

[Online Profile](#)

## *Agathis dammara*

(Dammar-Pine, Amboina Pitch Tree, Amboina-Pine, East Indian Kauri, Dammar)

Salsabila Nur'Aini, Danik Septianingrum, Khairani Putri Marfi

Corresponding Author

[salsabilassbs@gmail.com](mailto:salsabilassbs@gmail.com)

### CONSERVATION STATUS

#### IUCN RedList

Vulnerable (2012)

#### CITES

This species is not listed in the CITES Appendices

#### Government of Indonesia

Not Protected (Regulation of the Minister of Environment and Forestry of the Republic of Indonesia No. P.106/MENLHK/SETJEN/KUM.1/12/2018)

### OVERALL DISTRIBUTION

Indonesia, Malaysia, Brunei Darussalam, Filipina.

### OVERVIEW

*Agathis dammara* is a perennial plant that can reach up to 60 meters in height. Outer bark is grey, exfoliating, covered by moss and lichen. Inner bark is brownish pink. Leaves are simple, ovate or ellips; base cuneate; apex acute; margin entire, revolute; leaf attachment petiolate; leaf arrangement opposite. It plays an important role in preventing soil erosion and maintaining water sources. This plant produces copal resin with considerable economic value, and its leaves can be extracted to obtain essential oil with antibacterial and antimelanogenesis properties.

#### Citation

Nur'Aini S, Septianingrum D, Marfi KP. 2026. Indonesia Species Profile of *Agathis dammara* (Pinales: Araucariaceae). *SSRS INABIODIV Species Profile and Information*. Vol. 3: No. 0012. <https://publishing.ssrs.or.id/ojs/index.php/ssrs-inabiodiv>

#### Author affiliation:

SSRS Indonesia Biodiversity Hub (DS, SN); SSRS Institute Indonesia (KPM); Undergraduate Student in Department of Biology - IPB University (DS), Undergraduate Student in Department of Silviculture - IPB University (KPM, SN).



## IDENTITY

### Scientific Name

*Agathis dammara* ((Lamb.) Poir., 1823)

### Synonym

#### Homotypic Synonym

*Agathis loranthifolia* (Salisb., 1807)  
*Agathis orientalis* (Mottet, 1892-1893)  
*Agathis pinus-dammara* (Poir., 1823)  
*Dammara loranthifolia* (Link, 1822)  
*Dammara orientalis* (Lamb., 1824)  
*Abies dammara* ((Lamb.) Dum.Cours., 1811)  
*Pinus dammara* (Lamb., 1803)

#### Heterotypic Synonym

*Agathis beccari* (Warb., 1900)  
*Agathis beckingii* (Meijer Drees 1940)  
*Agathis borneensis* (Warb., 1900)  
*Agathis endertii* (Meijer Drees, 1940)  
*Agathis latifolia* (Meijer Drees, 1940)  
*Agathis macrostachys* (Warb., 1900)  
*Agathis rhomboidalis* (Warb., 1900)  
*Abies sumatrana* (Desf., 1809)  
*Pinus sumatrana* (Mirb., 1825)

### Common Name (Indonesia)

Damar raja

### Indonesia Local Name

Kisi (Maluku), salo (Ternate)

## CLASSIFICATION

Kingdom	:	Plantae
Division	:	Streptophyta
Class	:	Equisetopsida
Order	:	Pinales
Family	:	Araucariaceae
Genus	:	<i>Agathis</i>
Species	:	<i>Agathis dammara</i> ((Lamb.) Poir., 1823)

## DESCRIPTION

Terrestrial, perennial trees, height up to 60 m. Stem is cylindrical straight. Outer bark is grey, exfoliating, covered by moss and lichen. Inner bark is brownish pink. Leaves are simple, ovate or ellipsis; base acute; apex acute; margin entire, revolute; leaf attachment petiolate; leaf arrangement opposite; texture pubescent; lamina color adaxial dark glossy green, abaxial dull green. Lamina length 8.5-16 cm, width 1.1-5.5 cm. Petiole glabrous. Venation parallel veined. Root system taproot.

## ECOLOGY AND HABITAT

*Agathis dammara* grows on sandy, rocky, ultrabasic, volcanic, or well-drained soils that are never permanently waterlogged, at elevations ranging from 2-1,750 meters above sea level. The habitat of *Agathis dammara* is in primary forests or concentrated in kerangas (heath) forests (Martawijaya *et al.* 2005; Collins *et al.* 1991). It is a slow-growing tree that also not easy to regenerate (Gunawan *et al.* 2013; Collins *et al.* 1991).

## DISTRIBUTION

### Distribution Region

Regional Distribution in Indonesia (Record)  
Borneo, Celebes, Maluku, Papua

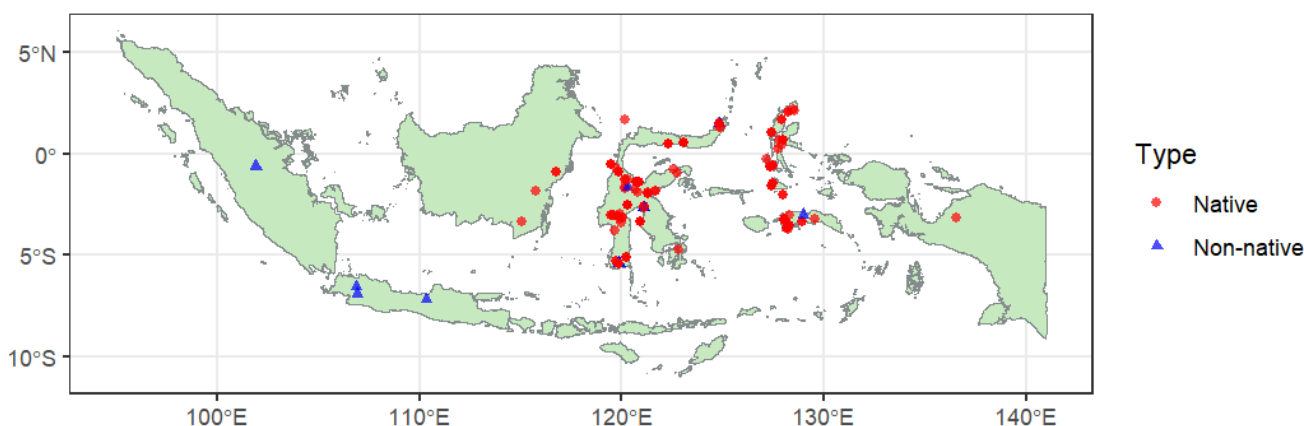
### Distribution Type

Global

### Distribution Map

*Agathis dammara* occurrence in Indonesia

Sumber data: GBIF

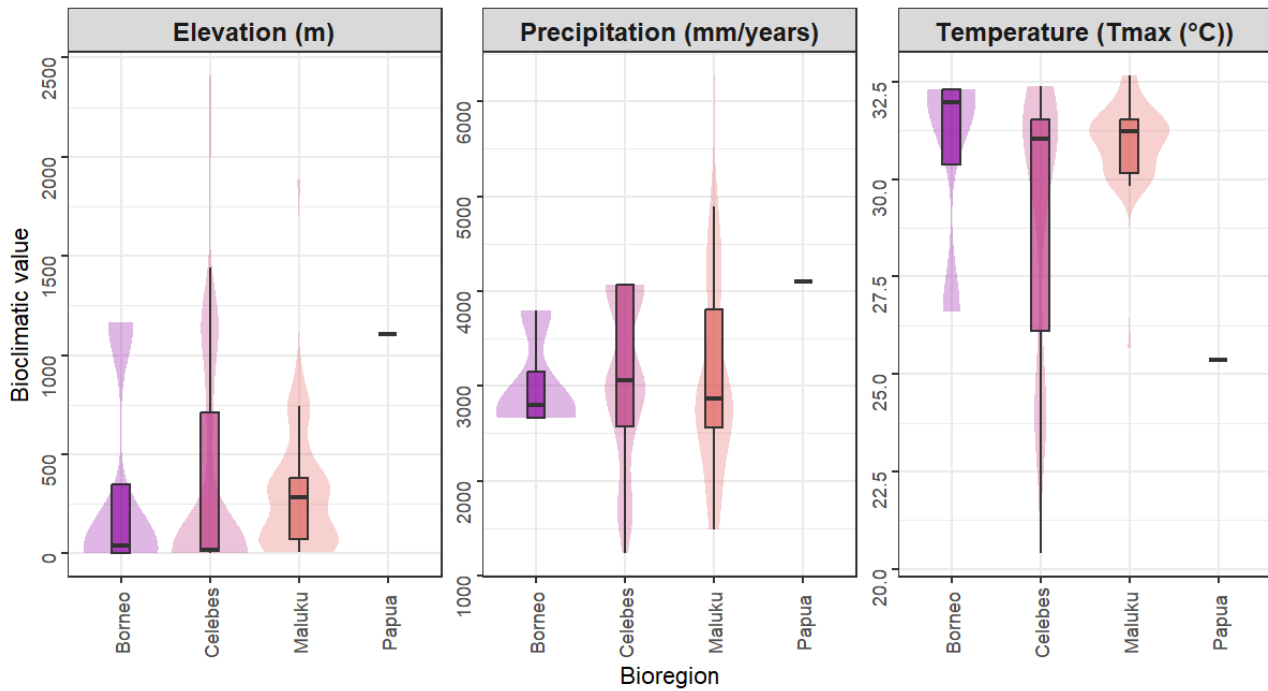


**Figure 1.** Distribution map *Agathis dammara* in Indonesia

### Statistical Overview of Distribution

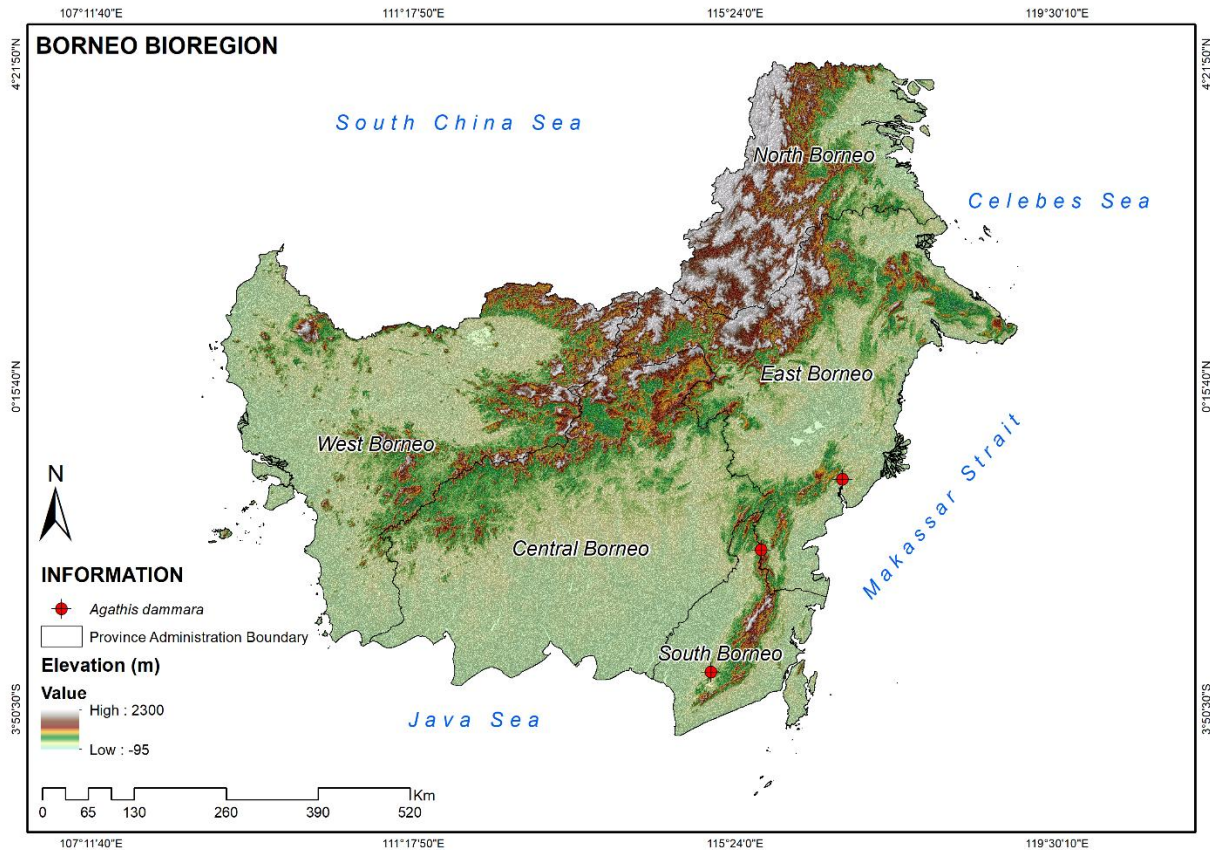
Indicator	Bioregion	Value (total, mean ± SD, range)	Unit
Distribution (GBIF on 2025)	Borneo	4	Record
	Celebes	176	Record
	Maluku	73	Record
	Papua	1	Record
Bioclimatic – Elevation (DEM SRTM)	Borneo	310,50 ± 570,65 (2 – 1165)	Mean Sea Level (m)
	Celebes	338,52 ± 567,46 (2 – 2409)	Mean Sea Level (m)
	Maluku	308,21 ± 310,80 (6 – 1885)	Mean Sea Level (m)
	Papua	1108	Mean Sea Level (m)
Bioclimatic –	Borneo	3009,99 ± 536,42 (2658,12 – 3790,81)	mm / years

Precipitation (CHIRPS UCSB) (2015-2025)	Celebes	3106,55 ± 827,83 (1238,25 – 4069,21)	mm / years
	Maluku	3073,38 ± 1020,01 (1489,08 – 6270,44)	mm / years
	Papua	4103,27	mm / years
Bioclimatic – Temperature (CHIRTS UCSB) (2015-2025)	Borneo	30,71 ± 2,75 (26,61 – 32,30)	Mean Tmax (°C)
	Celebes	29,21 ± 3,30 (20,41 – 32,40)	Mean Tmax (°C)
	Maluku	30,95 ± 1,02 (25,66 – 32,65)	Mean Tmax (°C)
	Papua	25,37	Mean Tmax (°C)

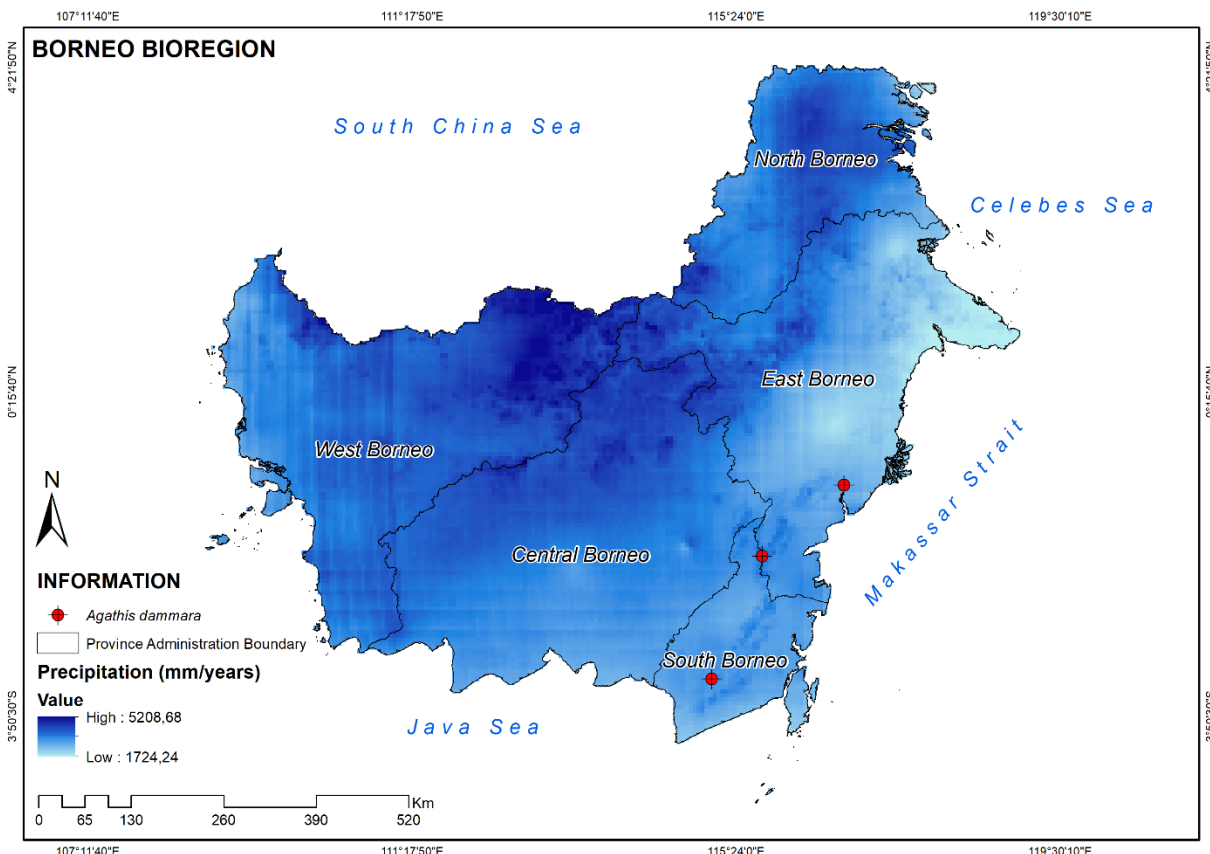


**Figure 2.** Statistical of bioclimatic characteristic

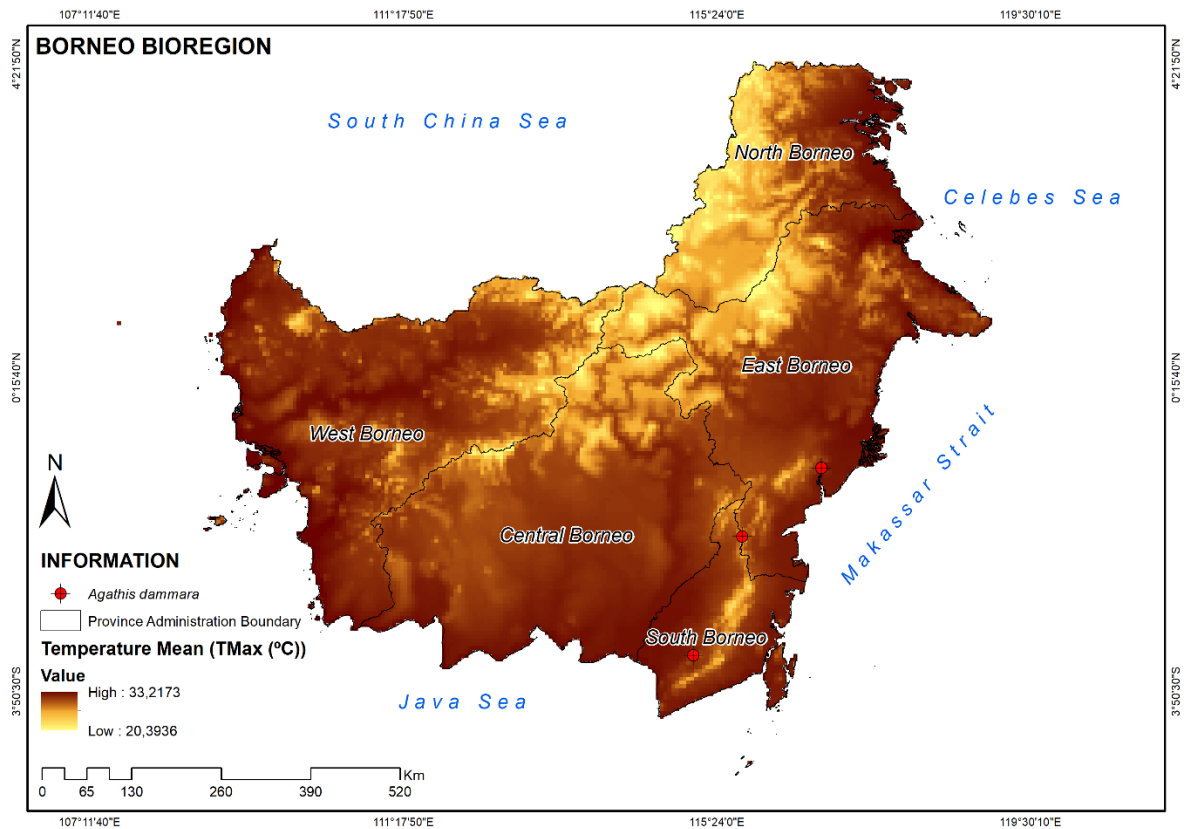
### Distribution Map Based on Indonesia Bioregion – Borneo



**Figure 3.** Distribution map of *Agathis dammara* in Borneo bioregion by elevation gradient

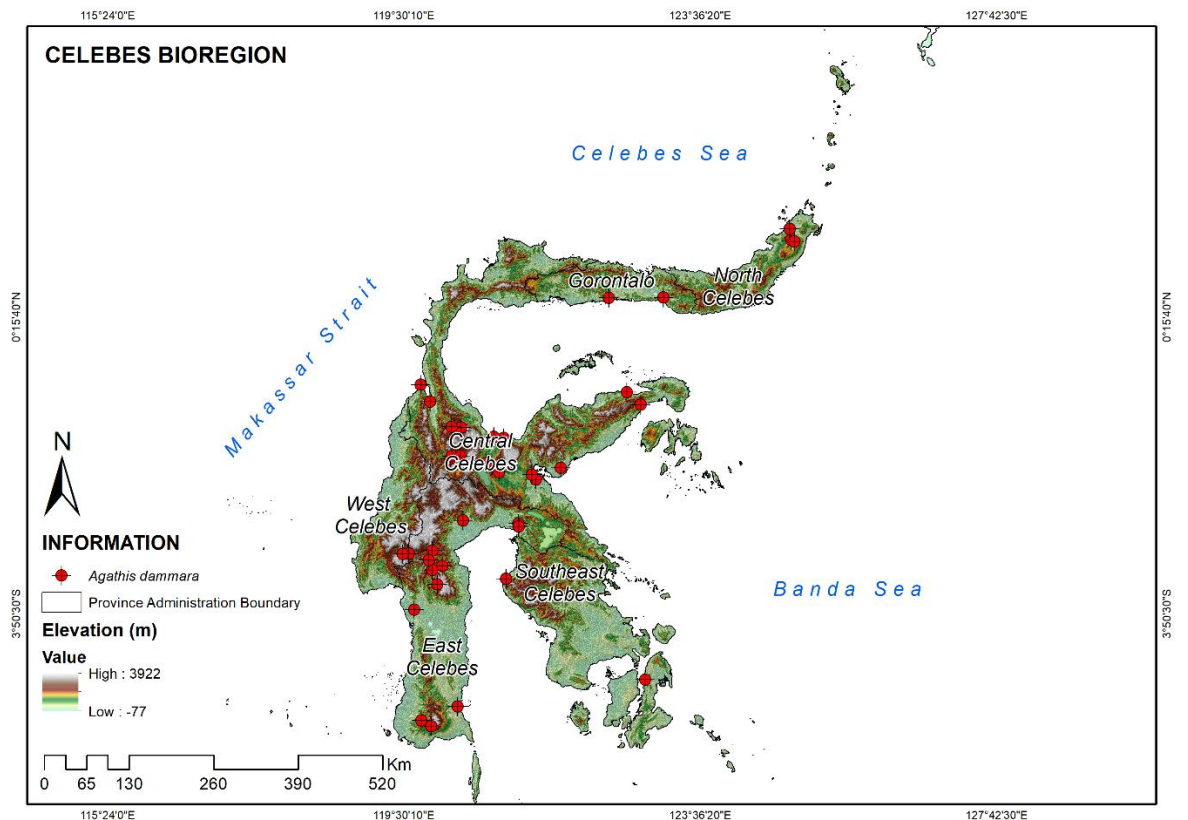


**Figure 4.** Distribution map of *Agathis dammara* in Borneo bioregion by precipitation gradient

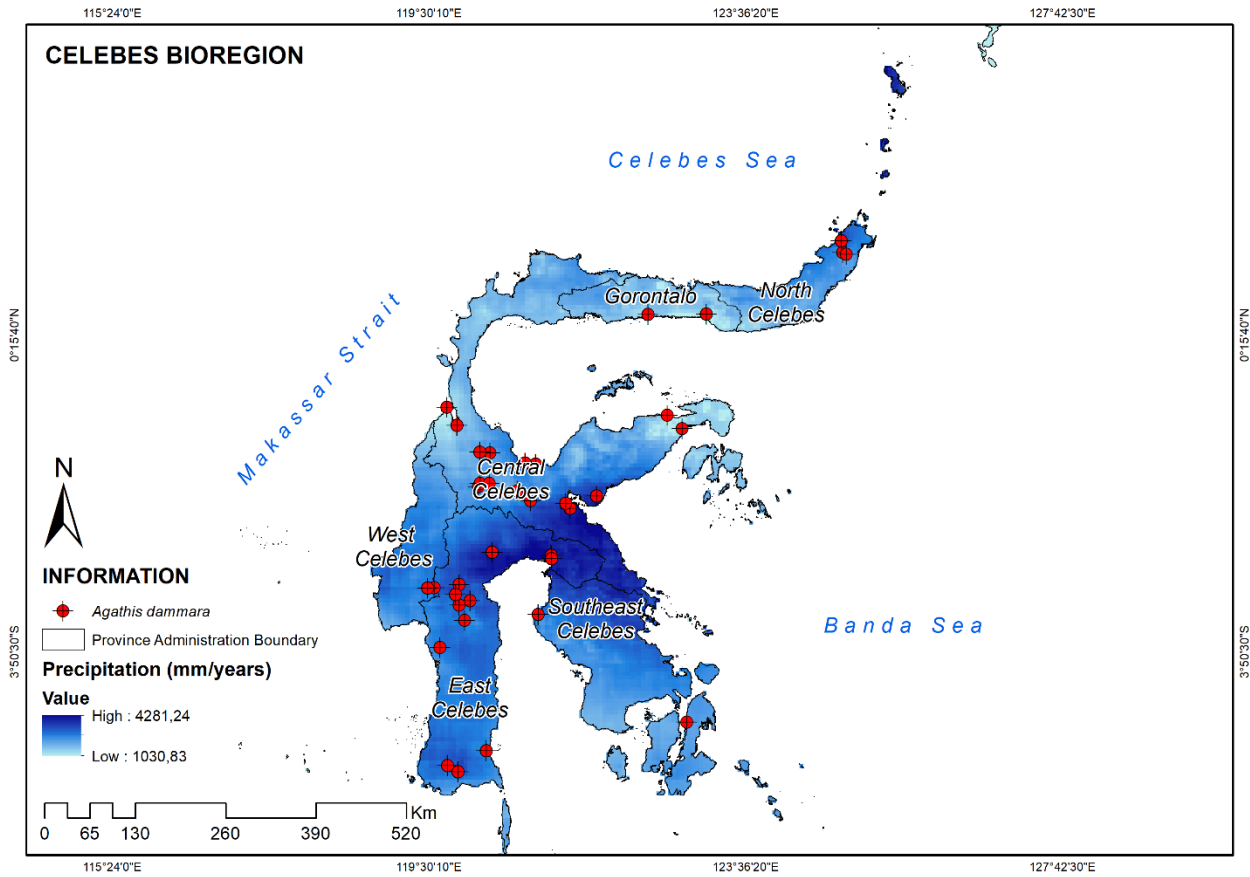


**Figure 5.** Distribution map of *Agathis dammara* in Borneo bioregion by temperature gradient

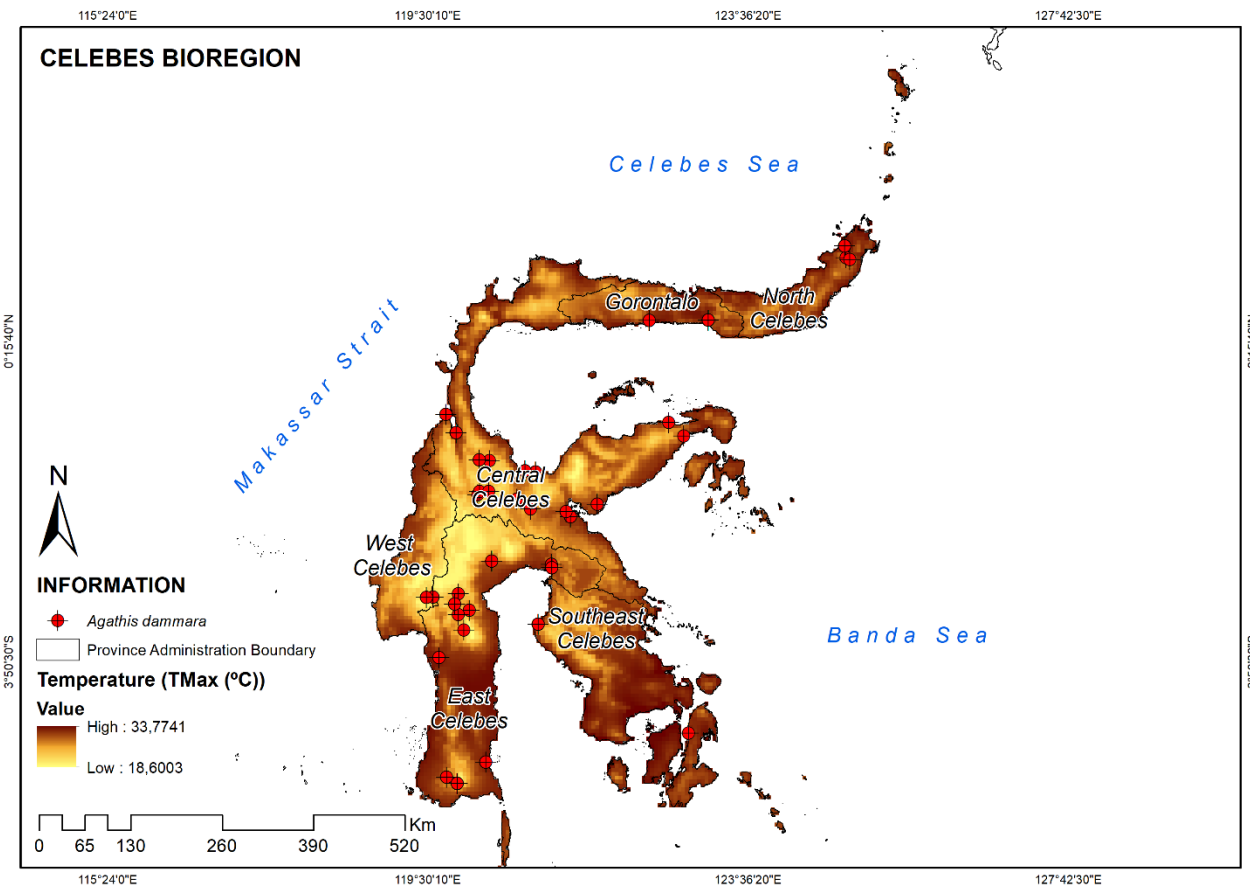
### Distribution Map Based on Indonesia Bioregion – Celebes



**Figure 6.** Distribution map of *Agathis dammara* in Celebes bioregion by elevation gradient

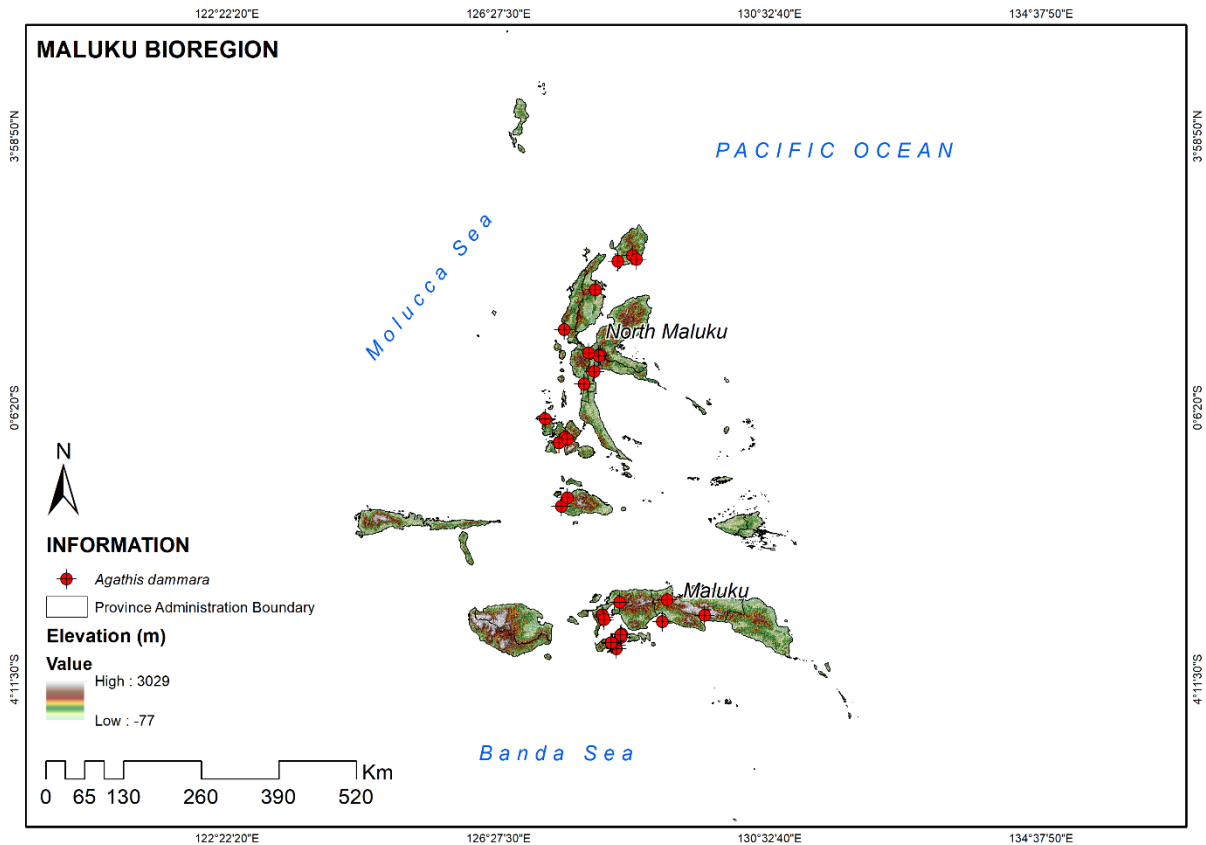


**Figure 7.** Distribution map of *Agathis dammara* in Celebes bioregion by precipitation gradient

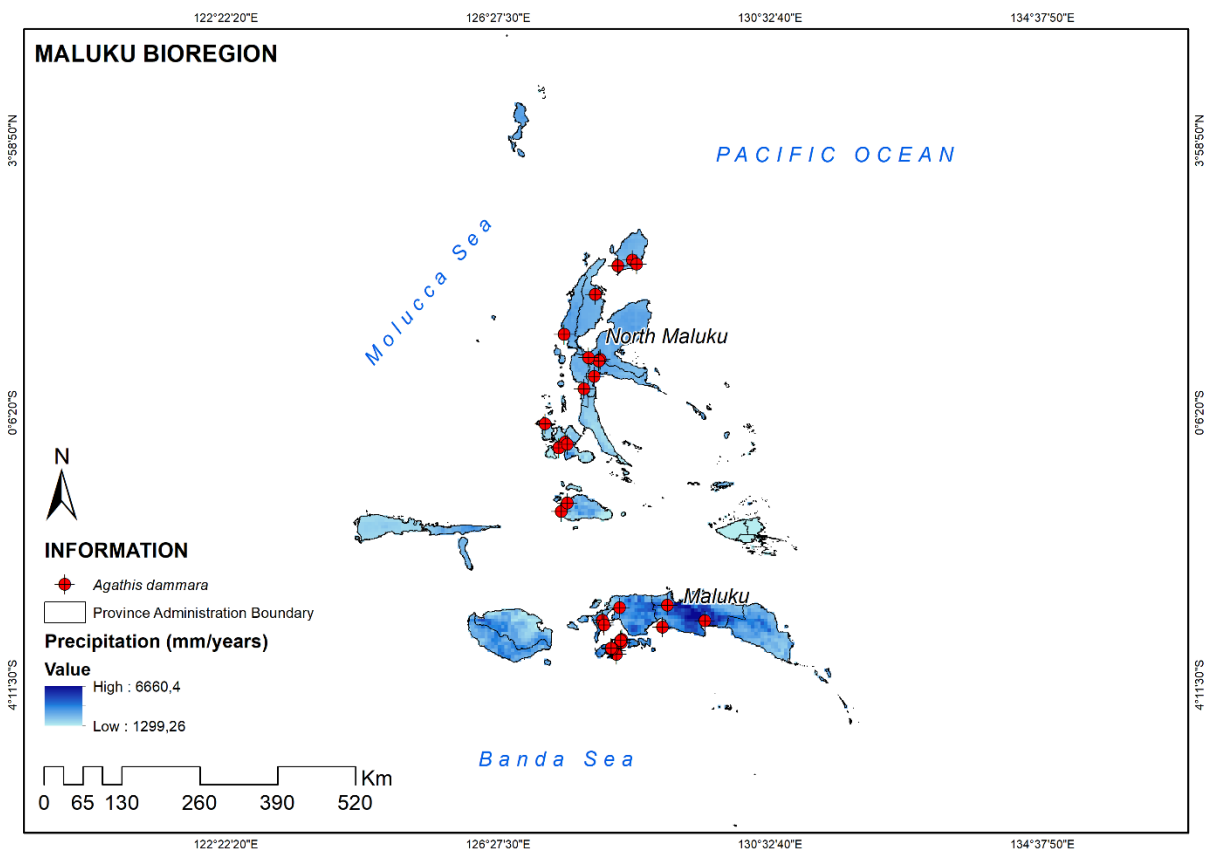


**Figure 8.** Distribution map of *Agathis dammara* in Celebes bioregion by temperature gradient

### Distribution Map Based on Indonesia Bioregion – Maluku



**Figure 9.** Distribution map of *Agathis dammara* in Maluku bioregion by elevation gradient



**Figure 10.** Distribution map of *Agathis dammara* in Maluku bioregion by precipitation gradient

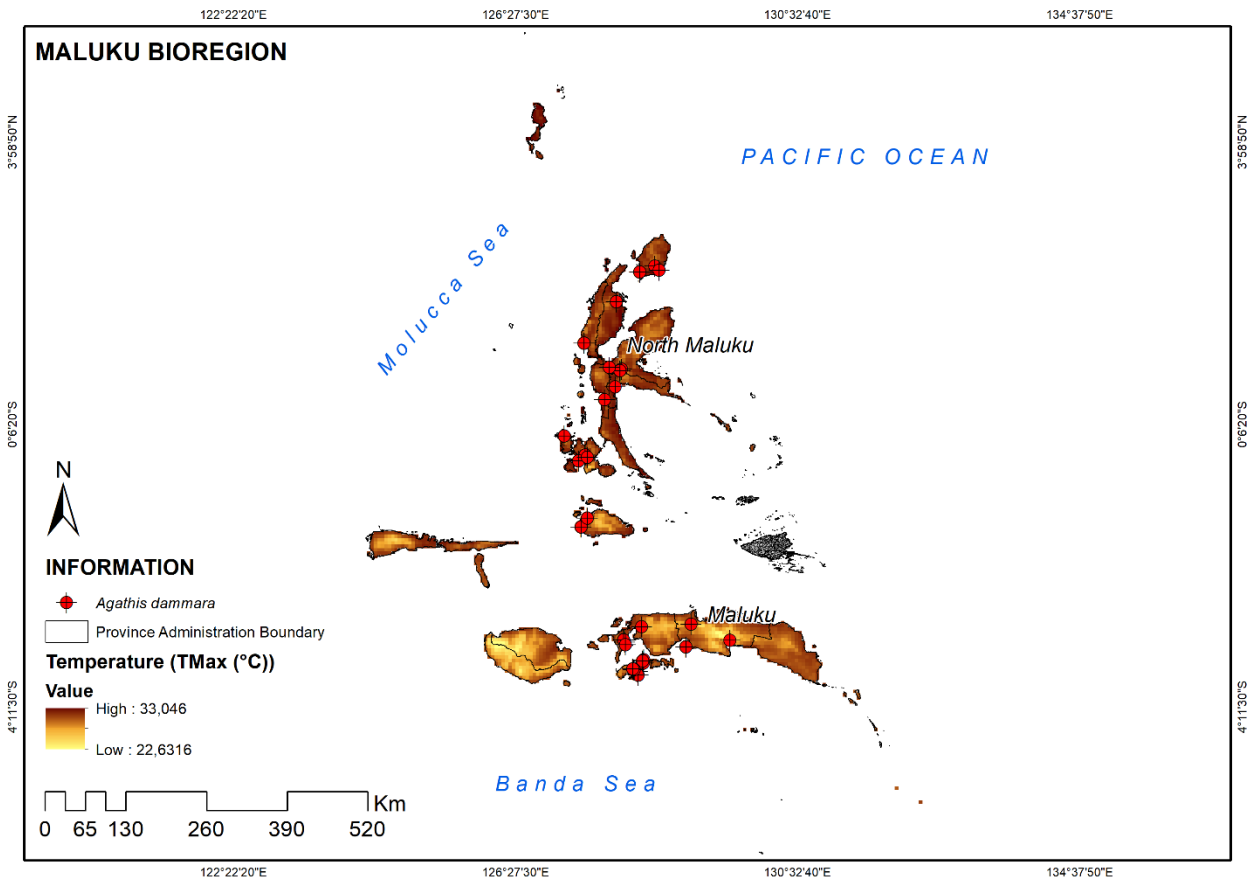


Figure 11. Distribution map of *Agathis dammara* in Maluku bioregion by temperature gradient

### Distribution Map Based on Indonesia Bioregion – Papua

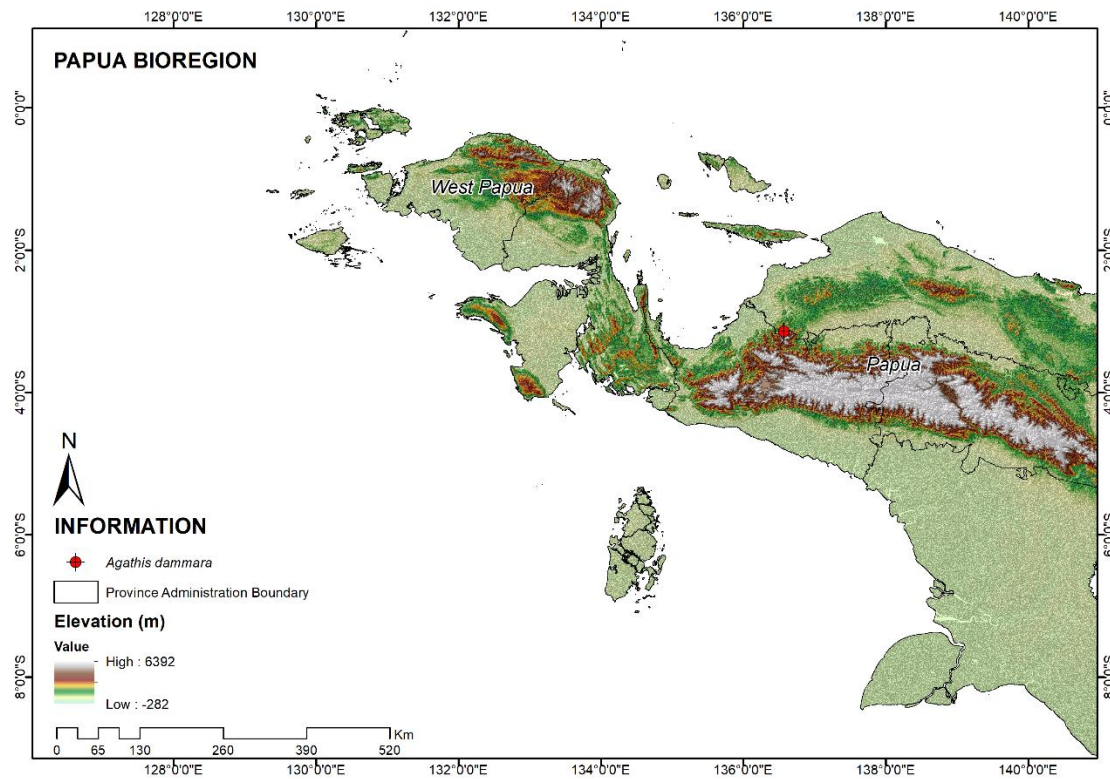
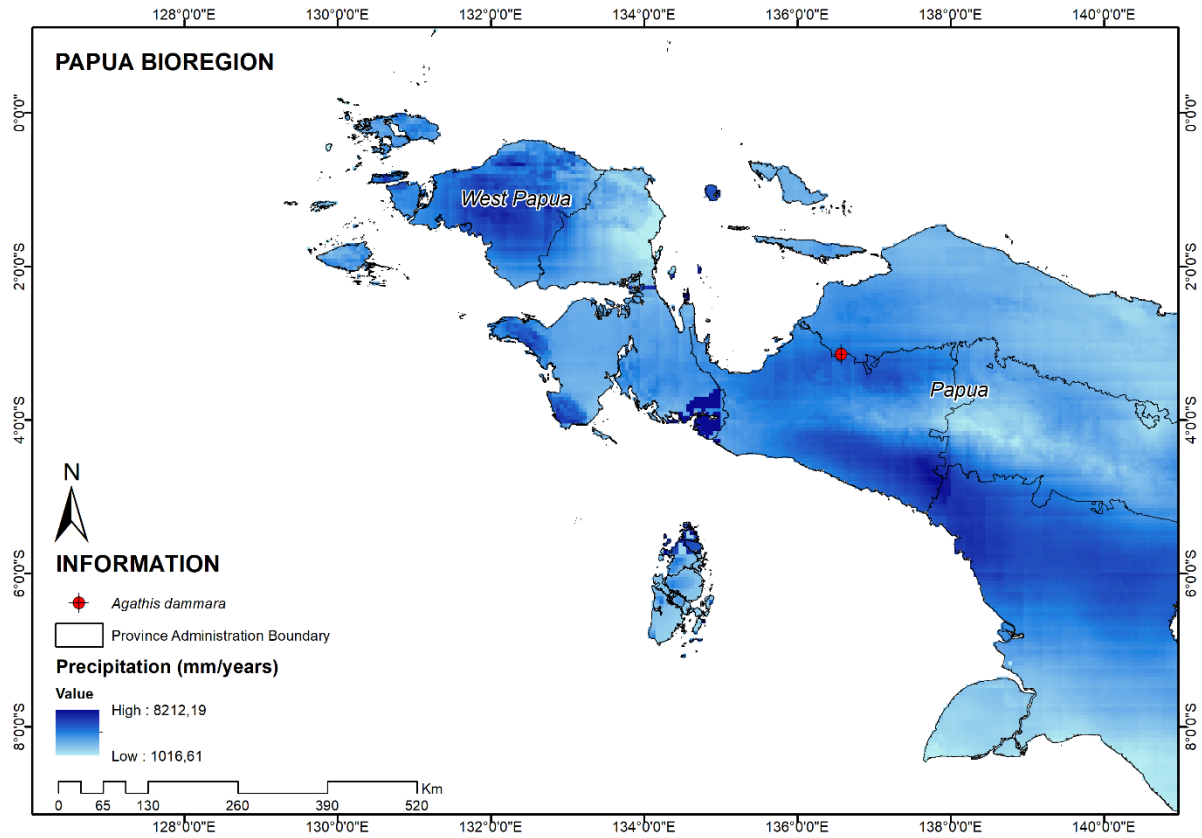
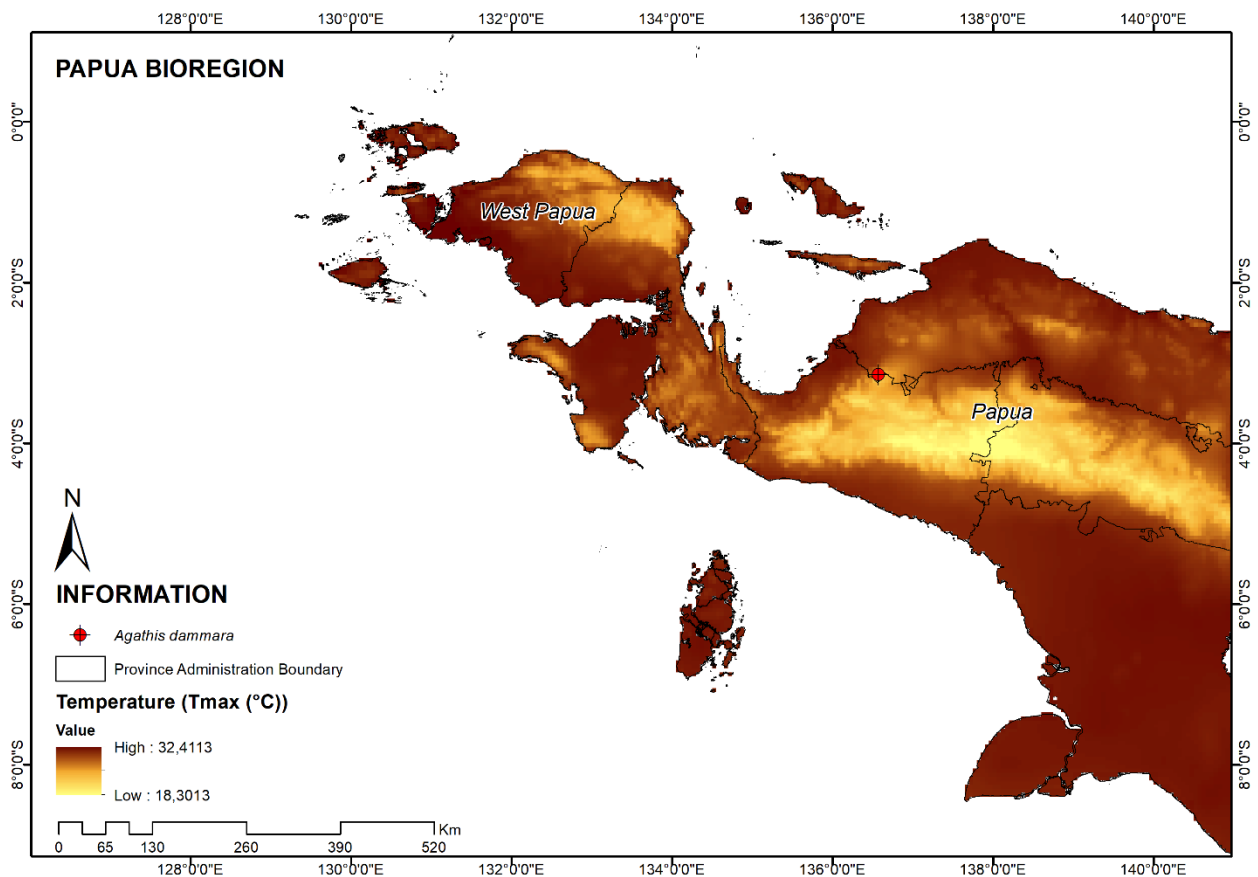


Figure 12. Distribution map of *Agathis dammara* in Papua bioregion by elevation gradient



**Figure 13.** Distribution map of *Agathis dammara* in Papua bioregion by precipitation gradient



**Figure 14.** Distribution map of *Agathis dammara* in Papua bioregion by temperature gradient

## SPECIES VALUE

### Ecological Value

*Agathis dammara* can be used to prevent erosion and with the strong root system, it can save and protect the water source (Gunawan *et al.* 2013).

### Economic Value

*Agathis dammara* has high economic value due to its copal production. According to Adalina and Sawitri (2020), copal production in Kawah Ratu Resort, Indonesia can reach 119,384 kg/month with the economic potential up to Rp 596.920.000/month. It can be used in the manufacture of paints, varnish, dye emulsion, ink, cosmetics, aromatic substance for food (Collins *et al.* 1991; Simangunsong *et al.* 2020). In addition, its wood can be used as raw material for furniture, veneer and plywood, housing timber, pulp, and other purposes. (Martawijaya *et al.* 2005). The leaves can be extracted into essential oil that contain antibacterial components, such as limonene,  $\beta$ -myrcene, etc and antimelanogenesis (Chen *et al.* 2015; Ho *et al.* 2023).



### Socio-Cultural Value




Not identified


## THREATS

Overexploitation (overtapping)

## DOCUMENTATION

Picture	Title	Caption
	<p>Type of branches</p>	<p><i>Agathis dammara</i>, IPB University, Malasari Village, Dramaga District, Bogor Regency, Province of Jawa Barat, Indonesia, 31 January 2025</p>
	<p>Bark</p>	<p><i>Agathis dammara</i>, IPB University, Malasari Village, Dramaga District, Bogor Regency, Province of Jawa Barat, Indonesia, 31 January 2025</p>

	<p>Adaxial leaves</p>	<p><i>Agathis dammara</i>, IPB University, Malasari Village, Dramaga District, Bogor Regency, Province of Jawa Barat, Indonesia, 31 January 2025</p>
	<p>Abaxial leaves</p>	<p><i>Agathis dammara</i>, IPB University, Malasari Village, Dramaga District, Bogor Regency, Province of Jawa Barat, Indonesia, 31 January 2025</p>
	<p>Adaxial leaf</p>	<p><i>Agathis dammara</i>, IPB University, Malasari Village, Dramaga District, Bogor Regency, Province of Jawa Barat, Indonesia, 31 January 2025</p>

	<p>Abaxial leaf</p>	<p><i>Agathis dammara</i>, IPB University, Malasari Village, Dramaga District, Bogor Regency, Province of Jawa Barat, Indonesia, 31 January 2025</p>
---	---------------------	--

## REFERENCES

- Adalina Y, Sawitri R. 2020. Vegetation analysis, physico-chemical properties and economic potential of damar (*Agathis dammara*) in Mount Halimun Salak National Park, West Java, Indonesia. *Biodiversitas*. 21(3):1122-1129.
- Chen Z, He D, Deng J, Zhu J, Zhu J, Mao Q. 2015. Chemical composition and antibacterial activity of the essential oil from *Agathis dammara* (Lamb.) rich fresh leaves. *Natural Product Research*. 29(21):2050-2053.
- Collins NM, Sayer JA, Whitmore TC. 1991. Natural Rain Forest Management. Di dalam: *The Conservation Atlas of Tropical Forest Asia and The Pasific*. Collins NM, Sayer JA, Whitmore TC, editor. London dan Basingstoke: Macmillan Press Ltd.
- Gunawan H, Sugiarti, Wardani M, Tata MHL, Prajadinata S. 2013. *Restorasi Ekosistem Gunung Merapi Pasca Erupsi*. Bogor: Pusat Penelitian dan Pengembangan Konservasi dan Rehabilitasi -Badan Penelitian dan Pengembangan Kehutanan Kementerian Kehutanan.
- Ho Y-T, Liu I-H, Chang S-T, Wang S-Y, Chang H-T. 2023. In vitro and in vivo antimelanogenesis effects of leaf essential oil from *Agathis dammara*. *Pharmaceutics*. 15(9):2269.
- Martawijaya A, Kartasujana I, Kadir K, Prawira SA. 2005. *Atlas Kayu Indonesia Jilid I*. Bogor: Pusat Penelitian dan Pengembangan Hasil Hutan.
- Simangunsong BCH, Manurung EGT, Elias E, Hutagaol MP, Tarigan J, Prabawa SB. 2020. Tangible economic value of non-timber forest products from peat swamp forest in Kampar, Indonesia. *Biodiversitas: Journal of Biological Diversity*. 21(12).

Powered by



**biodiversitas  
Indonesia**  
SSRS INDONESIA BIODIVERSITY HUB  
part of SSRS Institute

**SSRS INDONESIA BIODIVERSITY HUB**

Building of SSRS Institute Head Office,  
Ciampea District, Bogor Regency, West Java Province, Indonesia  
Email: [info@biodiversitas-indonesia.or.id](mailto:info@biodiversitas-indonesia.or.id)  
website: [biodiversitas-indonesia.or.id](http://biodiversitas-indonesia.or.id)

Published by



**SSRS PUBLISHING** (Business Holdings of SSRS Group)

Building of SSRS Group Indonesia,  
Ciampea District, Bogor Regency, West Java Province, Indonesia  
Email: [publishing@ssrs.or.id](mailto:publishing@ssrs.or.id), [publishing@ssrs.or.id](mailto:publishing@ssrs.or.id)  
Website: [publishing.ssrs.or.id/ojs](http://publishing.ssrs.or.id/ojs)