

Customer: Chris Williams, Panda Panel Agencies Ltd.
Address: Sandy Farm, The Sands, Farnham, Surrey, United Kingdom, GU10 1PX.

Subject:	Verification/determination of timber taxonomy	
Method(s):	Identification of wood taxonomy using microscopic analysis.	The anatomy of the analysed sample was found to be characteristic of the wood shown in the table below.
Sample information	Analysis result (scientific name and trade name)	Overall Grading
LSN: PPA-RIL-BIR-2023 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see pages 6 to 9 of report for micrographs of sample PPA-RIL-BIR-2023 layers 1 to 11.	

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Guide to evaluation grading



- The anatomical features that are evident in the sample/aliquot are consistent with its declared taxon.



- Insufficient features are evident in the sample/aliquot to confirm or refute its declared taxon. Recommendations may follow.



- There are anatomical features evident in the sample/aliquot that are not consistent with its declared taxon.

Assessed by:

Tim Fox,
 (Senior Wood Anatomist, Operations manager)

Checked by:

Vienna Johnson,
 (Digital marketing Coordinator / Administrator)

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Sample information	Analysis result (scientific name and trade name)	Overall Grading
LSN: PPA-RIL-BIR-2023.1 – Top layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.1 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 6 of report for micrographs of sample PPA-RIL-BIR-2023.1 .	
LSN: PPA-RIL-BIR-2023.2 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.2 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 6 of report for micrographs of sample PPA-RIL-BIR-2023.2 .	
LSN: PPA-RIL-BIR-2023.3 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.3 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 6 of report for micrographs of sample PPA-RIL-BIR-2023.3 .	
LSN: PPA-RIL-BIR-2023.4 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.4 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 7 of report for micrographs of sample PPA-RIL-BIR-2023.4 .	
LSN: PPA-RIL-BIR-2023.5 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.5 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 7 of report for micrographs of sample PPA-RIL-BIR-2023.5 .	
LSN: PPA-RIL-BIR-2023.6 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.6 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 7 of report for micrographs of sample PPA-RIL-BIR-2023.6 .	
LSN: PPA-RIL-BIR-2023.7 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.7 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 8 of report for micrographs of sample PPA-RIL-BIR-2023.7 .	
LSN: PPA-RIL-BIR-2023.8 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.8 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 8 of report for micrographs of sample PPA-RIL-BIR-2023.8 .	
LSN: PPA-RIL-BIR-2023.9 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.9 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 8 of report for micrographs of sample PPA-RIL-BIR-2023.9 .	
LSN: PPA-RIL-BIR-2023.10 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.10 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 9 of report for micrographs of sample PPA-RIL-BIR-2023.10 .	
LSN: PPA-RIL-BIR-2023.11 – Inner layer 11-layer plywood (18mm) Declared taxon: <i>Betula sp.</i> Declared origin: China	Sample PPA-RIL-BIR-2023.11 – had anatomical features characteristic of <i>Betula sp.</i> (birch) please see page 9 of report for micrographs of sample PPA-RIL-BIR-2023.11 .	

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Explanation of common wood anatomy terms

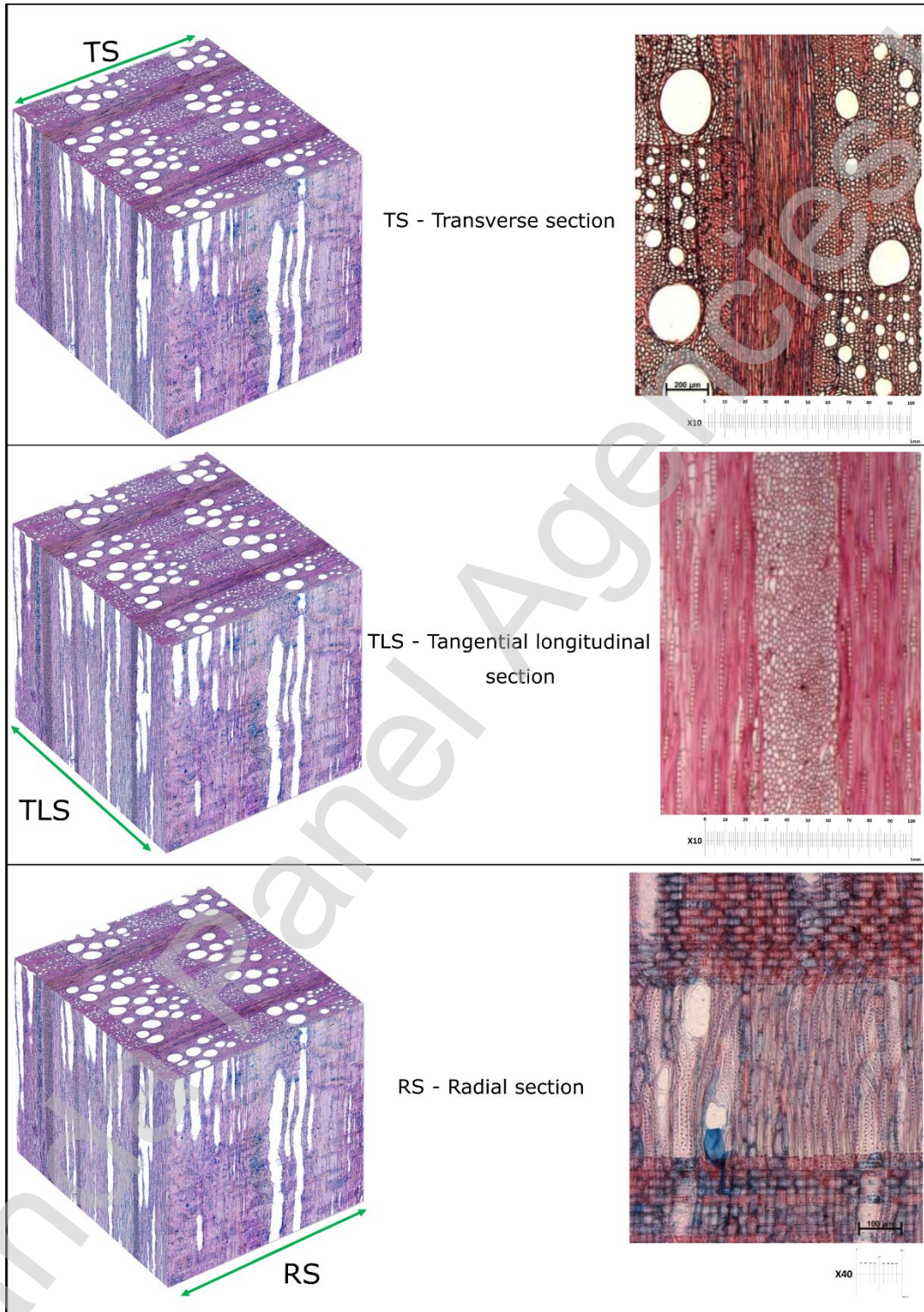


Figure 1. Diagram of a cube of wood showing the three planes that are inspected to define the features present in the sample. The example shows the three planes of a block of *Quercus sp.* (oak).

Page 4 shows examples of *Betula sp.* Taken from: InsideWood. 2004-onwards. Published on the Internet. <http://insidewood.lib.ncsu.edu/search> [date accessed: 15.04.2021].

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Sample information

Sample information and preparation



11 Layer (Plywood) - PPA-RIL-BIR-2023 - 188A1512-0523.

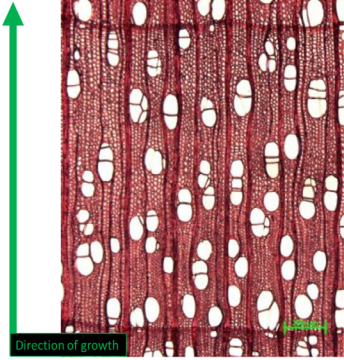

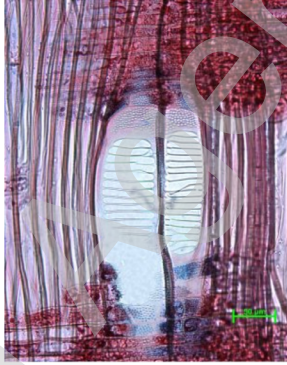
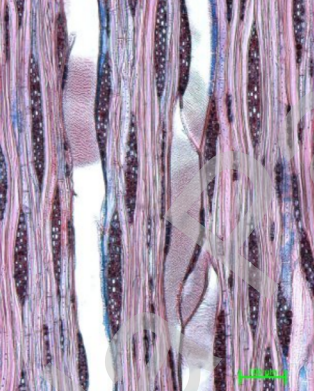



- RIL-BIR-2023.1.
- RIL-BIR-2023.2.
- RIL-BIR-2023.3.
- RIL-BIR-2023.4.
- RIL-BIR-2023.5.
- RIL-BIR-2023.6.
- RIL-BIR-2023.7.
- RIL-BIR-2023.8.
- RIL-BIR-2023.9.
- RIL-BIR-2023.10.
- RIL-BIR-2023.11.

11 Layer (Plywood) - PPA-RIL-BIR-2023 - 188A1512-0523.

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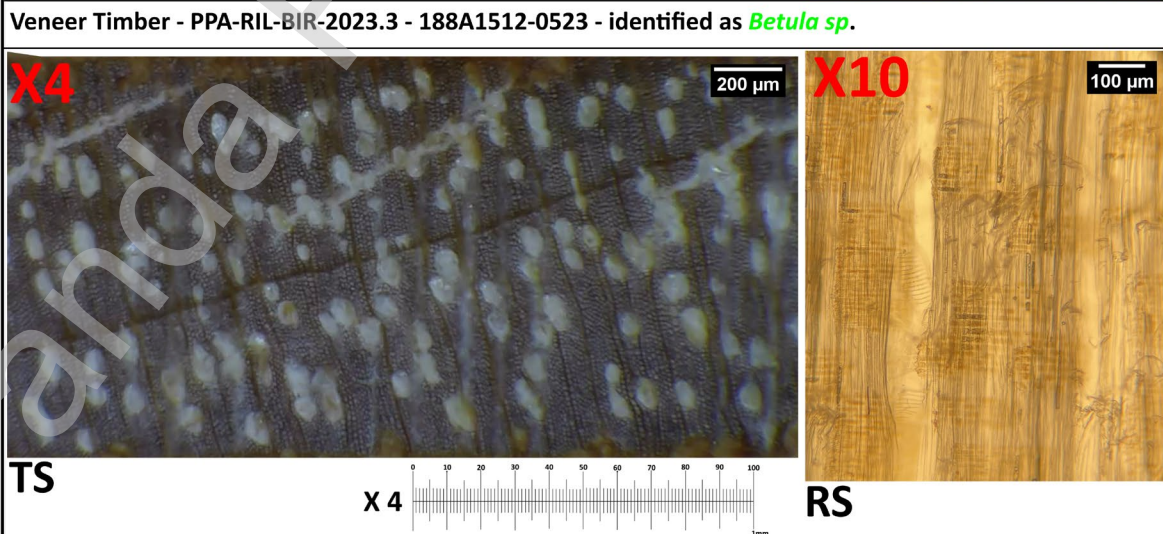
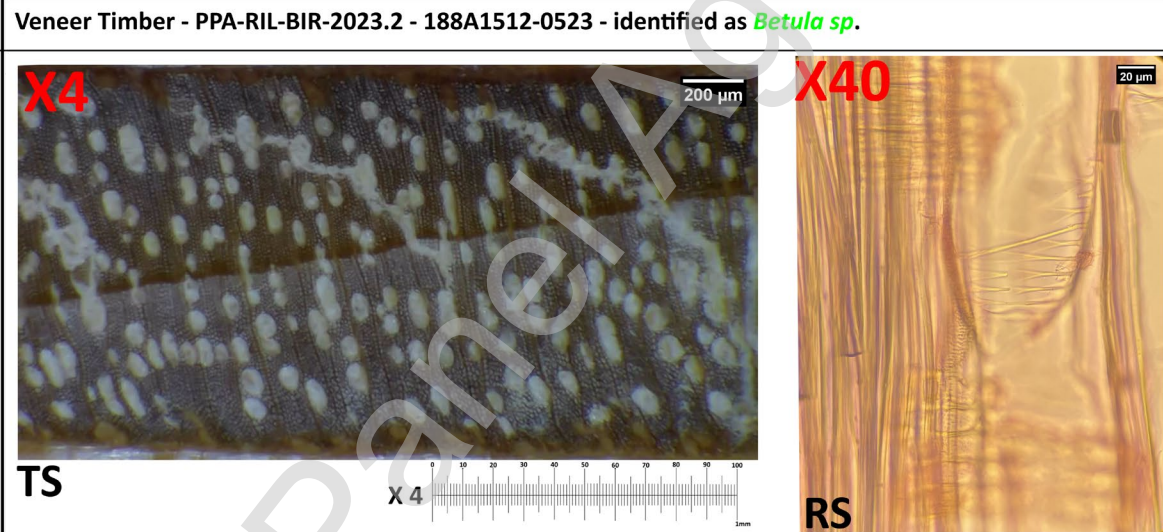
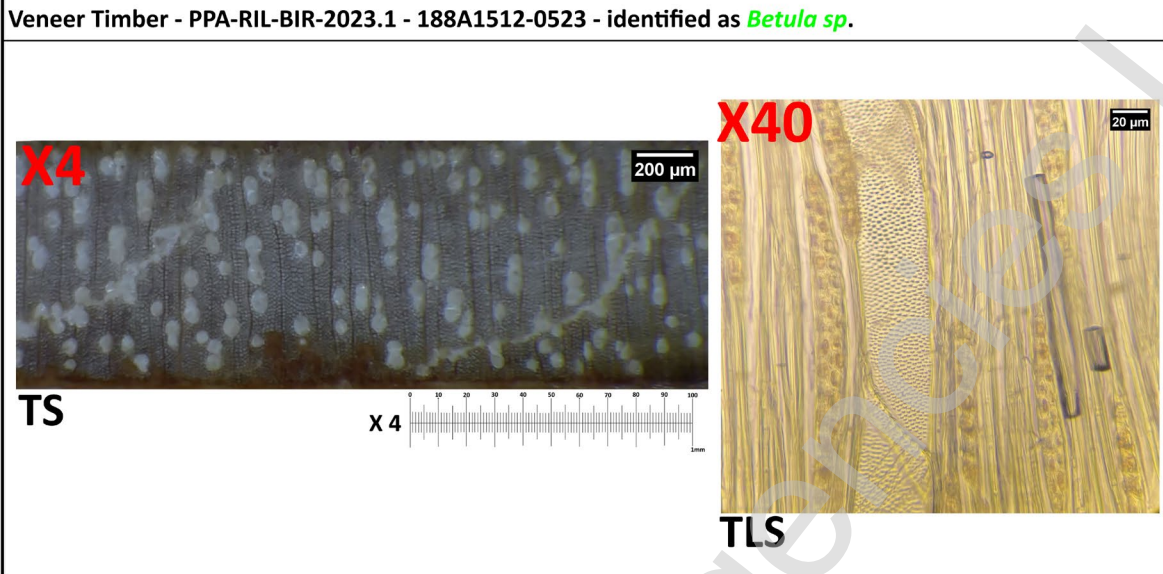
Evaluation criteria

 <p>Transverse section: Examples of <i>Betula sp.</i> from the InsideWood reference database.</p>	<p>Evaluation criteria</p> <p>Porosity: Wood diffuse-porous.</p> <p>Vessels and Arrangement: Vessels are medium (50 - 100µm) primarily radial multiples; medium vessels in no specific arrangement, moderately numerous to numerous and range from 20 - 100. Intervessel pits are alternate and minute (<=4µm) vessels per square millimeter. Scalariform perforation plates present commonly 10 - 20 bars though can be as many as 40.</p> <p>Parenchyma: Axial parenchyma diffuse and in aggregates.</p> <p>Rays: All ray cells procumbent. commonly 1 to 3 cells in width though larger rays are commonly 4 - to 10 seriate.</p> <p>Growth rings: Boundaries are distinct.</p>
 <p>Radial section: Example of <i>Betula sp.</i> from the InsideWood reference database.</p>	 <p>Radial section: Example of <i>Betula sp.</i> from the InsideWood reference database.</p>
 <p>Radial section: Example of <i>Betula sp.</i> from the InsideWood reference database.</p>	 <p>Tangential section: Example of <i>Betula sp.</i> from the InsideWood reference database.</p>

Sample Number	Features found present - [Alfonso et al., 1989; InsideWood, 2004-onwards]	Genus Identified	Species Identified
PPA-RIL-BIR-2023.1 to PPA-RIL-BIR-2023.11	1p 5p 14p 16p 17p 22p 24p 41p 48p 49p 61p 66p 69p 76p 77p 92p 93p 97p 98p 104p	<i>Betula</i>	<i>sp.</i>

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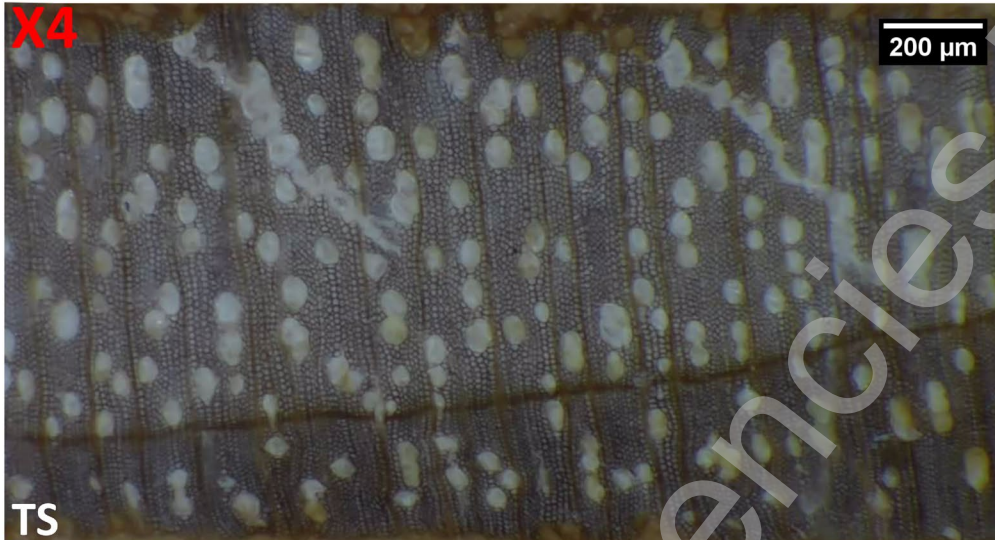
Sample micrographs



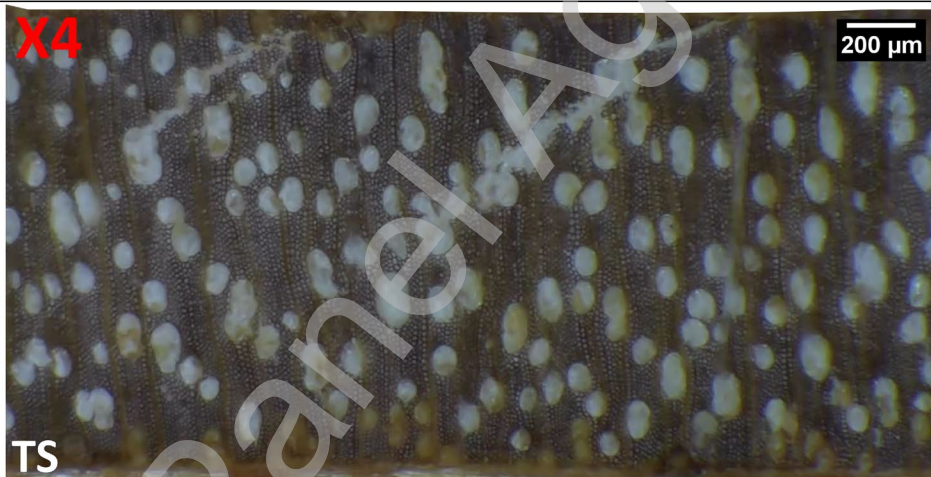
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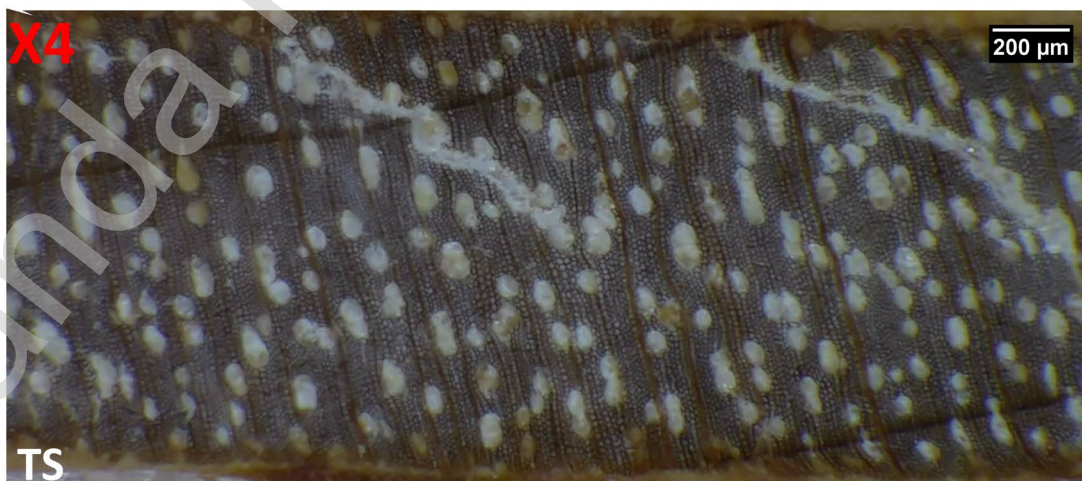
Veneer Timber - PPA-RIL-BIR-2023.4 - 188A1512-0523 - identified as *Betula sp.*



Veneer Timber - PPA-RIL-BIR-2023.5 - 188A1512-0523 - identified as *Betula sp.*

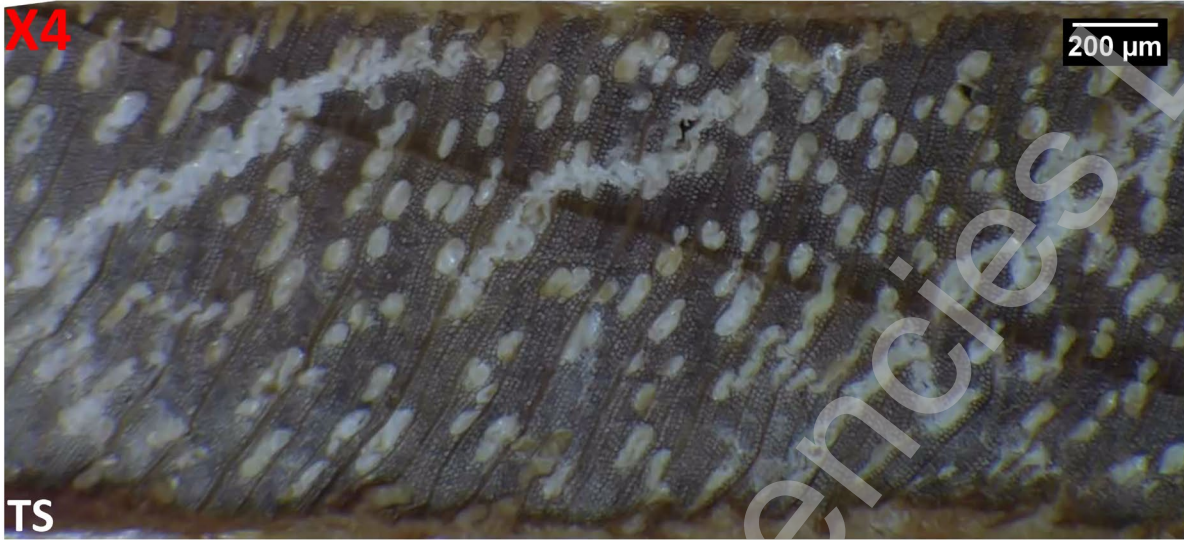


Veneer Timber - PPA-RIL-BIR-2023.6 - 188A1512-0523 - identified as *Betula sp.*

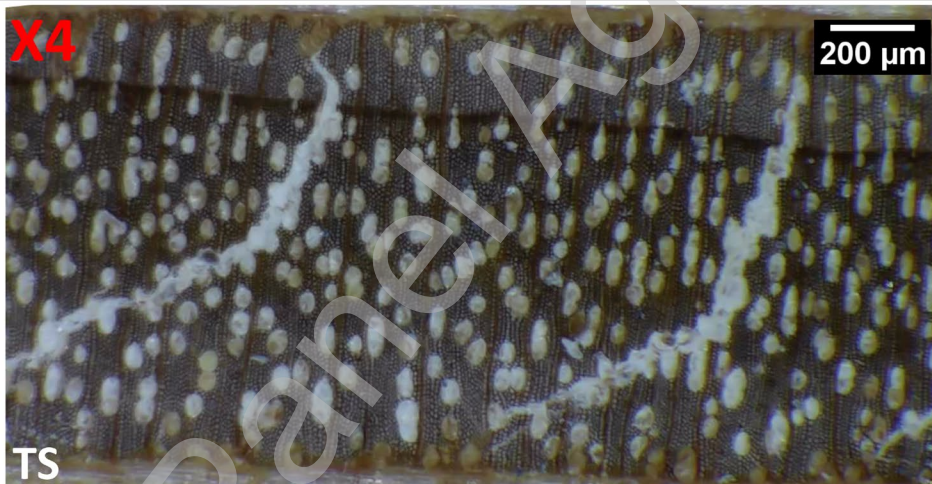


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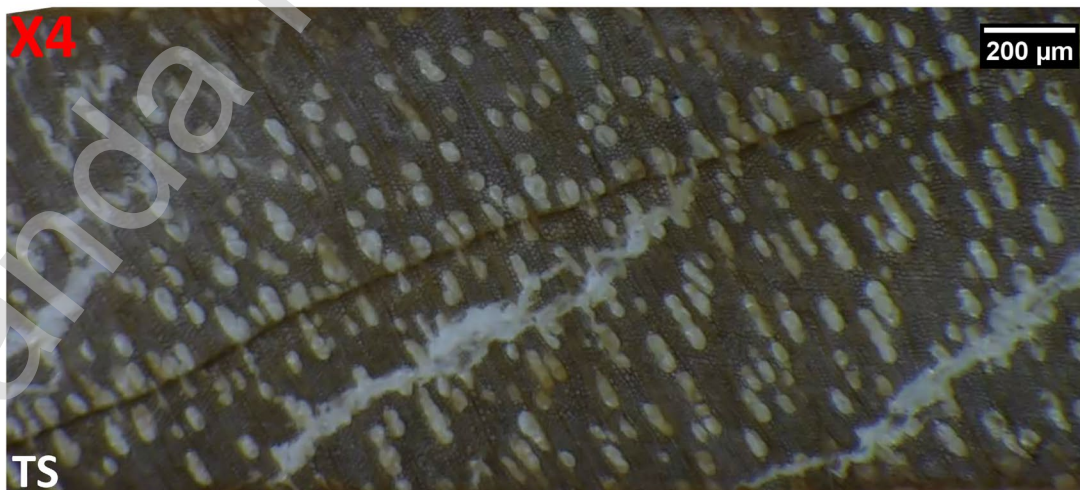
Veneer Timber - PPA-RIL-BIR-2023.7 - 188A1512-0523 - identified as *Betula sp.*



Veneer Timber - PPA-RIL-BIR-2023.8 - 188A1512-0523 - identified as *Betula sp.*

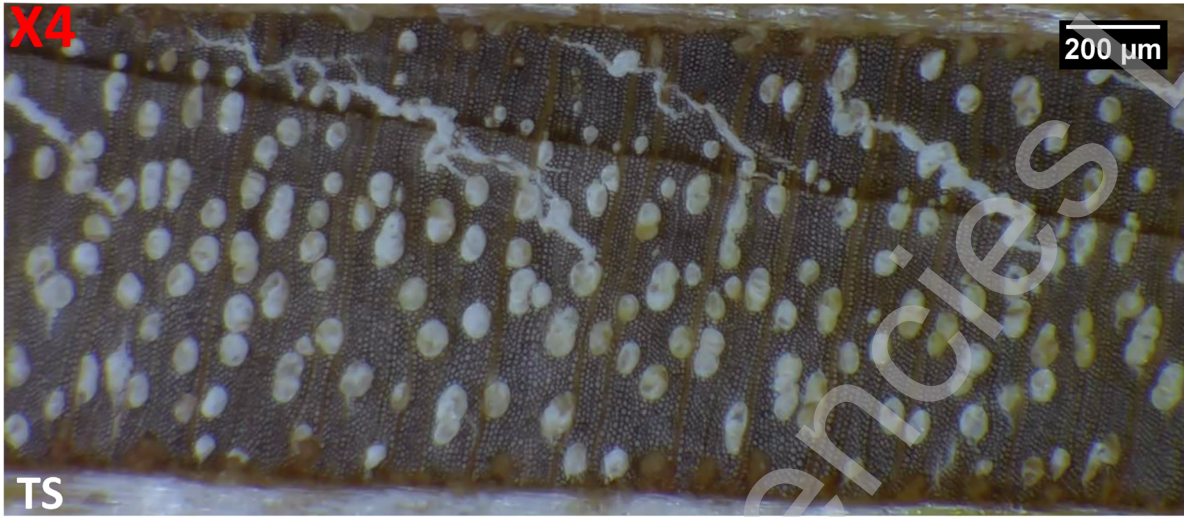


Veneer Timber - PPA-RIL-BIR-2023.9 - 188A1512-0523 - identified as *Betula sp.*

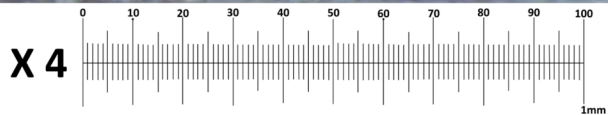


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Veneer Timber - PPA-RIL-BIR-2023.10 - 188A1512-0523 - identified as *Betula sp.*



Veneer Timber - PPA-RIL-BIR-2023.11 - 188A1512-0523 - identified as *Betula sp.*



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References

Alfonso, V. A., P. Baas, S. Carlquist, J. P. Chimelo, V. T. Rauber Coradin, P. Detienne, P. E. Gasson, et al. *IAWA List of Microscopic Features for Hardwood Identification*. Edited by E. A. Wheeler, P. Baas, and P. E. Gasson. IAWA Bulletin, 1989.

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