

**Tree factsheet**

images at pages

***Agathis borneensis* Warb.**

Muchamad Muchtar, edited by Leo Goudzwaard

<b>taxonomy</b>	
author, year	Warbug, 1900
synonym	<i>Agathis beccarii</i> Warb.; <i>Agathis macrostachys</i> Warb.; <i>Agathis rhomboidalis</i> Warb.; <i>Agathis latifolia</i> 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	
cultivars, frequently planted	
<b>references</b>	CAB International. 2005. Forestry Compendium. <a href="http://www.cabicompendium.org/fc">www.cabicompendium.org/fc</a>
	Jensen, M. 1995. Trees commonly cultivated in Southeast Asia: An illustrated field guide. RAP Publication 1995/38. FAO. Bangkok, Thailand.
	Soerianegara, I. and R.H.M.J. Lemmens (eds). 1994. <i>Timber Trees: Major Commercial Timbers</i> . Plant Resources of South-East Asia No. 5 (1). PROSEA. Bogor, Indonesia.
	<a href="http://www.agathis.info">www.agathis.info</a>
	Earle, C.J. Gymnosperm database. <a href="http://www.conifers.org/ar/ag/dammara.html">www.conifers.org/ar/ag/dammara.html</a>
	Nurhasbi and D.J. Sudrajat. 2002. <i>Agathis loranthifolia</i> R.A. Salisbury. Seed leaflet 59. <a href="http://www.sl.kvl.dk/upload/agathis_loranthifolia_int.pdf">www.sl.kvl.dk/upload/agathis_loranthifolia_int.pdf</a>
<b>morphology</b>	
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
inflorescence description, length	
pollination	wind
fruit; length	oval to globular; 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 ( <i>A.dammara</i> )
seeds ripen	throughout the year; best season August - October
seed dispersal	wind

<b>habitat</b>	
natural distribution	Peninsular Malaysia, Sumatra, Borneo and Kalimantan
introduced countries	
area natural habitat (ha)	
soil type, water	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
pH-KCl	acid; neutral
soil fertility	poor to nutrient rich
light	seedlings best under shade; growth light-need
plant communities natural area	
climate	tropical rainforest
<b>management</b>	
status natural range	vulnerable
status introduced range	
application	timber tree, ornamental
propagation	seed
regeneration	planting; vegetation: root suckers from nursery seedlings; stem, leaf cuttings assisted by auxin applications
optimal gap size for regeneration	for timber production 13.3 m x 2.6 m; for resin 10 m x 5 m ( <i>A. dammara</i> )
first plantation outside natural range	
resprouting after cutting	
growth rate (M.A.I. in $m^3ha^{-1}j^{-1}$ )	23-32 $m^3/ha$ of 30 year rotation
diseases	<i>Aecidium</i> rust on seedlings and young
insects	rubber termite <i>Coptotermes curvignathus</i>
<b>wood</b>	
trade name	
wood structures key characteristics of pores	..... smooth, large irregular plates with distinctive light brownish-grey pattern
density heartwood ( $kg/m^3$ )	(470-) 530 (-590) at 12% moisture content
elastic modulus ( $N/mm^2$ )	(10533-) 11240 (-12947)
durability heartwood fungi class	3 – 4 moderately to poor durable
heartwood colour	light yellow to cream white
sapwood colour	clear (translucent)
contents	resin in the wood, bark with abundant resin
products	light construction, pulp, woodware, panel board, chop-stick, matches, veneers, fuelwood, charcoal
<b>non-timber products</b>	
resin	copal (clear resin) for varnish and linoleum