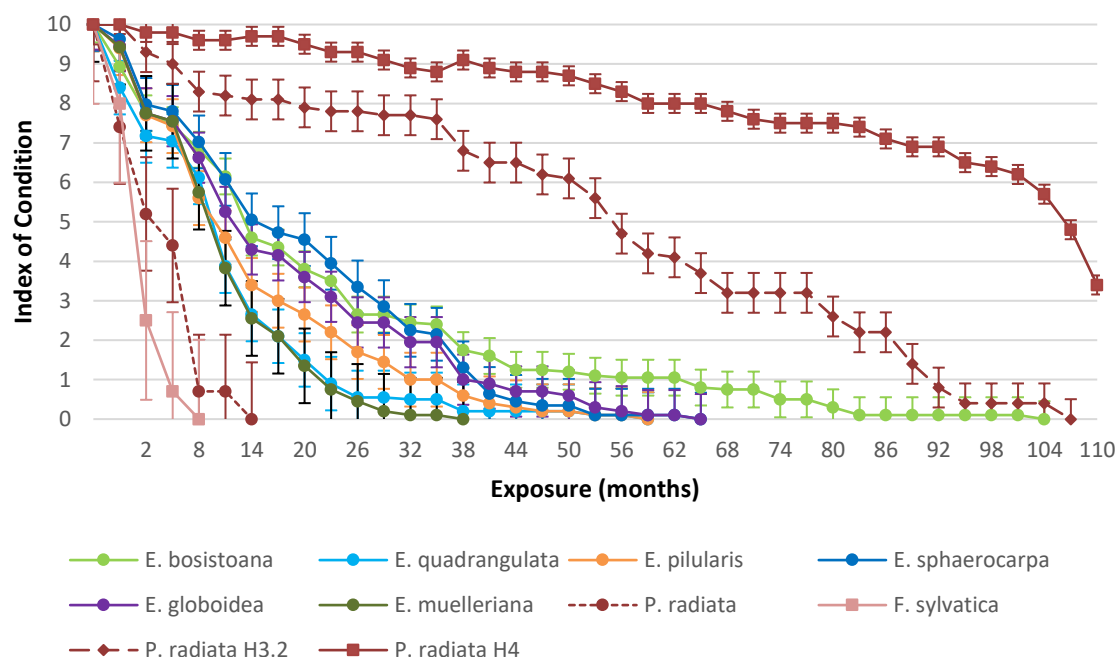


Figure 6: Index of Condition for Eucalypt stakelets after 113 months (9 yrs 5 months) exposure. Error bars represent standard error.

Table 7: Predicted durability class of *Eucalyptus* species from accelerated decay data (stakelets).

Species	Predicted durability class (EN350-2016)	Durability class (AS5604-2005)
<i>E. boisistoana</i>	2 – Durable	1
<i>E. quadrangulata</i>	3 – Moderately durable	2
<i>E. pilularis</i>	2 – Durable	2
<i>E. sphaerocarpa</i>	2 – Durable	2
<i>E. globoidea</i>	2 – Durable	2
<i>E. muelleriana</i>	3 – Moderately Durable	3

Milestone 4: FT43 – Thermally modified cypress

Flat Panels

Thermally modified *C. lusitanica* and *C. x oversii* flat panels exhibited less decay after three years compared with both unmodified *C. x oversii* and the *P. radiata* control (Figure 7). However, they showed greater surface degradation (mould and weathering) than the other samples (Figure 8). Checking was similar across all *Cupressus* samples and was less than in *P. radiata*.

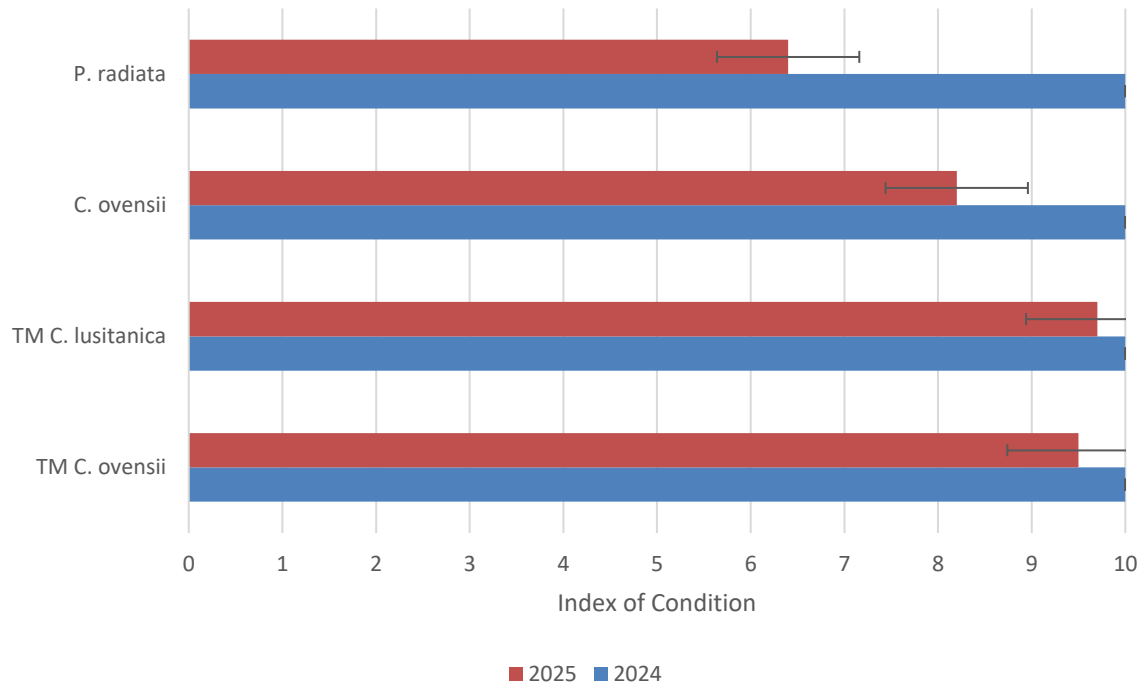


Figure 7: Index of Condition for thermally modified cypress flat panels decay after two- and three-years outdoor exposure. Error bars represent standard error.

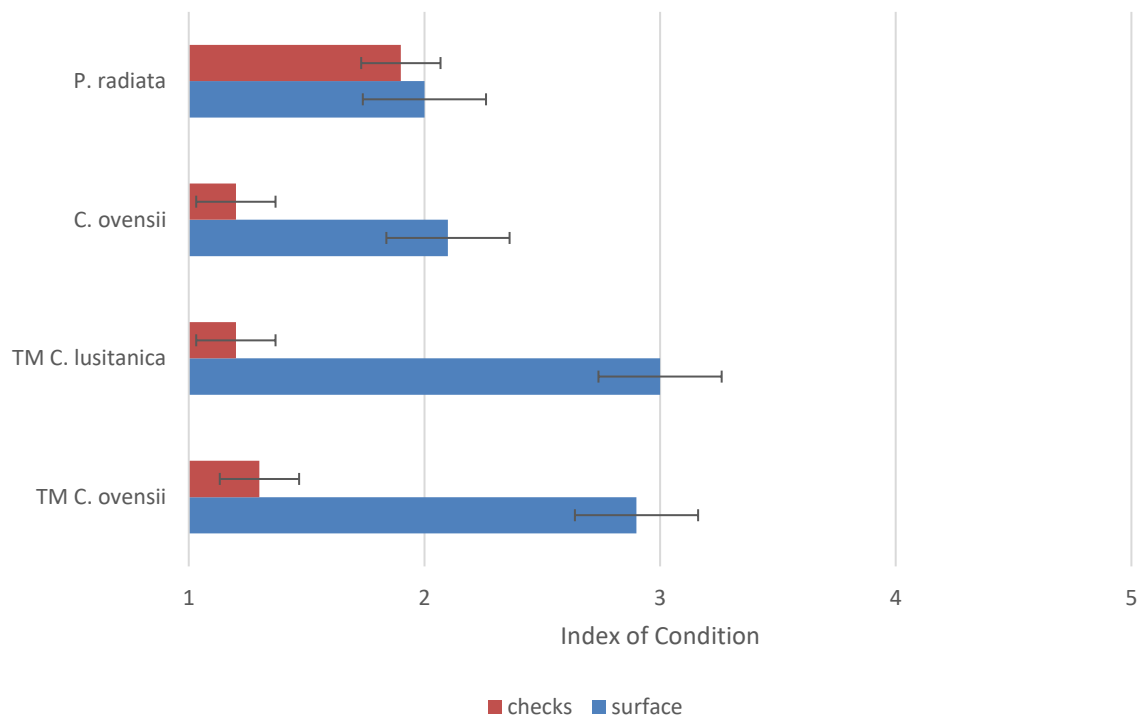


Figure 8: Index of Condition for thermally modified cypress flat panels surface and checking after three years outdoor exposure. Error bars represent standard error.

Decking

Thermally modified *C. lusitanica* and *C. x ovensii* mixed heart/sapwood decking outperformed all other treatments against decay (Figure 9), including *C. macrocarpa*, H3.2 CCA-treated *P. radiata*, and unmodified *C. lusitanica* and *C. x ovensii* mixed heart/sapwood. Surface degradation was

comparable to *C. macrocarpa* and H3.2 CCA, and lower than in unmodified *C. lusitanica* and *C. ovensii* (Figure 9). After three years, checking was minimal across all samples.

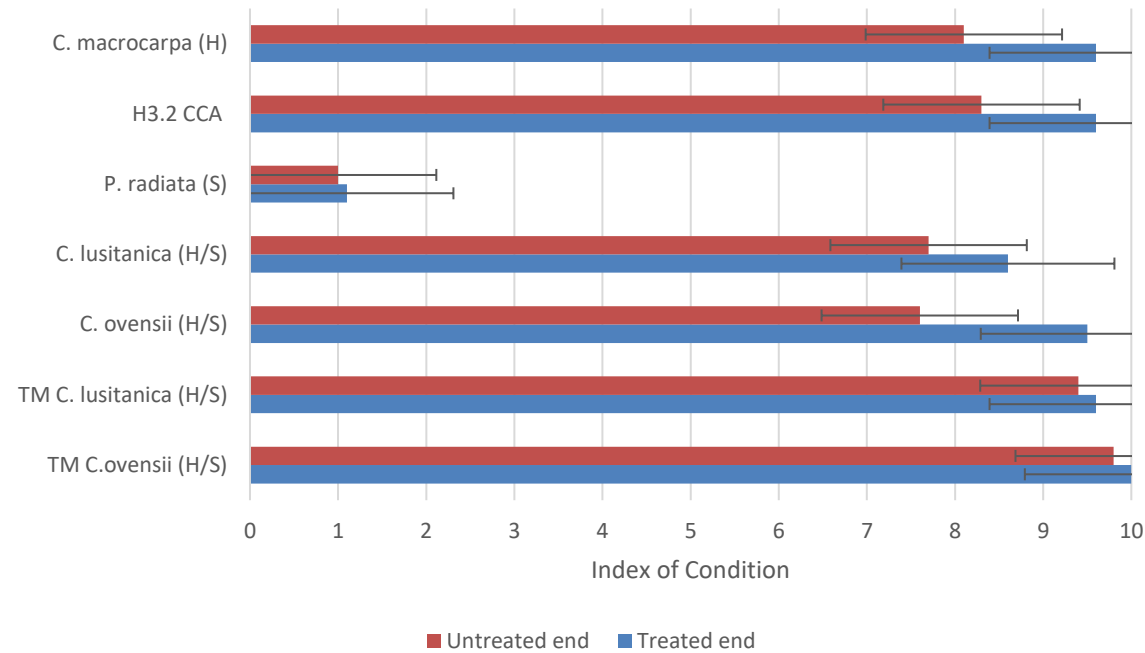


Figure 9: Index of Condition for thermally modified cypress decking decay after three years outdoor exposure. Error bars represent standard error. H = heartwood, S = sapwood

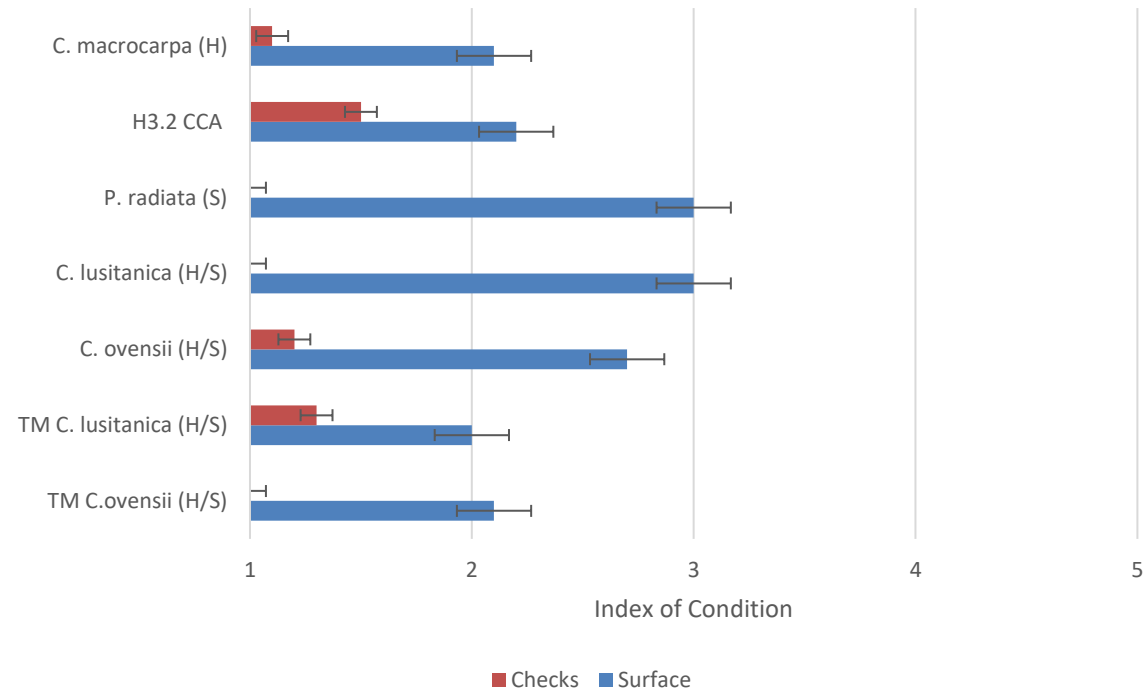


Figure 10: Index of Condition for thermally modified cypress decking checking and surface after three years outdoor exposure. Error bars represent standard error. H = heartwood, S = sapwood

Lap joints

Thermally modified *C. lusitanica* and *C. x ovensii* mixed heart/sapwood lap joints performed comparably to *C. macrocarpa*, showing no degradation after three years of outdoor exposure (Figure 11). They outperformed H3.2 CCA-treated *P. radiata* and unmodified *C. x ovensii*, but differences relative to thermally modified *P. radiata* and unmodified *C. lusitanica* were insignificant.

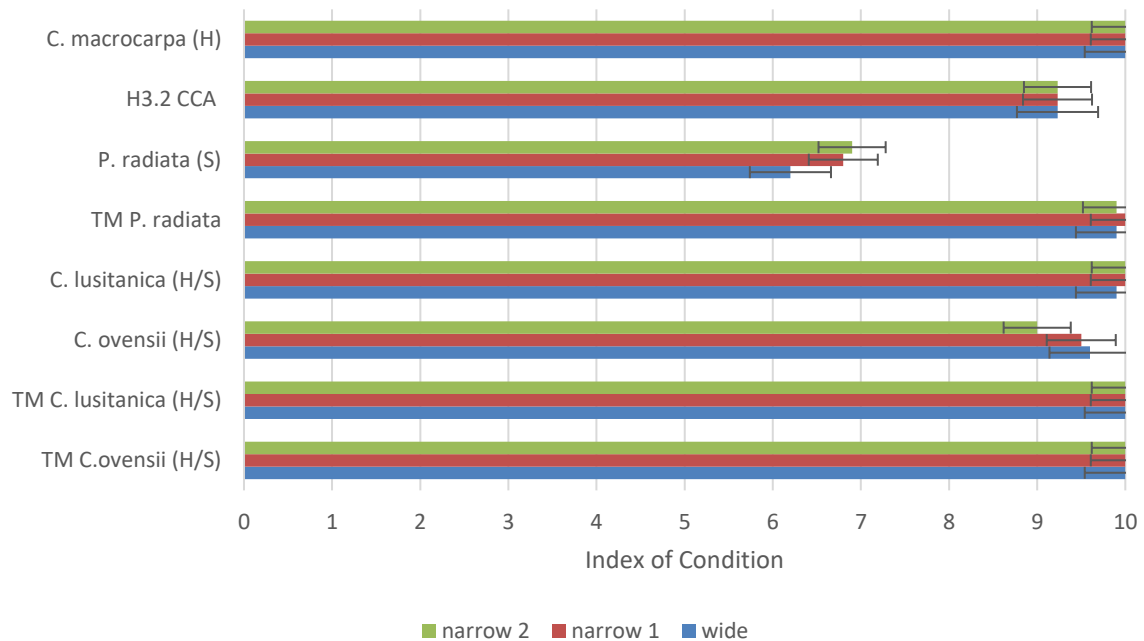


Figure 11: Index of Condition for thermally modified cypress lap joints decay after three years outdoor exposure. Error bars represent standard error. H = heartwood, S = sapwood

Weatherboards

No decay was observed in any of the weatherboard samples after two years of outdoor exposure, with few differences in checking or surface degradation (Appendix B, Milestone 4). However, thermally modified *C. lusitanica* and *C. x ovensii* exhibited less distortion (cupping) than all other samples, demonstrating greater dimensional stability after two years of exposure (Figure 12).

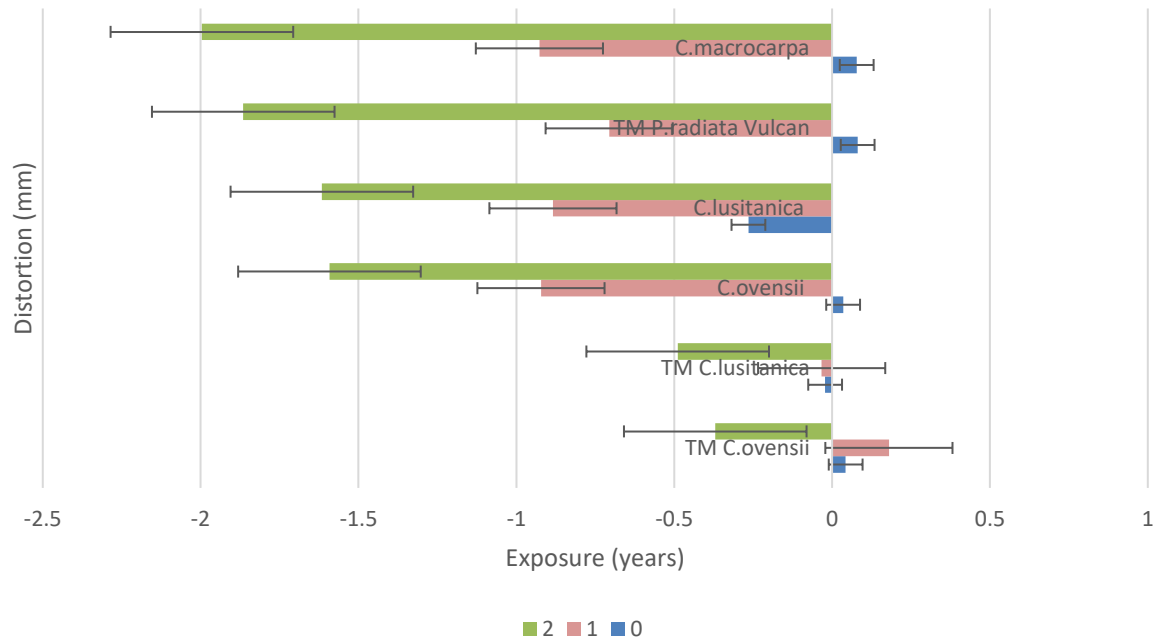


Figure12: Distortion (converted to 200mm width) in cypress vertical shiplap weatherboards after two years outdoor exposure. Error bars represent standard error.

Milestones 5 & 7: FT38 Thermally modified Douglas-fir above ground and stakelets

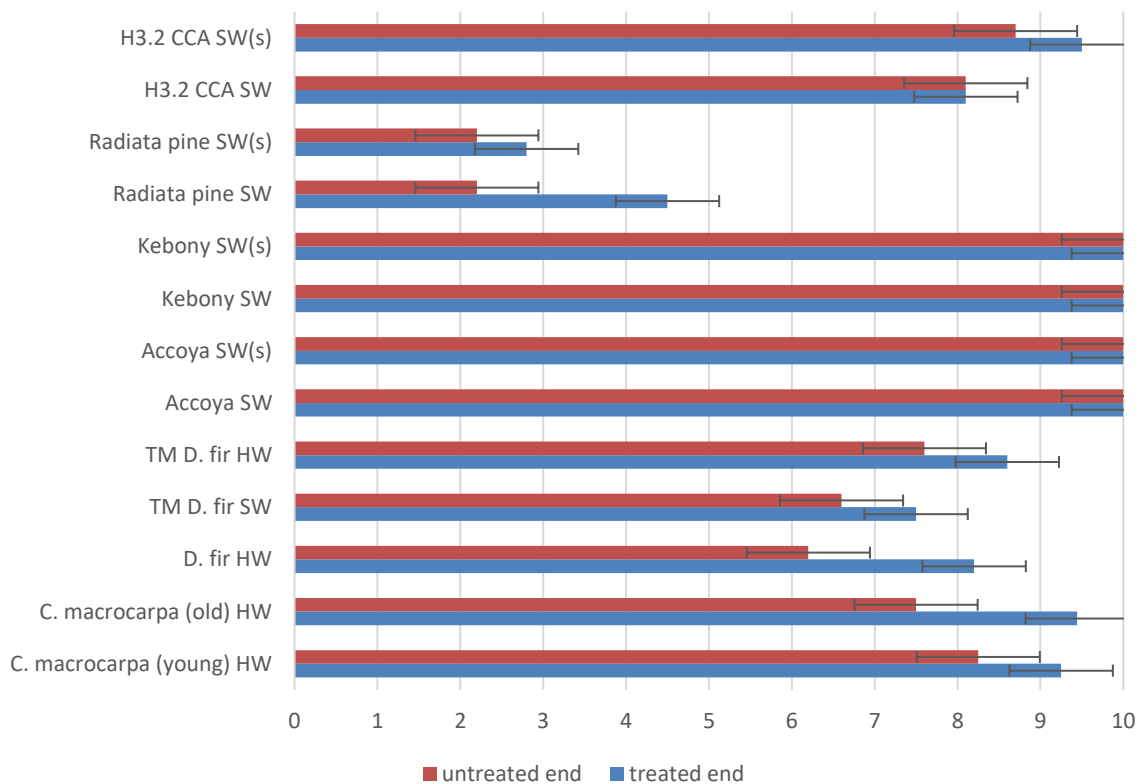


Figure 13: Index of Condition of thermally modified Douglas-fir decking after four years outdoor exposure. Error bars represent standard error. (s) = stained

Thermally modified Douglas-fir heartwood decking showed greater resistance to decay than unmodified heartwood and performed similarly to old *C. macrocarpa* and unstained H3.2 CCA-treated *P. radiata* after four years of outdoor exposure (Figure 13). Thermally modified sapwood performed comparably to unmodified heartwood. Kebony and Accoya reference samples exhibited no decay after four years. Thermal modification reduced checking in Douglas-fir heartwood but did not improve surface degradation (Figure 14).

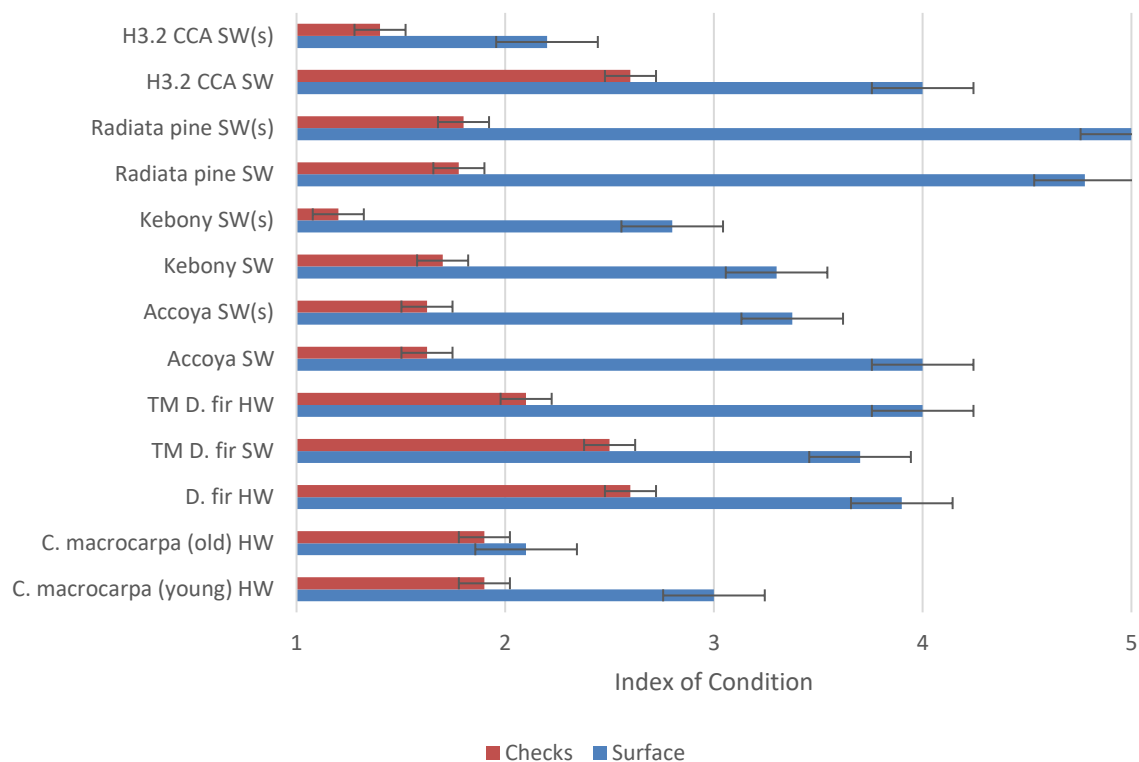


Figure 14: Index of Condition for thermally modified Douglas-fir decking, checking and surface after four years outdoor exposure. Error bars represent standard error. (s) = stained

In accelerated decay trials, Douglas-fir sapwood and heartwood thermally modified at 220 °C outperformed samples modified at 230 °C (Figure 15). The outdoor trial samples were modified at 230 °C. All thermally modified samples performed better than the Red Beech reference but failed more quickly than the H3.2 CCA-treated and Kebony reference samples. Red Beech is an acceptable species in NZS3602 for outdoor decking, stairs, balustrades, etc.

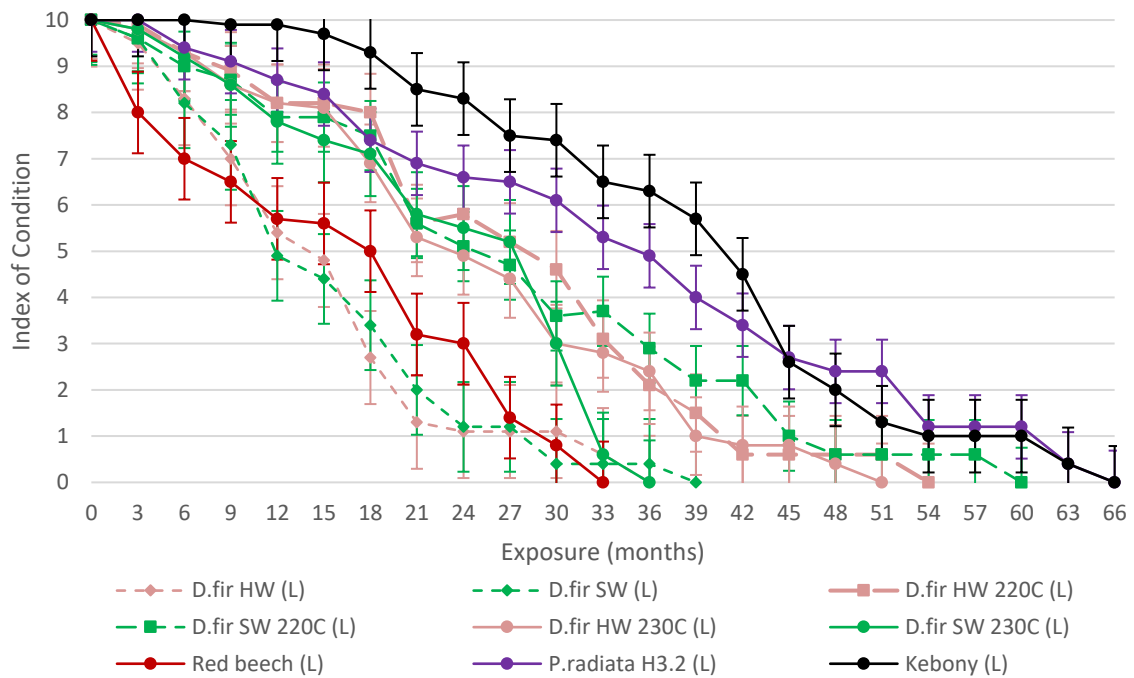


Figure 15: Index of Condition of thermally modified Douglas-fir stakelets after 66 months (5.5 yrs) exposure. Error bars represent standard error.

Milestone 6: FR 25 - Framing trial

After four years of accelerated exposure, untreated *E. fastigata* LVL had mean decay ratings close to 6, indicating established and progressive decay over wide areas with patches exceeding 20 mm in depth (Figure 16). In contrast, Larch and old *C. macrocarpa* reference samples maintained average decay ratings between 8 and 9, representing only light decay (1–5 mm deep) and young macrocarpa had average ratings from 6 to 8. The relative durability of untreated *E. fastigata* LVL is therefore not in line with current acceptable solutions in NZ3602. Solid untreated *E. fastigata* showed substantial deterioration, with two samples failing after four years. The H1.2 boron-treated *P. radiata* reference exhibited little to no decay. Both untreated *P. radiata* and Douglas-fir failed in 2024 after three years of exposure. It is noted that no new feeder blocks were attached to the samples after the two-year assessment.

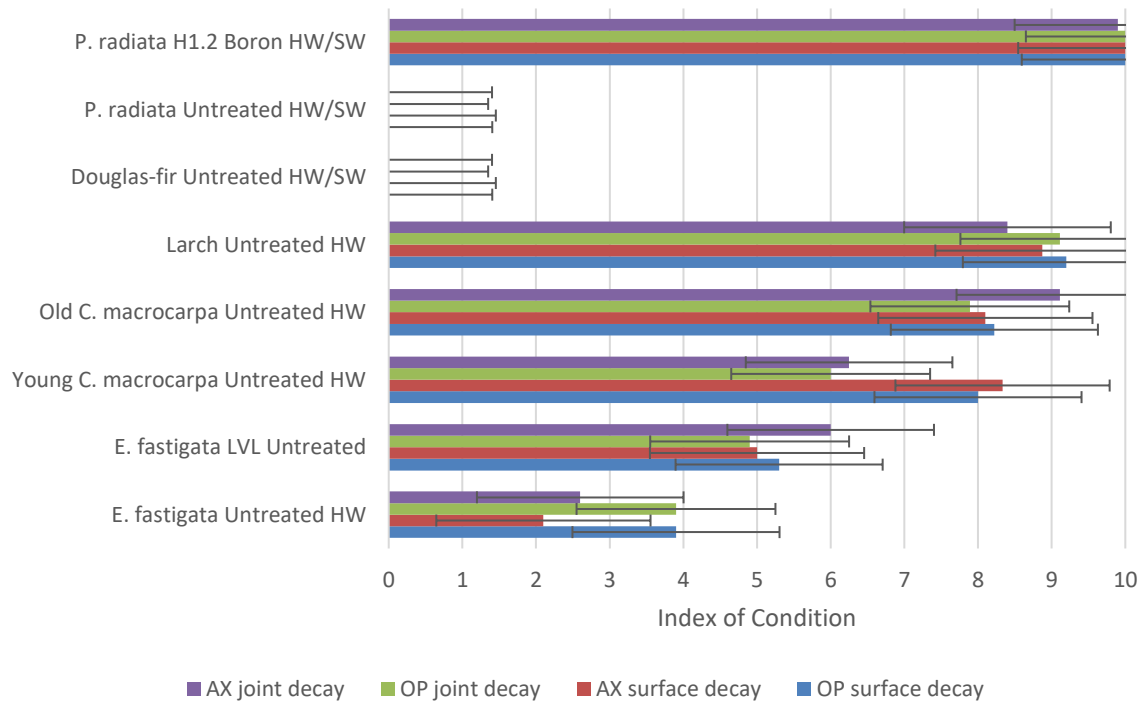


Figure 16: Index of Condition for alternative species framing after four years exposure in an accelerated decay house. Error bars represent standard error.

Recommendations and conclusions

Conclusions

1. Durability and Decay Resistance

- Thermally modified *Cupressus* (*C. lusitanica*, *C. x ovensii*) and Douglas-fir heartwood consistently shows improved resistance to decay compared with unmodified controls and *P. radiata*.
- Thermally modified heart / sap mixes showed improvement in decay resistance to generally match or better unmodified heartwood.
- In decking and lap joints, thermally modified *Cupressus* performed on par with old *C. macrocarpa* and better than H3.2 CCA-treated *P. radiata*.
- Thermally modified (230°C) Douglas-fir heartwood performed similarly to old *C. macrocarpa* and H3.2 CCA after four years outdoor accelerated decay testing.
- Accelerated trials confirmed that modification temperature matters: 220 °C modifications of Douglas-fir outperformed 230 °C modifications in stakelet trials.
- Stakelet trials reinforced these trends: thermally modified samples resisted decay better than unmodified controls but failed sooner than H3.2 CCA and premium references.
- In framing trials untreated *E. fastigata* LVL and solid timber deteriorated rapidly, while larch, macrocarpa and boron-treated radiata pine remained relatively sound, indicating that untreated *E. fastigata* may be unsuitable for framing in high-risk situations.

2. Surface Degradation

- Thermally modified *Cupressus* flat panel and coated L-joint samples were more prone to surface mould and weathering than unmodified controls, despite superior decay resistance.
- Thermally modified Douglas-fir heartwood showed reduced checking but no improvement in surface degradation.
- Weatherboards across species showed few differences in surface degradation after two years, suggesting limited influence of modification in that context.

3. Checking and Dimensional Stability

- Thermally modified samples generally exhibited reduced checking, particularly Douglas-fir heartwood.
- *Cupressus* weatherboards demonstrated greater dimensional stability (less cupping) after modification, a clear advantage for exterior applications.
- Across decking and lap joints, checking remained minimal after three years, reinforcing the stability benefits of thermal modification.

4. Comparative Performance

- Thermally modified *Cupressus* lap joints and decking matched or outperformed *C. macrocarpa* and are outperforming H3.2 CCA-treated *P. radiata* after three years exposure.
- Thermally modified Douglas fir outperformed Red Beech references in stakelet trials and matched old *C. macrocarpa* in decking trials but fell short of H3.2 CCA and Kebony in these accelerated conditions. Red beech and *C. macrocarpa* are accepted in NZS3602 for above-ground use as external stairs, decking, handrails, etc.
- *Eucalyptus* natural durability trials confirm the relationship between accelerated fungus cellar testing and longer-term field trials with similar trends for each species.

5. Practical Implications

- Thermal modification offers a credible, lower-chemical pathway to enhance durability and stability in specialty timbers, particularly *Cupressus* and Douglas-fir.
- Although thermally modified Douglas fir and cypress performed comparably to Accoya in terms of surface degradation, visible surface weathering and checking can still be a limitation in some situations from a customer-perception perspective. While these effects do not constitute failure under the building code, achieving visual parity with premium reference products may require the use of coatings, specific design detailing, or combined treatment approaches.
- Treatment parameters (temperature, heartwood vs sapwood) strongly influence outcomes and must be optimized.

Recommendations

All outdoor exposure trials should remain in test and be annually assessed until clear trends or, for natural durability, complete failure occurs. It is too early to confirm current trends in performance.

Framing trials can be discontinued. These trials are designed to last for 1 – 2 years and it is suggested that we have all the data required from these trials after four years exposure.

The remaining stakelets in the *Eucalyptus* trial should be assessed until failure to complete the data set.

References

- American Wood Protection Association. (2021). Standard field test for evaluation of wood preservatives to be used above ground (UC3B); Accelerated horizontal lap joint test. In. Alabama, USA: American Wood Protection Association,.
- Australasian Wood Preservation Committee. (2015). In *Protocols for assessment of wood preservatives*. Rotorua, NZ: Scion.
- European Committee For Standardisation. (2016). EN350 Durability of wood and wood-based products - Testing and classification of the durability to biological agents of wood and wood-based materials. In. Brussels: National Standards Authority of Ireland.
- Satchell, D. (2013). Sawmilling *Ovensii* cypress - A New Zealand first? *New Zealand Tree Grower*.
- Standards Australia Limited. (2005). Timber - Natural durability ratings. In. Sydney: Standards Australia,.
- Stovold, T., Sargent, R., & Satchell, D. (2019). *SWP-FN084 Sawing Cypress Clones - Green recovery. File Note prepared for the Specialty Wood Products Partnership*.

Appendix A – Rating systems

In and above ground tests

Decay/insect rating system (ASTM D 1758)

- 10 = No decay or insect damage.
- T = Discolouration or trace of decay, not positively identified as decay.
- 9 = Minor decay, 0 - 3% of the cross section.
- 8 = Lightly established decay, 3 - 10% of the cross section.
- 7 = Well established decay, 10 - 30% of the cross section.
- 6 = Extensive and deep decay, 30 - 50% of the cross section.
- 4 = Deep and severe decay, more than 50% of the cross section.
- 0 = Failed.

Surface coatings

- 1 = Clean and intact, original colour and gloss retained.
- 2 = Surface dulling and colour loss, minor failure on sharp corners.
- 3 = Extensive discolouration, failure at defects and sharp corners.
- 4 = Patches failed with substrate exposed over <50% of surface.
- 5 = Extensive failure, >50% of substrate exposed.

Uncoated surfaces

- 1 = As new, no discolouration or mould.
- 2 = Slight surface mould or weathering, even colour.
- 3 = Prominent mould or weathering, minor surface erosion.
- 4 = Extensive mould or lichen, uneven surface due to erosion.
- 5 = Extensive surface breakdown, original profile details gone.

Surface checking

- 1 = No surface checks.
- 2 = Minor checks to 0.5 mm wide, not obvious in damp weather.
- 3 = Well established checks to 1.0 mm wide and 50% board thickness.
- 4 = Many or deep and severe checks over 1.0 mm wide.
- 5 = Board completely split.

Frame test

Decay ratings

- 10 = No decay or insect damage.
- T = Trace, discolouration, mycelium or softening, not positively identified as decay.
- 9 = First stages of decay, small areas, not more than 1 mm deep.
- 8 = Lightly established decay, patches 1-5 mm deep.
- 7 = Well established decay, extensive surface decay or patches to 20 mm deep.
- 6 = Established and progressive decay over wide areas with patches greater than 20 mm deep.
- 4 = Severe decay over the majority of the surface with patches more than 40 mm deep.
- 0 = Failed. Decay completely through the sample.

Mycelium spread

- 1 = No mycelium development onto the sample surface from the feeder block
- 2 = Mycelium growth from the feeder block onto the surface, spread less than 5 mm.
- 3 = Mycelium from the feeder block on the surface, spread 5-50 mm.
- 4 = Active mycelium from the feeder block on the surface, spread greater than 50 mm.
- 5 = Extensive mycelium over the sample surface, less than 50% of the surface area.
- 6 = Extensive mycelium over the sample surface, more than 50% of the surface area.

Mould ratings

- 1 = No perceivable mould.
- 2 = Light mould in small patches or widely scattered spots.
- 3 = Extensive mould as numerous scattered spots or widespread light mould.

4 = Severe mould, up to 50% of the surface covered.
 5 = Severe mould, more than 50% of the surface covered

Table 8: Durability classes to fungal attack for in-ground determined using field tests (EN350)

Durability class	Description	Results of field tests expressed as x values
DC1	Very durable	$x > 5$
DC2	Durable	$3.0 < x \leq 5.0$
DC3	Moderately durable	$2.0 < x \leq 3.0$
DC4	Slightly durable	$1.2 < x \leq 2.0$
DC5	Not durable	$x \leq 1.2$

X = average life of stakes / average life of the more durable set of reference stakes

Appendix B – Individual specimen data

Milestone 1: FT 41 – Thermally modified *Cupressus lusitanica* L-joints

Tag number	Species	Heart/Sap	Treatment	Coated	Decay		Surface		Checks	
					2024	2025	2024	2025	2024	2025
4411	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	10	2	3	2	2
4412	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	10	2	3	1	1
4413	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	9	2	3	1	2
4414	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	9	2	2	1	1
4415	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	9	2	2	1	2
4416	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	T	2	3	1	1
4417	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	9	2	2	1	1
4418	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	9	2	3	1	1
4419	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	9	2	2	1	1
4420	Radiata pine	Sapwood	H3.1 LOSP	Uncoated	10	10	2	3	1	1
4421	Radiata pine	Sapwood	Control	Uncoated	10	9	2	3	1	2
4422	Radiata pine	Sapwood	Control	Uncoated	10	8	2	3	2	2
4423	Radiata pine	Sapwood	Control	Uncoated	10	9	2	3	1	1
4424	Radiata pine	Sapwood	Control	Uncoated	7	4	2	2	1	2
4425	Radiata pine	Sapwood	Control	Uncoated	T	8	2	3	2	2
4426	Radiata pine	Sapwood	Control	Uncoated	9	6	2	3	1	2
4427	Radiata pine	Sapwood	Control	Uncoated	10	9	2	3	2	2
4428	Radiata pine	Sapwood	Control	Uncoated	9	9	2	3	1	1

Tag number	Species	Heart/Sap	Treatment	Coated	Decay		Surface		Checks	
					2024	2025	2024	2025	2024	2025
4430	Radiata pine	Sapwood	Control	Uncoated	9	6	2	2	1	2
4431	Radiata pine	Sapwood	Control	Coated	10	9	3	3	2	2
4432	Radiata pine	Sapwood	Control	Coated	T	0	3	-	2	-
4433	Radiata pine	Sapwood	Control	Coated	10	7	3	3	1	2
4434	Radiata pine	Sapwood	Control	Coated	10	4	3	4	1	1
4435	Radiata pine	Sapwood	Control	Coated	10	6	3	3	1	1
4436	Radiata pine	Sapwood	Control	Coated	9	6	3	4	2	2
4437	Radiata pine	Sapwood	Control	Coated	T	T	3	3	1	1
4438	Radiata pine	Sapwood	Control	Coated	9	9	3	3	2	2
4439	Radiata pine	Sapwood	Control	Coated	10	10	3	3	1	1
4440	Radiata pine	Sapwood	Control	Coated	10	10	2	2	1	1
4441	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4442	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4443	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	3	3
4444	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4445	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4446	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4447	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4448	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	2	2
4449	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4450	Radiata pine	Sapwood	Accoya	Uncoated	10	10	2	2	1	1
4451	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4452	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4453	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4454	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1

Tag number	Species	Heart/Sap	Treatment	Coated	Decay		Surface		Checks	
					2024	2025	2024	2025	2024	2025
4456	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4457	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4458	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4459	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4460	Radiata pine	Sapwood	Accoya	Coated	10	10	3	3	1	1
4461	<i>C. lusitanica</i>	Mix	Control	Uncoated	10	10	2	2	1	1
4462	<i>C. lusitanica</i>	Mix	Control	Uncoated	10	10	2	2	2	2
4463	<i>C. lusitanica</i>	Mix	Control	Uncoated	10	10	2	2	1	1
4464	<i>C. lusitanica</i>	Mix	Control	Uncoated	10	10	2	2	1	1
4465	<i>C. lusitanica</i>	Mix	Control	Uncoated	T	T	2	2	1	1
4466	<i>C. lusitanica</i>	Mix	Control	Uncoated	10	10	2	2	1	1
4467	<i>C. lusitanica</i>	Mix	Control	Uncoated	T	T	2	2	1	1
4468	<i>C. lusitanica</i>	Mix	Control	Uncoated	6	6	2	2	2	2
4469	<i>C. lusitanica</i>	Mix	Control	Uncoated	10	10	2	2	1	1
4470	<i>C. lusitanica</i>	Mix	Control	Uncoated	10	10	2	2	2	2
4471	<i>C. lusitanica</i>	Mix	Control	Coated	10	10	3	3	1	1
4472	<i>C. lusitanica</i>	Mix	Control	Coated	10	10	3	3	1	1
4473	<i>C. lusitanica</i>	Mix	Control	Coated	10	10	3	3	2	2
4474	<i>C. lusitanica</i>	Mix	Control	Coated	6	6	3	3	1	1
4475	<i>C. lusitanica</i>	Mix	Control	Coated	8	8	3	3	2	2
4476	<i>C. lusitanica</i>	Mix	Control	Coated	4	4	3	3	2	2
4477	<i>C. lusitanica</i>	Mix	Control	Coated	10	10	3	3	1	1
4478	<i>C. lusitanica</i>	Mix	Control	Coated	9	9	3	3	1	1
4479	<i>C. lusitanica</i>	Mix	Control	Coated	10	10	3	3	1	1
4480	<i>C. lusitanica</i>	Mix	Control	Coated	6	6	3	3	1	1

Tag number	Species	Heart/Sap	Treatment	Coated	Decay		Surface		Checks	
					2024	2025	2024	2025	2024	2025
4482	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	1	1
4483	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	1	1
4484	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	2	2
4485	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	1	1
4486	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	1	1
4487	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	2	2
4488	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	3	3
4489	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	2	2
4490	<i>C. lusitanica</i>	Heartwood	Control	Uncoated	10	10	2	2	2	2
4491	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	3	3	1	1
4492	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	2	2	2	2
4493	<i>C. lusitanica</i>	Heartwood	Control	Coated	9	9	3	3	1	1
4494	<i>C. lusitanica</i>	Heartwood	Control	Coated	7	7	2	2	2	2
4495	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	3	3	1	1
4496	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	3	3	1	1
4497	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	3	3	3	3
4498	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	2	2	1	1
4499	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	3	3	1	1
4500	<i>C. lusitanica</i>	Heartwood	Control	Coated	10	10	2	2	1	1
4501	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	3	3
4502	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	2	2
4503	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	2	2
4504	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	1	1
4505	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	2	2
4506	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	2	2

Tag number	Species	Heart/Sap	Treatment	Coated	Decay		Surface		Checks	
					2024	2025	2024	2025	2024	2025
4508	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	2	2
4509	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	9	9	2	2	2	2
4510	<i>C. lusitanica</i>	Mix	220C TM	Uncoated	10	10	2	2	1	1
4511	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	2	2
4512	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	2	2
4513	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	1	1
4514	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	1	1
4515	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	2	2
4516	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	3	3
4517	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	1	1
4518	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	1	1
4519	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	1	1
4520	<i>C. lusitanica</i>	Heartwood	220C TM	Uncoated	10	10	2	2	1	1
4541	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4542	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4543	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4544	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4545	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4546	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4547	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	3	3
4548	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4549	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	1	1
4550	Radiata pine	Sapwood	H3 CCA	Uncoated	10	10	2	2	2	2
4551	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1
4552	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1

Tag number	Species	Heart/Sap	Treatment	Coated	Decay		Surface		Checks	
					2024	2025	2024	2025	2024	2025
4554	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1
4555	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1
4556	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1
4557	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1
4558	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1
4559	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1
4560	Radiata pine	Sapwood	H3 CCA	Coated	10	10	2	2	1	1

Milestone 2: Test 109 - Cypress stakes

01: WHAK (30) <i>C. ovensii</i> (Rotoehu) 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
3631	I14	7	6
3632	Q9	7	7
3633	B7	8	8
3634	G10	0	0
3635	F2	6	6
3636	T8	6	0
3637	N14	7	7
3638	C9	8	7
3639	D2	6	6
3640	R14	4	0
3641	R3	7	7
3642	G11	7	7
3643	A7	0	0
3644	M6	0	0
3645	C12	0	0
3646	B16	8	7
3647	S19	6	6
3648	Q17	7	6
3649	J4	7	7
3650	E15	7	7
3651	P8	7	7
3652	I13	4	4
3653	J20	8	7
3654	O16	6	6
3655	G3	6	6
3656	H17	6	0
3657	D6	6	6
3658	Q13	7	6
3659	A10	7	7
3660	S4	7	7
Mean		5.7	5

02: WHAK (30) <i>C. leylandii</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
3661	P16	7	6
3662	M19	6	0
3663	K14	6	6
3664	S9	7	6
3665	A12	7	7
3666	N6	6	6
3667	E14	6	6
3668	J5	7	7
3669	N10	7	7
3670	I12	7	7
3671	O6	6	6
3672	R17	6	4
3673	H11	7	6
3674	B9	7	7
3675	C16	8	6
3676	O15	6	6
3677	P20	6	6
3678	P3	7	7
3679	M8	7	6
3680	L20	7	6
3681	O9	7	7
3682	S14	6	6
3683	T10	0	0
3684	E7	6	6
3685	L11	6	6
3686	D9	7	7
3687	Q11	4	4
3688	M2	6	6
3689	G6	8	8
3690	E12	7	7
Mean		6.3	5.8

03: WHAK (30) <i>C. ovensii</i> (Riverhead) 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
3691	K9	8	7
3692	Q15	6	6
3693	D18	6	6
3694	F5	4	4
3695	L7	7	7
3696	R2	0	0
3697	G16	6	6
3698	N18	7	6
3699	R12	7	7
3700	A15	7	6
3701	M12	7	6
3702	K12	7	6
3703	F11	6	6
3704	B5	7	7
3705	L5	6	6
3706	H20	7	7
3707	S18	7	7
3708	F13	7	7
3709	E19	7	6
3710	J19	6	6
3711	M20	7	7
3712	T14	0	0
3713	L6	7	6
3714	S2	4	0
3715	E3	7	7
3716	N3	6	6
3717	O11	7	7
3718	K17	7	7
3719	S13	6	6
Mean		6.1	5.7

04: WHAK (10) <i>Radiata</i> CCA H4 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2118	A18	9	9
2742	Q4	9	8
2743	I15	9	9
2744	L14	9	8
2745	P7	8	8
2746	M13	8	8
2747	D20	T	T
2748	S12	8	8
2749	J10	9	9
2750	T3	9	8
Mean		8.8	8.5

05: WHAK <i>P.radiata</i> untreated 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2941	F17	0	0
2942	Q19	0	0
2943	J13	0	0
2944	M5	0	0
2945	R6	0	0
2946	C20	0	0
2947	B18	0	0
2948	O17	0	0
2949	L4	0	0
2950	A19	0	0
Mean		Av. life 3.2 years	

Milestone 3: Test 104 - Eucalypt stakes

2025

01: WHAK (6) <i>E. bosistoana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1831	B3	6	6
1832	A20	7	7
1833	L26	7	7
1834	F17	6	6
1835	L24	6	6
1836	E24	6	4
Mean		6.3	6

02: WHAK (5) <i>E. bosistoana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1837	H14	7	7
1838	M25	7	7
1839	L36	7	7
1840	N5	7	7
1841	K8	7	7
Mean		7.0	7

03: WHAK (12) <i>E. bosistoana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1842	F8	7	7
1843	I36	6	6
1844	I31	6	6
1845	D19	6	6
1846	N29	6	6
1847	Q17	6	6
1848	O28	7	7
1849	N16	7	7
1850	A18	7	7
1851	O24	0	0
1852	H30	7	7
1853	I34	7	6
Mean		6.0	5.9

04: WHAK (8) <i>E. bosistoana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1854	G10	6	6
1855	D30	6	4
1856	A33	0	0
1857	L35	0	0
1858	D26	4	4
1859	H13	6	6
1860	B27	6	6
1861	E27	6	6
Mean		4.3	4

05: WHAK (8) <i>E. quadrangulata</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1862	D20	0	0
1863	D13	6	6
1864	P16	7	6
1865	L30	6	6
1866	Q14	6	6
1867	J31	7	7
1868	N11	4	4
1869	M12	7	7
Mean		5.4	5.3

06: WHAK (8) <i>E. quadrangulata</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1870	O15	0	0
1871	G17	6	4
1872	C20	6	6
1873	I11	6	0
1874	P26	0	0
1875	M14	0	0
1876	J16	6	6
1877	H11	6	6
Mean		3.8	2.8

07: WHAK (12) <i>E. quadrangulata</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1878	C7	6	6
1879	D1	0	0
1880	B17	6	6
1881	D14	6	6
1882	P22	4	4
1883	O16	7	7
1884	D9	6	6
1885	D36	6	6
1886	D11	6	6
1887	Q11	6	6
1888	C30	7	7
1889	G19	6	6
Mean		5.5	5.5

08: WHAK (7) <i>E. quadrangulata</i> 20 x 20			
		2024	2025
Tag No.	Position	Index of Condition	
1890	D7	4	4
1891	C36	6	6
1892	K11	0	0
1893	E25	6	6
1894	J19	6	6
1895	D31	6	6
1896	D16	6	6
Mean		4.9	4.9

09: WHAK (8) <i>E. pilularis</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1897	Q7	6	6
1898	B14	6	6
1899	N12	6	0
1900	A9	6	6
1901	Q27	6	4
1902	I17	6	6
1903	D4	6	6
1904	B22	7	7
Mean		6.1	5.1

10: WHAK (12) <i>E. pilularis</i> 20 x 20			
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Tag No.	Position	Index of Condition	
		2024	2025
1905	D28	6	6
1906	O23	0	0
1907	A8	6	6
1908	J8	4	4
1909	Q28	6	6
1910	N3	4	0
1911	A19	7	7
1912	B25	6	6
1913	D29	6	6
1914	D18	0	0
1915	K9	4	4
1916	J25	0	0
Mean	0.000	4.1	3.8

11: WHAK (8) <i>E. pilularis</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1917	A7	6	6
1918	K27	6	6
1919	F23	6	6
1920	E9	6	6
1921	E1	6	0
1922	E18	6	6
1923	G3	6	6
1924	K20	7	7
Mean		6.1	5.4

12: WHAK (14) <i>E. pilularis</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025

Tag No.	Position	Index of Condition	
		2024	2025
1925	J13	6	6
1926	A24	6	6
1927	I24	6	6
1928	I10	6	4
1929	P1	6	6
1930	M7	6	6
1931	F27	6	6
1932	G33	6	6
1933	D5	0	0
1934	G29	6	6
1935	M35	7	6
1936	C13	7	7
1937	I4	6	6
1938	G8	6	6
Mean		5.7	5.5

13: WHAK (13) <i>E. sphaerocarpa</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1939	P25	6	4
1940	L23	6	6
1941	P24	6	6
1942	H27	7	6
1943	A10	6	6
1944	J27	6	6
1945	E12	6	6
1946	B12	6	6
1947	I12	6	6
1948	G27	7	6
1949	C31	6	6
1950	B19	6	6
1951	H31	7	7
Mean		6.2	5.9

14: WHAK (15) <i>E. sphaerocarpa</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025

1952	F21	7	7
1953	K1	6	6
1954	N21	7	6
1955	D8	6	6
1956	Q18	6	6
1957	L9	7	7
1958	O35	6	6
1959	H32	7	7
1960	E17	6	6
1961	O13	4	0
1962	B11	6	6
1963	K35	6	6
1964	A31	7	7
1965	H3	6	6
1966	F10	6	6
Mean		6.2	5.9

15: WHAK (11) <i>E. sphaerocarpa</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1967	G35	6	6
1968	I23	6	6
1969	I16	6	6
1970	F15	6	6
1971	J23	6	6
1972	G30	6	6
1973	G14	6	6
1974	N4	6	6
1975	C8	7	7
1976	C10	6	6
1977	M9	6	6
Mean		6.1	6.1

16: WHAK (11) <i>E. sphaerocarpa</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1978	G12	0	0

1979	J15	6	6
1980	O17	M	M
1981	C3	0	0
1982	H6	6	6
1983	D21	6	6
1984	J14	6	6
1985	M1	6	4
1986	K33	6	6
1987	K7	6	6
1988	L27	6	6
Mean		4.8	4.6

17: WHAK (12) <i>E. globoidea</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
1989	K28	6	6
1990	I30	6	6
1991	A13	6	6
1992	J10	6	6
1993	M36	0	0
1994	Q20	B	B
1995	E4	6	6
1996	A5	6	6
1997	D34	6	6
1998	K29	7	7
1999	H35	7	6
2000	K6	4	4
Mean		5.5	5.4

18: WHAK (8) <i>E. globoidea</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2001	G21	6	6
2002	B20	0	0
2003	P33	0	0
2004	E30	0	0
2005	E31	6	6
2006	F1	6	6
2007	A30	6	6
2008	K22	6	6
Mean		3.8	3.8

19: WHAK (24) <i>E. globoidea</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2009	N23	6	6

2010	F35	7	6
2011	P5	0	0
2012	E7	6	6
2013	H12	6	6
2014	J30	6	4
2015	F20	6	6
2016	C32	6	6
2017	J35	6	6
2018	M31	6	6
2019	H26	7	6
2020	Q25	4	0
2021	I29	6	6
2022	D15	6	6
2023	G15	6	6
2024	C22	7	6
2025	Q10	6	6
2026	M11	6	6
2027	F13	6	6
2028	O5	6	4
2029	G22	6	6
2030	Q8	6	6
2031	Q35	0	0
2032	H18	6	6
Mean		5.5	5.1

2034	A15	6	0
2035	N34	6	6
2036	B26	0	0
2037	E33	6	6
2038	C29	0	0
2039	K36	6	0
2040	N9	6	6
2041	N28	6	6
2042	O12	B	B
2043	C1	6	6
2044	N2	6	6
2045	M22	6	4
2046	P27	0	0
2047	N24	6	4
2048	I7	6	6
2049	C14	6	6
2050	H2	0	0
Mean		4.6	3.3

21: WHAK (14) <i>E. muelleriana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2051	M34	0	0
2052	C26	6	6
2053	M17	6	0
2054	B24	0	0
2055	C19	0	0
2056	P23	0	0
2057	A1	4	0
2058	B31	0	0
2059	I28	6	6
2060	D12	0	0
2061	G32	4	0
2062	D22	6	6
2063	F22	6	6
2064	F18	6	6
Mean		3.1	2.1

20: WHAK (18) <i>E. globoidea</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2033	K34	6	0

22: WHAK (16) <i>E. muelleriana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2065	A36	0	0.0
2066	J9	6	6.0
2067	A35	0	0.0
2068	G2	0	0.0
2069	O30	4	0.0
2070	K32	4	4.0
2071	H33	6	6.0
2072	H23	6	6.0
2073	J21	6	6.0
2074	O1	6	6.0
2075	C12	6	4.0
2076	L8	6	6.0
2077	H16	6	6.0
2078	G16	6	6.0
2079	C18	6	6.0
2087	G34	6	6.0
Mean		4.6	4.3

23: WHAK (14) <i>E. muelleriana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2080	I20	6	6.0
2081	B18	6	0.0
2082	E5	6	0.0
2083	D3	4	4.0
2084	Q29	0	0.0
2085	O10	0	0.0
2086	I26	4	4.0
2088	L34	6	6.0
2089	P8	6	4.0
2090	I33	6	6.0
2091	I1	0	0.0
2092	F5	6	6.0
2093	J5	6	6.0
2094	L12	6	6.0
Mean		4.4	3.4

24: WHAK (13) <i>E. muelleriana</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2095	B2	0	0.0
2096	E14	6	6.0
2097	F7	0	0.0
2098	O2	6	0.0
2099	C33	6	6.0
2100	J26	0	0.0
2101	J17	6	4.0
2102	O32	6	0.0
2103	M16	6	4.0
2104	D33	6	6.0
2105	G5	4	4.0
2106	B36	6	6.0
2107	L28	6	6.0
Mean		4.5	3.2

25: WHAK (10) <i>P. radiata</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2108	H22	0	0.0
2109	L2	0	0.0
2110	I32	0	0.0
2111	I25	0	0.0
2112	P13	0	0.0
2113	H28	0	0.0
2114	P19	0	0.0
2115	E6	0	0.0
2116	F30	0	0.0
2117	M2	0	0.0
Mean		Av. life 2.1 years	

26: WHAK (10) <i>Fagus sylvatica</i> 20 x 20			
Tag No.	Position	Index of Condition	
		2024	2025
2119	G7	B	B
2120	A2	0	0.0
2121	B21	0	0.0
2122	E20	0	0.0
2123	C34	0	0.0
2124	N6	0	0.0
2125	Q12	0	0.0
2126	J12	0	0.0
2127	F6	0	0.0
2128	C9	B	B
Mean		Av. life 2.1 years	

27: WHAK (10) CCA H3.2			
Tag No.	Position	Index of Condition	
		2024	2025
2129	L10	0	0.0
2130	M28	8	8.0
2131	B6	6	6.0
2132	A6	7	7.0
2133	N20	7	7.0
2134	O8	9	9.0
2135	N1	7	7.0
2136	G28	8	8.0
2137	F3	7	7.0
2138	F26	8	8.0
Mean		6.7	6.7

28: WHAK (10) CCA H4			
Tag No.	Position	Index of Condition	
		2024	2025
2139	E21	9	9.0
2140	A34	8	8.0
2141	N17	9	9.0
2142	C23	9	9.0
2143	F11	B	B
2144	P18	9	9.0
2145	J34	9	9.0
2146	Q30	7	7.0
2147	D27	T	T
2148	N7	10	9.0
Mean		8.9	8.8

Milestone 4: FT43 – Thermally modified cypress

Flat Panels

Tag No.	Board No.	Decay bottom end		Surface		Checking	
		2024	2025	2024	2025	2024	2025
Thermally modified ovensii heart/sap mix							
4691	O-725	10	9	2	3	1	1
4692	O-706	10	9	2	2	1	1
4693	O-725	10	10	3	3	1	2
4694	O-725	10	9	2	3	2	2
4695	O-706	10	T	2	3	1	1
4696	O-701	10	9	2	3	1	1
4697	O-706	10	9	2	3	2	2
4698	O-725	10	T	2	3	1	1
4699	O-701	10	T	2	3	1	1
4700	O-728	10	10	2	3	1	1
Thermally modified lusitanica heart/sap mix							
4701	L-733	10	9	2	3	1	1
4702	L-714	10	9	2	3	2	2
4703	L-726	10	T	2	3	1	1
4704	L-778	10	10	2	3	2	2
4705	L-716	10	T	2	3	1	1
4706	L-7??	10	10	2	3	1	1
4707	L-718	10	T	2	3	1	1
4708	L-722	10	9	2	3	1	1
4709	L-714	10	T	2	3	1	1
4710	L-726	10	T	2	3	1	1
Unmodified ovensii heart/sap mix							
4711	O-725	10	8	2	2	1	1
4712	O-725	10	8	2	3	1	1
4713	O-725	10	8	2	2	1	1
4714	O-701	10	8	2	2	1	1
4715	O-706	10	9	2	2	1	1
4716	O-706	10	8	2	2	2	2
4717	O-706	10	8	2	2	1	1
4718	O-725	10	8	2	2	1	1
4719	O-701	10	9	2	2	1	2
4720	O-728	10	8	2	2	1	1
Untreated radiata pine sap							
4721		10	9	2	2	2	2
4722		T	6	2	2	2	2
4723		10	8	2	2	1	2

Tag No.	Board No.	Decay bottom end		Surface		Checking	
		2024	2025	2024	2025	2024	2025
4724		10	8	2	2	1	1
4725		10	8	2	2	1	1
4726		T	4	2	2	2	3
4727		10	4	2	2	2	2
4728		10	6	2	2	3	4
4729		10	7	2	2	1	1
4730		10	4	2	2	1	1

Decking

Tag No.	Board number	Treated end (T)		Untreated end (UT)		Surface		Checking	
		2024	2025	2024	2025	2024	2025	2024	2025
Thermally modified ovensii heart/sap mix									
4731	O-706	10	10	10	10	2	2	1	1
4732	O-728	10	10	10	10	2	2	1	1
4733	O-725	10	10	10	10	2	2	1	1
4734	O-701	10	10	10	9	2	2	1	1
4735	O-701	10	10	10	9	2	2	1	1
4736	O-706	10	10	10	10	2	2	1	1
4737	O-725	10	10	10	10	2	2	1	1
4738	O-725	10	10	10	10	2	2	1	1
4739	O-706	10	10	10	10	2	2	1	1
4740	O-725	10	10	10	10	2	3	1	1
Thermally modified lusitanica heart/sap mix									
4741	L-714	10	9	10	9	2	2	1	1
4742	L-72?	10	9	10	9	1	2	1	1
4743	L-702	10	10	10	9	1	2	1	2
4744	L-718	10	10	10	9	2	2	1	2
4745	L-716	10	8	10	8	2	2	1	2
4746	L-722	10	10	10	10	2	2	1	1
4747	L-733	10	10	10	10	2	2	1	1
4748	L-718	10	10	10	10	2	2	1	1
4749	L-726	10	10	10	10	2	2	1	1
4750	L-714	10	10	10	10	2	2	1	1
Unmodified ovensii heart/sap mix									
4751	O-701	10	T	10	8	2	3	1	1
4752	O-706	10	10	10	8	2	3	1	1
4753	O-725	10	10	10	8	2	3	1	1
4754	O-725	10	10	10	9	2	3	1	1
4755	O-701	10	10	10	9	2	3	2	2
4756	O-725	10	9	10	7	2	2	1	1

Tag No.	Board number	Treated end (T)		Untreated end (UT)		Surface		Checking	
		2024	2025	2024	2025	2024	2025	2024	2025
4757	O-725	10	7	10	8	2	3	1	1
4758	O-706	10	9	10	7	2	3	2	2
4759	O-706	10	T	6	4	2	2	1	1
4760	O-728	10	T	9	8	2	2	1	1
Unmodified lusitanica heart/sap mix									
4761	L-702	10	8	10	7	2	3	1	1
4762	L-722	10	9	10	7	2	3	1	1
4763	L-714	10	9	10	8	2	3	1	1
4764	L-718	10	9	10	8	2	3	1	1
4765	L-733	10	9	10	8	2	3	1	1
4766	L-726	10	8	9	7	2	3	1	1
4767	L-718	10	8	9	8	2	3	1	1
4768	L-726	10	T	10	8	2	3	1	1
4769	L-714	10	8	10	8	2	3	1	1
4770	L-716	10	8	10	8	2	3	1	1
Unmodified radiata pine sapwood**									
4771		10	7	8	4	2	3	1	1
4772		10	0	4	0	2	-	1	-
4773		10	4	8	6	2	3	1	1
4774		10	0	4	0	2	-	1	-
4775		10	0	6	0	2	-	1	-
4776		10	0	4	0	3	-	1	-
4777		10	0	6	0	2	-	1	-
4778		10	0	4	0	3	-	1	-
4779		10	0	4	0	2	-	1	-
4780		10	0	6	0	2	-	1	-
Treated control H3.2 CCA radiata pine**									
4781		10	9	10	8	2	2	1	2
4782		10	10	10	8	2	2	2	2
4783		10	10	10	8	2	2	1	2
4784		10	9	10	8	2	2	1	2
4785		10	10	10	8	2	3	1	2
4786		10	10	10	9	2	2	1	1
4787		10	9	10	9	2	2	1	1
4788		10	T	10	8	2	2	1	1
4789		10	9	10	8	2	2	1	1
4790		10	T	10	9	2	3	1	1
Naturally durable control (<i>C. macrocarpa</i> heartwood)									
4791	MO-15	10	T	10	10	2	2	2	2
4792	MO-22	10	9	10	7	2	2	1	1
4793	MO-4	10	10	10	6	2	3	1	1

Tag No.	Board number	Treated end (T)		Untreated end (UT)		Surface		Checking	
		2024	2025	2024	2025	2024	2025	2024	2025
4794	MO-21	10	10	10	10	2	2	1	1
4795	MO-16	10	8	10	T	2	2	1	1
4796	MO-16	10	9	8	8	2	2	1	1
4797	MO-8	10	10	9	7	2	2	1	1
4798	MO-18	10	T	10	8	2	2	1	1
4799	MO-9	10	10	10	8	2	2	1	1
4800	MO-1	10	10	8	7	2	2	1	1

Lap-joints

Tag No.	Board number	Wide decay		Narrow 1 decay		Narrow 2 decay	
		2024	2025	2024	2025	2024	2025
Thermally modified ovensii heart/sap mix							
4801	O-725	10	10	T	T	T	T
4802	O-725	10	10	T	T	T	T
4803	O-728	10	10	T	T	T	T
4804	O-706	10	10	T	T	T	T
4805	O-725	10	10	T	T	T	T
4806	O-706	10	10	T	T	T	T
4807	O-701	10	10	T	T	T	T
4808	O-708	10	10	T	T	T	T
4809	O-725	10	10	T	T	T	T
4810	O-701	10	10	T	T	T	T
Thermally modified lusitanica heart/sap mix							
4811	L-716	10	10	T	T	T	T
4812	L-726	10	10	T	T	T	T
4813	L-714	10	10	T	T	T	T
4814	-	10	10	T	T	T	T
4815	L-714	10	T	T	9	T	T
4816	L-733	10	10	T	T	T	T
4817	L-733	10	10	T	T	T	T
4818	L-722	10	10	T	T	T	T
4819	L-726	10	10	T	T	T	T
4820	L-718	10	10	T	T	T	T
4821	L-718	10	10	T	T	T	T
Unmodified ovensii heart/sap mix							
4822	O-706	10	10	T	T	T	T
4823	O-728	9	9	T	T	9	9
4824	O-725	T	T	T	T	T	9
4825	O-725	9	9	T	T	8	6
4826	O-701	9	9	T	T	9	9

Tag No.	Board number	Wide decay		Narrow 1 decay		Narrow 2 decay	
		2024	2025	2024	2025	2024	2025
4827	O-701	10	10	T	T	T	T
4828	O-725	9	9	9	9	9	9
4829	O-725	10	10	9	9	9	9
4830	O-706	9	9	9	9	T	T
4831	O-701	10	10	9	9	9	9
Unmodified lusitanica heart/sap mix							
4832	L-726	10	T	T	T	T	T
4833	L-733	10	10	T	T	T	T
4834	L-718	10	T	T	T	T	T
4835	L-716	10	10	T	T	T	T
4836	L-702	10	T	T	T	T	T
4837	L-714	10	9	T	T	T	T
4838	L-718	10	10	T	T	T	T
4839	-	10	10	T	T	T	T
4840	L-726	10	10	T	T	T	T
4841	L-722	10	10	T	T	T	T
Thermally modified radiata pine							
4886	T1A	10	10	T	T	T	T
4887	T1B	10	10	T	T	T	T
4888	T2A	10	10	T	T	T	T
4889	T2B	10	10	T	T	T	T
4890	T3A	10	10	T	T	T	T
4891	T3B	T	T	T	T	T	T
4892	T4A	10	10	T	T	T	T
4893	T4B	10	10	T	T	T	T
4894	T5A	10	10	T	T	T	T
4895	T5B	10	10	T	9	T	T
4896	T6A	10	9	T	T	T	T
4897	T6B	10	10	T	T	T	T
4898	T7A	10	10	T	T	T	T
4899	T7B	10	9	T	T	T	9
4900	T8A	10	10	T	T	T	T
4901	T8B	10	10	T	T	T	T
4902	T9A	10	T	T	9	T	9
4903	T9B	10	10	T	T	T	T
4904	T10A	T	T	T	T	T	T
4905	T10B	10	10	T	T	T	T
4906	T11A	10	10	T	T	T	T
4907	T11B	10	10	T	T	T	T
4908	T12A	10	10	T	T	T	T
4909	T12B	10	10	T	T	T	T

Tag No.	Board number	Wide decay		Narrow 1 decay		Narrow 2 decay	
		2024	2025	2024	2025	2024	2025
4910	T13A	10	10	T	T	T	T
4911	T13B	10	10	T	T	T	T
4912	T14A	10	10	T	T	T	9
4913	T14B	10	10	T	T	T	T
4914	T15A	10	10	T	T	T	T
4915	T15B	10	10	T	T	T	T
4916	T16A	10	10	T	T	T	T
Unmodified radiata pine sapwood**							
4868	5	T	T	T	T	T	T
4869	5	10	9	T	9	T	9
4870	1	8	6	T	7	8	6
4871	1	8	4	8	7	9	8
4872	4	8	6	8	4	9	8
4873	4	8	8	T	9	T	9
4874	2	8	4	T	4	8	6
4875	2	8	4	T	4	T	6
4876	3	8	8	9	8	9	9
4877	3	7	4	8	4	8	8
4878	6	8	6	8	6	8	4
4879	-	7	6	8	4	8	6
4880	-	7	4	9	7	7	4
4881	-	8	6	8	7	8	4
4882	-	8	7	8	6	9	7
4883	-	8	8	T	9	T	9
4884	-	8	7	9	8	9	8
4885	-	8	4	8	7	8	4
Treated control H3.2 CCA radiata pine**							
4856	1	10	T	T	T	T	T
4857	2	10	10	T	T	T	T
4858	3	10	10	T	T	T	T
Missing sample							
4859	5	10	10	T	T	T	T
4860	6	10	10	T	T	T	T
4861	6	10	10	T	T	T	T
4862	7	10	T	T	T	T	T
4863	8	10	10	T	T	T	T
4864	9	10	10	T	T	T	T
4865	9	10	10	T	T	T	T
4866	10	10	10	T	T	T	T
4867	10	10	10	T	T	T	T

Tag No.	Board number	Wide decay		Narrow 1 decay		Narrow 2 decay	
		2024	2025	2024	2025	2024	2025
Naturally durable control (<i>C. macrocarpa</i> heartwood)							
4842	MO-25	10	10	T	T	T	T
4843	MO-15	10	10	T	T	T	T
4844	MO-4	10	10	T	T	T	T
4845	MO-16	10	10	T	T	T	T
4848	MO-22	10	10	T	T	T	T
4847	MO-10	10	10	T	T	T	T
4846	MO-21	10	10	T	T	T	T
4849	MO-21	10	10	T	T	T	T
4850	MO-18	10	10	T	T	T	T
4851	MO-18	10	10	T	T	T	T
4852	MO-8	10	10	T	T	T	T
4853	MO-8	10	10	T	T	T	T
4854	MO-9	10	10	T	T	T	T
4855	MO-9	10	10	T	T	T	T

Weatherboards

Tag No.	Board number	Decay		Cupping (mm)		Checking		Surface	
		2024	2025	2024	2025	2024	2025	2024	2025
Thermally modified ovensii heart/sap mix, 140mm wide									
4491	O1	10	10	0.12	-0.15	1	1	2	2
4492	OM2	10	10	0.1	-0.2	1	1	2	2
4493	O2	10	10	0.13	-0.11	1	1	2	2
4494	O3	10	10	0.13	-0.17	1	1	2	2
4495	O4	10	10	0.11	-0.13	1	1	2	2
4496	O5	10	10	0.18	-0.16	1	1	2	2
4497	O6	10	10	0.07	-0.12	1	1	2	2
4498	O7	10	10	-0.04	-0.27	1	1	2	2
4499	O8	10	10	0.03	-0.25	1	1	2	2
4500	O8	10	10	0.05	-0.25	1	1	2	2
Thermally modified lusitanica heart/sap mix, 190mm wide									
4501	L702	10	10	-0.02	-0.34	1	2	2	2
4502	L702C	10	10	-0.01	-0.34	2	2	2	2
4503	L714	10	10	-0.05	-0.63	2	2	2	2
4504	L714	10	10	-0.02	-0.53	1	2	2	2
4505	L714B	10	10	0.1	-0.24	1	2	2	2
4506	L714B	10	10	-0.02	-0.39	2	2	2	2
4507	L718C	10	10	0.03	-0.46	1	1	2	2
4508	L718C	10	10	-0.09	-0.59	1	2	2	2
4509	L726B	10	10	-0.05	-0.39	1	1	2	2

Tag No.	Board number	Decay		Cupping (mm)		Checking		Surface	
		2024	2025	2024	2025	2024	2025	2024	2025
4510	L726B	10	10	-0.17	-0.5	2	2	2	2
Unmodified ovensii heart/sap mix, 140mm wide									
4511	OC1	10	10	-0.36	-0.7	1	1	2	2
4512	OC1	10	10	-0.37	-0.58	1	2	2	2
4513	OC2	10	10	-0.44	-0.87	2	2	2	2
4514	OC2	10	10	-0.29	-0.58	2	2	2	2
4515	OC3	10	10	-0.09	-0.41	2	2	2	2
4516	OC3	10	10	-0.28	-0.6	3	3	2	2
4517	OC4	10	10	-0.45	-0.74	2	2	2	2
4518	OC4	10	10	-0.65	-0.92	1	2	2	2
4519	OC5	10	10	-0.85	-1.31	2	3	2	2
4520	OC5	10	10	-0.74	-1.09	1	2	2	2
Unmodified lusitanica heart/sap mix, 190 mm wide									
4521	L702A	10	10	-0.42	-0.95	2	2	2	2
4522	L702B	10	10	-0.97	-1.86	2	2	2	2
4523	L703A	10	10	-0.92	-1.6	1	2	2	2
4524	L714A	10	10	-0.42	-0.91	1	2	2	2
4525	L714A	10	10	-0.42	-1.33	2	3	2	2
4526	L718D	10	10	-0.84	-1.48	2	2	2	2
4527	L718E	10	10	-1.18	-1.7	2	2	2	2
4528	L722	10	10	-0.68	-1.4	1	2	2	2
4529	L726	10	10	-0.95	-1.71	1	2	2	2
4530	L726	10	10	-1.18	-1.64	1	2	2	2
Thermally modified radiata pine, Vulcan, quartersawn laminated, 180mm wide									
4531	V1	10	10	-0.34	-1.52	1	2	2	2
4532	V2	10	10	-0.31	-0.91	1	2	2	2
4533	V3	10	10	-0.48	-1.59	2	2	2	2
4534	V4	10	10	-0.59	-2.08	1	2	2	2
4535	V5	10	10	-0.31	-1.33	1	2	2	2
4536	V6	10	10	-1.13	-2.06	1	2	2	2
4537	V7	10	10	-1.02	-2.41	1	2	2	2
4538	V8	10	10	-0.08	-0.55	1	2	2	2
4539	V9	10	10	-0.4	-1.39	2	2	2	2
4540	V10	10	10	-1.06	-1.27	1	1	2	2
Naturally durable control (<i>C. macrocarpa</i> heartwood), 187mm wide, rough sawn on face									
4541	1	10	10	-0.59	-1.58	1	2	2	2
4542	2	10	10	-0.69	-1.55	1	1	2	2
4543	3	10	10	-0.43	-0.97	2	2	2	2
4544	4	10	10	-0.99	-2.06	1	1	2	2
4545	5	10	10	-0.86	-1.6	1	2	2	2
4546	6	10	10	-1.09	-2.13	1	1	2	2

Tag No.	Board number	Decay		Cupping (mm)		Checking		Surface	
		2024	2025	2024	2025	2024	2025	2024	2025
4547	7	10	10	-0.99	-2.02	1	1	2	2
4548	8	10	10	-1.02	-1.97	1	1	2	2
4549	9	10	10	-0.71	-2.19	2	2	2	2
4550	10	10	10	-0.73	-1.38	2	2	2	2

Milestone 5: FT38 Thermally modified Douglas-fir above ground

Flat Panels

Tag ID	Decay bottom end		Surface		Checking	
	2024	2025	2024	2025	2024	2025
Douglas-fir, Heart, 230°C Thermally modified						
3811	10	9	4	4	2	2
3812	10	10	4	4	3	3
3813	10	8	4	4	2	2
3814	10	9	4	4	2	2
3815	10	9	4	4	2	2
3816	10	9	4	4	2	2
3817	10	7	4	4	1	1
3818	T	8	4	4	1	1
3819	10	10	4	4	2	2
3820	10	T	3	4	2	2
Douglas-fir, Sap, 230°C Thermally modified						
3821	T	9	3	3	2	2
3822	T	8	3	4	2	2
3823	10	T	3	3	3	3
3824	10	T	3	4	3	3
3825	T	8	3	3	4	4
3826	T	8	3	4	3	3
3827	T	9	3	3	3	3
3828	9	9	3	3	3	3
3829	9	9	3	4	2	2
3830	8	7	3	4	3	3
Douglas-fir, Sap, Untreated						
3831	7	6	3	4	3	3
3832	8	7	3	4	2	2
3833	7	4	3	4	2	2
3834	7	6	3	3	2	2
3835	8	8	3	3	2	2
3836	7	6	3	3	3	3
3837	6	4	3	3	2	2

Tag ID	Decay bottom end		Surface		Checking	
	2024	2025	2024	2025	2024	2025
3838	6	6	3	3	3	3
3839	7	6	3	3	2	2
3840	7	6	3	3	3	3
Old Macrocarpa, Heart, Untreated						
3861	9	9	3	3	1	1
3862	9	9	3	3	3	3
3863	T	9	3	4	3	3
3864	9	9	3	3	1	1
3865	9	9	3	4	1	1
3866	T	T	3	3	2	2
3867	9	9	3	3	2	2
3868	T	T	3	3	2	2
3869	T	T	3	3	1	1
3870	9	8	3	3	2	2
Radiata pine, Untreated						
3891	7	0	3	-	2	-
3892	6	6	3	3	2	2
3893	6	4	3	4	2	2
3894	6	4	3	3	2	2
3895	8	4	3	3	3	3
3896	8	6	3	3	3	4
3897	8	7	3	3	2	2
3898	8	7	3	3	2	2
3899	7	6	3	3	2	2
3900	8	4	3	3	2	2
Radiata pine, Untreated, Stained						
3901	6	4	3	5	2	2
3902	8	4	3	5	2	2
3903	7	4	3	5	2	2
3904	7	4	3	5	2	2
3905	7	4	3	5	2	2
3906	9	4	3	5	4	4
3907	6	4	3	5	2	2
3908	4	4	3	5	2	2
3909	8	7	3	5	2	2
3910	7	4	3	5	2	2
Vulcan Radiata pine, Sap, Commercial TM						
3971	9	9	3	3	2	2
3972	9	9	3	3	2	2
3973	9	8	2	2	2	2
3974	9	6	3	3	2	2
3975	9	4	3	3	2	2

Tag ID	Decay bottom end		Surface		Checking	
	2024	2025	2024	2025	2024	2025
3976	7	4	2	2	2	2
3977	4	0	2	-	2	-
3978	0	0	2	-	3	-
3979	0	0	3	-	2	-
3980	4	4	3	3	2	2
Vulcan Radiata pine, Sap, Commercial TM, Stained						
3981	6	4	5	5	2	2
3982	9	4	5	5	2	2
3983	9	4	5	5	2	2
3984	10	9	5	5	2	2
3985	10	T	5	5	2	2
3986	10	10	5	5	2	2
3987	10	10	5	5	2	2
3988	10	9	5	5	2	2
3989	10	10	5	5	2	2
3990	10	10	5	5	2	2
Western red cedar, Heart, Untreated						
3991	9	9	5	5	2	2
3992	9	9	5	5	2	2
3993	9	8	5	5	2	2
3994	9	7	5	5	2	2
3995	8	7	5	5	2	2
3996	8	6	3	5	2	2
3997	9	4	3	5	2	2
3998	9	8	3	4	2	2
3999	10	9	3	4	2	2
4000	9	9	3	4	2	2
Western red cedar, Heart, Untreated, Stained						
4001	10	10	5	5	2	2
4002	10	10	5	5	2	2
4003	10	10	5	5	2	2
4004	10	10	5	5	2	2
4005	10	10	5	5	2	2
4006	10	8	5	5	2	2
4007	10	8	5	5	2	2
4008	10	10	5	5	2	2
4009	10	9	5	5	2	2
4010	10	10	5	5	2	2
Young Macrocarpa, Heart, Untreated						
4011	9	8	2	3	1	1
4012	8	8	2	3	1	1
4013	9	9	3	3	2	2

Tag ID	Decay bottom end		Surface		Checking	
	2024	2025	2024	2025	2024	2025
4014	9	9	2	2	1	1
4015	9	9	2	2	1	1
4016	9	9	2	2	1	1
4017	9	9	3	3	2	2
4018	9	8	3	3	2	2
4019	9	9	3	3	2	2
4020	9	9	3	3	2	3
Radiata pine, Sap, H3.1 LOSP treated						
4021	8	7	2	2	3	3
4022	8	8	2	2	3	3
4023	8	7	2	2	3	3
4024	8	7	2	2	3	3
4025	8	8	2	2	3	3
4026	8	8	2	2	3	3
4027	8	7	2	2	2	2
4028	8	7	2	2	3	3
4029	8	7	2	2	3	3
4030	7	6	2	2	3	3
Radiata pine, Sap, H3.1 LOSP treated, Stained						
4031	8	7	3	5	3	3
4032	9	7	3	5	2	2
4033	9	7	3	5	3	3
4034	7	7	3	5	2	2
4035	8	8	3	5	3	3
4036	9	7	3	5	3	3
4037	8	6	3	5	2	2
4038	T	9	3	5	2	2
4039	9	8	3	5	3	3
4040	10	9	3	5	3	3
Accoya, Sap, Acetylated						
3721	10	10	3	3	1	1
3722	10	10	3	3	1	1
3723	10	10	3	3	1	1
3724	10	10	3	3	2	2
3725	10	10	3	3	2	2
3726	T	T	3	3	2	2
3727	10	10	3	3	2	2
3728	10	10	3	3	1	1
3729	10	10	3	3	1	1
3730	T	T	3	3	1	1
Accoya, Sap, Acetylated, Stained						
3731	10	10	5	5	1	1

Tag ID	Decay bottom end		Surface		Checking	
	2024	2025	2024	2025	2024	2025
3732	10	10	5	5	1	1
3733	10	10	5	5	1	1
3734	10	10	5	5	2	2
3735	10	10	5	5	1	1
3736	10	10	5	5	1	1
3737	10	10	5	5	1	1
3738	10	10	5	5	1	1
3739	10	10	5	5	1	1
3740	10	10	5	5	1	1
Kebony, Sap, Furfurylated						
3841	10	10	4	4	2	2
3842	10	10	4	4	2	2
3843	10	10	4	4	1	2
3844	10	10	4	4	2	2
3845	10	10	4	4	2	3
3846	10	10	4	4	2	2
3847	10	10	4	4	2	2
3848	10	10	4	4	2	2
3849	10	10	4	4	2	2
3850	10	10	4	4	2	2
Kebony, Sap, Furfurylated, Stained						
3851	10	10	5	5	2	2
3852	10	10	5	5	2	3
3853	10	10	5	5	2	2
3854	10	10	5	5	2	2
3855	10	10	5	5	2	2
3856	10	10	5	5	2	3
3857	10	10	5	5	2	2
3858	10	10	5	5	2	2
3859	10	10	5	5	2	2
3860	10	10	5	5	2	2
Radiata pine, Sap, H3 CCA						
3871	10	10	2	2	4	4
3872	10	10	2	2	3	3
3873	10	10	2	2	3	3
3874	10	10	2	2	4	4
3875	10	10	2	2	3	3
3876	10	T	2	2	2	2
3877	10	10	2	2	2	2
3878	10	10	2	2	4	4
3879	10	10	2	2	4	4
3880	10	10	2	2	3	3

Tag ID	Decay bottom end		Surface		Checking	
	2024	2025	2024	2025	2024	2025
Radiata pine, Sap, H3 CCA, Stained						
3881	10	10	2	5	4	4
3882	10	10	2	5	2	2
3883	10	10	2	5	2	2
3884	10	10	2	5	3	3
3885	10	10	2	5	2	2
3886	10	10	2	5	2	2
3887	10	10	2	5	2	2
3888	10	10	2	5	3	3
3889	10	10	2	5	4	4
3890	10	10	2	5	3	3
Linea fibre cement Untreated						
4041	10	10	2	3	1	1
4042	10	10	2	3	1	1
4043	10	10	2	3	1	1
4044	10	9	2	3	1	1
4045	10	9	2	3	1	1
4046	T	8	2	3	1	1
4047	10	9	2	3	1	1
4048	10	8	2	3	1	1
4049	T	8	2	3	1	1
4050	T	9	2	3	1	1
Linea fibre cement Untreated, stained						
4051	9	9	2	2	1	1
4052	9	9	2	2	1	1
4053	10	10	2	2	1	1
4054	10	9	2	2	1	1
4055	10	9	2	2	1	1
4056	10	9	2	2	1	1
4057	10	9	2	2	1	1
4058	10	9	2	2	1	1
4059	10	8	2	2	1	1
4060	9	9	2	2	1	1

Decking

Tag ID	Decay T		Decay UT		Surface		Checking	
	2024	2025	2024	2025	2024	2025	2024	2025
Accoya, Sap, Acetylated								
4061	10	10	10	10	2	4	2	2
4062	10	10	10	10	2	4	2	2
4063	10	10	10	10	2	4	1	1

Tag ID	Decay T		Decay UT		Surface		Checking	
	2024	2025	2024	2025	2024	2025	2024	2025
4064	10	10	10	10	2	4	2	2
4065	10	10	10	10	2	4	2	2
4066	10	10	T	T	2	4	1	1
4067	10	10	10	10	2	4	1	1
4068	10	10	10	10	2	4	2	2
Accoya, Sap, Acetylated, Stained								
4071	10	10	10	10	3	4	1	1
4072	10	10	10	10	3	4	2	2
4073	10	10	10	10	3	4	1	1
4074	10	10	10	10	2	3	2	2
4075	10	10	10	10	2	3	1	1
4076	10	10	10	10	3	3	2	2
4077	10	10	10	10	3	3	2	2
4078	10	10	10	10	2	3	2	2
Kebony, Sap, Furfurylated								
4151	T	T	10	10	2	2	1	1
4152	10	10	10	10	2	3	2	2
4153	10	10	10	10	2	3	2	2
4154	10	10	10	10	2	3	2	2
4155	10	10	10	10	2	3	2	2
4156	10	10	T	T	2	4	1	2
4157	10	10	10	10	2	4	1	1
4158	10	10	10	10	2	4	1	1
4159	10	10	T	T	2	4	2	2
4160	10	10	10	10	2	3	2	2
Kebony, Sap, Furfurylated, Stained								
4161	10	10	10	10	3	3	2	2
4162	10	10	10	10	3	3	1	1
4163	10	10	10	10	3	3	1	1
4164	10	10	10	10	3	3	1	1
4165	10	10	10	10	3	3	2	2
4166	10	10	10	10	3	3	1	1
4167	10	10	10	10	3	3	1	1
4168	10	10	10	10	3	3	1	1
4169	10	10	10	10	2	2	1	1
4170	10	10	10	10	2	2	1	1
Old Macrocarpa, Heart, Untreated								
4171	9	9	8	8	3	3	2	2
4172	10	10	8	8	2	2	3	3
4173	10	10	7	7	2	2	3	3
4174	9	9	6	6	2	2	1	1
4175	9	9	7	7	2	2	1	1
4176	9	9	8	8	2	2	3	3
4177	T	T	7	7	2	2	3	3
4178	10	10	8	8	2	2	1	1

Tag ID	Decay T		Decay UT		Surface		Checking	
	2024	2025	2024	2025	2024	2025	2024	2025
4179	10	10	8	8	2	2	1	1
4180	9	9	9	8	2	2	1	1
Young Macrocarpa, Heart, Untreated								
4331	9	9	T	8	3	3	1	1
4332	T	T	9	8	3	3	3	3
4333	9	9	9	8	3	3	2	2
4334	8	8	10	8	3	3	3	3
4335	9	9	8	7	3	3	1	1
4336	10	9	10	T	3	3	2	2
4337	10	10	T	T	3	3	3	3
4338	10	10	9	9	3	3	1	1
4339	10	10	T	9	3	3	1	1
4340	10	T	9	9	3	3	2	2
Douglas-fir, Heart, 230°C Thermally modified								
4121	10	10	T	8	3	4	4	4
4122	10	7	9	8	3	4	2	3
4123	10	9	9	8	3	4	2	3
4124	10	8	10	9	3	4	1	2
4125	10	8	8	6	3	4	1	1
4126	10	8	10	7	3	4	1	1
4127	10	8	T	8	3	4	2	2
4128	10	10	9	9	3	4	2	2
4129	10	9	T	7	3	4	2	2
4130	10	9	9	6	3	4	1	1
Douglas-fir, Sap, 230°C Thermally modified								
4131	7	7	8	7	3	3	2	2
4132	8	8	8	7	3	3	3	3
4133	8	7	8	8	3	3	3	3
4134	8	8	8	7	3	4	3	3
4135	9	9	9	8	3	4	3	3
4136	8	7	8	8	3	4	3	3
4137	9	8	8	7	3	4	1	1
4138	9	8	6	4	3	4	2	2
4139	9	7	6	4	3	4	2	2
4140	8	6	7	6	3	4	3	3
Douglas-fir, Heart, Untreated								
4141	8	8	6	4	3	4	3	3
4142	9	8	7	4	3	4	2	2
4143	9	8	8	7	3	4	3	3
4144	10	9	9	7	3	4	3	3
4145	10	9	9	7	3	4	2	2
4146	10	9	6	4	3	4	3	3
4147	9	8	9	6	3	4	2	2
4148	T	9	8	8	3	4	3	3
4149	10	7	9	8	3	4	2	2

Tag ID	Decay T		Decay UT		Surface		Checking	
	2024	2025	2024	2025	2024	2025	2024	2025
4150	9	7	8	7	3	3	3	3
Radiata pine, Sap, Untreated								
4211	6	6	6	4	3	3	1	1
4212	4	4	0	0	3	5	2	2
4213	7	7	6	6	3	5	2	2
4214	4	4	4	4	3	5	2	2
4215	4	4	0	0	3	5	2	2
4216	6	4	4	4	3	5	2	2
4217	4	4	4	4	3	5	1	1
4218	6	6	0	0	3	5	2	2
4219	0	0	0	0	-	-	-	-
4220	6	6	0	0	3	5	2	2
Radiata pine, Sap, Untreated, Stained								
4221	9	8	7	4	3	5	2	2
4222	7	6	4	4	3	5	2	2
4223	8	6	7	4	3	5	1	1
4224	8	4	6	6	3	5	2	2
4225	6	0	0	0	3	-	1	-
4226	6	0	0	0	3	-	2	-
4227	6	0	0	0	3	-	2	-
4228	4	0	0	0	3	-	1	-
4229	4	0	4	0	3	-	1	-
4230	7	4	4	4	3	5	2	2
Radiata pine, Sap, H3.2 CCA								
4191	8	8	9	8	3	4	2	2
4192	T	9	9	8	3	4	2	3
4193	8	8	9	8	3	4	2	2
4194	9	8	8	8	3	4	2	2
4195	9	8	9	8	3	4	2	3
4196	9	8	8	8	3	4	2	4
4197	9	8	9	8	3	4	2	3
4198	9	8	9	8	3	4	2	3
4199	8	8	T	9	3	4	2	2
4200	9	8	9	8	3	4	2	2
Radiata pine, Sap, H4 CCA								
4201	10	T	10	9	2	2	1	1
4202	T	9	T	9	2	2	1	1
4203	T	9	9	9	2	2	1	1
4204	10	10	10	10	2	2	1	1
4205	10	10	9	8	2	2	2	2
4206	10	10	9	8	2	2	2	2
4207	10	9	9	9	2	2	2	2
4208	10	10	9	8	2	2	2	2
4209	10	9	9	8	2	3	1	1
4210	10	T	10	9	2	3	1	1

Milestone 6: FR 25 - Framing trial

2024 results

E. fastigata Untreated Heart

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
11	2.3	4	3	7	7	4	3	7	7	100
12	1.9	4	4	7	6	3	5	6	4	100
13	1.7	3	4	7	6	3	3	4	0	90
14	1.9	3	2	7	6	3	5	6	4	59
15	1.9	4	3	4	4	4	4	4	0	100
16	2	3	4	7	7	1	3	4	6	100
17	1.7	1	5	7	7	4	3	6	6	59
18	1.8	2	3	7	6	2	4	6	6	57
19	2.1	1	1	10	10	2	1	7	7	23.4
20	1.7	2	5	7	7	2	5	6	6	100
Mean		2.7	3.4	7	6.6	2.8	3.6	5.6	4.6	

E. fastigata LVL Untreated

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
21	3.6	5	1	9	10	5	1	7	8	100
22	3.1	5	3	4	6	5	3	4	T	100
23	3.4	5	1	9	10	5	1	7	8	100
24	2.5	5	3	4	4	5	3	4	7	100
25	3.1	5	1	7	7	5	1	7	7	100
26	2.1	5	3	4	6	5	3	4	4	100
27	3.4	5	1	7	8	5	1	7	10	100
28	3.1	5	1	9	6	5	1	7	10	100
29	3.3	4	1	7	10	4	1	9	8	100
30	3.7	5	1	7	10	5	1	7	10	100
Mean		4.9	1.6	6.7	7.7	4.9	1.6	6.3	8	

***P. radiata* Untreated Heart\Sap**

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
61	0.8	4	6	0	0	5	6	0	0	39
62	1	1	6	0	0	4	1	0	0	50
63	0.7	2	6	0	0	4	6	0	0	70
64	1	4	5	0	0	4	2	0	0	30.3
65	0.8	3	6	0	0	4	1	0	0	48
66	0.7	1	6	0	0	3	1	0	0	60
67	0.7	1	6	0	0	4	5	0	0	33.3
68	0.9	5	6	0	0	5	5	0	0	36.3
69	0.9	5	6	0	0	5	5	0	0	45
70	0.9	4	4	0	0	4	2	0	0	49
Mean		3	5.7	0	0	4.2	3.4	0	0	

***P. radiata* H1.2 Boron Heart\sap**

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
71	2.3	4	1	10	10	4	1	10	10	63
72	3.5	2	1	10	10	2	1	10	10	100
73	3.5	2	1	10	10	2	2	10	10	100
74	3.7	2	1	10	10	2	1	10	T	100
75	3.2	4	1	10	10	1	1	10	10	90
76	3.1	2	1	10	10	2	1	10	10	100
77	3.7	2	1	10	10	2	1	10	10	100
78	3.6	2	1	10	10	2	1	10	10	80
79	3.2	2	1	10	10	2	1	10	10	100
80	-	5	1	10	10	5	3	10	10	100
Mean		2.7	1	10	10	2.4	1.3	10	10	

Old *C. macrocarpa* Untreated Heart

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
81	1.6	3	3	9	9	2	3	8	10	25.4
82	1.6	5	3	8	7	4	3	9	10	22.8
83	1.6	5	3	8	10	4	3	8	10	25.7
84	2	5	4	6	4	5	4	7	8	28.6
85	1.5	4	3	8	7	4	5	7	7	24
86	2.1	5	3	10	10	5	2	10	10	22.6
87	2	5	4	8	10	4	3	9	8	-
88	1.7	5	3	9	T	5	3	9	10	25.5
89	2	5	1	10	10	5	2	T	10	23
90	1.9	5	3	9	10	5	3	8	10	24
Mean		4.7	3	8.5	8.7	4.3	3.1	8.3	9.3	

Young *C. macrocarpa* Untreated Heart

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
91	1.55	1	1	10	9	2	1	8	7	24
92	1.7	4	5	7	6	4	5	6	4	36.3
93	1.8	3	5	6	4	3	5	7	4	100
94	2.2	3	1	8	T	3	1	7	T	100
95	2	3	2	7	6	3	2	10	10	67
96	1.8	3	2	8	10	3	1	7	6	35.3
97	2.3	3	1	8	10	3	1	10	10	53
98	2.1	3	2	8	7	3	1	10	7	100
99	2.2	3	1	T	7	3	2	10	T	100
100	2.3	3	1	10	10	3	2	10	T	36.7
Mean		2.9	2.1	8	7.7	3.0	2.1	8.5	6.9	

Larch Untreated Heart

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
111	1.8	3	1	10	10	3	3	9	10	23.6
112	1.8	2	2	8	10	2	4	7	6	24.4
113	1.9	2	2	10	10	3	1	10	10	22
114	1.8	2	1	10	10	2	1	10	10	21.6
115	1.7	2	3	10	10	3	1	7	6	21.7
116	1.8	3	1	10	10	2	1	10	10	21.8
117	1.8	3	1	10	10	4	1	10	10	21.3
118	1.9	3	1	9	10	4	1	10	10	22.4
119	1.7	3	1	10	10	2	1	10	10	25.8
120	2	2	1	10	8	2	1	10	9	23.2
mean		2.5	1.4	9.7	9.8	2.7	1.5	9.3	9.1	

Douglas-fir Untreated Heart\sap

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
121	1	4	6	0	0	4	5	0	0	100
122	1.1	4	6	0	0	4	6	0	0	100
123	1.2	3	6	0	0	1	3	0	0	70
124	0.9	4	6	0	0	4	3	0	0	100
125	0.8	2	6	0	0	5	5	0	0	100
126	0.8	2	6	0	0	4	5	0	0	100
127	1.1	4	1	0	0	4	3	0	0	23
128	0.8	1	6	0	0	1	6	0	0	100
129	0.6	4	6	0	0	4	3	0	0	100
130	0.7	1	6	0	0	2	6	0	0	63
mean		2.9	5.5	0	0	3.3	4.5	0	0	

2025 results

E. fastigata Untreated Heart

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
11	1.9	4	3	7	7	4	5	6	7	100
12	1.7	4	4	6	6	3	5	4	0	100
13	1.5	3	4	0	0	3	3	0	0	70
14	1.7	3	2	0	0	3	5	4	0	80
15	1.7	4	3	0	0	4	4	0	0	80
16	1.6	3	4	6	7	3	3	0	4	100
17	1.5	2	5	0	4	4	3	0	4	100
18	1.7	3	4	6	4	3	4	0	4	100
19	2.1	2	1	8	7	2	1	7	7	25.8
20	1.5	2	5	6	4	3	5	0	0	100
mean		3.5	3.3	3.2	3.3	3.3	4.2	2.3	1.8	

E. fastigata LVL Untreated

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
21	3.5	5	1	8	8	5	1	7	8	100
22	3.4	5	3	0	0	5	3	0	7	100
23	3.6	5	1	8	9	5	1	7	7	100
24	3.8	5	3	0	0	5	3	0	0	100
25	3.2	5	1	7	7	5	1	7	7	100
26	2.3	5	3	0	0	5	3	0	0	100
27	2.7	5	1	7	8	5	1	7	6	100
28	3	5	1	9	0	5	1	7	9	100
29	3.2	5	1	7	8	5	1	8	8	100
30	3.8	5	1	7	9	5	1	7	8	100
mean		5.0	1.6	5.3	4.9	5.0	1.6	5.0	6.0	

***P. radiata* Untreated Heart\sap (failed 2024)**

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
61	0.8	4	6	0	0	5	6	0	0	39
62	1	1	6	0	0	4	1	0	0	50
63	0.7	2	6	0	0	4	6	0	0	70
64	1	4	5	0	0	4	2	0	0	30.3
65	0.8	3	6	0	0	4	1	0	0	48
66	0.7	1	6	0	0	3	1	0	0	60
67	0.7	1	6	0	0	4	5	0	0	33.3
68	0.9	5	6	0	0	5	5	0	0	36.3
69	0.9	5	6	0	0	5	5	0	0	45
70	0.9	4	4	0	0	4	2	0	0	49
mean		3.0	5.7	0.0	0.0	4.2	3.4	0.0	0.0	

Old *C. macrocarpa* Untreated Heart

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
81	1.7	3	4	9	9	2	3	8	9	28
82	1.7	5	3	8	7	4	4	8	10	27.4
83	1.7	5	3	8	10	4	4	8	10	29
84	2.1	5	4	6	0	5	4	7	8	28.6
85	1.5	4	3	8	7	4	5	7	7	25.3
86	2.1	5	3	10	10	5	2	9	10	23.1
87	2	5	4	8	10	4	3	9	8	24
88	1.7	5	3	8	T	5	3	8	T	26.4
89	2	5	1	T	10	5	2	9	10	24.5
90	1.9	5	3	9	8	5	4	8	10	22.5
mean		4.7	3.1	8.2	7.9	4.3	3.4	7.7	9.1	

Young *C. macrocarpa* Unteated Heart 2025

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
91	1.5	1	1	10	7	2	1	8	7	22.9
92	1.6	4	5	7	0	4	5	6	0	24.4
93	1.8	3	4	6	0	3	4	7	4	26.2
94	2	3	1	8	8	3	1	7	7	34
95	1.9	3	2	7	4	3	2	10	10	39.5
96	1.6	3	2	8	10	3	1	7	6	22.9
97	2.3	3	1	8	9	3	1	10	10	37.7
98	2.1	3	2	8	6	3	1	10	6	51
99	2.4	3	1	T	6	3	2	T	T	70
100	2.2	3	1	10	10	3	2	10	T	38.5
Mean		2.9	2.0	8.2	6.0	3.0	3.0	8.5	7.0	

Larch Untreated Heart 2025

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
111	1.9	3	1	10	T	3	3	7	7	37
112	2	3	5	6	6	3	5	7	6	31.4
113	2	2	2	9	9	3	1	10	9	45
114	1.9	2	4	8	10	3	1	10	8	21.6
115	1.9	3	3	10	9	3	1	7	6	26.4
116	1.8	3	1	10	10	3	1	10	10	34
117	1.9	4	1	10	10	4	1	10	10	31.8
118	2.4	4	1	9	10	4	1	T	10	80
119	1.9	3	1	10	10	3	1	T	9	44
120	2.2	2	1	10	8	2	1	10	9	35.3
Mean		2.9	2.0	9.2	9.2	3.1	1.6	9.1	8.4	

Douglas-fir Untreated Heart\sap (failed 2024)

ID	Weight	OP		OP Decay		Ax		Ax Decay		Moisture meter
		Mould	Myc	Surface	Joint	Mould	Myc	Surface	Joint	
121	1	4	6	0	0	4	5	0	0	100
122	1.1	4	6	0	0	4	6	0	0	100
123	1.2	3	6	0	0	1	3	0	0	70
124	0.9	4	6	0	0	4	3	0	0	100
125	0.8	2	6	0	0	5	5	0	0	100
126	0.8	2	6	0	0	4	5	0	0	100
127	1.1	4	1	0	0	4	3	0	0	23
128	0.8	1	6	0	0	1	6	0	0	100
129	0.6	4	6	0	0	4	3	0	0	100
130	0.7	1	6	0	0	2	6	0	0	63
mean		2.9	5.5	0	0	3.3	4.5	0	0	

Milestone 7: *Eucalyptus* and thermally modified Douglas-fir stakelets

TDH150 - *Eucalyptus* stakelets

Individual stakelet data for *Eucalyptus bosistoana*

Stakelet ID	Tree number	Inner\Outer\Middle	Decay ratings – Number of months							
			92	95	98	101	104	107	110	113
1	1	O								
2	1	O								
3	1	O								
4	1	O								
5	1	O								
6	1	O								
7	1	I/O								
8	1	I/O								
9	1	I/O								
10	1	I/O	Average life 2.7 years							
11	2	O								
12	2	O								
13	2	O								
14	2	O								
15	2	O								
16	2	I								
17	2	I								
18	2	I								
19	2	I								
20	2	I	Average life 4.2 years							
21	3	O	0	0	0	0	0	0		Average life 4.9 years
22	3	O	0	0	0	0	0	0		
23	3	O	0	0	0	0	0	0		
24	3	O	0	0	0	0	0	0		
25	3	O	0	0	0	0	0	0		
26	3	I	0	0	0	0	0	0		
27	3	I	0	0	0	0	0	0		
28	3	I	4	4	4	4	4	0		
29	3	I	0	0	0	0	0	0		
30	3	I	0	0	0	0	0	0		
31	4	O								
32	4	O								
33	4	O								
34	4	O								
35	4	O								
36	4	I								
37	4	I								
38	4	I								
39	4	I								
40	4	I	Average life 2.1 years							

Individual stakelet data for *Eucalyptus quadrangulata*

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			50	53	56	59	62	65	69	71
41	5	O	0	0	0	0	0			
42	5	O	0	0	0	0	0			
43	5	O	0	0	0	0	0			
44	5	O	0	0	0	0	0			
45	5	O	0	0	0	0	0			
46	5	I	4	4	4	4	0			
47	5	I	4	4	0	0	0			
48	5	I	0	0	0	0	0			
49	5	I	0	0	0	0	0			
50	5	I	0	0	0	0	0	Av. life 2.6 years		
51	6	O								
52	6	O								
53	6	O								
54	6	O								
55	6	O								
56	6	I								
57	6	I								
58	6	I								
59	6	I								
60	6	I	Average life 1.6 years							
61	7	O	0	0						
62	7	O	0	0						
63	7	O	0	0						
64	7	O	4	0						
65	7	O	0	0						
66	7	I	0	0						
67	7	I	0	0						
68	7	I	0	0						
69	7	I	0	0						
70	7	I	0	0	Average life 1.7 years					
71	8	O								
72	8	O								
73	8	O								
74	8	O								
75	8	O								
76	8	I								
77	8	I								
78	8	I								
79	8	I								
80	8	I	Average life 1.7 years							

Individual stakelet data for *Eucalyptus pilularis*

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			50	53	56	59	62	65	68	71
81	9	O	0	0	0	0	0			
82	9	O	0	0	0	0	0			
83	9	O	0	0	0	0	0			
84	9	O	0	0	0	0	0			
85	9	O	4	4	4	4	0			
86	9	I	0	0	0	0	0			
87	9	I	0	0	0	0	0			
88	9	I	0	0	0	0	0			
89	9	I	0	0	0	0	0			
90	9	I	0	0	0	0	0	Av. life 2.3 years		
91	10	O								
92	10	O								
93	10	O								
94	10	O								
95	10	O								
96	10	I								
97	10	I								
98	10	I								
99	10	I								
100	10	I	Average life 1.7 years							
101	11	O								
102	11	O								
103	11	O								
104	11	O								
105	11	O								
106	11	I								
107	11	I								
108	11	I								
109	11	I								
110	11	I	Average life 2.1 years							
111	12	O	0	0	0					
112	12	O	0	0	0					
113	12	O	0	0	0					
114	12	O	4	4	0					
115	12	O	0	0	0					
116	12	I	0	0	0					
117	12	I	0	0	0					
118	12	I	0	0	0					
119	12	I	0	0	0					
120	12	I	0	0	0	Average life 3.1 years				

Individual stakelet data for *Eucalyptus sphaerocarpa*

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			50	53	56	59	62	65	68	71
121	13	O								
122	13	O								
123	13	I								
124	13	I								
125	13	I								
126	13	I								
127	13	I								
128	13	I								
129	13	I								
130	13	I	Average life 3.0 years							
131	14	O	4	4	4	4	4	4	0	Average life 3.7 years
132	14	O	0	0	0	0	0	0	0	
133	14	O	0	0	0	0	0	0	0	
134	14	O	0	0	0	0	0	0	0	
135	14	O	0	0	0	0	0	0	0	
136	14	I	0	0	0	0	0	0	0	
137	14	I	0	0	0	0	0	0	0	
138	14	I	4	4	0	0	0	0	0	
139	14	I	0	0	0	0	0	0	0	
140	14	I	0	0	0	0	0	0	0	
141	15	O	0	0	0					
142	15	O	0	0	0					
143	15	O	0	0	0					
144	15	O	6	6	0					
145	15	O	0	0	0					
146	15	I	0	0	0					
147	15	I	0	0	0					
148	15	I	0	0	0					
149	15	I	0	0	0					
150	15	I	0	0	0	Average life 3.3 years				
151	16	O								
152	16	O								
153	16	O								
154	16	O								
155	16	O								
156	16	I								
157	16	I								
158	16	I								
159	16	I								
160	16	I	Average life 2.1 years							

Individual stakelet data for *Eucalyptus globoidea*

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			50	53	56	59	62	65	68	71
161	17	O	4	4	0	0				
162	17	O	0	0	0	0				
163	17	O	0	0	0	0				
164	17	O	0	0	0	0				
165	17	O	0	0	0	0				
166	17	I	0	0	0	0				
167	17	I	0	0	0	0				
168	17	I	0	0	0	0				
169	17	I	4	4	0	0				
170	17	I	4	4	4	Average life 3.3 years				
171	18	O								
172	18	O								
173	18	O								
174	18	O								
175	18	O								
176	18	I								
177	18	I								
178	18	I								
179	18	I								
180	18	I	Average life 2.5 years							
181	19	O	0	0	0	0	0	0	0	Average life 3.3 years
182	19	O	4	4	0	0	0	0	0	
183	19	O	0	0	0	0	0	0	0	
184	19	O	4	0	0	0	0	0	0	
185	19	O	0	0	0	0	0	0	0	
186	19	I	0	0	0	0	0	0	0	
187	19	I	4	4	4	4	0	0	0	
188	19	I	4	4	4	4	4	4	0	
189	19	I	0	0	0	0	0	0	0	
190	19	I	0	0	0	0	0	0	0	
191	20	O								
192	20	O								
193	20	O								
194	20	O								
195	20	O								
196	20	I								
197	20	I								
198	20	I								
199	20	I								
200	20	I	Average life 2.0 years							

Individual stakelet data for *Eucalyptus muelleriana*

Stakelet ID	Tree number	Inner/Outer/ Middle	Decay ratings – Number of months							
			29	32	35	38	41	44	47	50
201	21	O	0							
202	21	O	0							
203	21	O	0							
204	21	O	0							
205	21	O	0							
206	21	I	0							
207	21	I	0							
208	21	I	0							
209	21	I	0							
210	21	I	0	Average life 1.5 years						
211	22	O	0	0	0					
212	22	O	4	0	0					
213	22	O	0	0	0					
214	22	O	0	0	0					
215	22	O	0	0	0					
216	22	I	0	0	0					
217	22	I	0	0	0					
218	22	I	0	0	0					
219	22	I	4	4	0					
220	22	I	0	0	0	Average life 1.9 years				
221	23	O	0	0	0	0	0			
222	23	O	4	0	0	0	0			
223	23	O	6	4	4	4	0			
224	23	O	0	0	0	0	0			
225	23	O	0	0	0	0	0			
226	23	I	0	0	0	0	0			
227	23	I	0	0	0	0	0			
228	23	I	0	0	0	0	0			
229	23	I	0	0	0	0	0	Average life 1.9 years		
230	23	I	0	0	0	0	0			
231	24	O								
232	24	O								
233	24	O								
234	24	O								
235	24	O								
236	24	I								
237	24	I								
238	24	I								
239	24	I								
240	24	I	Average life 1.4 years							

Individual stakelet data for *Pinus radiata*

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			2	5	8	11	14	17	20	23
241	25	O	10	7	7	0	0	0		
242	25	O	10	8	8	7	7	0		
243	25	O	9	7	7	0	0	0		
244	25	O	0	0	0	0	0	0		
245	25	O	8	7	7	0	0	0		
246	25	I	0	0	0	0	0	0		
247	25	I	9	7	7	0	0	0		
248	25	I	10	9	8	0	0	0		
249	25	I	8	7	0	0	0	0	Av. life 8.9 months	
250	25	I	10	0	0	0	0	0		

Individual stakelet data for *Fagus sylvatica*

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			2	5	8	11	14	17	20	23
251	26	O	8	6	0	0				
252	26	O	8	7	7	0				
253	26	O	8	0	0	0				
254	26	O	8	0	0	0				
255	26	O	8	0	0	0				
256	26	I	8	0	0	0				
257	26	I	8	0	0	0				
258	26	I	8	6	0	0				
259	26	I	8	0	0	0				
260	26	I	8	6	0	0	Average life 6.5 months			

Individual stakelet data for *Pinus radiata* CCA treated H3.2

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			92	95	98	101	104	107	110	113
261	27	-	0	0	0	0	0	0	0	Average life 6.7 years
262	27	-	4	4	0	0	0	0	0	
263	27	-	0	0	0	0	0	0	0	
264	27	-	4	4	4	4	4	4	0	
265	27	-	0	0	0	0	0	0	0	
266	27	-	0	0	0	0	0	0	0	
267	27	-	0	0	0	0	0	0	0	
268	27	-	0	0	0	0	0	0	0	
269	27	-	6	0	0	0	0	0	0	
270	27	-	0	0	0	0	0	0	0	

Individual stakelet data for *Pinus radiata* CCA treated H4

Stakelet ID	Tree number	Inner\Outer\ Middle	Decay ratings – Number of months							
			92	95	98	101	104	107	110	113
271	28	-	7	7	6	6	6	6	6	6
272	28	-	6	6	6	6	6	6	4	0
273	28	-	8	8	7	7	7	7	6	4
274	28	-	8	8	8	8	8	6	6	6
275	28	-	6	6	6	6	4	4	0	0
276	28	-	7	7	7	7	7	6	6	6
277	28	-	7	7	6	6	6	6	6	4
278	28	-	7	7	6	6	6	6	6	4
278	28	-	7	7	7	6	6	4	4	0
280	28	-	6	6	6	6	6	6	4	4

TDH 156 - Douglas-fir stakelets

Individual stakelet data for Leached Douglas-fir Heartwood

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
1	D48D								
2	D48D								
3	D50B								
4	D50B								
5	D63D								
6	D63D								
7	D70B								
8	D70B								
9	D71A								
10	D71A	Average life 1.7 years							

Individual stakelet data for Unleached Douglas-fir Heartwood

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
11	D48D								
12	D48D								
13	D48D								
14	D50B								
15	D50B								
16	D63D								
17	D63D								
18	D70B								
19	D70B								
20	D71A	Average life 1.7 years							

Individual stakelet data for Leached Douglas-fir Sapwood

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
21	D2B								
22	D2B								
23	D5B								
24	D5B								
25	D6D								
26	D6D								
27	D16B								
28	D16B								
29	D53F								
30	D53F	Average life 2.0 years							

Individual stakelet data for Unleached Douglas-fir Sapwood

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
31	D2B								
32	D2B								
33	D5B								
34	D5B								
35	D6D								
36	D6D								
37	D16B								
38	D16B								
39	D53F								
40	D53F	Average life 2.0 years							

Individual stakelet data for Leached Douglas-fir Heartwood 220 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
41	D17C								
42	D17C								
43	D48B								
44	D48B								
45	D50D								
46	D50D								
47	D63C								
48	D63C								
49	D70G								
50	D70G	Average life 2.9 years							

Individual stakelet data for Unleached Douglas-fir Heartwood 220 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
51	D17C								
52	D17C								
53	D48B								
54	D48B								
55	D50D								
56	D50D								
57	D63C								
58	D63C								
59	D70G								
60	D70G	Average life 3.1 years							

Individual stakelet data for Leached Douglas-fir Sapwood 220 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
61	D2D								
62	D2D								
63	D5C								
64	D5C								
65	D6C								
66	D6C								
67	D16D								
68	D16D								
69	D53E								
70	D53C	Average life 3.3 years							

Individual stakelet data for Unleached Douglas-fir Sapwood 220 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
71	D2D	0	0						
72	D2D	0	0						
73	D5C	0	0						
74	D5C	0	0						
75	D6C	0	0						
76	D6C	4	0						
77	D16D	0	0						
78	D16D	0	0						
79	D53E	0	0						
80	D53E	0	0	Average life 3.8 years					

Individual stakelet data for Leached Douglas-fir Heartwood 230 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
81	D48A								
82	D48A								
83	D50C								
84	D50C								
85	D63B								
86	D63B								
87	D70C								
88	D70C								
89	D71E								
90	D71E	Average life 2.8 years							

Individual stakelet data for Unleached Douglas-fir Heartwood 230 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
91	D48A								
92	D48A								
93	D50C								
94	D50C								
95	D63B								
96	D63B								
97	D70C								
98	D70C								
99	D71E								
100	D71E	Average life 3.0 years							

Individual stakelet data for Leached Douglas-fir Sapwood 230 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
111	D2A								
112	D2A								
113	D5B								
114	D5B								
115	D6B								
116	D6B								
117	D16C								
118	D16C								
119	D53D1								
120	D53D1	Average life 2.6 years							

Individual stakelet data for Unleached Douglas-fir Sapwood 230 °C

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
101	D2A								
102	D2A								
103	D5B								
104	D6B								
105	D6B								
106	D16C								
107	D16C								
108	D53D1								
109	D53D1								
110	D53D1	Average life 2.8 years							

Individual stakelet data for Leached Red Beech

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
121	RB1								
122	RB1								
123	RB1								
124	RB1								
125	RB2								
126	RB2								
127	RB2								
128	RB3								
129	RB3								
130	RB3	Average life 2.2 years							

Individual stakelet data for Unleached Red Beech

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
131	RB1								
132	RB1								
133	RB1								
134	RB1								
135	RB2								
136	RB2								
137	RB2								
138	RB3								
139	RB3								
140	RB3	Average life 2.0 years							

Individual stakelet data for Leached *P. radiata* CCA H3.2

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
141	H3.2A								
142	H3.2A								
143	H3.2B								
144	H3.2C								
145	H3.2C								
146	unknown								
147	unknown								
148	unknown								
149	unknown								
150	unknown	Average life 3.7 years							

Individual stakelet data for Unleached *P. radiata* CCA H3.2

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
151	H3.2A	0	0	0					
152	H3.2B	0	0	0					
153	H3.2B	0	0	0					
154	H3.2C	0	0	0					
155	unknown	0	0	0					
156	unknown	0	0	0					
157	unknown	0	0	0					
158	unknown	0	0	0					
159	unknown	4	4	0					
160	unknown	0	0	0	Average life 4.1 years				

Individual stakelet data for Leached Kebony

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
171	K23								
172	K23								
173	K24								
174	K24								
175	K25								
176	K25								
177	K26								
178	K27								
179	K27								
180	K28	Average life 4.0 years							

Individual stakelet data for Unleached Kebony

Stakelet ID	Sample code	Decay ratings – Number of months							
		69	72	75	78	81	84	87	90
171	K23								
172	K23								
173	K24								
174	K24								
175	K25								
176	K25								
177	K26								
178	K27								
179	K27								
180	K28	Average life 4.3 years							