**Agathis borneensis** Warb.

**taxon**omy  
author, year  Warbug, 1900  
synonym  *Agathis beccarii* Warb.; *Agathis macrostachys* Warb.; *Agathis rhomboidalis* Warb.; *Agathis latifolia* Meijer Drees  
Family  Araucariaceae  
Eng. Name  Malayan kauri; dammar minyak  
Vernacular name  bindang (Brunei Darussalam); bembueng, damar pilau, hedje, damar sigi, kayu sigi, ki dammar (Indonesia); damar minyak, bindang, tambunan, mengilan, dammar (Malaysia)  
Dutch name  -  
subspecies  varieties  hybrids  culturivars, frequently planted

**references**  
Earle, C.J. Gymnosperm database. [www.conifers.org/ar/ag/dammara.html](http://www.conifers.org/ar/ag/dammara.html)  

**morphology**  
crown habit  deep conical  
max. height (m)  55  
max. dbh (cm)  120  
actual sizes – location, country -  dbh 70 cm  
leaf length (cm)  2.5 – 7.0  
leaf petiole (cm)  0.5 – 1  
leaf colour upper surface  dark green  
leaf colour under surface  dark green  
leaves arrangement  opposite  
flowering  throughout the year  
flowering plant  monoecious  
flower  monosexual  
flower diameter pollen cones (cm)  4 – 7 cm x 20 – 25 mm  
inflorcescence description, length  
pollination  wind  
fruit; length  oval to globural; 6-8 cm  
fruit petiole (cm)  up to 0.4  
seed; length  samara (=winged nut); 12 mm  
seed-wing length (cm)  0.2  
weight 1000 seeds (g)  20 - 25 (A.dammar)  
seeds ripen  throughout the year; best season August - October  
seed dispersal  wind
<table>
<thead>
<tr>
<th><strong>Habitat</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Natural Distribution</td>
<td>Peninsular Malaysia, Sumatra, Borneo and Kalimantan</td>
</tr>
<tr>
<td>Introduced Countries</td>
<td></td>
</tr>
<tr>
<td>Area Natural Habitat (ha)</td>
<td></td>
</tr>
<tr>
<td>Soil Type, Water</td>
<td>Tolerates a wide range of soils: ultra-basic rock, limestone and in peat-swamp forests, igneous and sedimentary rocks, more commonly found on mountain soils; well-drained</td>
</tr>
<tr>
<td>pH-KCl</td>
<td>Acid; neutral</td>
</tr>
<tr>
<td>Soil Fertility</td>
<td>Poor to nutrient rich</td>
</tr>
<tr>
<td>Light</td>
<td>Seedlings best under shade; growth light-need</td>
</tr>
<tr>
<td>Plant Communities Natural Area</td>
<td></td>
</tr>
<tr>
<td>Climate</td>
<td>Tropical rainforest</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Management</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Natural Range</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Status Introduced Range</td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td>Timber tree, ornamental</td>
</tr>
<tr>
<td>Propagation</td>
<td>Seed</td>
</tr>
<tr>
<td>Regeneration</td>
<td>Planting; vegetation; root suckers from nursery seedlings; stem, leaf cuttings assisted by auxin applications</td>
</tr>
<tr>
<td>Optimal Gap Size for Regeneration</td>
<td>For timber production 13.3 m x 2.6 m; for resin 10 m x 5 m (A. dammara)</td>
</tr>
<tr>
<td>First Plantation Outside Natural Range</td>
<td></td>
</tr>
<tr>
<td>Resprouting After Cutting</td>
<td></td>
</tr>
<tr>
<td>Growth Rate (M.A.I. in m³/ha⁻¹)</td>
<td>23-32 m³/ha of 30 year rotation</td>
</tr>
<tr>
<td>Diseases</td>
<td>Aecidium rust on seedlings and young</td>
</tr>
<tr>
<td>Insects</td>
<td>Rubber termite Coptotermes curvignathus</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Wood</strong></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Trade Name</td>
<td></td>
</tr>
<tr>
<td>Wood Structures Key Characteristics of Pores</td>
<td>Smooth, large irregular plates with distinctive light brownish-grey pattern</td>
</tr>
<tr>
<td>Density Heartwood (kg/m³)</td>
<td>(470-) 530 (-590) at 12% moisture content</td>
</tr>
<tr>
<td>Elastic Modulus (N/mm²)</td>
<td>(10533-) 11240 (-12947)</td>
</tr>
<tr>
<td>Durability Heartwood Fungi Class</td>
<td>3 – 4 moderately to poor durable</td>
</tr>
<tr>
<td>Heartwood Colour</td>
<td>Light yellow to cream white</td>
</tr>
<tr>
<td>Sapwood Colour</td>
<td>Clear (translucent)</td>
</tr>
<tr>
<td>Contents</td>
<td>Resin in the wood, bark with abundant resin</td>
</tr>
<tr>
<td>Products</td>
<td>Light construction, pulp, woodware, panel board, chop-stick, matches, veneers, fuelwood, charcoal</td>
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<tr>
<th><strong>Non-Timber Products</strong></th>
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<tr>
<td>Resin</td>
<td>Copal (clear resin) for varnish and linoleum</td>
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