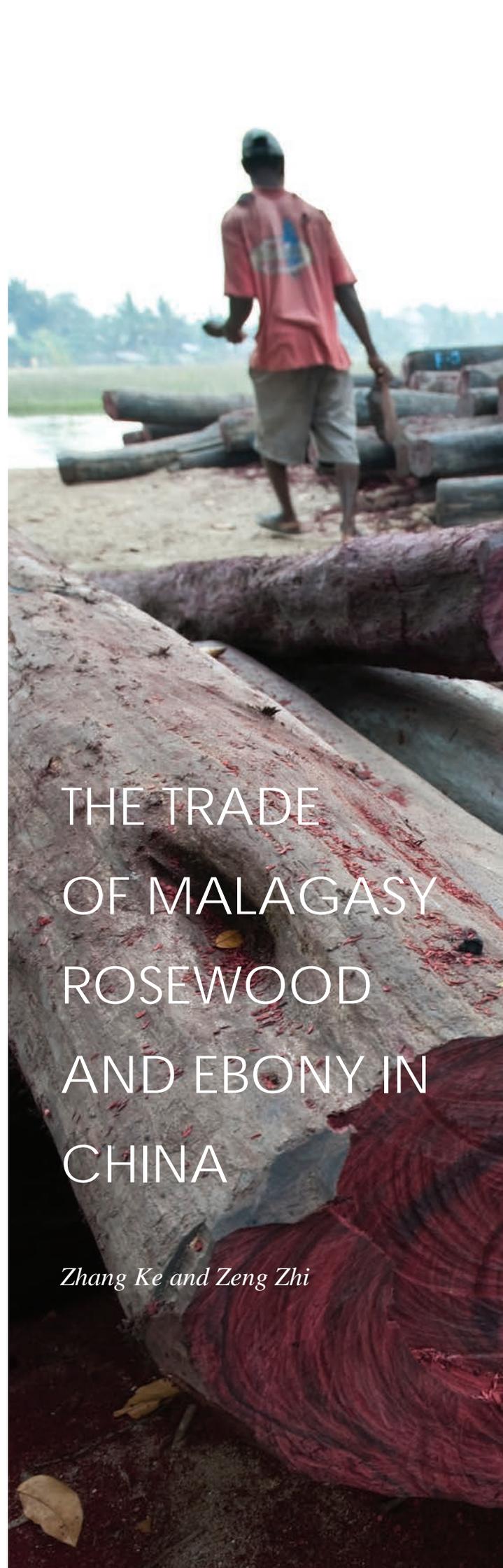


China has been the main destination for Malagasy *Dalbergia* (rosewood and palisander) and *Diospyros* (ebony) species for over a decade. Since 2013, these species have been listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and their trade embargoed by Madagascar until such time that the country's rosewood stockpile management and trade control measures were approved by the CITES Standing Committee; despite this, there are indications that the illegal international trade of these CITES-listed timber species is continuing.

This research aims to understand the market and supply chain dynamics of Malagasy hardwood demand in China, as well as the infiltration of illegal timber into the legal trade. Based mainly on desktop data research and field investigations, this survey noted that approximately 48 *Dalbergia* and 85 *Diospyros* species are found in Madagascar, but that the many products manufactured in China are reportedly based on three main species, namely *Dalbergia louvelii*, *Dalbergia greveana* and *Diospyros mcphersonii*. This study shows that the use of Malagasy hardwoods proliferated in the Chinese market during 2000–2010. While declared imports of Malagasy timber have declined since 2013, the large-scale seizures of Malagasy timber would suggest that the trade has been driven underground following the CITES listings and export bans, and its popularity and price has remained stable in recent years.



THE TRADE OF MALAGASY ROSEWOOD AND EBONY IN CHINA

Zhang Ke and Zeng Zhi

BACKGROUND

During the first decade of the 21st century, China became the most important importer, processor and consumer of Malagasy rosewoods (including palisanders) (*Dalbergia* spp.) and ebonies (*Diospyros* spp.) (EIA, 2010), as well as other tropical woods sourced from across the world (ITTO, 2011). A study conducted by TRAFFIC (Ratsimbazafy *et al.*, 2016) in Madagascar revealed that 98% of the *Dalbergia* and *Diospyros* species exported between 2010 and 2014 were landed in China.

There are approximately 48 species of *Dalbergia* and 85 species of *Diospyros* in Madagascar (Yin, 2013). In 2013, the Conference of the Parties to CITES agreed to include Malagasy populations of these genera in Appendix II, as well as to adopt a CITES Action Plan for the conservation and sustainable use of these species (CITES Decision 16.152). In the same year, Madagascar agreed to embargo exports through a voluntary zero quota (CITES CoP17 Doc 55.2). While some progress had been made regarding implementation of the Convention with regard to these species, at the Standing Committee meetings held between 2014 and 2016, concern was expressed that the illegal harvest and export of *Dalbergia* and *Diospyros* species from Madagascar was continuing and recommended that all Parties suspend commercial trade in these species. Adoption of Decisions 17.203 to 17.208 at the seventeenth meeting of the Conference of the Parties (CoP17), held in Johannesburg, South Africa, in September and October 2016, called on Madagascar to strengthen control and enforcement measures against illegal logging and export at the national level, including those relating to seizures, investigations, arrests, prosecutions, and sanctions. Furthermore, in recognition of growing international pressure on *Dalbergia* species in general, a proposal was approved to include global populations of the genus *Dalbergia* in CITES Appendix II, with the exception of species included in Appendix I, thus expanding trade regulations to all species of this valuable genus.

The laws that govern the harvest and export of precious timber in Madagascar fluctuate between authorization and prohibition. In 2000, Order No. 2000-11832 banned the harvest and export of rosewood and ebony, except in the form of finished or processed products such as craft products. Following strong lobbying by timber operators from the Sava region, in 2005, the ministry in charge of forests issued a note (No. 923-05 of 6 October 2005) authorizing certain timber operators to export their existing stocks of ebony and rosewood. In 2009, an order was issued to authorize 13 timber operators to export rosewood and ebony within three months following the issuing of export permits (Order No. 003/2009 of 28 January 2009). In the same year, another order was issued authorizing 45 operators to export rosewood and ebony within two months from the signature of the export permit (Order No. 38/244/2009 of 21 September 2009). Since 2010 to date, any rosewood and ebony exports from Madagascar are illegal according to the country's legislation. The zero quota under CITES has reinforced the ban at the national level.

In China, Malagasy rosewoods are prized raw materials in the traditional furniture industry. According to interviews with manufacturers, Malagasy rosewoods are valued for their wood-working properties, making them suitable for furniture styles that many Chinese buyers consider aesthetically pleasing. The continued demand for Malagasy rosewood today is proof of the sustained interest in furniture and arts and crafts based on traditional Chinese culture, which first became popular during the Ming Dynasty (EIA, 2010). The royal furniture in the Forbidden City Museum, constructed partly out of Malagasy timber, tells the story of the first shipment of timber from that country exported to China following the explorer Zhenghe's visit to Africa nearly 600 years ago. Malagasy rosewood was once considered a special gift to ancient China from Madagascar. However, in recent decades, the economic boom and rising middle class incomes in China have stimulated the legal and illegal harvesting and trade of Malagasy timber (EIA, 2014).



Illegally felled rosewood sp. on
the quayside in Maroantsetra,
Masoala National Park,
north-east Madagascar, 2009.

INTRODUCTION

To understand the magnitude of illegal trade in Malagasy ebonies and rosewoods between Madagascar and China, it is important to understand the scale of China's domestic Malagasy timber trade, policy gaps, and trade and enforcement loopholes that mitigate against the sustainable trade of Malagasy timber species.

China has a set of national standard definitions for rosewoods (红木 Hongmu). China's National Rosewood (Hongmu) Standard (Anon, 2000) identifies 33 species across the *Pterocarpus*, *Diospyros*, *Dalbergia*, *Millettia* and *Cassia* genera as recognized rosewood species. There are two species from Madagascar, namely *Dalbergia louvelii* and *Diospyros crassiflora*, listed on the Standard. The listing of species seems to have the effect of increasing demand by Chinese consumers for these species and this in turn pushes up prices. To illustrate this, during the market survey it was found that industry players in the markets had advocated that *Swartzia madagascariensis* (now *Bobgunnia madagascariensis*) and *Pterocarpus tinctorius* be listed in the National Standard to attract consumers and encourage them to buy furniture made from these species for investment purposes; accordingly, the authors found that the prices for these species had increased in recent years.

Of the two genera of timber from Madagascar, the species most in demand due to its value, quality and scarcity is *Dalbergia louvelii* (卢氏黑黄檀). Also included in the standard is *Diospyros crassiflora* (厚瓣乌木), regarded as an ebony in continental Africa and a synonym for *Diospyros mcphersonii* (麦氏乌木) in Madagascar (Yin, 2013). For the purposes of this report, Malagasy rosewood traded in China refers to *Dalbergia louvelii* (卢氏黑黄檀) and *Diospyros mcphersonii* (麦氏乌木), both of which are well known to the Chinese market.

However, as described above, in China some ebony *Diospyros* species are also confusingly regarded as rosewoods, or Hongmu. Adding to the confusion is that all other rosewood *Dalbergia* spp. traded in China are named using the alternative common name palisander (巴黎桑) or African *Dalbergia* (非洲酸枝). Palisander is usually imported to make low-end furniture and panels. Ebonies (*Diospyros* spp.) are often imported to make art, crafts and instruments, but the total volume of consumption is relatively low, except for *Diospyros mcphersonii* that, according to manufacturers based in Hebei Province, is used for making valuable antique-looking furniture which is more valuable.

This interchangeable use of common names causes confusion in the international market and may undermine enforcement effectiveness due to misidentification, and cause bias in trade statistics through the use of various product names and HS Codes. Similarly, it has also been reported that the genus level CITES listing causes misunderstanding amongst Chinese end consumers about which species are listed and hence about the legality of timber products in the supply chain.

The trade in Malagasy rosewood, ebonies and other tropical woods is an important source of income for the country, and helps to sustain livelihoods by providing



CYNTHIA RATSIMBAZAFY / TRAFFIC



CYNTHIA RATSIMBAZAFY / TRAFFIC

Rosewood being loaded onto a vessel in the north-east coast of Madagascar (top); rosewood stockpile secured at a government facility in north-east Madagascar.

employment. However, illegal timber logging and trade have severely damaged forest resources for local Malagasy communities and have had an adverse impact on the survival of other endangered wildlife (EIA, 2010; Ratsimbazafy *et al.*, 2016). In response to the threats of the illegal timber trade to the island's rich biodiversity, Madagascar committed to a logging ban (Decree No. 11832/2000) and to the implementation of the action plan agreed to by the Parties during CITES CoP16 in 2013, when all Malagasy ebony and rosewood species were listed in Appendix II. The most recent decree released in 2010 (Decree No. 2010-141 of 24 March 2010) prohibits logging, transport, trade, and export of rosewood and ebony.

To understand the dynamics of Malagasy timber traded in China, this study was commissioned by TRAFFIC, with funding from USAID as part of the SCAPES, (Preserving Madagascar's Natural Resources Program).

METHODS

The research was carried out in late 2015 and 2016 using two methods, namely desktop data research and field investigations with eye-witness and stakeholder interviews. The findings were cross-checked against each other. Data were collected using the following means:

- collecting, examining, and analysing import procedures, border controls, import/export documents and other Chinese policies and mechanisms relevant to Malagasy timber. The results were verified by relevant officials through interviews;
- seizure records from open-sourced data such as web and media news;
- compilation of China's Customs statistical data for the timber trade between Madagascar and China for the period 2005 to 2015;
- conducting structured interviews with staff from within the timber industry and international biodiversity conservation organizations in China;
- conducting price trends, trade flow, and gaps analysis of Malagasy timber within China using data sourced from importing and manufacturing industries using Malagasy timber.

According to China's Customs information, there are 14 Customs areas (ports) that have reported imports of Malagasy timber, namely Nanjing, Qingdao, Shanghai, Xiamen, Tianjin, Huangpu, Guangzhou, Shenzhen, Hangzhou, Fuzhou, Ningbo, Zhanjiang, Jiangmen, and Shantou. Due to time and travel budgets limitations, the project team chose to examine only the most important ports, wholesale timber markets, processing centres, and furniture markets for this survey. Thus focus was placed on Shanghai City, Putian City (including Putian port and Xianyou Country), and Beijing City. Information about the other locations was obtained from the results of a previous survey (Zhang *et al.*, 2017) conducted in 2015 and 2016.

Thirty-three respondents, including members of the timber and furniture industry associations (six persons), traders (five persons), furniture manufacturers (10 persons), sales managers (10 persons), and forest researchers (two persons) were selected based on their understanding of and/or involvement in the Malagasy timber trade. The 33 selected individuals were interviewed using structured questionnaires. Secondary data were collected from various published sources, such as books, websites and research papers, as well as publications and reports from the Chinese Customs authority.

The research set out to gather data about both legal and illegal timber trade. Difficulty was experienced in distinguishing between legal and illegal businesses, since some businesses seem to trade in both legal and illegal timber without any possibility of distinguishing between the sources or volumes owing to a lack of monitoring

systems and capacity in the consumer markets. The analysis of "legal" trade was based on statistical data from Customs and timber associations, while only a descriptive overview was possible for the illegal trade, including examination of open sources of data owing to Customs timber seizures records being inaccessible.

RESULTS

Laws and Regulations Related to Timber Importation in China

China banned the export of its own locally produced raw timber in 2001 and has since implemented quotas and licensing policies for sawn wood (Anon, 2001). Meanwhile, policies have been developed for the export of processed timber products.

China ratified CITES on 25 April 1981 and, as such, requires the issuance of CITES permits for the importation of Appendix II specimens. Regulation of the People's Republic of China for the Administration of Import and Export of Endangered Wild Animals and Plants is in place to manage the export trade for domestically protected species. The policies of other government agencies that are relevant to the control of timber imports are listed in Table 1.

Customs Policies and Systems in China

All trade of timber into and out of China requires a Customs declaration. Traders are obliged to submit a declaration form to Customs stating the species name of the products, volumes, and monetary value. Customs may decide to inspect the consignment to verify that the shipment correctly matches the declaration. However, inspections are not conducted for every consignment and depend on the respective provincial Customs authority's risk assessment analysis. However, the rates of inspection for consignments at China's ports of entry are not known, but they are still based on individual risk assessments.

According to the Regulation on Custom Statistics of the People's Republic of China, 1 March 2006, different Customs tariff rates apply to imports according to the consignment's country of origin. They are, respectively, Most Favored Nation (MFN) Tariff Rates, Conventional Tariff Rates, Special Preferential Tariff Rates, General Tariff Rates and Interim Tariff Rates. The MFN tariff on import of raw timber and sawn wood have been maintained at zero since 1999.

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- Customs Law of the People's Republic of China, adopted 22 January 1987, amended 8 July 2000
 - Import and Export Tariff of the People's Republic of China, 1 January 2004
 - Regulation of origin of imported and exported cargo, 1 January 2005
 - Forest Law of People's Republic of China, 20 September 1984
 - Regulations of People's Republic of China on Administration of Import and Export of Endangered Wild Animals and Plants, 1 September 2006
 - Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES)
 - Law of the People's Republic of China on Import and Export Commodity Inspection, 1 August 1989, and revised 28 April 2002
 - Regulations for the Implementation of the Law of the People's Republic of China on the Entry and Exit Animals and Plants Quarantine, Decree [1996] No. 206 of the State Council, 2 December 1996, effected 1 January 1997
 - Regulation on Custom Statistics of the People's Republic of China, 1 March 2006
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Table 1. List of China's laws and regulations related to the import and export of timber (compiled by TRAFFIC).

To understand China's Customs statistics, individuals within the General Administration of Customs in China were interviewed. Trade statistics in China are collected by Customs, based on the declarations made by importers and exporters. Although trade data are also collected by the exporting country, there are no mechanisms or systems linking import and export procedures on a global level apart from CITES and so, in addition to errors caused by the incorrect use of common names, poor co-ordination leads to further inconsistencies between import and export data.

Voluntary Initiatives

During the interviews, no Chinese companies were identified that are currently implementing global forest management standards such as the Forestry Stewardship Council (FSC) in Madagascar, or trading FSC-certified Malagasy timber products between Madagascar and China. Instead, the Chinese Central Government has issued numerous policies and regulations promoting sustainable trade and consumption abroad, including voluntary social and environmental guidelines in multiple sectors.

The two most relevant guidelines for timber trade are *A Guide on Sustainable Overseas Forest Management and Utilization by Chinese Enterprises* jointly issued by the State Forestry Administration of China and Chinese Ministry of Commerce in 2009, and *Environmental Protection Guidance for Chinese Enterprises Operating Overseas* issued by the Chinese Ministry of Environment Protection and the Chinese Ministry of Commerce in 2013. Currently under development is *A Guide on Sustainable Overseas Forest Investment and Trade by Chinese Enterprises* from the State Forestry Administration of China and the Chinese Ministry of Commerce.

All Chinese enterprises operating overseas are encouraged by the Chinese government to adhere to the voluntary *Guide on Sustainable Overseas Forest Management and Utilization by Chinese Enterprises* (herein called "the Guide"). The Guide serves as a set of principles for procuring timber in overseas countries, and addresses concerns about timber legality and sustainability. However, there is currently no prescriptive guidance given to enterprises on how to meet the principles in the Guide. TRAFFIC is implementing another project which is developing a prescriptive guidance framework for the "Guide" for timber exported from Cameroon using the EU Forest Law Enforcement Governance and Trade's (FLEGT) Voluntary Partnership Agreement (VPA) legality definition.

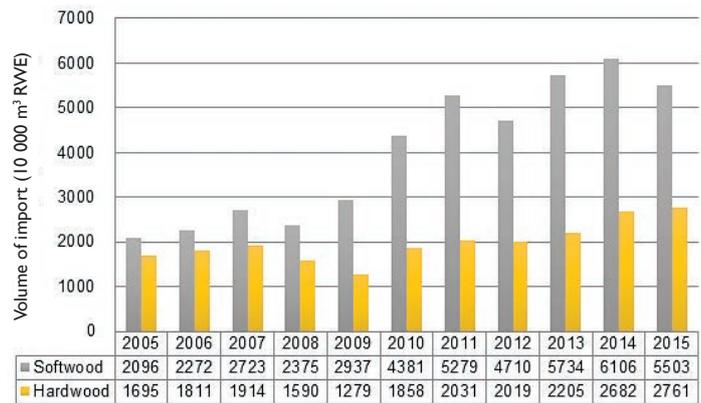


Fig. 1. Total timber imports into China, 2005–2015. (10 000 m³). Source: China Customs, compiled by TRAFFIC.

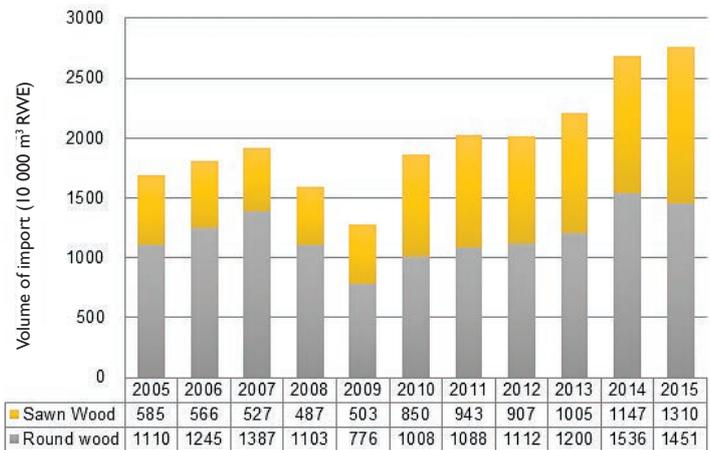


Fig. 2. Total hardwood imports into China, 2005–2015. (10 000 m³). Source: China Customs, compiled by TRAFFIC.

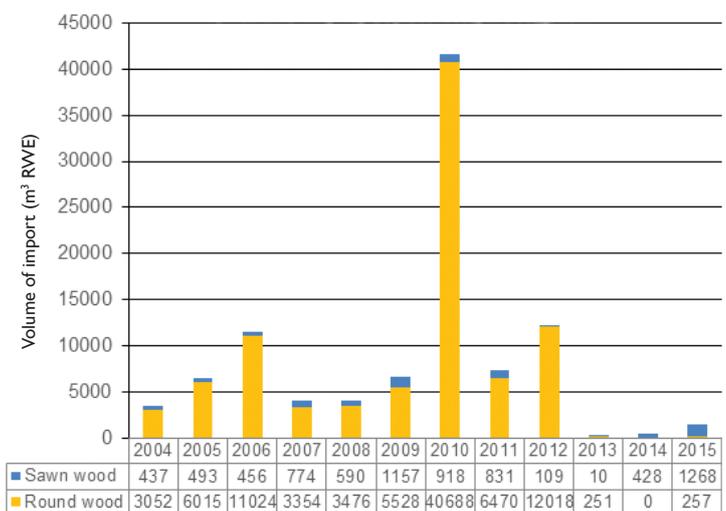


Fig. 3. Total imports of Malagasy timber into China, 2004–2015. (m³) Source: China Customs, compiled by TRAFFIC.

China's Malagasy Timber Trade and Industry

China's import of timber

China is the world's leading importer of timber, with volumes of Round Wood Equivalent (RWE) doubling between 2005 and 2017 (see Fig. 1); while its exports of wood-based products have tripled in volume of RWE and quadrupled in value in recent years (Sun, 2014). Since 2009, Asian demand for luxury furniture (Hongmu) has boomed, with products made using deeply hued rosewoods, mahoganies and ebonies, which are more rare and of high value. Principally, targeting 33 species within the *Pterocarpus*, *Diospyros*, *Dalbergia*, *Millettia* and *Cassia* genera, sales in China's Hongmu sector reportedly exceeded USD25 billion in 2014 (China Rosewood Committee, 2015).

Data during the period 2010 to 2015 show that there has been a significant increase in softwood (see also Fig. 1) imports from Russia, the USA, New Zealand, Canada, and the EU (Anon, 2015b). The importation of hardwood has also increased despite dips in trade during 2008–2009 resulting from the global economic crisis (see Fig. 2).

Specifically, for Madagascar, China Customs data analysis shows that the importation of Malagasy round wood (logs) declined in 2008, however with the rebounding of the Chinese economy in 2010 the volume of imported Malagasy wood peaked (see Fig. 3).

Declared legal timber exports to China fell steeply in 2011 (Fig. 3), presumably owing to a logging ban in Madagascar. In 2013, Malagasy exports fell further (coinciding with the export ban) and from that time the volume of declared imported Malagasy timber, including round wood and sawn wood, has remained low. All the wood sellers and timber market managers interviewed at the market have stated that much of the Malagasy timber offered for sale is from old China-based timber stockpiles that have accumulated for five years or more.

Interviews with traders and other stakeholders have revealed why round wood is often preferred over sawn wood for imports: 1) round wood shortens the value chain and allows for greater profits for the importer; 2) the furniture and art and crafts manufacturers prefer round wood because it allows for greater variety of uses and product types, especially for high-value rosewood; 3) it is possible, and preferred, to process wood in China, with its advanced, cost-efficient and high-quality processing facilities.

As shown in Fig. 4, Madagascar's share of China's overall hardwood timber imports is small, even at its peak in 2010. According to CTWPDA (China Timber & Wood Products Distribution Association), Chinese timber importers hold considerable bargaining power in the global timber trade, and are able to negotiate relatively low prices for Malagasy timber.

The market shares of Malagasy timber in China's hardwood imports (Fig. 4) does not give the full picture as it does not reflect hardwood imports that have been seized by Customs.

The Industrial Chain for Malagasy Timber in China

Main entry points (ports)

Surveys and interviews revealed that the port of Huangpu in Guangzhou City (Guangdong Province), and Jingjiang and Zhangjiagang ports of Jiangsu Province are the main entry points into China for Malagasy timber. In 2011, EIA (EIA, 2016) found that Huangpu and Zhangjiagang were the most important ports for Malagasy timber in China. Shanghai and Hong Kong Special Administrative Region (hereafter Hong Kong) are considered to be less important import cities. However, Hong Kong could be considered as one of most important illegal transit points, as suggested by recent seizures. During the survey, an interviewee also noted that once illegal timber is smuggled into Hong Kong, it is illegally transported across Hong Kong-Shenzhen border, and into Guangdong Province.

It was a challenge to access complete seizures data for this study as most data compiled by China Customs that are publicly available can only be accessed via news websites.

The key primary market cities

Previous market surveys and research carried out in 2015 and 2016 (Zhang *et al.*, 2017) revealed that the main Chinese cities involved with primary tropical timber markets (i.e. first-hand markets, where sellers are directly involved in the trade and invest in source countries) are Zhangjiagang City (Jiangsu Province), and the cities of Guangzhou, Dongguan and Zhongshan (all in Guangdong Province), as well as Xianyou County (Fujian Province), and Shanghai Municipality. Secondary markets (i.e. those that do not import directly but which receive timber from primary importers) for tropical timber are located in Beijing Municipality and Hebei Province. The locations of primary markets for tropical timber were verified in consultation with the China Timber and Wood Products Distribution Association (CTWPDA).

Key industrial centres

There are four key industrial centres manufacturing products from tropical timber species (see Fig. 5). These comprise the industrial timber clusters of Guangdong/Fujian, Jiangsu/Zhejiang/Shanghai, Beijing/Tianjin/

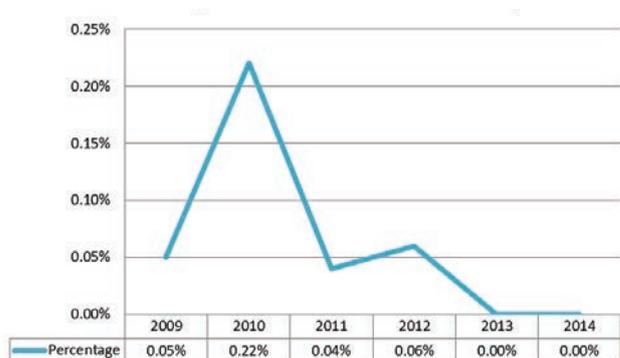


Fig. 4. The percentage of Malagasy timber imported by China as a proportion of China's hardwood imports, 2009–2014. Source: CTWPDA



Fig. 5. Main entry ports, manufacturers and key primary wholesale markets for Malagasy timber in China.

Hebei and Yunnan/Guangxi. The latter cluster mainly processes South-east Asian timber according to the China Hongmu Industry Development Plan for 2015–2025 developed by the China Rosewood Committee (Anon, 2015a), and has thus not been considered in this study. Based on field observations and interviews, Jiangmen City and Zhongshan City in the Guangdong sub-region, are the main manufacturing centres for various *Dalbergia* spp., while Xianyou County in Fujian Province appears to specialize in *Diospyros* spp. sculptures and decorative crafts, as well as high-end *Dalbergia louvelii* used for traditional rosewood furniture. Within the cluster of Guangdong/Fujian, Jiangmen and Zhongshan City are the manufacturing centres with a long history in making furniture, specializing in Cantonese style (Guangzuo 厂作), while the famed Xianyou style (Xianzuo 仙作) is characterized by statues, carvings and decorations of Buddhist and Taoist temples and traditional architectures, as well as furniture in recent decades. Within the Jiangsu/Zhejiang/Shanghai cluster, Dongyang County is the main manufacturing centre for Dongyang style (Dongzuo 东作) furniture, and tends to manufacture low-end furniture using *Dalbergia* spp., commonly referred to as palisander (巴黎桑) or African *Dalbergia* (非洲酸枝). Within the Beijing/Tianjin/Hebei cluster, Langfang City is a minor traditional Chinese furniture manufacturing centre using timber from a variety of sources including Madagascar.

Transport routes from Madagascar to China

Interviews have revealed that the main loading ports in Madagascar include Tamatave, Diego-Suarez, and Mahajanga, while key transit countries used for timber en route to China, include Mauritius, Mozambique, Somalia,

Kenya, Comoros, Sri Lanka, and Singapore (Butler, 2014). In addition, timber companies and sellers in the timber markets noted during interviews that Hong Kong can be regarded as a transit route for Malagasy timber entering China.

As discussed earlier and confirmed during interviews, one of the most common trade routes for timber destined for mainland China is via Hong Kong, which is known as the “Golden Route”. Hong Kong is a free trade port and traders reported that imported goods with irregular documentation are unlikely to be inspected. Therefore, some traders might consider smuggling illicit products into Hong Kong. Random inspections on the mainland still present a risk to would-be smugglers, as do higher penalties for wildlife smuggling in China. According to Shanghai Customs, a set of systems to identify illegal shipments has been introduced, which is very effective. They operate a “risk assessment” approach which bases inspections on intelligence or other information that indicates when a shipment has a high probability of containing illegal goods. Chinese Customs agencies should continue to identify gaps in inspection procedures and exchange information with Customs officials in Hong Kong in order to improve detection of illegal timber shipments.

It should also be noted that authorities in Singapore, made a large seizure of rosewood logs from Madagascar in 2014, providing further evidence that industrial-scale smuggling of Madagascar’s rainforest timber continues despite an official ban on the trade. The shipment amounted to 3000 t, or more than 29 000 logs. The shipping documents indicated the final destination was China (Butler, 2014).

Information from the logistics website (www.5688.com) shows that the main shipping companies for Malagasy timber include Delmas, Maerskline, PIL (Pacific International Lines 太平船务), SAFMARINE, CMA (Compagnie Maritime d’Affrètement), MSC (Mediterranean Shipping Company), amongst others. Delmas made a commitment to the Madagascar government to stop transporting *Dalbergia* and *Diospyros* species from November 2010, which is a way for the shipping and logistic companies to counter the illegal timber trade.

Prices for Malagasy Timber in China

Interviews revealed that *Dalbergia louvelii* (卢氏黑黄檀) and *Dalbergia greveana* (马达加斯加黄檀) were the two most popular timber species imported from Madagascar to China. *Diospyros mcphersonii* is the most popular ebony species, together with *Diospyros crassiflora* from other African countries.

The popularity of *Dalbergia louvelii* and *Diospyros mcphersonii* is largely due to their quality, scarcity, and relatively high cost. They are sought after by traditional furniture users and carving collectors who regard items made from these species as collectables and investments. Products made from *Dalbergia greveana* are coveted by the growing middle class, who seek items of traditional and cultural value with the expectation that they will increase in value over time.

The 2016 price range for the three Malagasy timber species most frequently traded is shown below (Table 1) based on data collated from surveys of e-commerce platforms and markets in Shanghai and Xianyou. Data have been verified with industry associations, including CTWPDA and local timber and furniture associations.

For finished products, price information was collected for three other non-Malagasy CITES Appendix-II species, namely *Dalbergia cochinchinensis* (交趾黄檀), *Dalbergia retuda* (微凹黄檀), *Dalbergia stevensonii* (伯利兹黄檀), for comparison with Malagasy *Dalbergia* spp. The sample size was 10 identical items for each furniture product. The size of items differed, but the study aimed to select samples of comparable scale.

As indicated in Table 2, *Dalbergia louvelii* furniture fetches the highest prices, closely followed by *Dalbergia cochinchinensis*, which has a long tradition of use in China and is well recognized by the general public and antiques collectors as one of the “three old rosewoods” (the other two are *Pterocarpus santalinus* 檀香紫檀 and *Dalbergia odorifera* 降香黄檀).

Changes in Market Preferences

According to market observations and stakeholder interviews by the project team, the Malagasy wood species *Dalbergia louvelii* has been used for at least two decades in China as a substitute for the highly-valued Indian Red Sandalwood *Pterocarpus santalinus*, owing to their similar dark colour, textural features, hardness and density. Initially, many furniture sellers would label products made with *Dalbergia louvelii* as *Pterocarpus santalinus*, thereby attracting top prices at retail, and raising the commodity prices of *Dalbergia louvelii*.

In recent years, the consumer’s understanding has improved, as has standardization in the market with the release of rosewood guidelines for the industry. As a result, prices for Malagasy rosewood have remained stable. In addition, new alternatives for Red Sandalwood have been found, taking advantage of the cheaper and more abundant *Pterocarpus* species imported from Zambia.

Species	Exporter price (t)	Wholesale price (t)	Retailers price (t)	Value Addition Rate
<i>Dalbergia louvelii</i> 卢氏黑黄檀	CNY100 000/USD14 758	CNY150 000–200 000/ USD22 136–29 515	CNY250 000/ USD36 895	250%
<i>Dalbergia greveana</i> 马达加斯加黄檀	CNY10 000/USD1475	CNY20 000/ USD2951	CNY30 000/ USD4427	300%
<i>Diospyros mcphersonii</i> 麦氏乌木	CNY20 000/USD 2951	CNY30 000/USD4427	CNY40 000/USD5903	200%

Table 1. The price range for the three most commonly traded Malagasy timber species in China. Rate: CNY/USD (1:0.14758) February 2017.

Product	<i>D. louvelii</i>	<i>D. greveana</i>	<i>D. cochinchinensis</i>	<i>D. retuda</i>	<i>D. stevensonii</i>
Double bed	CNY361 300/ USD53 320	CNY57 680/ USD85 12	CNY298 250/ USD44 015	CNY108145/ USD15 960	N/A
Narrow table (1 m)	CNY27 520/ USD4061	CNY7400/ USD1092	CNY19 692/ USD2906	CNY23 000/ USD3394	CNY7646/ USD1128
Armchair	CNY45 000/ USD6641	CNY7600/ USD1122	CNY60 242/ USD8891	CNY28 793/ USD4249	CNY8186/ USD1208

Table 2. Average price of furniture manufactured from two Malagasy timber species (*D. louvelii*; *D greveana*) compared to three non-Malagasy *Dalbergia* species.

Malagasy ebonies have also been used as an alternative to rosewood to make traditional rosewood furniture. However, trials in the last ten years show that ebonies are not as durable as rosewoods in China's dry weather conditions, particularly for manufacturing large furniture pieces. Today they are still used to manufacture arts and crafts, musical instruments, and some furniture items designed to have an antique appearance, as the darker colour of the wood gives the appearance of age and the wood is also more durable.

Other *Dalbergia* spp., for example, a rosewood with the common name palisander (巴黎桑) or so-called "African Dalbergia" (非洲酸枝) are also used for low-end traditional furniture and modern furniture, as well as being made into panels for re-export. However, there is a lot more competition at this lower price point for Malagasy timber from West African *Pterocarpus* spp. and *Swartzia madagascariensis* (now *Bobgunnia madagascariensis*). According to three manufacturing stakeholders, the demand for such timber has been shrinking in the EU and the USA as a result of the global economic crises from 2008 onwards. This has affected China's export growth for timber products. Interviewees have also stated that importers in China will import timber only after an order has been placed, in order to avoid market risks.

Gap Analysis: Regulations and Law Enforcement of the Malagasy Timber Trade in China

Policy and governance gaps

A key policy of the Chinese central government in preventing the illegal timber trade has been the voluntary guidelines produced for Chinese businesses operating overseas which promote social and environmental standards in different industrial sectors. However, a legality verification system is yet to be developed. The Chinese Academy of Forestry has been assigned by the SFA to develop such a verification system for China, but more progress needs to be made. This deficiency hampers the ability of law enforcement agencies to identify and interdict illegal timber shipments.

China's HS Code for rosewood is defined by China's National Rosewood Standard (Chinese Academy of Forestry, 2010). However, analysis of import documents shows that non-rosewood HS codes are often used for rosewoods and *vice versa*, while the rosewood HS Code is occasionally used for non-rosewood cargoes when shipped from overseas sources. This confusion arises partly because of the use of different rosewood definitions and common names by various trade parties in the value chain. As a result, there are significant discrepancies in the data, and difficulties in ascertaining how much of the declared trade in other tropical wood species are in fact rosewoods of the genus *Dalbergia*.

Law Enforcement Gaps and Solutions

Awareness raising and law compliance of timber traders

China's CITES Management Authority (CITES-MA)—The Endangered Species Import & Export Management Office of State Forestry Administration (SFA)—issued



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***Dalbergia louvelii* on sale at a shop in Xianyou County, 2016.**

an official notification after CoP16 in 2013 (Anon, 2014; 2015a). This was distributed to all branch offices of the CITES-MA, China's General Administration of Customs, China Forestry Industry Association, and CTWPDA. The Chinese CITES MA issued official updates and notifications of CoP17 to Chinese enforcement agencies in March 2017 (<http://www.cites.org.cn/article/show.php?itemid=857>).

In order to fulfil China's international obligations, SFA and Customs (Anon, 2014; 2015a) jointly requested the relevant parties to undertake the following:



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Furniture made of Madagascan palisander, Shanghai, 2016.

- 1) strictly obey implementation of laws (mentioned earlier in the law section) relevant to the Category of Import & Export Commercial Wild Flora and Fauna Species.
- 2) in each Customs district, CITES-MA branches should provide assistance to the respective Customs authority to check suspicious cargo and verify the timber species being traded.
- 3) the supervision and examination of permits (licences) for wildlife imports and exports provides an opportunity to strengthen the management of permits (licences) for timber importers.
- 4) enhance communication and co-ordination between business enterprises and Customs.

Enforcement capacity at Chinese borders

Interviews have revealed that Chinese government agencies, including the SFA, the CITES-MA, China's Customs, and the armed police force, have systematic law enforcement procedures in place.

In August 2013, Guangdong Huangpu Customs announced a successful operation to combat timber smuggling, with the disruption of 12 gangs involved in smuggling high-grade timber and 48 arrests. Reportedly, 20 smuggling cases worth CNY3.16 billion or USD466 million were intercepted in total. The greatest volumes smuggled by species were *Dalbergia louvelii* and *Dalbergia cochinchinensis* (Tang, 2013).

In November 2013, Fuzhou Customs and the coastguard jointly seized 350 t of rosewood in Fujian's Putian waters, worth nearly 80 million yuan (USD11.8 million). This is reported to be the largest case of rosewood smuggling ever intercepted by Chinese Customs; 3394 logs were seized, including 225 logs of *Dalbergia louvelii* and 3169 logs of other *Dalbergia* spp. and *Diospyros* spp., totalling CNY73.514 million or USD10.850 million in value. In subsequent investigations, it was discovered that the logs had been smuggled directly from Madagascar to Fujian (Wu, 2014a). In 2013, 495 cases of illegal wildlife trade seizures, worth a total of CNY1.101 billion or USD162 million, were filed by Fuzhou Customs. This includes about 350 t of *Dalbergia louvelii*, 352.7 kg of ivory, and 32.7 kg of rhinoceros horn (Wu, 2014b).

In October 2015, Hong Kong Customs detected 7015 pieces suspected to be Malagasy rosewood logs, following inspection of incoming cargo from Tanzania. The total value of the seizure was about HKD40 million (USD5.15 million according to the average currency rate in February 2017) (Customs and Excise Department, 2015).

Nevertheless, there are law enforcement challenges in China related to timber, primarily due to a lack of capacity and technology tools such as identification materials for Malagasy timbers and other timber species, which limits the oversight that the government has on the timber sector. According to the interviews with China Customs, staff shortages, deficiencies in expertise, inadequacies in information and intelligence are the major constraints amongst China's law enforcement agencies. Factors contributing to gaps in expertise include lack of manuals and training in timber identification for enforcement staff. This situation is likely to be exacerbated by the

decision to list in CITES Appendix II at CoP17 an increased number of timber species, such as *Dalbergia* spp., together with wider international concerns about the legality and sustainability of the timber trade, especially for CITES Appendix-listed species.

CONCLUSIONS AND RECOMMENDATIONS

Chinese consumers have embraced the consumption of Malagasy rosewood and other tropical hardwoods, particularly during the 21st century. However, its popularity has apparently declined after 2013, when *Dalbergia* and *Diospyros* spp. were listed in CITES Appendix II. While declared imports of Malagasy timber have declined, the large-scale seizures of Malagasy timber would suggest that the trade has been driven underground following the CITES listings and export bans. It is quite likely that a much larger black market trade for Malagasy timber exists, with seizures only capturing a small percentage of the total illicit trade. The stockpiling of Malagasy timber in China and lower prices for tropical woods has also contributed to a decline in declared imports. As it is likely that imports could increase again when stockpiles are reduced, it is necessary to conduct a survey to find out the trade mechanism and volume of China-based tropical hardwood stockpiles in order to understand when demand is likely to increase again.

Although the volume of Malagasy hardwood timber imports is dwarfed by the sheer scale of all hardwood timber exported to China from across the world, current logging levels are destroying the remains of Madagascar's forests and ecosystems. While industrial growth and consumer demand have dramatically depleted timber resources in Madagascar and other countries, China has a responsibility to lead the shift towards sustainable use and responsible forest management in the source countries. Effective law enforcement, trade monitoring and proactively working with other governments towards a unified legality framework could render China as the driving force behind a shift towards legality and sustainability.

The Chinese government (including China Customs, State Forest Administration, Ministry of Foreign Affairs, Ministry of Finance) is urged to:

- provide financial and technical support to Madagascar to conduct the evaluation and research into standing stocks of precious timber in Madagascar and the identification of potentially traded species.
- promote the use of a robust and transparent timber legality verification system to make sure that the timber imported from Madagascar and other tropical countries is from a legal source.
- put a strong communications strategy in place to disseminate information on the criminal nature of consuming illegal timber, by highlighting the negative social, environmental and economic impact to the country of origin as well as the criminal activities which have resulted in deterrent penalties.
- revise urgently the National Rosewood Standard in accordance with CITES provisions, which will effectively regulate international commercial trade of CITES-listed species.
- provide technical and financial assistance to Madagascar to reinforce the fight against fraudulent activities in the precious timber trade.

- strengthen information-sharing with Malagasy and transit countries' law enforcement agencies to make sure that illegal shipments can be intercepted in time.
- strengthen bilateral and multilateral co-operation with Madagascar and East Africa in the framework of China-Africa co-operation such as the Forum on China-Africa Cooperation (FOCAC) to raise awareness among Chinese operators and consumers of the need to reject illegal precious timber originating from Madagascar.
- build the capacity of enforcement agencies along China's borders and in the main hubs of Madagascar's timber market on illegal timber detection, identification and confiscation.
- establish specialized units (comprising experts from forestry, botanical, wildlife trade, environmental conservation and timber industry sectors) of CITES within China's Customs agencies in all ports of entry for illegal timber, to provide the expertise required to identify specimens destined for illegal trade and to ensure that all Customs officers at the border have direct communications with relevant specialists on call.

The Government of Madagascar is urged to:

- request formally that China provides technical and financial assistance to strengthen the national initiatives on combating illegal harvest and trade of precious timber, and propose a collaboration MoU with relevant agencies in China, such as the State Forestry Administration.
- instruct its intelligence and investigative services and the financial intelligence service to collaborate with its counterparts in China to investigate the cases of illegal trade in precious timber that involves Chinese citizens, and the money-laundering resulting from trafficking.
- promote the use of forest management, investment and trade guidelines and other voluntary initiatives among the Chinese community in Madagascar to raise awareness of existing national regulations and the duty of foreign investors in Madagascar.

Additional recommendations for other stakeholders:

- conduct an in-depth timber trade analysis from Africa, especially Madagascar to other transit countries, with the intended final destination of China. This timber supply route study should capture the legal and illegal timber trade, including precious timber species, and recommend what each transit country should do to help interdict illegal timber trade.
- consider how consumer behaviour change approaches can be used to help understand and reduce the unsustainable demand for precious timber from Madagascar and elsewhere in Africa, and how consumers can help to ensure sustainable forest management and timber trade.
- consider the potential or active role of e-commerce in driving the trade of timber from Madagascar and other precious timber from Africa in particular, and develop recommendations to monitor, manage and control the trade to stop illegal timber products from being sold online.

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