Timber Legality Risk Dashboard: Madagascar

Drafted as of: May 2025

SUMMARY OF LEGALITY RISKS

Risk scores: 77.1 (Higher Risk[a])[1]

Conflict State: NO[2]

Log and Sawnwood Export Restriction in Effect: YES[3] Madagascar has banned exports of rough and semi-finished wood from natural forests since 2007 under Decree 2007-10885. In addition, Madagascar has also banned exports of rosewood (*Dalbergia* spp.) and ebony (*Diospyros* spp.)

Import Regulation in Effect: No

- **Madagascar experiences some of the highest annual rates of forest lost in the world, driven in large part by illegal logging and small-scale crop conversion, which poses a significant threat to the country's biodiversity–up to 90 percent of which is endemic.**
- **Corruption permeates the entire public sector and extends into the illegal timber trade, including in protected areas, and particularly impacting trafficking of rosewood and ebony.**
- **Despite Madagascar's 2010 export ban on rosewood (*Dalbergia* spp.) and ebony (*Diospyros* spp.) and their inclusion in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II in 2013, illegal logging and trade of these precious hardwoods remain prevalent. Most rosewood is exported to Asia, particularly China, Japan, Malaysia, and Mauritius.**
- **Law enforcement is weak and insufficient in deterring the activities of illegal loggers.**
- **Many rural communities rely on logging–often informal or illegal–as one of the few available income sources. This economic dependence makes enforcement of anti-logging laws particularly challenging, as crackdowns can disproportionately affect local livelihoods unless paired with viable alternative income opportunities.**
- **Mauritius, France, and Nigeria accounted for 98 percent of direct demand for Madagascar's timber products in 2022. However, discrepancies between Madagascar's export data and import data reported by trade partners suggest a risk of laundering, or re-export of Malagasy logs and sawnwood–particularly through Nigeria, Mauritius, Comoros, and Seychelles into Asia (China, Vietnam, India), Middle East (UAE) and Europe (France, Belgium, Netherlands).**

TRADE PROFILE OF FOREST PRODUCTS[4,b,c]

Total Imports:

- **Reported by Madagascar (2023):** US$101.9 million
- **Reported by Trade Partners as Exports to Madagascar (2022):** US$76.1 million

Total Exports

- **Reported by Madagascar (2023):** US$28.1 million
- **Reported by Trade Partners as Imports from Madagascar (2022):** US$52.5 million

SUMMARY OF HIGHEST PRODUCT-LEVEL RISKS

Exports – Top Products Exported to the US by 2023 Value[5]

- Other articles of wood (HS4421)
- Paper (HS48)
- Marquetry (HS 4420)

Madagascar has banned exports of rough and semi-finished wood from natural forests since 2007 under Decree 2007-10885. In addition, Madagascar has also banned exports of rosewood (*Dalbergia* spp.) and ebony (*Diospyros* spp.), although the extent and nature of the legal frameworks remain unclear with the World Bank stating that at least twelve decrees, ordinances, and orders deal with the question of precious timber exploitation and exportation. There is also a high degree of ambiguity in the legal framework with contradictions, duplication, and redundancy between texts.[6]

SUMMARY OF HIGHEST SPECIES-LEVEL RISKS

Illegal logging and trade affect many timber species, but highly valuable—often rare and endangered—species that are protected under harvest and/or trade regulations are a key target and at an elevated risk for illegality. The following species are either currently, or have recently, been protected in Madagascar.

CITES-listed species (Appendix II):[7]

- **Ebony, kaki** *(Diospyros* spp., around 254 species endemic to Madagascar, with 88 species reported as large trees)
- **Rosewood** *(Dalbergia* spp., 88 currently recognized species endemic to Madagascar, with 52 species reported as large trees)
- **Baobab** *(Adansonia grandidieri, only seeds, fruits and oil regulated)*
- **Khaya** *(Khaya madagascariensis)*
- **African cherry** *(Prunus africana)*

The following species are categorized as Critically Endangered (possibly Extinct), Endangered, or Vulnerable on Madagascar's Red List of Forest Species:[8]

- **Valotrafotsy** *(Breonia richardsonii)*
- **Longotra** *(Aspidostemon inconspicuus)*
- **Molompangady** *(Breonia membranacea)*
- **Valotra** *(Breonia membranacea)*
- **Sely** *(Dombeya sely)*
- **Tavia** *(Dombeya tavia)*
- **Hafomena** *(Dombeya glabripes)*
- **Halapo** *(Dombeya halapo)*

FORESTRY SECTOR[9]

Forested Area: 12.42 million ha (40% protected)[10]

Deforestation Rate (2015- 2020): 0.52% annually[11]

Forest Ownership (as of 2015):

- 12.10 million ha public owned (96.84%)[12]

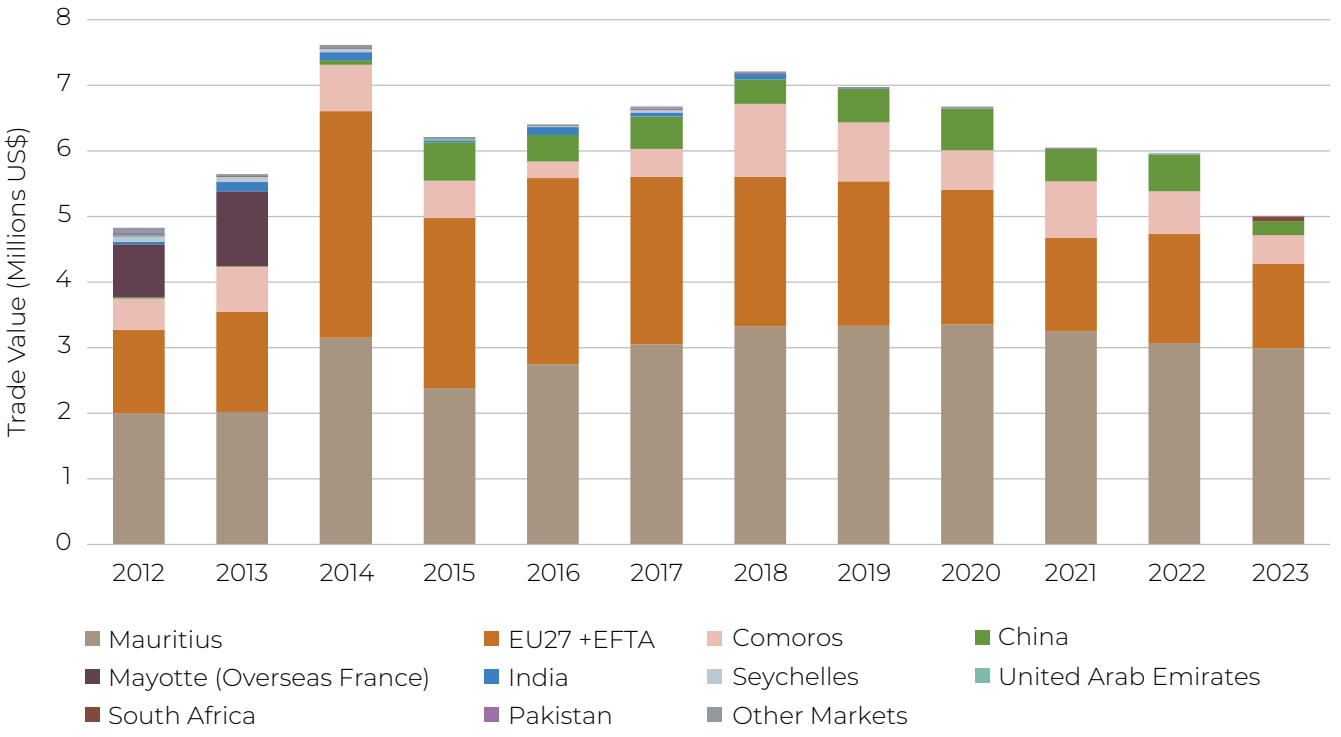
Certified Forests:

- N/A

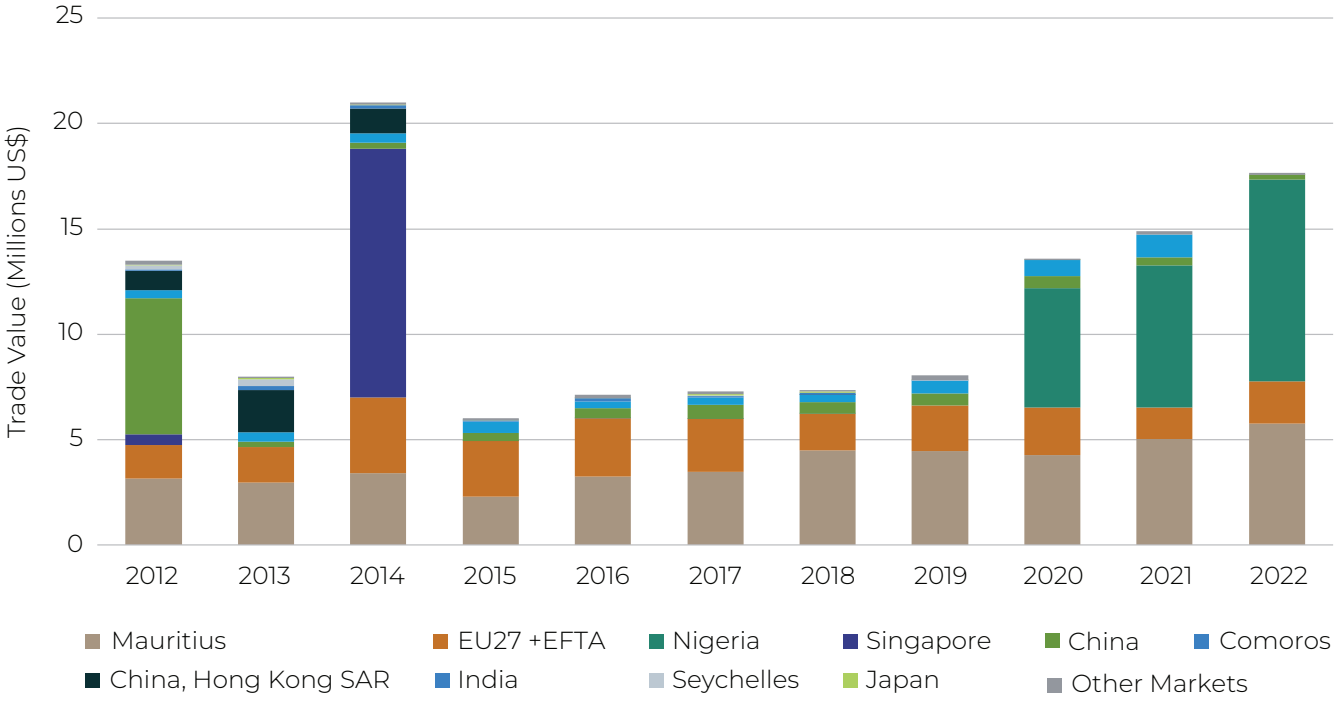
Domestic Production (all for 2023):[13]

- Wood fuel; 15,998,929 cubic meters (m^3)
- Logs: 155,132 m^3
- Pulp: 10,400 m^3
- Sawnwood: 76,083 m^3
- Plywood: 5,489 m^3
- Veneer: 38,190 m^3
- Paper: 42,787 metric tons
- Cartonboard: 23,785 m^3
- Charcoal: 1,622,389 metric tons

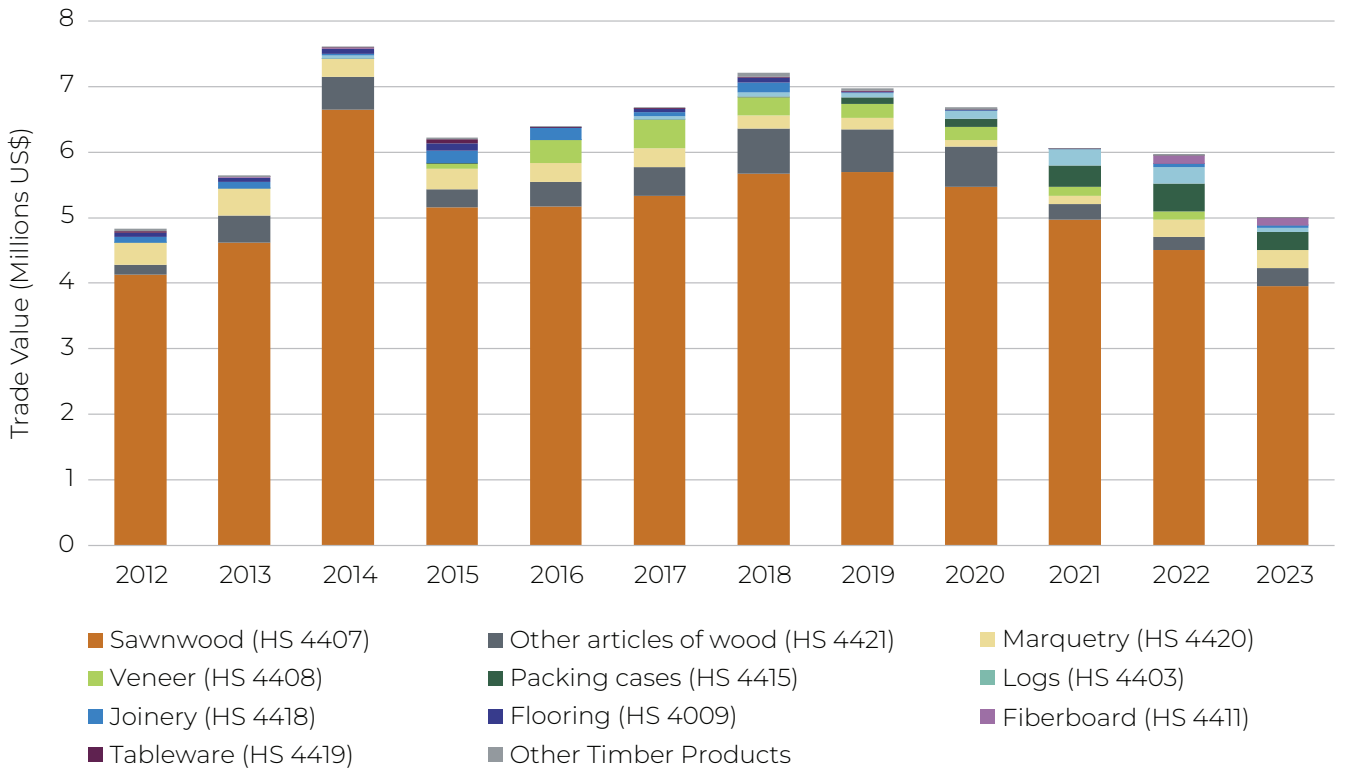
MADAGASCAR'S TIMBER PRODUCT EXPORTS BY DESTINATION COUNTRY, AS REPORTED BY MADAGASCAR, 2012 TO 2023[14]



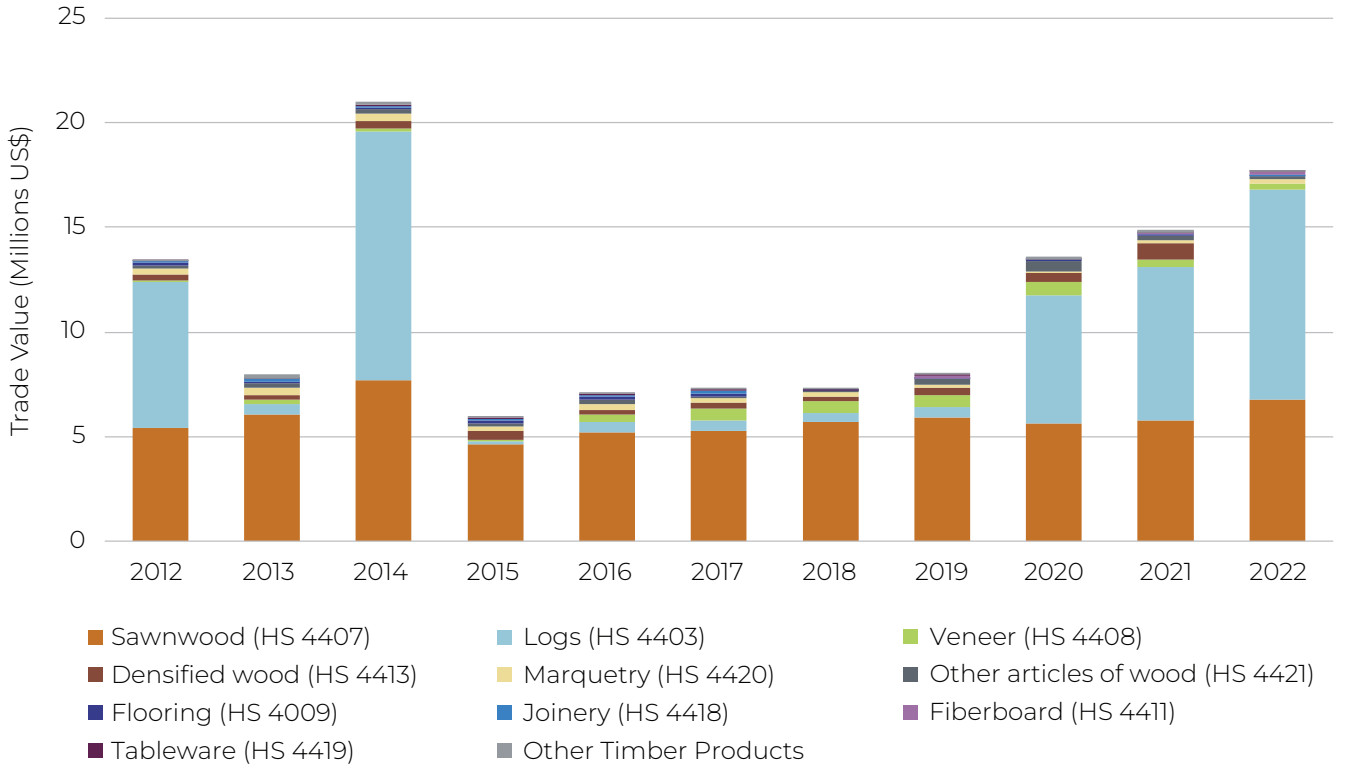
MADAGASCAR'S TIMBER PRODUCT EXPORTS, AS REPORTED BY DESTINATION COUNTRY, 2012 TO 2022[15]



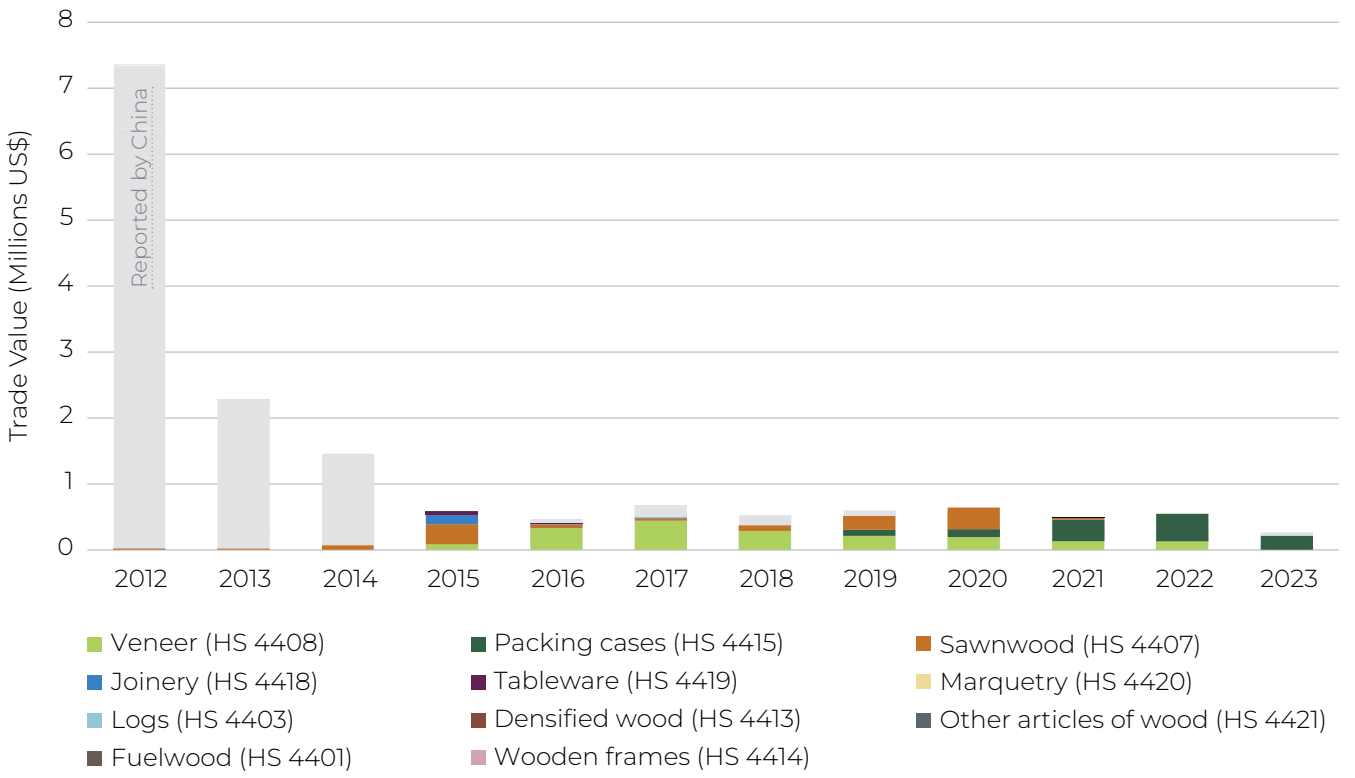
MADAGASCAR TIMBER PRODUCT EXPORTS BY PRODUCT TYPE, AS REPORTED BY MADAGASCAR (US$ 2012-2023)[16]



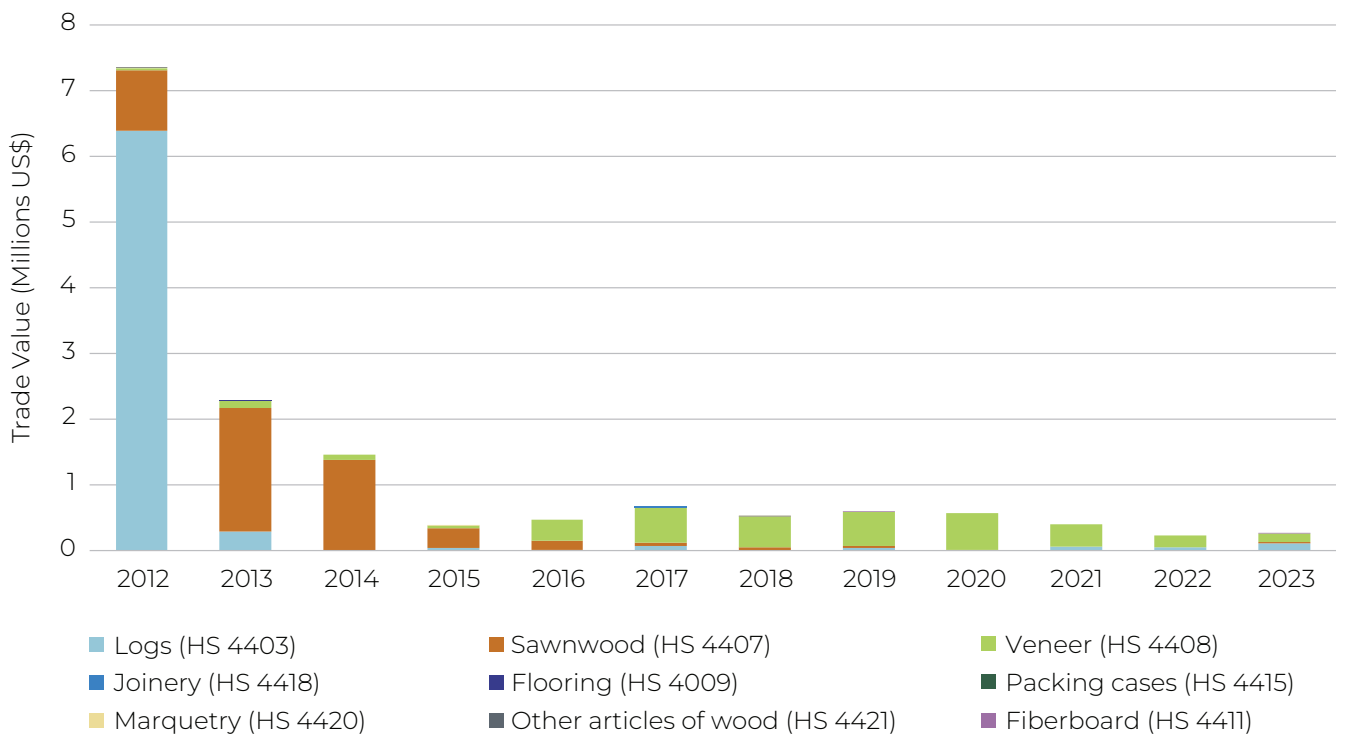
MADAGASCAR TIMBER PRODUCT EXPORTS BY PRODUCT TYPE, AS REPORTED BY DESTINATION COUNTRY (US$ 2012-2022)[17]



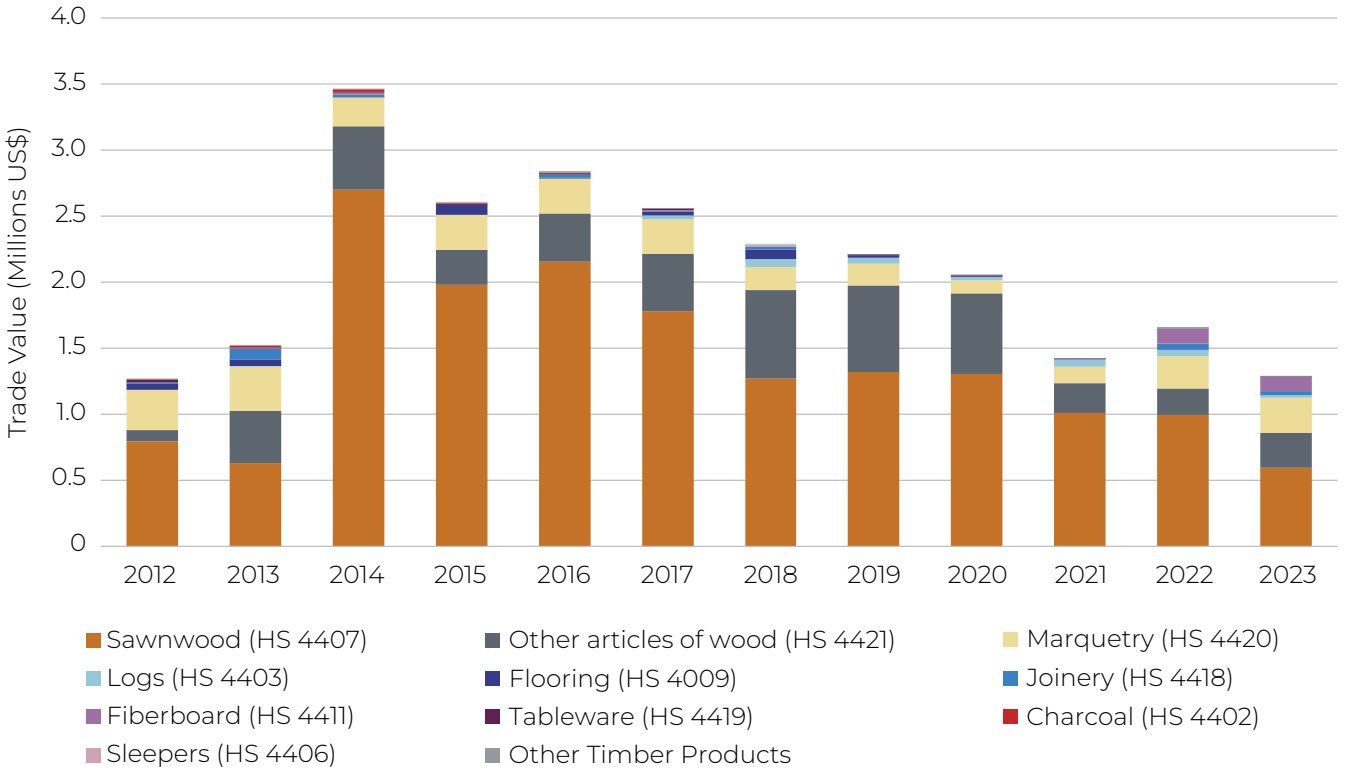
MADAGASCAR TIMBER PRODUCT EXPORTS TO CHINA, INCLUDING HONG KONG AND MACAO, AS REPORTED BY MADAGASCAR (2012-2023)[18]



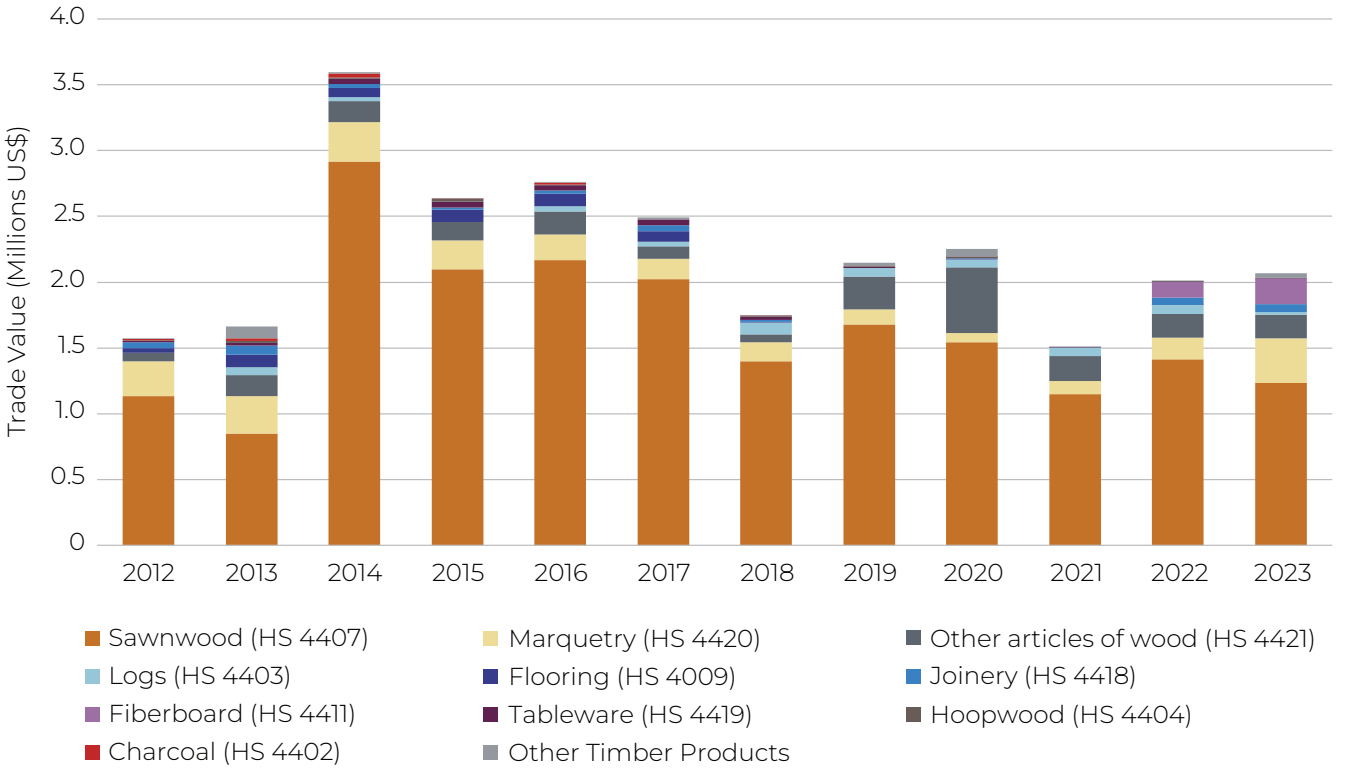
MADAGASCAR TIMBER PRODUCT EXPORTS TO CHINA, INCLUDING HONG KONG AND MACAO, AS REPORTED BY CHINA, NK AND MACAO (2012-2023)[19]



MADAGASCAR-REPORTED TIMBER PRODUCT EXPORTS TO EU27+EFTAD (2012-2023)[20]



EU27+EFTA REPORTED IMPORTS OF MADAGASCAR'S TIMBER PRODUCTS (2012-2023)[21]



TIMBER LEGALITY CONTEXT

- **Madagascar experiences some of the highest annual rates of forest loss in the world, driven in large part by illegal logging and small-scale crop conversion, which poses a significant threat to the country's biodiversity—up to 90 percent of which is endemic.**

Madagascar's forest area is estimated at 12.43 million hectares (Mha), as of 2020, equivalent to 21.4 percent of its total land area.[22] Primary forest comprises 76.3 percent of this and approximately 40 percent of its forests fall within protected areas.[23] Naturally regenerating forest accounts for 97.5 percent of the country's total forest area, within which the dominant species, by growing stock, are *Ravensara* spp. (Tavolo), *Diospyros* spp. (Ebony, Hazomainty), *Capurodendron* spp. (Nato), *Uapaca* spp. (Voapaka), *Garcinia* spp. (Vongo), *Callophyllum* spp. (Vintanina), *Symphonia* spp. (Kijy), *Weinmannia* spp. (Lalona), *Chrysophyllum boivinianum* (Famelona) and *Ocotea cymosa* (Varongy).[24] Between 2001 and 2023, Madagascar lost 4.92 Mha of tree cover, or 29 percent of forest cover.[25]

Annual deforestation rates have been among the highest in the world since 2013,[26] and particularly intense in the country's eastern humid forest ecoregion, where shifting slash and burn agriculture, is considered to be the primary driver of forest loss.[27,28] Deforestation is reportedly most intense in the regions of Toamasina (1.81 Mha), Fianarantsoa (0.75 Mha), Antsiranana (0.73 Mha), Toliary (0.64 Mha), and Mahajanga (0.63 Mha), with Toamasina and Fianarantsoa accounting for 55 percent of the entire country's forest loss since 2001.[29]

Madagascar is an extraordinarily biodiverse country with many of its species unique to the island and found nowhere else on Earth (approximately 82 percent of its vascular plants and 90 percent of its vertebrates are thought to be endemic).[30] However, much of the biodiversity is threatened by illegal logging,[31] with Botanic Gardens Conservation International (BGCI) estimating that more than 60 percent of Madagascar's endemic trees are threatened with extinction and 320 are categorized as Critically Endangered on the IUCN Red List.[32]

The Ministry of Environment, Ecology, and Forest (MEEF) is responsible for the country's forestry sector. Within MEEF, the General Directorate of Forest (GDF, or DGF in French) is in charge of implementing forest policy, coordinating forest conservation initiatives and ensuring that forest management and protection complies with national and international regulations.[33] Madagascar is a signatory to both the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on Biological Diversity (CBD), as of 1975 and 1995, respectively.[34]

Forest resources are owned and managed by the state, although the GDF may allocate forests to communities or private actors.[35] Research has found that community forest management (CFM) had no detectable impact on deforestation, on average, between 2000 and 2010, but contracts that prohibited commercial use of forest products did reduce deforestation.[36] Annual rates of deforestation accelerated at the end of the 2009-2014 political crisis and are higher in community forests than in protected areas in the post-crisis years.[37]

Timber harvesting and forest exploitation is, however, prohibited in protected areas under Decree No. 98-782.[38] Article 5 of the same decree further sets out that forest products and resources may only be under the possession of an individual or group of individuals following the authorization of an operating agreement, such as a logging license or management contract.[39] The decree also stipulates that management plans are a prerequisite of timber harvesting activities and that forest inventories must be undertaken prior to the issuance of logging licenses.[40] Despite this law, inventories are reported to be seldom conducted, not least because they are time consuming and expensive, meaning that logging tends to occur in forests where the composition of timber species is poorly understood, and where species quotas are rarely well-informed.[41]

- **Despite Madagascar's 2010 export ban on rosewood (*Dalbergia* spp.) and ebony (*Diospyros* spp.) and their inclusion in CITES Appendix II in 2013, illegal logging and trade of these precious hardwoods remain prevalent. Most rosewood is exported to Asia, particularly China, Japan, Malaysia, and Mauritius.**

Ebony (*Diospyros* spp.), rosewood, and palisander (both of the latter fall under the genus *Dalbergia* spp.) are highly sought after timber species, especially in Asian markets where they are often used for (re)producing premium furniture and manufacturing musical instruments.[42,43] All three are recognized as high-value, increasingly rare timber species, although rosewood appears to be more widely referred to than palisander in the literature on Madagascar's illegal timber trade. All logging, transporting and exporting of rosewood and ebony are banned in Madagascar under Decree No. 2010-141,[44] although reports continue to suggest that these species are illegally logged and illegally exported out of Madagascar. The imposition of this ban in 2010 was significant, not least because previous orders on rosewood and ebony were either temporary (Interministerial Order No. 7204/2005) or procedural (Interministerial Order No. 16030/2006), whereas Decree

No. 2010-141 was an unconditional, indefinite ban on harvesting and exporting these species.[45] There is also an export ban on rough and semi-finished wood derived from natural forests (Decree No. 2007-10085), which was imposed in 2007 and remains in place today.[46]

Historically, the majority of the *Dalbergia* spp. (rosewood) exports from Madagascar have been destined for clients in Asia, particularly China, where domestic demand has fueled the illegal trade in precious Malagasy timber.[47] This demand has increased because of China's own domestic logging ban which has been in place since 1998 in many of its production forests, leading to increased demand for imports of high value species from outside of China.

All Malagasy species of ebony (*Diospyros* spp.) and rosewood (*Dalbergia* spp.) are listed in Appendix II of CITES, following COP 16 in Bangkok in 2013 (Decision 16.152), which superseded the previous listing of these species in CITES Appendix III in 2011.[48,49,50] Under Appendix II, Malagasy rosewood and ebony are considered at risk of becoming endangered if trade is allowed to continue uncontrolled, and thus international trade in these species is only permitted with valid export permits or CITES certificates. For trade licenses to be granted, the CITES Scientific Authority must first determine that the trade would not negatively affect the species' ability to survive in the wild, and the Management Authority must determine that the specimen was legally acquired.[51] An associated action plan (Decision 16.152) was issued alongside this listing at COP 16, stating that the country must collaborate with key partners, including the main importing countries, CITES secretariat, and the International Tropical Timber Organization (ITTO), and impose an embargo on its stockpiles of seized rosewood and ebony.[52]

Despite domestic and international efforts to curtail logging and trade in rosewood and ebony species, there have been several high profile reports indicating that illegal logging and trade (ILAT) continues.[53] Illegal logging of both rosewood and ebony is especially prevalent in the country's protected areas, particularly Masoala and Marojejy National Parks, two of the six national parks that comprise the Atsinanana UNESCO World Heritage Site in the north-eastern SAVA region of the country.[45,55] Between 2010 and 2015, more than 350,000 trees were illegally harvested annually in protected areas, the vast majority of which were rosewoods, breaching the logging ban and undermining Decree No. 98-782 on protected area exploitation.[56] Moreover, in 2014, 29,434 rosewood logs were illegally exported from Madagascar and confiscated in Singapore, making it the biggest seizure of a CITES-listed species ever.[57] Reports presented at several CITES Standing Committee meetings (SC70, SC73, SC75) indicate that illegal shipments are still being seized in international markets, pointing to ongoing lapses in enforcement at Madagascar's ports and borders. Reports of unauthorized sales and exports of timber from stockpiles undermine international confidence in Madagascar's ability to regulate its resources. For instance: In 2022, concerns were raised over the auction and subsequent sale of *Dalbergia* spp. in Sri Lanka, which was suspected to have originated from Malagasy stockpiles.

At the centre of the controversy surrounding Madagascar and the illegal timber trade are the stockpiles of confiscated rosewood within the country, estimated to exceed 300,000 logs.[58] Since the export ban on rosewood and ebony exports in 2010, stockpiles of seized timber have built up significantly, particularly in the northeastern region of the country, and are potentially worth up to hundreds of millions of US dollars.[59] Madagascar has been unable to audit, manage, and/or secure these stockpiles, including undeclared and hidden stock. Despite the CITES COP 16 action plan dictating the need for these stockpiles to be audited, only around 10 percent had been inspected by 2015, mainly due to resistance from stockpile owners.[60] There is a lack of transparency regarding how the seized stockpiles are managed, with little data on this timber publicly available.

While reports suggest that illegal logging rates may have slowed during the early stages of the COVID-19 pandemic,[61] smuggling networks have recovered since mid-2021, with 650 pieces of illegally logged timber discovered in one day alone in Vohibolo forest in October 2021.[62] Experts have thus called for Malagasy rosewood and ebony to be upgraded to CITES Appendix I, which would categorize these species as endangered and prohibit international trade other than in exceptional, non-commercial circumstances, thus adding an extra buffer of protection for rosewood and ebony.[63]

- **Corruption permeates the entire public sector and extends into the illegal timber trade, including in protected areas, and particularly impacting trafficking of rosewood and ebony.**

Transparency International ranked Madagascar 140/180 on its Corruption Perceptions Index in 2024, with a score of 26/100. This reflects systemic issues, such as impunity for corrupt officials, restricted civic space, and limited access to justice.[64] Corruption permeates the public sector and extends to the illegal timber trade, particularly the trafficking of rosewood.[65] Powerful timber barons, some of whom hold political positions, are reportedly implicated in this illicit industry.[66] For instance, Jean Laisoa, a former political fundraiser for President Hery Rajaonarimampianina, is identified as

a key rosewood trader and has served in the National Assembly, influencing committees related to natural resources, finance, and the judiciary.[67]

The political crisis of 2009, which led to Andry Rajoelina's rise to power, exacerbated illegal logging activities. Under his transitional government, rosewood exports surged, with over 1,500 containers authorized between 2009 and 2010, despite regulations prohibiting such trade.[68] Investigations revealed that Rajoelina's administration facilitated these exports, with traders claiming direct dealings with the highest levels of government.[69]

Furthermore, the government's decision to utilize seized rosewood for domestic projects, such as rebuilding the queen's palace, has raised concerns. Critics argue that this approach lacks transparency and could facilitate the laundering of illegally harvested timber into legal markets.[70]

High-profile corruption cases have further eroded public trust. In 2023, President Rajoelina's chief of staff was arrested in London for allegedly seeking a bribe from a mining firm in exchange for access to mining rights in Madagascar. Although a Malagasy court declined to prosecute, the UK proceedings continued, highlighting ongoing concerns about governance and accountability.[71]

Funding has been provided by the EU, the World Bank and the International Tropical Timber Organisation since 2014 to support Madagascar to enhance traceability of its timber sector, specifically in improving species identification, assessing marking technology for stockpiled logs, and identifying an effective traceability system. Stockpile inventories have now been carried out in two pilot regions and tests have been carried out on the functionality of the traceability system.[72] Madagascar plans to sell the stockpiled timber domestically, but there have been requests for greater evaluation and traceability, as the control and inventory of the timber stockpiles were restricted to only two areas, and the Standing Committee intersessional advisory group has been reconvened to provide guidance.

- **Many rural communities rely on logging—often informal or illegal—as one of the few available income sources. This economic dependence makes enforcement of anti-logging laws particularly challenging, as crackdowns can disproportionately affect local livelihoods unless paired with viable alternative income opportunities.**

Madagascar has one of the highest poverty rates in the world, with nearly three-quarters of its population living on less than $1.90 USD per day below the international poverty line.[73,74,75,76] Small-scale crop land conversion has been a significant driver of deforestation, particularly along the western coast.[77] Some local communities rely on logging to support their livelihoods, even if it involves the illegal harvesting of prohibited species. Locals can earn between $2 and $3 per day for harvesting two or three rosewood trees.[78] Individuals can also earn $5.60 a day for moving felled logs to the river for subsequent transportation, while the daily rate for transporting timber down the river to the sea is up to $15.[79]

Conversely, protecting the forest may result in income losses for locals, meaning that there is little incentive for people to support forest conservation initiatives and oppose illegal logging.[80] Although illegal logging can provide local populations with a secure income, the extent of income inequity within the international timber trade is striking. OCCRP reported that Malagasy illegal timber can sell for up to $25,000 per ton, approximately 10,000 times higher than the wage an individual might receive for a day's rosewood harvesting.[81]

In SAVA, a northeastern region of Madagascar, illegal logging is rife, and it is one of the few activities through which local communities can guarantee a dependable income. In addition to rice, cloves, coffee, and vanilla, rosewood harvesting is a key income source[82] and has led to immigration into the village of Antanandavehely, with migrants keen to benefit from the lucrative rosewood trade.[83]

- **Mauritius, France, and Nigeria accounted for 98 percent of direct demand for Madagascar's timber products in 2022. However, discrepancies between Madagascar's export data and import data reported by trade partners suggest a risk of laundering, or re-export of Malagasy logs and sawnwood—particularly through Nigeria, Mauritius, Comoros, and Seychelles into Asia (China, Vietnam, India), Middle East (UAE), and Europe (France, Belgium, Netherlands).**

Understanding the trade dynamics of timber products harvested in Madagascar is complicated by major discrepancies in trade data reported to UN Comtrade.[84] Specifically, Madagascar's reported exports often differ significantly from the import data reported by its trading partners. In 2022—the most recent year with comprehensive global reporting—data from other countries show Mauritius, France, and Nigeria as the top importers of Malagasy timber products by value, accounting for 98 percent of all reported global imports from Madagascar. Notably, 58 percent of these imports were in log form, with Nigeria being the primary destination. This is particularly concerning given the official ban on the export of raw logs—especially rosewood and ebony—since 2010. The continued appearance of logs in international import data suggests weak

enforcement of the ban, possible laundering of freshly cut timber under the guise of old stockpiles, and systemic issues in customs oversight. Madagascar's own export data for that same year reflect a total export value 48 percent lower than what was reported by importing countries without any exports to Nigeria. These discrepancies may point to irregularities in customs declarations, tax evasion, or underreporting—either by Madagascar or its trade partners—and highlight the ongoing challenges in monitoring and regulating the timber trade despite the formal export restrictions.

Trade data does indicate a significant decline in Madagascar's timber exports to China, corroborated by China's reported imports from Madagascar. In 2022, China imported approximately $227,629 of timber products from Madagascar, a 97 percent decrease from 2012 when China was a major destination for Malagasy timber.

Given the complexities in tracking timber products from Madagascar into global markets, the risk of in-direct sourcing through other markets remains high. Global import data suggests that Malagasy logs and sawnwood are being re-exported—particularly through Nigeria, Mauritius, Comoros, and Seychelles into Asia (China, Vietnam, India), the Middle East (UAE), and Europe (France, Belgium, Netherlands).[85]

- **Law enforcement is weak and insufficient in deterring the activities of illegal loggers.**

Understanding the trade dynamics of timber products harvested in Madagascar is complicated by major discrepancies in Since 2011, under Ordinance No. 2011-001, harvesting and exporting rosewood and ebony has been punishable by between two- and five-years' imprisonment, alongside fines equivalent to double the market value of the illegal timber violation in question.[86] Theoretically, buyers and accomplices can be issued with the same penalties as the individuals deemed to be leading the operation, or to have carried out the logging.[87] However, in 2017, the Environmental Investigation Agency (EIA) reported that Madagascar was yet to convict any timber barons, instead directing its efforts towards threatening and sentencing the journalists and activists who opposed illegal logging, particularly in national parks.[88] A lack of funding for regional and local forest authorities is considered to be one reason for the lack of forest law enforcement. TRAFFIC has reported that underfunding in national parks has resulted in a lack of motivation amongst park officers, many of whom do not have uniforms and rely on poorly maintained, old transport infrastructure and vehicles.[89] Some officers have reportedly expressed temptation to accept bribes and payments from timber traffickers.[90]

The enforcement of forest law, especially surrounding illegal logging, was identified as an area in need of strengthening at CITES COP 18 in 2019, culminating in an improved action plan for Madagascar following the conference.[91] Illegal logging has, for instance, been widely documented in Masoala National Park since the country's coup in 2009, and there are reports of illegally harvested rosewood being overtly transported on heavily policed roads towards ports without question.[92,93] As Global Witness and, more recently TRAFFIC, have reported, this indicates that either forest law enforcement is regularly overlooked and ineffective, or that Madagascar's law enforcement agencies proactively collude with, and benefit from, illegal timber traffickers.[94,94]

REPORTS & ADDITIONAL RESOURCES

A list of relevant reports and additional online tools to complement this country report are also available at the IDAT Risk website: https://www.forest-trends.org/fptf-idat-home/

Key Reading:

1. Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016.
2. Roberts. 2022. Will CITES finally act to protect rosewood this month? (commentary) (mongabay.com)
3. Waeber, P.O. et al. 2019. Uplisting of Malagasy precious woods critical for their survival. Biological Conservation. 235, pp. 89-92. DOI: 10.1016/j.biocon.2019.04.007
4. Wilmé et al 2020. The elephant in the room: Madagascar's rosewood stocks and stockpiles https://conbio.onlinelibrary.wiley.com/doi/full/10.1111/conl.12714

METHODOLOGY & TERMINOLOGY NOTES

[a] Risk scores reflect Preferred by Nature's Timber Risk Assessment which measures the risk of illegality occurring in 21 areas of law relevant to timber legality, as well as Forest Trends' national governance scores which provides an average relative governance and corruption risk score for 211 countries globally. Preferred by Nature's scores have been flipped to ensure compatibility with Forest Trends' national governance scores, where higher scores are associated with greater governance and corruption challenges. An average of both the Preferred by Nature and Forest Trends scores has been calculated for countries where both are available as of 2025. For all other countries, the risk score reflects Forest Trends' national governance scores as of 2025. Countries scoring less than 25 are considered "Lower-Risk," countries scoring between 25 and 50 are "Medium-Risk" and countries scoring above 50 are "Higher-Risk." It is important to note that it is possible to source illegal wood from a well-governed, "Lower-Risk" state and it is also possible to source legal wood from a "Higher-Risk" country. As such, the risk scores can only give an indication of the likely level of illegal logging in a country and ultimately speaks to the risk that corruption and poor governance undermines rule of law in the forest sector.

[b] The term "forest products" is used to refer to timber products (including furniture) plus pulp and paper. It covers products classified in the Combined Nomenclature under Chapters 44, 47, 48 and furniture products under Chapter 94. While the term "forest products" is often used more broadly to cover non-timber and non-wood products such as mushrooms, botanicals, and wildlife, "forest products" is used to refer to timber products plus pulp and paper in this dashboard. .

[c] Except where otherwise specified, all trade statistics and chart data is sourced from UN Comtrade, compiled and analyzed by Forest Trends..

[d] All references to "EU + EFTA" signify the 27 Member States of the European Union (as of 2021), as well as the United Kingdom, Iceland, Liechtenstein, Norway and Switzerland.

WORKS CITED

[1] Forest Trends. 2025. "ILAT Risk Score for Madagascar." Accessed May 2, 2025. https://www.forest-trends.org/idat_countries/madagascar/.

[2] World Bank. 2025. "Classification of Fragile and Conflict-Affected Situations." Accessed May 2, 2025. https://www.worldbank.org/en/topic/fragilityconflictviolence/brief/classification-of-fragile-and-conflict-affected-situations

[3] Forest Trends. 2024. "Known and Reported Forest Product Export Restrictions (FPER)." Forest Trends. Accessed May 2, 2025. https://www.forest-trends.org/known-log-export-bans/.

[4] United Nations Statistics Division. 2025. "UN Comtrade." United Nations Statistics Division. Accessed May 2, 2025. https://comtrade.un.org/data/.

[5] Ibid.

[6] Forest Trends. 2024. "Known and Reported Forest Product Export Restrictions (FPER)." Forest Trends. Accessed May 2, 2025. https://www.forest-trends.org/known-log-export-bans/

[7] Species+. 2025. "Madagascar". Accessed May 2, 2025. https://speciesplus.net/

[8] Beech, E. *et al*. 2021. "The Red List of Trees of Madagascar". Botanic Gardens Conservation International (BGCI). Accessed May 2, 2025. https://www.bgci.org/resources/bgci-tools-and-resources/the-red-list-of-trees-of-madagascar/

[9] FAO. 2020. *Global Forest Resources Assessment 2020: Main Report*. Rome: Food and Agriculture Organization of the United Nations. https://openknowledge.fao.org/server/api/core/bitstreams/6e3ab17a-c398-4a90-bac5-118b31cb6fe0/content.

[10] Ibid.

[11] Ibid.

[12] Ibid

[13] FAO. 2024. "FAOSTAT." Food and Agriculture Organization of the United Nations. Accessed May 2, 2025. http:// www.fao.org/faostat/en/#data/RF

[14] Ibid.

[15] Ibid.

[16] United Nations Statistics Division. 2025. "UN Comtrade." United Nations Statistics Division. Accessed May 2, 2025. https://comtrade.un.org/data/.

[17] Ibid.

[18] Ibid.

[19] Ibid.

[20] Ibid.

[21] Ibid.

[22] FAO. 2020. "Global Forest Resources Assessment 2020 – Madagascar". Accessed August 1, 2023. https://fra-data.fao.org/assessments/fra/2020/MDG/home/overview

[23] Ibid.

[24] Ibid.

[25] Global Forest Watch. 2023. "Madagascar Dashboard". Accessed May 2, 2025. https://www.globalforestwatch.org/

[26] Global Forest Watch. 2018. "Tree cover loss and gain area, Madagascar", cited in Waeber, P.O. *et al*. 2019. Uplisting of Malagasy precious woods critical for their survival. *Biological Conservation*. 235, pp. 89-92. DOI: 10.1016/j.biocon.2019.04.007

[27] Global Forest Watch. 2023. "Madagascar Dashboard". Accessed May 2, 2025. https://www.globalforestwatch.org/.

[28] Masolele, R. *et al*. 2024. Mapping the diversity of land uses following deforestation across Africa. Scientific Reports volume 14, Article number: 1681. https://www.nature.com/articles/s41598-024-52138-9

[29] Global Forest Watch. 2023. "Madagascar Dashboard". Accessed May 2, 2025. https://www.globalforestwatch.org/.

[30] Antonelli, A. *et al*. 2022. Madagascar's extraordinary biodiversity: Evolution, distribution, and use. *Science*, 378. DOI: 10.1126/science.abf0869

[31] Waeber, P.O., Rafanoharana, S., Rasamuel, A. and Wilmé, L. 2019. "Parks and Reserves in Madagascar: Managing Biodiversity for a Sustainable Future", in Bakar, A.N. and Suratman, M.N. eds. 2020. Protected Areas, National Parks and Sustainable Future. IntechOpen. DOI: 10.5772/intechopen.77900

[32] Beech, E. *et al*. 2021. "The Red List of Trees of Madagascar". Botanic Gardens Conservation International (BGCI). Accessed August 1, 2023. https://www.bgci.org/resources/bgci-tools-and-resources/the-red-list-of-trees-of-madagascar/

[33] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

[34] Ibid.

[35] Forest Governance and Policy. 2015. "Madagascar". Accessed May 2, 2025. https://forestpolicy.org/risk-tool/country/madagascar

[36] Rasolofoson, R. A., Ferraro, P. J., Jenkins, C. N. & Jones, J. P. G. Effectiveness of community forest management at reducing deforestation in Madagascar. *Biol. Conservation*. 184, 271–277 (2015).

[37] Neugarten, R.A., Rasolofoson, R.A., Barrett, C.B. *et al*. The effect of a political crisis on performance of community forests and protected areas in Madagascar. Nat Communications 15, 2963 (2024). https://doi.org/10.1038/s41467-024-47318-0. https://www.nature.com/articles/s41467-024-47318-0#rightslink

[38] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

[39] Ibid.

[40] Ibid.

[41] Ibid.

[42] Sharife, K. and Maintikely, E. 2018. "The Fate of Madagascar's Endangered Rosewoods". Organised Crime and Corruption Reporting Project (OCCRP). Accessed August 1, 2023. https://www.occrp.org/en/investigations/8480-the-fate-of-madagascar-s-endangered-rosewoods

[43] Environmental Investigation Agency. 2017. "Madagascar: A Unique Ecosystem Threatened by Illicit Trade". Accessed August 1, 2023. https://us.eia.org/blog/madagascar-a-unique-ecosystem-threatened-by-illicit-trade/

[44] Forest Trends. 2024. "Known and Reported Forest Product Export Restrictions (FPER)." Forest Trends. Accessed May 2, 2025. https://www.forest-trends.org/known-log-export-bans/

[45] Forest Governance and Policy. 2015. "Madagascar". Accessed May 2, 2025. https://forestpolicy.org/risk-tool/country/madagascar

[46] Forest Trends. 2024. "Known and Reported Forest Product Export Restrictions (FPER)." Forest Trends. Accessed May 2, 2025. https://www.forest-trends.org/known-log-export-bans/

[47] Sharife, K. and Maintikely, E. 2018. "The Fate of Madagascar's Endangered Rosewoods". Organised Crime and Corruption Reporting Project (OCCRP). Accessed August 1, 2023. https://www.occrp.org/en/investigation/the-fate-of-madagascars-endangered-rosewoods

[48] Waeber, P.O. *et al*. 2019. "Uplisting of Malagasy precious woods critical for their survival". *Biological Conservation*. 235, pp. 89-92. DOI: 10.1016/j.biocon.2019.04.007

[49] Roberts, M. 2022. "Will CITES finally act to protect rosewood this month? (commentary)", *Mongabay*. Accessed August 1, 2023. https://news.mongabay.com/2022/11/will-cites-finally-act-to-protect-rosewood-this-month-commentary/#:~:text=In%202013%2C%20the%20Convention%20on,of%20species%20threatened%20with%20extinction.

[50] CITES. 2013. "Decisions of the Conference of the Parties to CITES in effect after its 16th meeting". Annex 3: Action plan for *Diospyros* spp. and *Dalbergia* spp. Accessed August 1, 2023.

[51] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

[52] CITES. 2013. "Decisions of the Conference of the Parties to CITES in effect after its 16th meeting". Annex 3: Action plan for Diospyros spp. and Dalbergia spp. Accessed August 1, 2023.

[53] TRAFFIC. 2022. "CITES COP 19 Priority Areas: Madagascar Rosewood and Ebonies". Accessed August 1, 2023. https://www.traffic.org/about-us/working-with-cites/cites-cop19/cites-cop19-madagascar-rosewood-and-ebonies/

[54] Schuurman, D. and Lowry II, P.P. 2009. "The Madagascar rosewood massacre". Madagascar Conservation and Development. 4(2), pp. 98-102. DOI: 10.4314/mcd.v4i2.48649. Accessed 1 August 2023. https://www.researchgate.net/publication/40426089_The_Madagascar_rosewood_massacre

[55] UNESCO. n.d. "Rainforests of the Atsinanana". Accessed August 3, 2023. https://whc.unesco.org/en/list/1257/#:~:text=The%20Rainforests%20of%20the%20Atsinanana,reflects%20the%20island's%20geological%20history.

[56] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

[57] Roberts, M. 2022. "Will CITES finally act to protect rosewood this month? (commentary)", *Mongabay*. Accessed August 1, 2023. https://news.mongabay.com/2022/11/will-cites-finally-act-to-protect-rosewood-this-month-commentary/#:~:text=In%202013%2C%20the%20Convention%20on,of%20species%20threatened%20with%20extinction.

[58] Ibid.

[59] Gerety, R.M. 2018. "Madagascar proposes paying illegal loggers to audit or buy their rosewood". *Mongabay*. Accessed August 1, 2023. https://news.mongabay.com/2018/08/madagascar-proposes-paying-illegal-loggers-to-audit-or-buy-their-rosewood/

[60] TRAFFIC. 2022. "CITES COP 19 Priority Areas: Madagascar Rosewood and Ebonies". Accessed August 1, 2023. https://www.traffic.org/about-us/working-with-cites/cites-cop19/cites-cop19-madagascar-rosewood-and-ebonies/

[61] Razafison, R. 2021. "After a pandemic reprieve, loggers return to a unique Madagascar forest". *Mongabay*. Accessed August 1, 2023. https://news.mongabay.com/2021/11/after-a-pandemic-reprieve-loggers-return-to-a-unique-madagascar-forest/

[62] Ibid.

[63] Wilmé, L. and Waeber, P.O. 2019. "Brand Madagascar's rosewood and ebony as endangered". Nature, 565. DOI: https://doi.org/10.1038/d41586-019-00323-6

[64] Transparency International. 2024. "Corruption Perceptions Index 2024, Madagascar". Accessed May 2, 2025. https://www.transparency.org/en/cpi/2022/index/mdg

[65] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

[66] Transparency International. 2021. "Overview of Corruption and Anti-Corruption in Madagascar". Accessed August 1, 2023. https://knowledgehub.transparency.org/helpdesk/overview-of-corruption-and-anti-corruption-in-madagascar-2

[67] Butler, R.A. 2018. "Challenging the illegal logging regime in Madagascar (insider)". *Mongabay*. Accessed August 2, 2023. https://news.mongabay.com/2018/12/challenging-the-illegal-logging-regime-in-madagascar-insider/

[68] Waeber, P.O. *et al*. 2019. "Uplisting of Malagasy precious woods critical for their survival". *Biological Conservation*. 235, pp. 89-92. DOI: 10.1016/j.biocon.2019.04.007

[69] WildMadagascar. 2010. "Madagascar's president linked to illegal logging. *Mongabay*". Accessed May 2, 2025. https://news.mongabay.com/2010/11/madagascars-president-linked-to-illegal-logging-video/

[70] Vyawahare, M. 2022. "Madagascar's insistence on using seized rosewood rattles conservationists". *Mongabay*. Accessed May 2, 2025. https://news.mongabay.com/2022/03/madagascars-insistence-on-using-seized-rosewood-rattles-conservationists/

[71] Freedom House. 2024. "Freedom in the World 2024 Madagascar". Accessed May 2, 2025. https://freedomhouse.org/country/madagascar/freedom-world/2024?utm

[72] TRAFFIC. 2016. "Madagascar joins International Tropical Timber Organization. Accessed May 2, 2025. https://www.traffic.org/news/madagascar-joins-international-tropical-timber-organization/

[73] The World Bank Group. 2025. "Poverty headcount ratio at national poverty lines (% of population) - Sub-Saharan Africa". Accessed August 31, 2023. https://data.worldbank.org/indicator/SI.POV.NAHC?locations=ZG&most_recent_value_desc=false

[74] The Borgen Project. 2019. "Living on Less than $1.90 Per Day in Madagascar". Accessed August 1, 2023. https://borgenproject.org/tag/poverty-in-madagascar/#:~:text=Currently%2C%2075%25%20of%20the%20population,defined%20by%20the%20World%20Bank.

[75] Ibid.

[76] Marat Karpeka Lemur Foundation. n.d. "Poverty In Madagascar: Statistics, Causes, Facts And Solutions". Accessed August 2, 2023. https://lemurfund.org/poverty-in-madagascar/

[77] Masolele, R. *et al*. 2024. "Mapping the diversity of land uses following deforestation across Africa". Scientific Reports volume 14, Article number: 1681. https://www.nature.com/articles/s41598-024-52138-9

[78] Sharife, K. and Maintikely, E. 2018. "The Fate of Madagascar's Endangered Rosewoods". Organised Crime and Corruption Reporting Project (OCCRP). Accessed August 1, 2023. https://www.occrp.org/en/investigation/the-fate-of-madagascars-endangered-rosewoods

[79] Caramel, L. 2015. "China's rosewood craving cuts deep into Madagascar rainforests". Guardian. Accessed May 2, 2025. https://www.theguardian.com/environment/2015/feb/16/rosewood-madagascar-china-illegal-rainforest.

[80] Darrah, P. 2023. "Endangered Species in Madagascar: Protecting a Unique Biodiversity Hotspot". GVI. Accessed August 1, 2023. https://www.gvi.co.uk/blog/smb-endangered-species-in-madagascar-protecting-a-unique-biodiversity-hotspot/

[81] Sharife, K. and Maintikely, E. 2018. "The Fate of Madagascar's Endangered Rosewoods". Organised Crime and Corruption Reporting Project (OCCRP). Accessed August 1, 2023. https://www.occrp.org/en/investigation/the-fate-of-madagascars-endangered-rosewoods.

[82] Caramel, L. 2015. "China's rosewood craving cuts deep into Madagascar rainforests". Guardian. Accessed May 2, 2025. https://www.theguardian.com/environment/2015/feb/16/rosewood-madagascar-china-illegal-rainforest.

[83] Ibid

[84] United Nations Statistics Division. 2025. "UN Comtrade." United Nations Statistics Division. Accessed May 2, 2025. https://comtrade.un.org/data/

[85] Ibid

[86] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

[87] Ibid.

[88] Environmental Investigation Agency (EIA). 2017. "Madagascar: A Unique Ecosystem Threatened by Illicit Trade". Accessed August 1, 2023. https://us.eia.org/blog/madagascar-a-unique-ecosystem-threatened-by-illicit-trade/

[89] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

[90] Ibid.

[91] TRAFFIC. 2022. "CITES COP 19 Priority Areas: Madagascar Rosewood and Ebonies". Accessed August 1, 2023. https://www.traffic.org/about-us/working-with-cites/cites-cop19/cites-cop19-madagascar-rosewood-and-ebonies/

[92] Ford, T. 2013. "Madagascar's forests vanish to feed taste for rosewood in west and China". The Guardian, 23 December. Accessed August 28, 2023. https://www.theguardian.com/world/2013/dec/23/madagascar-illegal-logging-rosewood-smuggling

[93] Global Witness and EIA. 2010. "Investigation Into the Global Trade in Malagasy Precious Woods: Rosewood, Ebony and Pallisander". Accessed August 4, 2023. https://www.traffic.org/about-us/working-with-cites/cites-cop19/cites-cop19-madagascar-rosewood-and-ebonies/

[94] Ibid.

[95] Ratsimbazafy, C., Newton, D.J. and Ringuet, S. 2016. "Timber Island: The Rosewood and Ebony Trade of Madagascar". Traffic Report, November 2016. Accessed August 1, 2023. https://www.traffic.org/site/assets/files/2289/traffic-timber-island-full-report-final-1702.pdf

This Timber Legality Country Risk Dashboard (Dashboard) was drafted by Forest Trends and funded by a grant from the United States Department of State, Bureau of Oceans and International Environmental and Scientific Affairs. The opinions, findings, and conclusions stated herein are those of the authors and do not necessarily reflect those of the United States Department of State or any other party. The United States supports efforts to raise awareness of and combat global illegal logging and associated trade. This dashboard contributes to these ongoing efforts.