CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

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ANALYSIS OF THE DEMAND-DRIVEN TRADE IN HONGMU TIMBER SPECIES: IMPACTS OF UNSUSTAINABILITY AND ILLEGALITY IN SOURCE REGIONS

This document has been submitted by the United States of America at the request of the Environmental Investigation Agency (EIA)[*], in relation to agenda item 55 on *Ebonies (*Diospyros *spp.) and palisanders and rosewoods (*Dalbergia *spp.),* agenda item 62 on *International trade in rosewood timber species [LEGUMINOSAE (Fabaceae)]*, and Proposals 53, 54, 55, 56 and 57.

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Acronyms

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora
CoP: Meeting of the Conference of the Parties
EU: European Union
GDP: Growth Domestic Product
IUCN: International Union for Conservation of Nature
SC: CITES Standing Committee
UNODC: United Nations Office on Drugs and Crime
US: United States of America

1. Executive summary

The trade in “hongmu”—precious "red wood" used primarily for antique-style furniture in China—has surged over the past decade. Demand for hongmu in China, most likely the predominant final consumer market,[1] has grown exponentially over the past 15 years, from 144,500 m^3 imported in 2000 to over 2 million m^3 in 2014.[2] After a brief dip in 2015, demand is once again rising in 2016 despite the general economic slowdown in China. Logs account for approximately 80% of overall hongmu imports. Hongmu log imports accounted on average for 10% of Chinese log imports by value from 2009 to 2015.[3] The Chinese hongmu industry has grown in tandem, with boosts from government incentives:[4] in 2014, the industry was composed of 30,000 companies generating domestic retail revenues of over US$25 billion.[5,6] It is also important to highlight the key role of trade and processing hub played by Vietnam. Vietnamese imports of Dalbergia and Pterocarpus species log and sawn wood surpassed 300,000 m^3 in 2014 and 2015, and exports of these species from Vietnam to China reached the same order of magnitude during this period.[7]

Though hongmu was traditionally imported from India and Southeast Asia, Chinese importers have diversified and expanded their sources of wood across Africa, Asia, and the Americas. In total, 88 countries have been engaged with China in the hongmu trade since 2000.[8] In terms of species, available information suggests that *Pterocarpus erinaceus* from West Africa and *Pterocarpus macrocarpus* from Southeast Asia comprise nearly 80% of the global hongmu trade.[9]

As this report shows, demand for hongmu has driven boom and bust cycles in all major producer regions. These cycles are characterized by steep rises in harvest and export volumes from individual countries before a sudden collapse or “bust.” At the climax of the cycle, high market prices lead to unsustainable harvesting, habitat destruction, corruption, smuggling, involvement of organized crime and rebel groups, and violence against enforcement officers and community members. The repetition of the cycles correspond to the rapid relocation of trading networks from one country to the next, following the exhaustion of the species, discovery of a new supply, or to avoid new control measures put in place by governments in response to the level of exploitation. EIA has documented these cycles and accompanying illegal activities in the major producing regions.

With the increasing scarcity of Huang Hua Li (*Dalbergia odorifera*) in China,[10] and heavy restrictions placed on the harvest and export of India’s Red Sandalwood (*Pterocarpus santalinus*) since 2007, following the listing on the Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Siamese Rosewood (*Dalbergia cochinchinensis*/*cambodiana*) quickly became the most sought-after hongmu species globally.[11] Although Siamese Rosewood was listed in Appendix II in 2013, it is now virtually commercially extinct. Extensive smuggling of wood continues, prompting a proposal (Prop. 53) to strengthen the listing with a change to Annotation #4 from Annotation #5 at CoP17. Now the main Southeast hongmu species targeted are Padauk (*Pterocarpus macrocarpus*/*pedatus*) and Burmese Rosewood (*Dalbergia oliveri*/*bariensis*), with Laos and Myanmar providing most of the supply. Both species urgently need CITES protection (See Prop. 55 on listed Dalbergia spp. in Appendix II). The role of Vietnam

In 2010, West Africa was a marginal supplier of rosewood to China. Five years later, and after a series of boom and bust cycles affecting multiple countries, exports of logs and sawn wood have increased more than 1,000-

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[1] *Based on the investigations carried out by EIA on hongmu supply chains over the past ten years, as well as the literature (reports, scientific and media articles) cited in this report. As a testament of the country’s predominance in the consumer market, it is widely recognized that China is the only country with a customs code for “hongmu”.*

[2] *EIA, 2016 based on Chinese customs data, obtained from the Global Trade Atlas (GTA). Hongmu log imports correspond to HS code 44039930, Padauk in the rough. Hongmu sawn imports were calculated based upon HS code 44079910, which corresponds to sawn hongmu, nanmu, and camphor wood, but in fact is comprised nearly entirely of hongmu.*

[3] EIA, 2016 based on Chinese customs data, obtained from GTA.

[4] *EIA, 2016. The Hongmu Challenge. London/Washington. A briefing for the 66th meeting of the CITES Standing Committee, January 2016.*

[5] *China Redwood Committee. 2015. China Hongmu Industry Development Plan for 2015-2025 [draft, March 2015].*

[6] *See: http://collection.sina.com.cn/jjhm/hmsc/20150525/1456187759.shtml [accessed September 19, 2016]*

[7] *Senegal, 2016a. Global Status of Dalbergia and Pterocarpus rosewood producing species in trade. CoP17 Inf.48. Document prepared by Global Eye and submitted by Senegal.*

[8] *Ibid.*

[9] *Based on the analysis of the Chinese customs data, as well as recurrent collection/analysis of field investigation in both West Africa and Southeast Asia over the past two years.*

[10] *The species was identified as “threatened” by the International Union for Conservation of Nature (IUCN) in 1998.*

[11] *EIA. 2014. Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong. London, U.K.*

fold.[12] West Africa is now the world's leading hongmu-producing region by volume, accounting for 84% by volume of all hongmu log export to China in the second quarter 2016.[13] The main species is *Pterocarpus erinaceus*, known as "kosso", found in the fragile dry forests of West Africa, where unsustainable harvest increases the risk of desertification.[14] The first signs of overexploitation of the populations of *Pterocarpus erinaceus* have been described in several countries in the region, including Benin,[15] Burkina Faso,[16] Ghana [17] and Togo.[18] In Senegal's Casamance region, the rosewood trade has fueled rebel groups' activities, through the smuggling of large quantities of kosso to neighboring Gambia.[19,20] While Gambia is one of the smallest countries in Africa with little forest resources left, it was China's fourth largest hongmu supplier in the first quarter of 2016. Senegal listed *Pterocarpus erinaceus* in Appendix III in early 2016, but given the severity of unsustainable harvesting across the region, eight other range States have supported Senegal's initiative and co-sponsored a proposal (Prop. 57) to list the species in Appendix II at CoP17.[21]

Although the reported export volume from Central America represents a fraction of the global hongmu trade, the region has several Dalbergia species with very limited distributions that are particularly vulnerable to overexploitation. The CITES listing of 4 hongmu species accompanied by major law enforcement crackdowns on the trade has obliged the "wood mafia"[22] to diversify their smuggling routes (in particular from Guatemala to El Salvador and Honduras), targeting the remaining natural populations located in protected areas or remote indigenous lands.[23] With the reduction of revenues from cocaine, organized criminals have been attracted by the high returns, low risks, and ability to launder money that rosewood trade offers.[24,25] According to authorities involved in the ongoing investigation on illegal logging and related trade, misdeclarations of CITES listed hongmu as non-listed lookalike species, forgery of export permits and the collaboration of corrupt officials have multiplied in recent months in Guatemala.[26] All known shipments were destined for China,[27] including Hong Kong.[28] The proposal to include the genus Dalbergia in Appendix II (Prop. 55) at CoP17 is essential to addressing such violations and exploitation.

On the eve of the 17th meeting of the CITES Conference of the Parties, only eight hongmu species are listed in the CITES Appendices.[29] Because most hongmu species are not protected under CITES, and because the

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[12] *EIA, 2016 based on Chinese customs data, obtained from GTA.*

[13] *EIA, 2016, based on Chinese Customs Data*

[14] *See: https://cites.org/sites/default/files/eng/cop/17/prop/060216/E-CoP17-Prop-57.pdf [accessed September 19, 2016]*

[15] Glèlè, K. R. L. et al. 2008. *Étude dendrométrique de Pterocarpus erinaceus Poir. des formations naturelles de la zone soudanienne au Bénin*. Agronomie africaine,20 (3) : 245-255.

[16] *Ouedraogo, A., et al. 2006. Diagnostic de l'état de dégradation des peuplements de quatre espèces ligneuses en zone soudanienne du Burkina Faso. Sécheresse, 17 (4) : 485-491; Sawadogo, L. 2006. Adapter les approches de l'aménagement durable des forêts sèches aux aptitudes sociales, économiques et technologiques en Afrique. Le cas du Burkina Faso. CIFOR, Bogor ; Devineau, J.L., 1999. Seasonal rhythms and phenological plasticity of savannah woody species in a follow farming system (southwest Burkina Faso), J. Trop. Ecol. 15 (1999) 497–513.*

[17] *Dumenu, W. K. and W. N. Bandoh. 2014. Situational Analysis of Pterocarpus erinaceus (Rosewood): Evidence of Unsustainable Exploitation in Ghana? First National Forestry Conference 16-18 September 2014, Kumasi.*

[18] Adjonou (*Op. cit.*) ; Kokou, K. et al. 2009. *Impact of charcoal production on woody plant species in West Africa: A case study in Togo*. Scientific Research and Essay, 4 (8): 881-893.

[19] Gueye, B.S. 2015. *Illegal logging and trade of rosewood: case study of Senegambia*. Presentation by Babacar Salif Gueye, Ministry of Environment, Senegal to Chatham House Illegal Logging Stakeholder Update Meeting, 25th June 2015.

[20] *See: http://www.lemonde.fr/afrique/article/2016/05/26/les-saigneurs-du-vene_4926559_3212.html [accessed September 19, 2016]*

[21] *See: https://cites.org/sites/default/files/eng/com/pc/22/Inf/E-PC22-Inf-13_0.pdf [accessed September 19, 2016]*

[22] *See: http://www.insightcrime.org/news-briefs/high-exotic-wood-prices-driving-illegal-logging-in-panama [accessed September 19, 2016]*

[23] *See: http://www.insightcrime.org/news-briefs/nicaragua-timber-trafficking-major-problem-in-centams-largest-forest-reserve [accessed September 19, 2016]*

[24] *See: http://connectas.org/codicia-sobre-el-rosul-mafia-saquea-tesoro/ [accessed September 19, 2016]*

[25] *EIA. 2016. Unpublished source.*

[26] *Ibid.*

[27] *See: http://www.prensalibre.com/guatemala/peten/persiste-trafico-de-maderas-preciosas [accessed September 19, 2016]*

[28] *EIA. 2016. Unpublished source.*

[29] *Dalbergia cochinchinensis, Dalbergia granadillo, Dalbergia nigro, Dalbergia louvelii, Dalbergia retusa, Dalbergia stevensonii, Pterocarpus erinaceus, and Pterocarpus santalinus.*

main consumer country, China, and the key trade and processing hub Vietnam, do not prohibit the import of illegally harvested and/or traded timber,[30] illegal wood of these species is legally placed on the markets there.

Parties to CITES need to recognize the severity of the threat and support proposals to protect any hongmu species, and lookalike or replacement species, in the CITES Appendices.

At CoP17, EIA calls on all CITES Parties to support the following proposals:

- Proposal 53: Amendment of #5 to #4 for listing of *Dalbergia cochinchinensis*;
- Proposal 54: Inclusion of 13 timber species of genus *Dalbergia*, native to Mexico and Central America, in Appendix II;
- Proposal 55: Genus listing of *Dalbergia* species in Appendix II;
- Proposal 56: Inclusion of *Guibourtia tessmannii*, *pellegriniana* and *demeusei* in Appendix II;
- Proposal 57: Transfer of *Pterocarpus erinaceus* from Appendix III to Appendix II.

Given its current importance in the international hongmu trade and given that no specific proposal have been submitted at CoP17 to list *Pterocarpus macrocarpus/pedatus* (Burmese Rosewood), it is essential that Parties support any proposal put forward following CoP17 to list this species, preferably on Appendix II. Depending on the outcome of Prop.54, Parties should also support any proposal to list *Dalbergia oliveri/bariensis*, also on Appendix II, after CoP17.

EIA calls on China and Vietnam to:

- Implement CITES regulations related to the amendment of appendices adopted at CoP17 and report results;
- Institute and implement mandatory laws that strictly prohibit the placement of illegal timber on their markets, regardless of origin.

[30] *Hoare, A. 2015. Tackling Illegal Logging and the Related Trade What Progress and Where Next? Chatham House Report. London.*

2. Introduction

The lack of regulation and enforcement of the international trade in rosewood timber species presents an urgent conservation challenge for CITES and its Parties.

The speed and unpredictability of demand-driven boom and bust cycles in producing countries, and the flexibility of trading networks have taken national authorities off-guard. When specific national regulations are passed and enforced, they frequently come too late, or are undermined by collaboration between smugglers and corrupt officials.

Outside of CITES, most importing countries lack a legal basis for refusing wood that was harvested or traded in violation of source country regulations. The United States of America's (US) Lacey Act,[31] the European Union's (EU) Timber Regulation,[32] and the Australian Illegal Logging Prohibition Act[33] all prohibit the import of any illegal timber and set fundamental international standards for timber trade. However, they remain powerless faced with the demand for rosewood, and particularly for "hongmu" (see definition below), timber species since the two main destination markets are China and Vietnam.

This state of affairs and the transnational nature of the trade and smuggling networks have driven more and more Parties to turn to CITES for support. Today, eight of the thirty-three officially recognized hongmu species are listed on the Appendices of the Convention. The vast majority of the unsustainable and illegal trade in hongmu is not yet regulated by CITES.

The trade in hongmu species will be at the heart of the agenda of the seventeenth meeting of the Conference of the Parties (CoP17) in Johannesburg from September 24th to October 5th, 2016. Five proposals to amend Appendix I and II, including annotation, will be considered (see CoP17 Prop. 53, 54, 55, 56 and 57). A specific plenary discussion will focus on the "International trade in rosewood timber species" (Doc. #62) and another on the Ebonies (*Diospyros* spp.), palisanders and rosewoods (*Dalbergia* spp.)" (Doc. #55). At CoP17, Parties will have the opportunity to reverse the deleterious effects of the hongmu trade around the world by taking measures to more effectively regulate its trade.

3. "Hongmu" in brief

What is hongmu?

Thirty-three species of Cassia, Dalbergia, Diospyros, Millettia and Pterocarpus genera (Table 1) are identified as hongmu species by China's 2000 National Hongmu Standard. [34] Meaning "red wood" in Chinese ("红木"), the term hongmu refers to a range of richly hued, durable tropical hardwoods—ebonies, rosewoods, and palisanders—used to produce high-end reproduction furniture, flooring and handicrafts. The predominant demand side country and final consumer market for hongmu products is China. Available data indicates that China domestic market alone may consume more than 90% of the final hongmu products.[35] And in fact, China is the only country with a specific import code for hongmu logs, a testament to the importance of the commodity.[36] Vietnam plays nonetheless an important role as hongmu trade and processing hub. The country imported more than 300,000 m^3 of Dalbergia and Pterocarpus species log and sawn wood in 2014 and 2015,[37] and exported nearly the same volume of wood of these species to China during this period.[38]

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[31] *See: https://www.fws.gov/International/laws-treaties-agreements/us-conservation-laws/lacey-act.html [accessed September 19, 2016]*

[32] *See: http://ec.europa.eu/environment/forests/timber_regulation.htm [accessed September 19, 2016]*

[33] *See: http://www.agriculture.gov.au/forestry/policies/illegal-logging [accessed September 19, 2016]*

[34] State Forestry Administration of China. 2007. Available from: http://www.forestry.gov.cn/portal/main/s/525/content-104951.html [accessed September 19, 2016] and hongmu national standard (2000) of China, GB/T 19107-2000.Available from: http://peach.forestry.gov.cn/u/cms/www/201404/04125611g8yw.pdf [accessed September 19, 2016]

[35] This evaluation has been extrapolated to global level based on anecdotal data collected at the national level suggesting the same pattern is shared in Southeast Asia, West Africa and Central America.

[36] *HS Code 44039930, "Padauk in the rough".*

[37] *Senegal, 2016a. Global Status of Dalbergia and Pterocarpus rosewood producing species in trade. CoP17 Inf.48. Document prepared by Global Eye and submitted by Senegal.*

[38] *Ibid.*

Though there is some overlap, "hongmu" and "rosewood" are not entirely equivalent terms. "Rosewood" is sometimes used as a broad trade term referring to a number of species used in fine furniture manufacture.[39] Generally, rosewood refers to tropical hardwood species, mostly from the Dalbergia genus, found mainly in Africa, Asia and Latin America. Like hongmu, rosewood is often richly hued and also fragrant. However, not all 250 Dalbergia species yield rosewood, and those that do yield wood that varies greatly in color and quality.[40] In contrast, "hongmu" is a well-defined category, and includes, but is not limited to, certain Dalbergia species, including rosewoods.

Table 1. The 33 species included in China's National Hongmu Standard (2000), grouped into regional distributions

Species name	Common/trade names	CITES listing (year listed)
Africa		
Dalbergia louvelii	Violet Rosewood, Bois de Rose	Appendix II (2013)
Dalbergia melanoxylon	Africa Blackwood	
Diospyros crassiflora	African ebony, Gabon Ebony	
Millettia laurentii	Wenge, Bokonge, Awoung	
Pterocarpus erinaceus	Kosso, African Barwood, African Kino	Appendix III (2016)
Americas		
Dalbergia cearensis	Kingwood	
Dalbergia frutescens	Brazilian Tulipwood	
Dalbergia granadillo	Cocobolo	Appendix II; annotation #6 (2013)
Dalbergia nigra	Brazilian Rosewood	Appendix I (1992)
Dalbergia retusa	Cocobolo	Appendix II; annotation #6 (2013)
Dalbergia spruceana	Amazon Rosewood	
Dalbergia stevensonii	Honduras Rosewood	Appendix II; annotation #6 (2013)
Asia		
*Cassia siamea*****	Siamese Senna	
*Dalbergia bariensis***	Burmese Rosewood, Tamalan	
Dalbergia cochinchinesis/cambodiana	Siamese Rosewood	Appendix II; annotation #5 (2013)
Dalbergia cultrata	Burmese Blackwood,	
Dalbergia fusca	Black Rosewood, Yinzat	
Dalbergia latifolia	Indian Rosewood,	
Dalbergia odorifera	Huang Hua Li, Fragrant Rosewood	
*Dalbergia oliveri***	Burmese Rosewood, Tamalan	
Pterocarpus santalinus	Red Sandalwood	Appendix II; annotation #7 (2007)
*Diospyros discolour****	Kamagong	
Diospyros ebenum	Ceylon Ebony	
*Diospyros philippensis****	Kamagong	
Diospyros pilosanthera	Bolong-eta	
Diospyros poncei	Ponce's Kamagong	
Millettia leucantha	Sothon/Sathon	
*Pterocarpus cambodianus**	Vietnamese Padauk, Th'nong	
Pterocarpus dalbergioides	Andaman Padauk, Andaman Redwood	
Pterocarpus indicus	Malay Padauk, Amboyna, Burmacoast Padauk,	
*Pterocarpus macrocarpus**	Padauk, May Dou	
Pterocarpus marsupium	Malabar Kino, Indian Kino Tree	
*Pterocarpus pedatus**	Padauk, Th'nong	

Pterocarpus cambodianus* and *P. pedatus* are synonyms of *P. macrocarpus*; ** *Dalbergia bariensis* is a synonym of *D. oliveri*; * *Diospyros philippensis* is a synonym of *D. discolour*; **** *Cassia siamea* is a synonym of *Senna siamea*.

[39] *Chatham House Workshop: Tackling the Trade in Illegal Precious Woods 23-24 April 2012. Precious Woods: Exploitation of the Finest Timber. Document prepared by TRAFFIC.*

[40] Guatemala. 2016. Inclusion of the genus Dalbergia in CITES Appendix II without annotation, with the exception of the species included in Appendix I. CoP17 Prop.55.

Source: EIA, 2016, based on China's National Hongmu Standard (2000)

An industry of antique reproductions

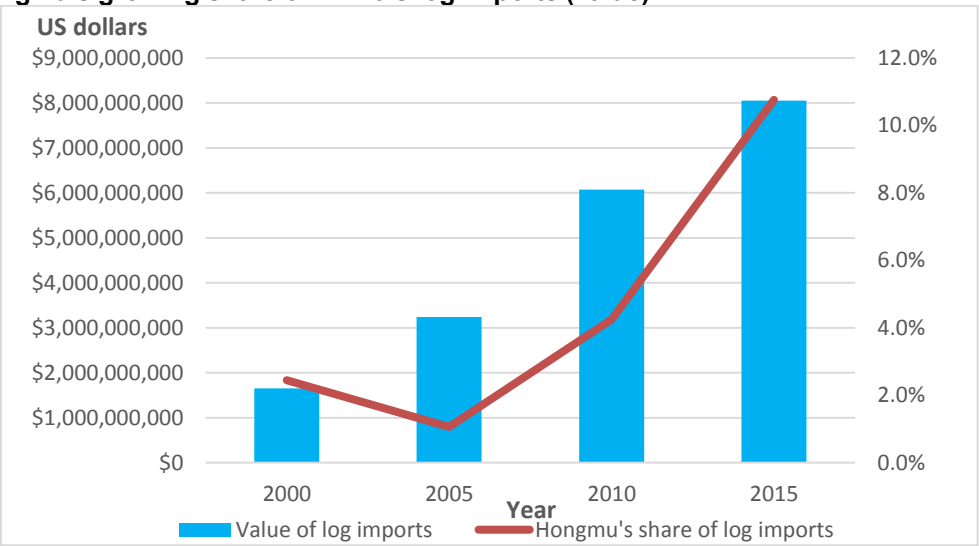
While rosewood furniture has been crafted in China for centuries, the market has transformed dramatically in both scope and scale in the last five years. Traditionally, only royalty and elites in China were privileged to own hongmu, with wood sourced from India and Southeast Asia.[41] In recent years China's growing middle class has driven up demand, usually for low to mid-range hongmu species, resulting in industrial-scale mass production. Rapid growth has created a poorly structured market with little regulation.[42] In addition to rising incomes and the high status attached to owning hongmu objects, a large driver of Chinese demand since 2009 has been market speculation: given its high demand and diminishing supply, hongmu is widely seen as a sound investment opportunity.[43]

A lucrative and heavily subsidized sector

Hongmu production is one of the fastest growing sectors of the Chinese timber industry (figure 1) and has benefited from generous government incentives[44]. At the central, provincial, and local levels, the Chinese government have encouraged and endorsed the expansion of the hongmu industry to generate employment, tax revenues, and wider economic growth. By 2014, over one million people in 30,000 Chinese companies were generating over US$25 billion in domestic hongmu revenues.[45]

In 2008, to mitigate effects of the financial crisis, the government passed a stimulus package that contained measures to boost the real estate sector.[46] In 2014, State officials attended the establishment of a hongmu trading center under the China Forestry Exchange.[47] The same year, the government of Pingxiang provided financial rewards and tax incentives aiming to help 100 hongmu companies attain over US$1.5 million turnover within five years[48], and local branches of State-owned banks financed a sprawl of hongmu industrial parks across China's coastlines and border cities, particularly adjacent to major supply sources such as Myanmar, Laos and Vietnam.[49]

Figure 1. Hongmu's growing share of China's log imports (value)



Source: EIA, 2016 based on Chinese customs data, obtained from the Global Trade Atlas (GTA)

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[41] *See: http://www.chinaweekly.cn/bencandy.php?%20fid=63&id=7537. [accessed September 19, 2016].*

[42] *China Redwood Committee. 2015. China Hongmu Industry Development Plan for 2015-2025.*

[43] EIA. 2014. *Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong*. London, U.K.

[44] *EIA, 2016. The Hongmu Challenge. London/Washington. A briefing for the 66th meeting of the CITES Standing Committee, January 2016.*

[45] *See: http://collection.sina.com.cn/jjhm/hmsc/20150525/1456187759.shtml [accessed September 19, 2016].*

[46] Basik Treanor. 2016. *China's Hongmu Consumption Boom: Analysis of the Chinese Rosewood Trade and Links to Illegal Activity in Tropical Forested Countries*. Forest Trends.

[47] *See: http://www.chinaforest.com.cn/world/1150.htm [accessed September 19, 2016].*

[48] *See: http://www.pxszf.gov.cn/zhaoshangyinzi2/2014-10-28/7138.html [accessed September 19, 2016].*

[49] *Congzuo News. China Construction Bank injects vitality into Congzuo's Hongmu industry. Dec, 2014. Available from: http://www.czslycy.com/Item/981.aspx and China Classic Furniture Website. Pingxiang Hongmu industry supported by loans from China Agriculture Bank. Dec, 2013. Available from: http://www.328f.cn/NEWS/news.aspx?id=2797 [accessed September 19, 2016].*

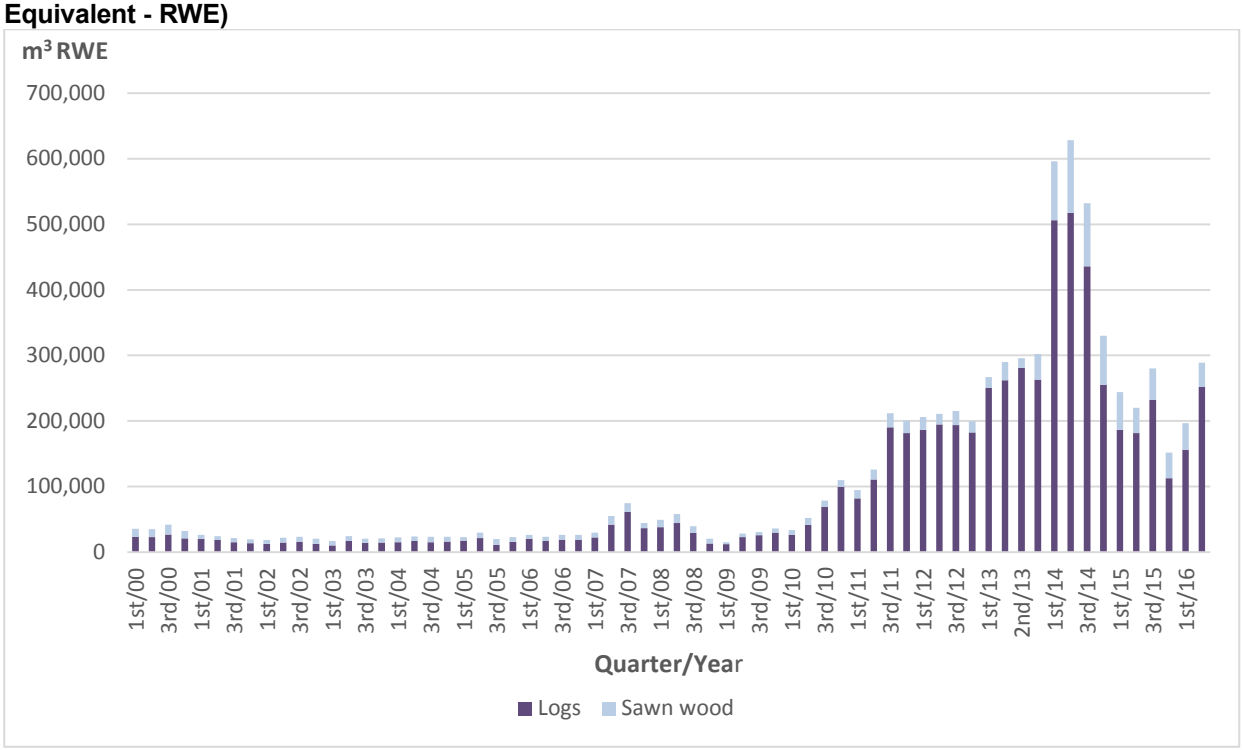
4. Overview of the International Trends

Skyrocketing growth

The overwhelming trend in the past ten years has been the growth in demand for hongmu logs and timber products. Chinese hongmu imports in particular have drastically increased both in value and volume, and the sources of these imports have expanded and diversified.

Since 2005, log imports have risen more than 65 times in value and 26 times in volume, from 66,000 m^3 in 2005 worth US$34.3 million to a peak of 1.7 million m^3 worth US$2.2 billion in 2014.[50] Between 2009 and 2014, log imports increased by 1,300% and accounted on average for 10% of Chinese log imports by value.[51]

Figure 2. Evolution of the hongmu logs and sawn wood imports by China (by volume, m^3 Round Wood Equivalent - RWE)

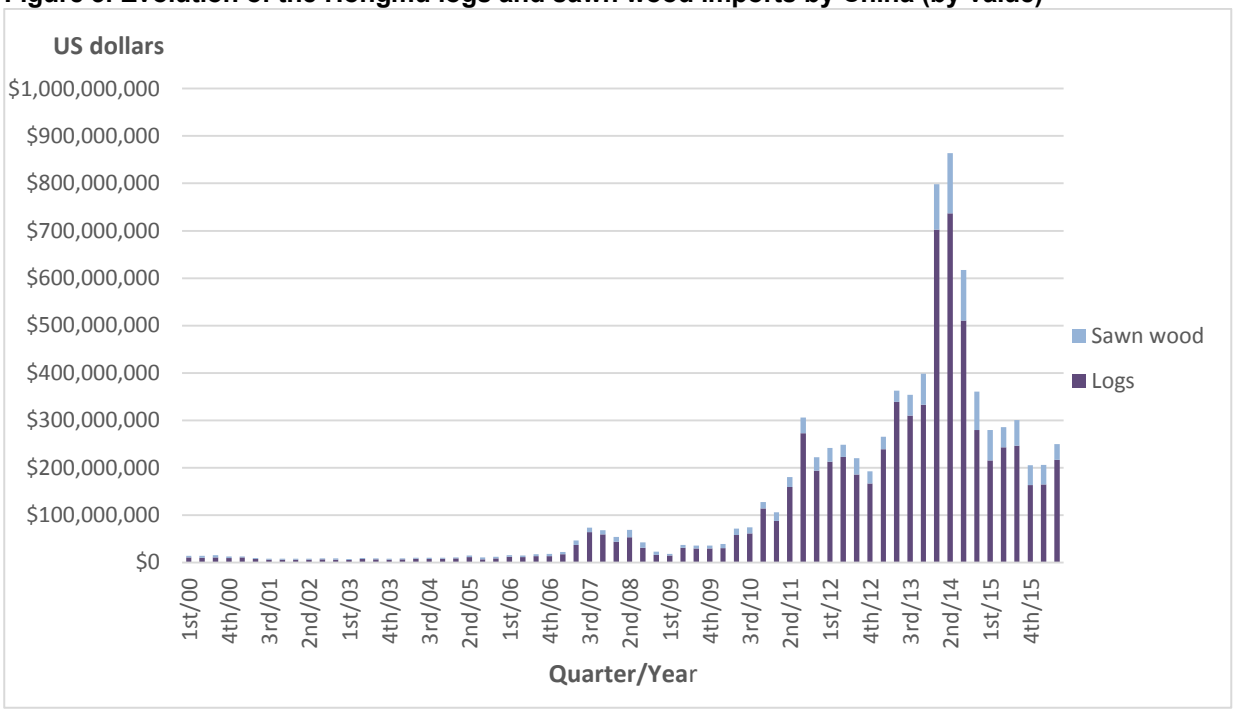


Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

[50] *EIA, 2016 based on Chinese customs data, obtained from the Global Trade Atlas (GTA).*

[51] *Ibid.*

Figure 3. Evolution of the Hongmu logs and sawn wood imports by China (by value)



Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

Although China's hongmu imports declined in 2015, the overwhelming trend since 2009 is of exponential growth (figure 2 and 3).[52] Data for the first half of 2016 implies that the trade is progressively recovering from the slowdown of the previous year. The vast majority of hongmu imported in China —80% in 2015, in volume— are logs, despite the fact that many producer countries have policies to encourage domestic timber processing in order to add value and create employment.

Regional trends: expansion and replacement

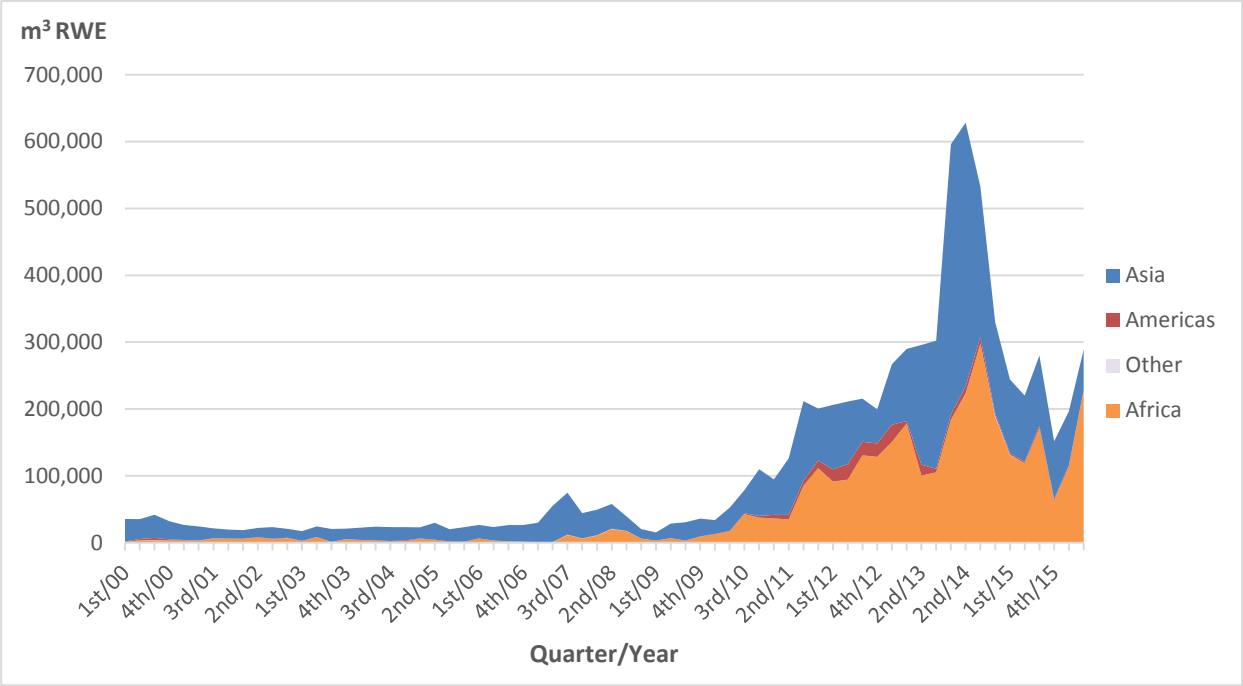
In order to meet growing demand, Chinese importers based primarily in Guangzhou, Shanghai and Zhangjiagang,[53] have continuously diversified their sources of wood across Africa, Asia and the Americas. As a result, the number of countries exporting hongmu to China has increased from 26 countries in 2000 to 42 countries as of the second quarter of 2016. In total, more than 85 producing countries have been engaged with China in the hongmu trade since 2000.[54]

[52] *Ibid.*

[53] Wenbin, H. and Xiufang, S. 2000. *Tropical Hardwood Flows in China: Case Studies of Rosewood and Okoumé*. Forest Trends.

[54] *EIA, 2016 based on Chinese customs data, obtained from the Global Trade Atlas (GTA).*

Figure 4. Evolution of hongmu imports, logs and sawn timber, by producing region (by volume)



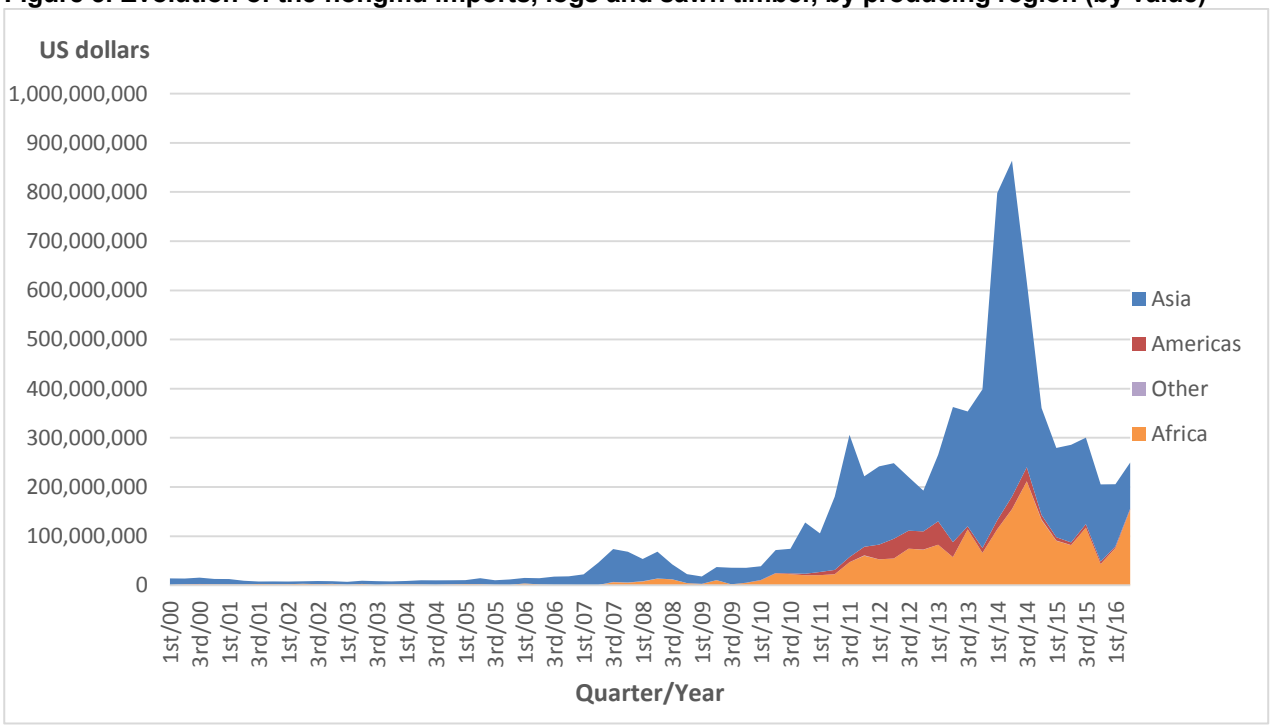
Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

Traditionally, Southeast and India were the main sources of hongmu, but in recent years West Africa as well as Central America have become increasingly important exporter regions. This regional diversification and replacement has largely been in response to rapidly dwindling stocks of Asia's hongmu species, the increasing globalization of trade and the raising demand from China's growing middle class for more affordable hongmu species.

While Asia has some of the rarer and therefore more valuable hongmu species, exports from Africa have competed with Asia by volume and value since 2010. Africa has been China's biggest hongmu supply region since the end of 2014, contributing more than 80% of China's imports by volume in 2016 (figure 4). Asia remains the largest source region by value (figure 5). In 2014 and 2015, approximately 98% of all of China's hongmu imports, by volume and value, were from Africa and Asia.

In terms of species, available information suggests that *Pterocarpus erinaceus* from West Africa (see section 6), and *Pterocarpus macrocarpus* from Southeast (see section 6) comprise nearly 80% of the global hongmu trade.

Figure 5. Evolution of the hongmu imports, logs and sawn timber, by producing region (by value)



Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

A conservative appreciation of the international trade flows

Available information regarding international seizures of illegal rosewood logs or timber products indicate that officially reported trade volumes represent, at least for some countries, only a fraction of the volume actually traded.[55,56]

The case of Madagascar illustrates how the true extent of hongmu trade can be vastly understated by official reported amounts. While official trade data show that direct imports into China have ceased almost completely since August 2012, Chinese traders admit that smuggled rosewood continues to enter the country,[57] and numerous seizures of China-bound Malagasy rosewood shipments indicate that despite the international embargo in place since 2013, the trade continues. Six seizures in transit countries during the first half of 2014 netted nearly 40,000 logs of illegal Malagasy wood seized outside of the Grande Ile.[58] As the Malagasy case demonstrates, the use of the official data (trade data, customs data) as primary source of information to harness trade trends structurally provides a conservative vision of the international timber flows.

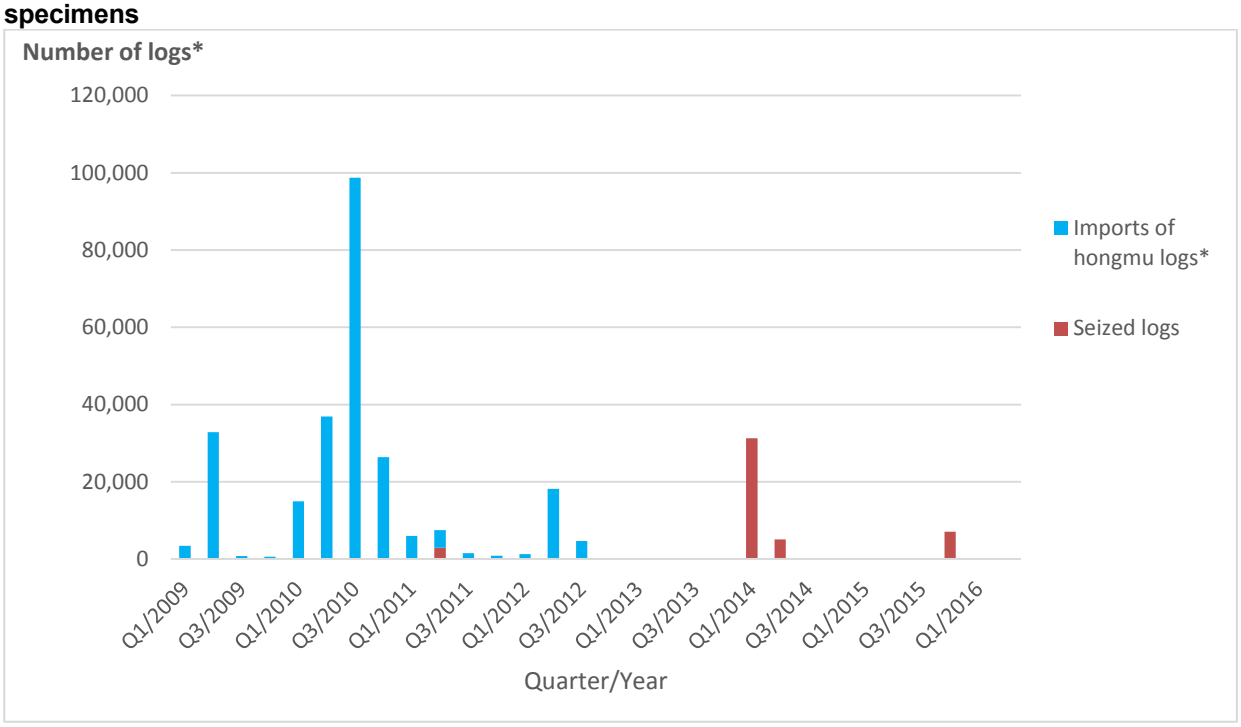
[55] *UNODC. 2016. World Wildlife Crime Report. Vienna.*

[56] *Great Britain Parliament. House of Commons: Environmental Audit Committee. 2013. Wildlife Crime: Third Report of Session 2012-2-13. Vol.1.*

[57] *EIA. 2016. Time for Action: An EIA briefing on illegal logging & related trade of precious woods for CITES SC66. London/Washington DC.*

[58] *CITES. 2015a. Report of the Secretariat. PC22 Doc. 17.3.1; CITES. 2015b. Report of the Secretariat. SC66 Doc. 46.1.*

Figure 6. China's declared imports of hongmu from Madagascar and seizures of Malagasy hongmu specimens



Note: **based on an average log size of 0.125m*^{3}
Source: EIA, 2016 based on UN Comtrade data

5. Trend analysis: the boom and bust cycles

Boom and bust pattern

The soaring demand for hongmu has triggered "boom and bust"[59] cycles all around the world, characterized by distinct phases. The first phase involves marginal levels of trade between the source country and China. The second phase presents a sudden and sharp increase of the imports registered, with increases from one year to another frequently more than doubling. This phase corresponds to a radical acceleration in the harvest of hongmu species in the source country, with prices usually soaring. After the exploding demand reaches its climax, the volume traded between the producing country and the demand country usually decreases rapidly. The main reasons for the rapid shift between source countries are the rarefaction of the resource, the discovery of new supply in another country, and/or new laws and stronger enforcement in producing countries to counter depletion of their forest resources. The implementation of a new CITES listing is another important factor. Following sections describe the regional boom and bust cycles in the context of Central America, Southeast Asia, and West Africa.

An important aspect of these successive boom and bust cycles is the speed of the exploitation and trade; which pose a formidable regulatory challenge for international mechanisms such as CITES, let alone for individual national authorities.

Unsustainability

There is limited data on forest stocks of hongmu species in nearly all range states, making it difficult to gauge the ecological impacts of trade.

Myanmar, however, provides one startling example – based on estimates of standing stocks of *Pterocarpus macrocarpus* and *Dalbergia oliveri* and trade trends, both species are predicted to become commercially extinct in the wild within the next three to thirteen years.[60] Another example concerns *Dalbergia cochinchinensis* (Siamese rosewood). Thailand is the only range state to have estimated standing stocks, recorded at 63,500 m^3 in 2011. Data for populations elsewhere are unknown, but the species is considered extremely rare and under threat.[61] The CITES Trade Database indicates that CITES-certified trade of just Laos and Cambodian origin stocks from June 2013 to December 2014 exceed this amount, with a combined permitted trade of 76,391 m^3.[62] Chinese imports from Laos alone over just the eighteen months following the CITES CoP16 listing of the species equaled the volume of Thailand's 2011 standing stocks. Even with CITES protection, the species remains under extreme threat of extinction in the wild.

Overexploitation of tropical timber species for hongmu trade is also being intensely felt throughout West Africa. Due to the various local utilizations of wood and despite the resilience of the species, the first signs of overexploitation of the populations of *Pterocarpus erinaceus* have been described in several countries in the region, including Benin,[63] Burkina Faso,[64] Ghana [65] and Togo.[66] However, while acknowledging the importance of this multi-purpose species, many range states do not have adequate information on the current state of its populations in order to develop appropriate management strategies for the resource.

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[59] *Rodrigues, A. S. L. et al. 2009. Boom-and-Bust Development Patterns Across the Amazon Deforestation Frontier. Science 324, 1435 (2009).*

[60] EIA. 2015. Unpublished analysis based on: 2011 standing stock estimates by MOECF (Myanmar), 2015 estimates of proportional trade volumes by China's South-west Forestry University and Chinese Customs Data.

[61] *EIA. 2016. Red Alert: How fraudulent Siamese rosewood exports from Laos and Cambodia are undermining CITES protection, London.*

[62] *Ibid.*

[63] Glèlè, K. R. L. et al. 2008. *Étude dendrométrique de* Pterocarpus erinaceus Poir. *des formations naturelles*

de la zone soudanienne au Bénin. Agronomie africaine,20 (3) : 245-255.

[64] *Ouedraogo, A., et al. 2006. Diagnostic de l'état de dégradation des peuplements de quatre espèces ligneuses en zone soudanienne du Burkina Faso. Sécheresse, 17 (4) : 485-491; Sawadogo, L. 2006. Adapter les approches de l'aménagement durable des forêts sèches aux aptitudes sociales, économiques et technologiques en Afrique. Le cas du Burkina Faso. CIFOR, Bogor ; Devineau, J.L., 1999. Seasonal rhythms and phenological plasticity of savannah woody species in a follow farming system (southwest Burkina Faso), J. Trop. Ecol. 15 (1999) 497–513.*

[65] *Dumenu, W. K. and W. N. Bandoh. 2014. Situational Analysis of Pterocarpus erinaceus (Rosewood): Evidence of Unsustainable Exploitation in Ghana? First National Forestry Conference 16-18 September 2014, Kumasi.*

[66] Adjonou (*Op. cit.*) ; Kokou, K. et al. 2009. *Impact of charcoal production on woody plant species in West Africa: A case study in Togo*. Scientific Research and Essay, 4 (8): 881-893.

The harvesting of *Pterocarpus erinaceus* from vulnerable savannah ecosystems is increasing the risk of desertification and depriving local communities of a resource traditionally used for fuel, construction, musical instruments, traditional medicine and animal fodder.[67]

Records from Central America also confirm the boom and bust cycle of native timber species toward resource exhaustion. According to the IUCN Red List,[68] *Dalbergia retusa* is ranked "endangered". The hongmu species *Dalbergia retusa* was used to be distributed in the South Pacific coastal planes of Guatemala.[69] Recent census results have shown that the status of the species is critical: only one population (of 48 trees) has been found.[70] Available information suggests that the wild populations of *Dalbergia stevensonii*, another hongmu species, are likely to be severely diminished as a result of unsustainable selective logging, and conversion of forest to agro-pastoral uses.[71]

The impacts of the unsustainable harvest reach far beyond one particular hongmu species, as it results in the degradation of fragile ecosystems and important natural habitats. In Madagascar, despite banning logging in 2006, a complete embargo on exports since 2010 and CITES Appendix II listings in 2013, illegal logging and smuggling of high-value *Dalbergia* spp. and *Diospyros* spp. is catalyzing broader ecosystems disturbances. Logging gangs often poach endangered wildlife (including the island's famous lemurs) for either subsistence while in the forest or sale in illegal wildlife markets. For every rosewood log harvested, numerous lighter weight trees are used to float log rafts out of the forest. As a result, the rosewood trade is directly degrading Madagascar's unique tropical forest ecosystems.

Illegalities

Crime is pervasive in logging and related trade for the hongmu market. At the climax of a boom and bust cycle, sky-high market prices lead to "whatever it takes" procurement of precious woods. As a result, the majority of the international hongmu trade should be considered illegal.[72]

In order to curb widespread deforestation and forest degradation, and retain greater control over resources in trade, source countries have adopted log export bans or timber export ban/moratorium. However, these regulations are routinely violated. Log export bans are in place in most of the top 15 hongmu log producing countries registered in the Chinese customs data in 2015 (Table 2).

Harvest bans are routinely violated in many source countries as well.[73] Illegal logging is a particularly serious wildlife crime, since it impacts not just a particular species but entire habitats. Trees are frequently harvested in contravention of forest and environmental laws meant to protect fragile remaining stocks.[74] In many regions, the overexploitation of the resource has pushed loggers deeper into protected areas and indigenous lands. This is particularly the case in Southeast Asia and Central America.[75,76]

Smuggling across borders to evade countries' logging regulations, trade regulations, and taxes, is a common practice for hongmu traders. Smuggling routes have been consistently reported in the three main producing regions: Central America (El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama),[77, 78, 79]

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[67] *Karou. D., et al. 2005. Antimalarial activity of Sida acuta, Burm F.(Malvaceae) and Pterocarpus erinaceus poir. (Fabaceae). J. Ethnopharmacol. (2005) 89: 291-294. ; Ouedraogo, A., et al. 2006. Diagnostic de l'état de ressources génétiques forestières du Togo. Atelier sous-régional FAO/IPGRI/ICRAF sur les ressources génétiques forestières.*

Document FGR/13F. Département des forêts. FAO, Rome ; Anderson, J., et al. 1994. Le fourrage arboré à Bamako: production et gestion des arbres fourragers, consommation et filières d'approvisionnement. Sécheresse n°5:99–105 ; K.N. Segla, et al. 2014. Variation de la densité et la couleur du bois de Pterocarpus erinaceus (Poir) en fonction des conditions environnementales en Afrique de l'Ouest. Conférence Matériaux 2014, Montpellier.

[68] *See IUCN Red List available at: http://www.iucnredlist.org/ [accessed September 19, 2016].*

[69] *Standley, P.C. and Steyermark, J.A. 1946. Flora of Guatemala. Fieldiana: Botany 24 (6). Chicago Natuarl History Museum.*

[70] *Guatemala. 2016. Op. Cit.*

[71] *Ibid.*

[72] *UNODC. 2016. Op. Cit.*

[73] Hoare, A. 2015. Tackling Illegal Logging and the Related Trade: What Progress and Where Next? Chatham House.

[74] *Basik Treanor, N. 2016. Op. Cit.*

[75] UNESCO. 2015. Decision: 39 Com 7B.17. Dong Phayayen-Khao Yai Forest Complex (Thailand) (N 590rev). Available from: http://whc.unesco.org/en/decisions/6274 [accessed September 19, 2016].

[76] *See: http://www.insightcrime.org/news-briefs/high-exotic-wood-prices-driving-illegal-logging-in-panama [accessed September 19, 2016].*

[77] *Guatemala, 2016. Op. cit.*

Southeast Asia (Laos, Vietnam, Cambodia, Myanmar, Thailand, and China)[80] and West Africa (Burkina Faso, Benin, Gambia, Ghana, Guinea Bissau, Guinea Conakry, Mali, Nigeria, and Togo).[81] In West Africa, the coordination between nine countries in the region over the course of a year, facilitated by INTERPOL, resulted in one of the largest seizures in the history of the fight against illegal logging and related trade, with the equivalent of 216 million dollars of logs seized in November 2015, most of it was hongmu.[82] Myanmar has a long-standing ban on export of logs over the land border with China, making nearly all cross-border trade in rosewood species illegal.

Table 2. Top 15 hongmu log suppliers to China in 2015 (by volume) and log export ban status

Ranking	Country	Log/timber export ban status
1	Nigeria	Active
2	Laos	Active
3	Gambia	None
4	Myanmar	Active
5	Democratic Republic of Congo	None
6	Mozambique	Active
7	Togo	None
8	Guinea Bissau	Active
9	Ghana	Active
10	Benin	Active
11	Cote d'Ivoire	Active
12	Mali	Active
13	Republic of Congo	Active (partial)
14	Vietnam	Active
15	Malaysia	Active (partial)

Source: FAOLEX 2016[83]; Senegal, 2015[84]; UNODC, 2016[85]

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[78] *EIA 2014 Rosewood and the ongoing illegal logging crisis in Belize. Washington DC.*

[79] *See: http://www.insightcrime.org/news-briefs/interpol-wood-trafficking-operation-latin-america [accessed September 19, 2016].*

[80] Guinea Bissau, 2016. Bissau Recommandations, « Comprendre et changer le commerce international: le cas de l'espèce ligneuse *Pterocarpus erinaceus* ». Bissau, Guinea Bissau, 29-31 mars 2016.

[81] Senegal, 2016b. Inclusion of *Pterocarpus erinaceus* in Appendix II, without annotation. CITES Proposal for amendment of the Appendices I or II. CopP17 Prop.57.

[82] *See: http://www.interpol.int/News-and-media/News/2015/N2015-206 [accessed September 19, 2016].*

[83] *Available at: http://faolex.fao.org/ [accessed September 19, 2016].*

[84] *Senegal, 2015. Op. cit.*

[85] *UNODC. 2016. Op. Cit.*

Bribery of authorities occurs at many levels of the supply chain. Local authorities are paid when felling trees contravenes regulations; officials and militaries are paid to transport hongmu logs domestically; customs officials are paid to authorize the export of mislabeled shipments.[86]On some occasions, authorities accept bribes or kickbacks in exchange for manipulating auction processes to "restitute" seized stockpiles of illegal wood to the traffickers.[87] Dubious connections between politicians and hongmu traders are common. In Panama and Madagascar, alleged illegal rosewood traders have been elected to the national assembly in recent years. [88,89] In Ghana, the disappearance of seized rosewood stockpiles casts doubts on the integrity of authorities.[90] In Guinea Bissau, a Minister of Forestry was dismissed amid allegations of his involvement in illegal rosewood trade.[91]

Threat to national security

The boom in hongmu trade has had profound negative impacts on forest governance and even national security.[92] In some countries, notably in West Africa, hongmu species are increasingly known as "blood timbers" due to connections between illegal hongmu trade and rebel uprisings, as in the example of the Senegalese Casamance, and in Cote d'Ivoire.[93,94,95]

Guinea Bissau represents another example of how traders have taken advantage of political instability to deplete forest resources. Over the past twenty years Guinea Bissau has been a fragile state, destabilized by a civil war and several coups. In 2012, when the country collapsed after a military coup, hongmu traders strategically seized the opportunity to secure access to a considerable volume of timber. Chinese log imports from Guinea Bissau increased dramatically in a matter of months, from approximately 500m^3 in 2010 to more than 70,000m^3 in 2014.[96] Asian traders and particularly Chinese, took advantage of the political chaos and their high-level connections in the country, to export hundreds of containers of illegally harvested wood.[97,98]

There is also mounting evidence of connections between the trade in illegal rosewood and the smuggling of narcotics in several source region, particularly Central America.[99]

Violence against enforcement officers and environmental defenders

The considerable profit generated by the illegal trade in hongmu species have driven violent acts against those who stand up against it, government officials and citizens alike. In Thailand, at least ten Thai forest rangers were reportedly killed in shoot-outs with rosewood loggers and smugglers during 2013.[100] Since 2009, up to 50

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[86] EIA. 2012. *Rosewood Robbery, The Case for Thailand of List Rosewood on CITES*. EIA, London; Forest Trends. 2013. *The Socio-Economic Context of Illegal Logging and Trade of Rosewood Along the Cambodian-Lao Border*. Forest Trends Report Series. Washington, DC; Environmental Investigation Agency (EIA)/Global Witness. 2010. *Rapport d'enquête sur le commerce mondial des bois précieux malgaches: bois de rose, ébène et palissandre*. Washington, DC, London; EIA. 2014. *Routes of extinction. The corruption and violence destroying Siamese rosewood in the Mekong*. London; Hance, J. 2012. *Blood rosewood: Thailand and Cambodia team up to tackle illegal logging crisis and save lives*. Mongabay, 11 April 2012; TRAFFIC. 2012. *Precious Woods: Exploitation of the Finest Timber*. Paper presented at the Chatham House Workshop: Tackling the Trade in Illegal Precious Woods, 23-24 April, 2012, UK.

[87] Chatham House Workshop: Tackling the Trade in Illegal Precious Woods 23-24 April 2012. *Producer Country Measures: Lessons in Trade Controls and Enforcement to Facilitate Legal Trade in Precious Woods*. Document prepared by EIA.

[88] *La Estrella de Panama, Los nombres tras el negocio del cocobolo, 13th April 2012; www.panama-guide.com, 'Illegal export of Cocobolo', 29th Jan 2014, citing Prensa Panama.*

[89] *See: http://www.rfi.fr/emission/20151220-ndranto-razakamanarina-president-alliance-environnementale-voahary-gasy-madagascar [accessed September 19, 2016].*

[90] *See: http://allafrica.com/stories/201408252222.html [accessed September 19, 2016].*

[91] *See: https://www.issafrica.org/events/view-on-africa-avoiding-another-deadly-crisis-in-guinea-bissau [accessed September 19, 2016].*

[92] Lawson, S. 2015. The Illegal rosewood boom in West Africa: How Chinese demand is driving conflict, corruption and human rights abuses, Presentation to Chatham House Illegal Logging Stakeholder Update meeting, June 25, 2015.

[93] Gueye, B.S. 2015. Illegal logging and trade of rosewood: case study of Senegambia. Presentation by Babacar Salif Gueye, Ministry of Environment, Senegal to Chatham House Illegal Logging Stakeholder Update Meeting, 25th June 2015; See: http://www.lemonde.fr/afrique/article/2016/05/26/les-saigneurs-du-vene_4926559_3212.html [accessed September 19, 2016].

[94] *See: http://www.lemonde.fr/afrique/article/2016/05/26/les-saigneurs-du-vene_4926559_3212.html [accessed September 19, 2016].*

[95] *UN. 2014. Group of Experts on Côte d'Ivoire, report, S/2014/266, April 14, 2014;*

[96] *See: http://uk.reuters.com/article/uk-bissau-logging-insight-idUKKBN0E10C820140521 [accessed September 19, 2016].*

[97] *See: http://www.reuters.com/article/bissau-logging-idUSL6N0NT6AD20140521 [accessed September 19, 2016].*

[98] *See: http://www.irinnews.org/report/100387/rosewood-plunder-guinea-bissau [accessed September 19, 2016].*

[99] *See: http://connectas.org/codicia-sobre-el-rosul-mafia-saquea-tesoro/ [accessed September 19, 2016].*

[100] *Bangkok Post, 6th November 2013, 'Illegal loggers kill forest ranger'*

Thai park rangers have been murdered, 26 injured, and 23 left in a critical condition.[101] In Madagascar, environmental activists and citizens denouncing hongmu trafficking have been targets of threats, violence, and even prosecution by corrupt institutions[102]. Facing death threats, Augustin Sarovy left Madagascar with his family.[103] Armand Marozafy, an ecotourism guide, was jailed for 5 months for defamation after an expeditious judgment.[104] He was sentenced for sending an email exposing two individuals known to be linked to illegal rosewood logging, though his attorneys maintain he had no part in releasing the email publicly. Facing pressure from the international community, the Malagasy authorities freed Marozafy after five months, but ordered him to pay nearly US $4,000 in fines (three times what Malagasy school teachers make in a year).[105]

[101] *See: http://globalconservation.org/news/park-rangers-frontline-being-killed-astonishing-rate-new-solutio/ [accessed September 19, 2016].*

[102] *EIA. 2016. Time for Action. An EIA briefing An EIA briefing on illegal logging & related trade of precious woods for CITES SC66. Washington, DC.*

[103] *See: http://www.midi-madagasikara.mg/faits-divers/2014/02/18/bois-de-rose-menace-de-mort-augustin-sarovy-se-refugie-en-europe/ [accessed September 19, 2016].*

[104] *http://news.mongabay.com/2015/09/activist-arrested-while-illegal-loggers-chop-away-at-madagascars-forests/*

[105] *http://news.mongabay.com/2015/09/natureguidefreedinmadagascar5monthsafterarrestforexposingrosewoodtrade/*

6. Regional Sources of Hongmu

Asia

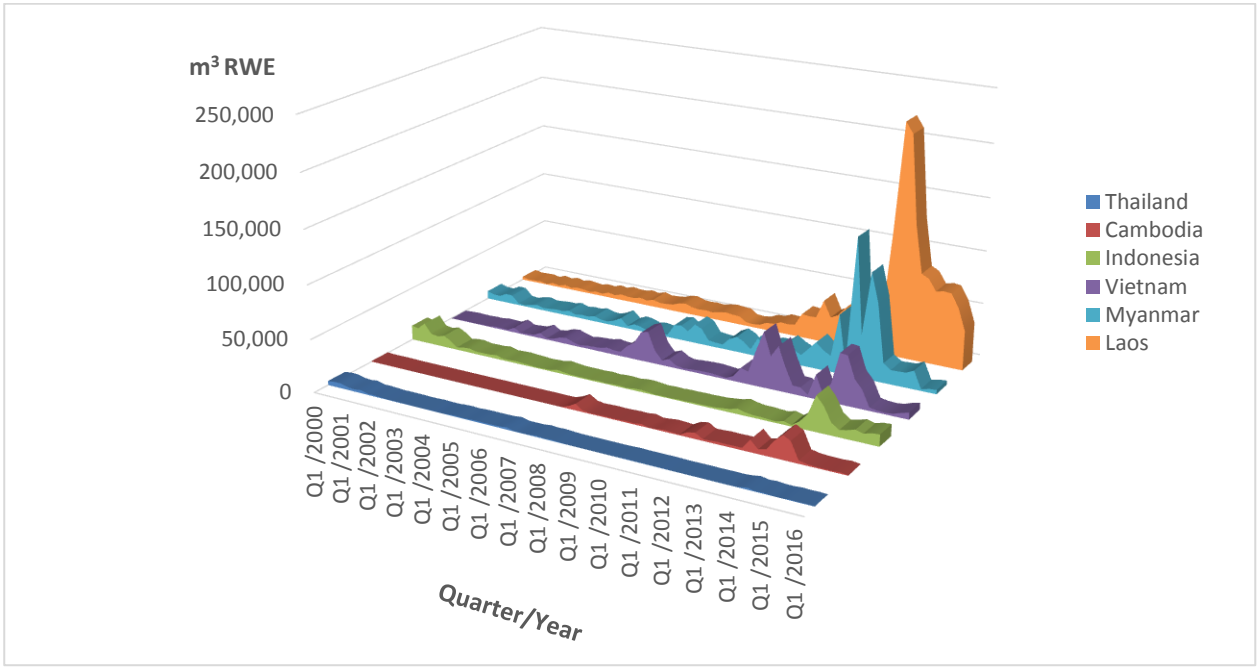
Asia is the epicenter of the global hongmu trade. It encompasses the two main demand countries: China and, further behind, Vietnam, and contains nearly two-thirds of the species identified in China's National Hongmu Standard (See Table 1).

Hongmu traders historically focused on the two species native to China *(Dalbergia odorifera* and *Pterocarpus indicus*).[106] As standing stocks declined and reached commercial extinction, traders diversified to species with similar qualities in South and Southeast. With the commercial extinction of *Dalbergia odorifera* in China and red sandalwood (*Pterocarpus santalinus*) in India, as well as CITES Appendix II listing of the latter, the trade in Siamese rosewood (*Dalbergia cochinchinensis/cambodiana*) grew rapidly and Siamese rosewood became the most sought-after hongmu species globally.[107]

Siamese rosewood was listed in CITES Appendix II in 2013. The species is now virtually commercially extinct, it continues to command a high price, and smuggling continues, prompting a proposal (Prop.53)[108] to strengthen the listing with an amendment to annotation 4 at CoP17.

With the rapid depletion of Siamese rosewood (*Dalbergia cochinchinensis/cambodiana*) in the Greater Mekong sub-region, most standing stocks are now restricted to protected areas. Thailand has some of the best-resourced protected areas in the region, staffed by a relatively well-equipped forest ranger force. Yet in spite of this protection, the illegal harvest of Siamese rosewood continues[109], with even the roots of this species sought after for trade. In the absence of effective legislation regulating timber imports into China and Vietnam, and with the rising prices paid for this increasingly rare species, site-based enforcement will continue to be both inefficient and ineffective at preventing illegal logging for trade.

Figure 7. China's imports of hongmu from Southeast Asia (by volume)



Source: EIA, 2016 based on Chinese customs data, obtained from GTA

[106] *The species was identified as "threatened" by the International Union for Conservation of Nature (IUCN) in 1998.*

[107] EIA. 2014. *Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong*. London, U.K.

[108] *COP17 Prop.53, Consideration of Proposals for Amendment of Appendices I and II: Amendment of the annotation to the listing of Dalbergia cochinchinensis*

[109] *UNESCO. 2015. Decision: 39 COm 7B.17. Dong Phayayen-Khao Yai Forest Complex (Thailand) (N 590rev). Available from: http://whc.unesco.org/en/decisions/6274 [accessed September 19, 2016].*

The main species now dominating the hongmu trade in Southeast are Burmese rosewood (*Dalbergia oliveri/ bariensis*) and padauk (*Pterocarpus macrocarpus*/*pedatus*), distributed within the Mekong countries of Thailand, Laos, Vietnam, Cambodia and Myanmar. Since 2000, half of China's Hongmu imports have come from these countries,[110] their proximity to China, weak forest governance, and high-value hongmu species making them targets for the criminal networks underpinning much of global trade.

Burmese rosewood shares many properties with Siamese rosewood, and is therefore often substituted for the rarer species.[111] It has been illegally harvested and traded in significant volumes across its entire range in recent years, particularly in Myanmar, Laos, and Cambodia, as well as Thailand and Vietnam. A 2015 survey in Yunnan reported that Burmese rosewood makes up an estimated one-third of Myanmar's timber trade with China, [112] suggesting it is currently the most heavily-traded non-CITES listed hongmu species.

Padauk (*Pterocarpus macrocarpus*) has however emerged as the main target for traders in the region, and has fed a significant proportion of the global hongmu trade by volume in recent years, with Laos and Myanmar the biggest source countries. In 2014, an estimated 781,400 m^3 of *Pterocarpus macrocarpus* logs are understood to have been traded internationally, making it likely the most heavily traded species worldwide, accounting for half of global trade alone. 229,796 m^3 of *Dalbergia oliveri* logs were similarly traded. The vast majority of the combined 1 million m^3 from the region ultimately went to China.[113]

Efforts to protect Burmese padauk and Burmese rosewood through CITES listing proposal preparation have thus far not borne fruit. Based on Myanmar's exports of these species to China from 2013 to 2014, given their known distribution and stocks, commercial extinction of both species is possible in Myanmar within 12 years of CoP17, and could occur in as little as two years. If approved at the CoP17, the Dalbergia genus proposal (Prop. 55) will go a long way towards imposing restriction on the trade in *Dalbergia oliveri/bariensis.* However, if it fails, *Dalbergia oliveri/bariensis* will immediately require specific protection on Appendix II in its own right.

Africa

Since 2010, Africa has become a significant hongmu source region, surpassing Asia in exports to China by volume in 13 of the past 26 quarters. Driving the demand for hongmu timber species in Africa are the increasing scarcity of Asian species and the demand for lower-end hongmu furniture by China's growing middle class.

Within Africa, West Africa has been the principal source region for hongmu timber species in the past five years. West Africa's share of all hongmu log exports to China has surged from less than 1% by volume and value in the second quarter of 2007 to 84% by volume and 61% by value in the second quarter of 2016 (figure 8).[114]

In the last seven years, Chinese imports of hongmu logs from West Africa increased about 500-fold by value and volume, from 2,788 m^3 worth US$1.1 million in 2009 to 387,334 m^3 worth US$264 million in 2015[115]. In 2015 and for the first half of 2016, eight of the top 15 hongmu source countries were in West Africa (figure 9).

[110] *EIA. 2014. Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong. London, U.K.*

[111] *EIA. 2015. Addressing ASEAN's rosewood crisis: an urgent call to action. London, U.K.*

[112] *Southwest Forestry University. 2015. Primary outcomes on China-myanmar Cross Border Timber Trade Study; Draft for The myanmar-China Timber Trade Stakeholder Consultation Workshop, 24 September 2015, Nay Pyi Taw.*

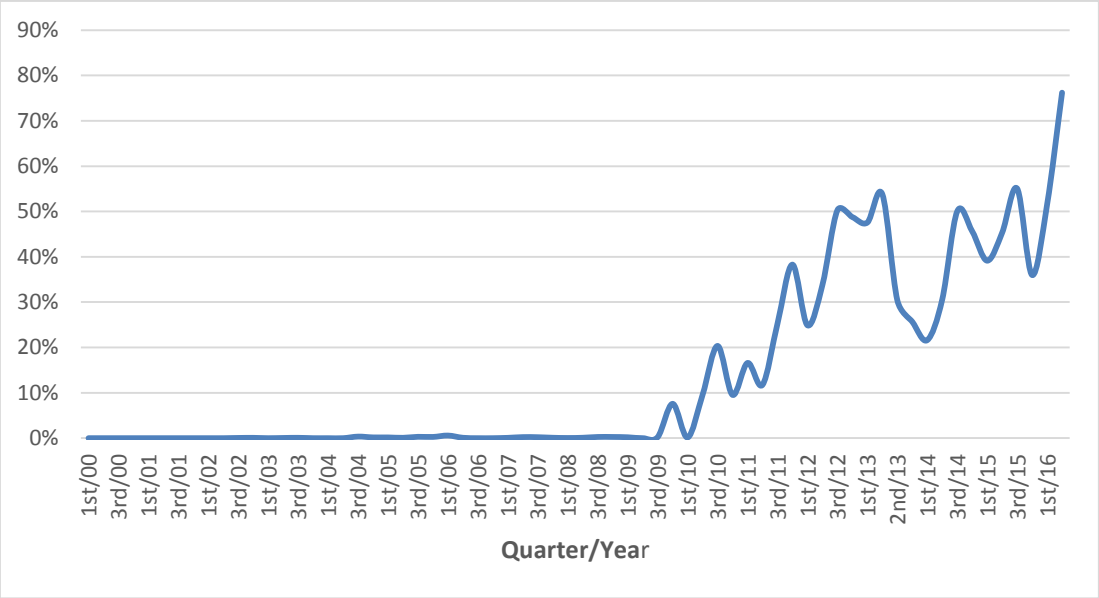
[113] *EIA analysis of China Customs statistics; Primary outcomes on China-Myanmar Cross Border Timber Trade*

Study", Southwest Forestry University (SWFU), September 2015, & Forest Trends, 2015, presented in EIA, Briefing for the Twenty-second meeting of the Plants Committee, 2015.

[114] *EIA, 2016 based on Chinese customs data, obtained from the GTA*

[115] *EIA, 2016 based on Chinese customs data, obtained from the GTA*

Figure 8. Share of Chinese hongmu imports from West Africa (by volume)



Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

A year-by-year comparison of Chinese import data indicates that West Africa has experienced a wave of boom-and-bust hongmu trade cycles. The first country affected by increased rosewood exploitation was Gambia (2011-2012), followed by Cote d'Ivoire (2013), Benin (2013-2014), and Nigeria (2014-2016). Investigations carried out by EIA confirm that traders and their commercial networks moved quickly from one country to another, in response to regulatory controls and accessibility of the resource.[116]

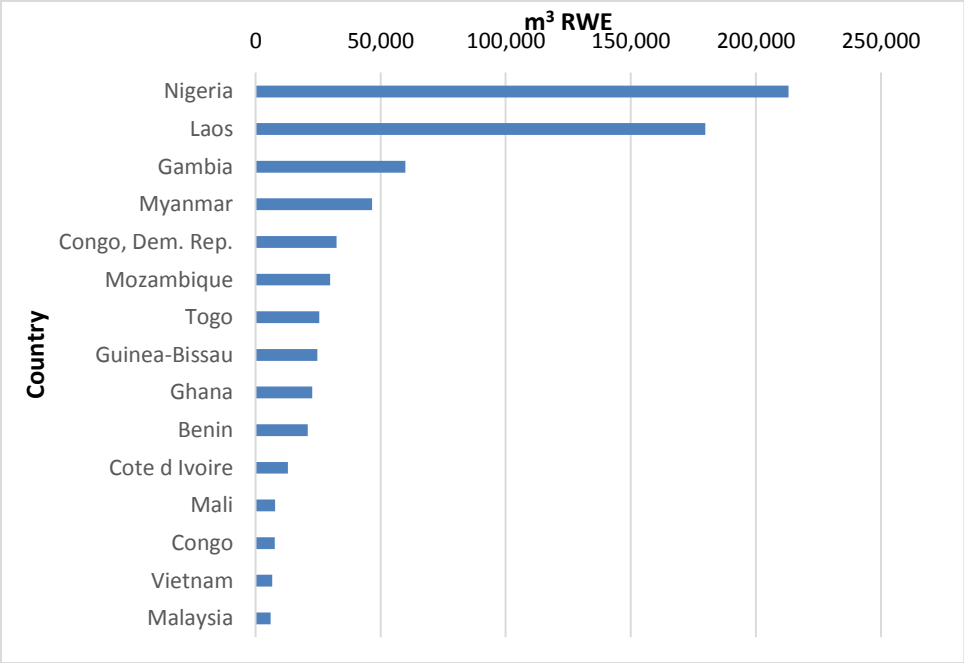
One particular species, *Pterocarpus erinaceus*, also known as "kosso" represents the vast majority of the volume of hongmu exported from West Africa. Kosso is found in the fragile dry forests of West Africa.[117] *Pterocarpus erinaceus* is a rosewood species native to the semi-arid Sudan-Guinea savanna forests of West Africa, including those of Senegal. Owing to its many uses as food, fuel, medicine, lumber and timber, the species is key to the livelihoods of people in its range, particularly in rural areas.[118]

[116] *EIA, 2016. Unpublished source.*

[117] *Hutchinson, J., et al. 1958. Flora of west tropical Africa. Vol. 1, part 2. Crown Agents for Overseas Governments and Administrations, London.*

[118] *Sénégal. 2015. PC22 Inf. 13. Information Document. Analysis of the international trade in Pterocarpus erinaceus and its consequences in West Africa.*

Figure 9. Top 15 hongmu source countries for China in 2015 (by volume)



Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

High Asian demand for cheaper hongmu has triggered a series of boom and bust trade cycles in West Africa (figure 10). The first country to experience a peak in hongmu exploitation was Togo (2012), followed by Gambia (2012-13), Cote d'Ivoire (2013), Benin (2014), Ghana (2014) and Nigeria (2015). In order to manage the increasing demand and protect a species whose populations have been under strong pressure for years, most of the West African countries have passed and implemented specific regulations (Table 3)

Table 3. Protection and export prohibition measures taken by West African States

Countries	Special measures for the protection or management of the species	Export-related regulation
Benin	According to the Forest Code in force (Law No 93-009 of 2 July 1993 laying down forest regime in the Republic of Benin) and its implementing decree (Decree No 96-271 of 2 July 1996, Article 25), *P. erinaceus* is a protected species belonging to the "List of protected forest species" (P. erinaceus appears under its common name "Vene").	"Decree No 2005-708 of 12 November 2005 on procedures for the exploitation, transportation, trade, industry and control of forest products in the Republic of Benin." In Article 21, the export of all woody species in their raw form is prohibited in Benin. This provision has been taken up in Article 3 of the "Interministerial Decree-Year2007-0053/MEPN/MIC/DC/SGM/DGFRN/SEB on procedures for the exploitation, transportation, trade, industry and control of forest products in the Republic of Benin"
Burkina Faso	*P. erinaceus* is specifically protected by Order No 2004-019/MECV of 7 July 2004, establishing the list of forest species which benefit from special protection measures. The Order is related to the implementation of the Forest Code adopted in 1997 (Law No. 006/97/ADP on the Forest Code in Burkina Faso). The implementing decree related to the protection of species within the framework of the new Forest Code (Law No 003-2011/AN on the Forest Code in Burkina Faso) has not yet been published. The forest code in force states in its Article 44 that "Some forest species, due to their specific ethnobotany interest or risk of extinction threatening them, benefit from special	Export of logs and processed products is prohibited under Decree No 2005 - 003/MECV/MCPEA of 9 March 2005 which suspends all operations and the trade of timber at the national level. The decree is still in force today.

	protection measures. The list is established by the order of the Minister of Forests."	
Côte d'Ivoire	*P. erinaceus* species cannot be exploited pursuant to Decree No. 2013-508 of 25 July 2013 relating to "banning of exploitation, harvesting, transportation, trade and export of Vene timber".	*P. erinaceus* species cannot be exported pursuant to Decree No. 2013-508 of 25 July 2013 relating to "banning of exploitation, harvesting, transportation, trade and export of Vene timber".
Ghana	A ban has been placed on the harvesting and export of rosewood timber, since July 2014.	A ban has been placed on the harvesting and export of rosewood timber, since July 2014.
Guinea-Bissau		Moratorium on all timber exports passed in July 2014
Mali	*P. erinaceus* is on the list of protected species mentioned in the Forest Code (Law No. 95-004 laying down conditions of forest resources management, Article 17). According to Article 16: "Protected species are those which benefit from social protection due to their economic, socio-cultural or scientific interest. Their felling and uprooting are prohibited unless expressly authorized. "Express authorizations are issued by the Director of Forest Service.	Decree No. 00-505/P-RM of 16 October 2000 on foreign trade regulations specifies the prohibited products for export such as unprocessed wood. The Inter-ministerial interdiction No 2014 -1856 / MC-MEF-SG-MEEA of 10 July 2014 relating to the interdiction of the export of timber, service wood (construction wood), firewood, bamboo, raphias of a raw state and charcoal', bans all export of timber.
Nigeria	In Nigeria, forestry laws are under the remit of states. Thus, *P. erinaceus* is a protected species in Taraba State, and given this status, felling and export status are strictly prohibited. In Cross River State, logging is prohibited in all natural forests and for all woody species.	
Sénégal	*P. erinaceus* species is protected by the current legislation namely the Forest Code (Law No 98-03 of 8 January 1998) and Decree No 98-164 of 20 February 1998, Article 63.	*P. erinaceus* Export is strictly prohibited pursuant to the current legislation namely the Forest Code (Law No 98-03 Act of 8 January 1998) and Decree No 98-164 of 20 February 1998, Article 63.
Togo	The forest code in force since 2008 (Law No 2008-09 on the Forest Code) identifies species fully protected as "species subtracted from any sampling, except for scientific reasons." No implementing decree for plant species has been adopted to date.	However, the Forest Code clearly states, in its Article 54, the required conditions for export, "Import, export and re-export of timber and non-timber forest products are regulated by decree in the Council of Ministers." The applicable decree is Decree No. 2011-142/PR which regulates import, export, re-export and transit of timber forest products. It establishes, in its Article 8, that authorized operators must obtain a written authorization issued by the administration in charge of forest resources for the import, export or re-export of all forest products. Article 15 of the same Decree also specifies that only forest products resulting from sustainable forest management, as defined in Togo, and which abide by traceability rules as defined by the decree of the Ministry in charge of forest resources.

Source: Senegal, 2015[119]

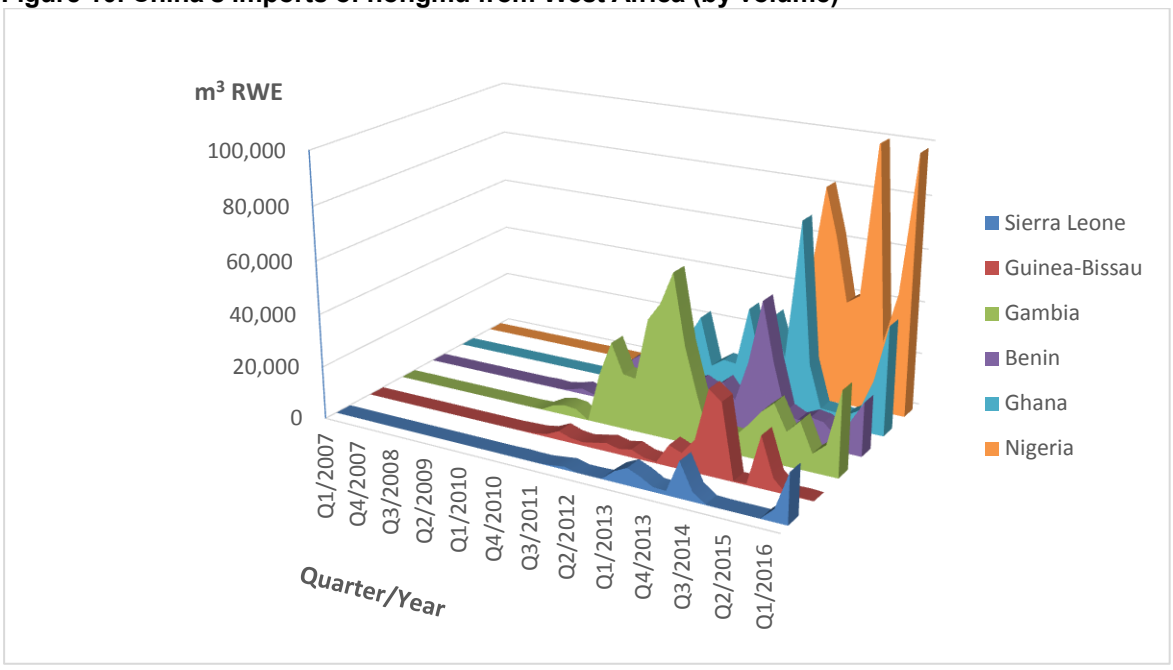
As a consequence of the booming international trade, the populations of the species have shrunk drastically across the region.[120] Regeneration in many areas has not kept pace, raising the threat of desertification.[121]

[119] *Senegal, 2015. Op. cit.*

[120] *Senegal, 2016a. Op. cit.*

Once these populations of kosso are exhausted, trade networks will likely move on to the next readily available, "new" hongmu species for the trade, triggering fresh cycles of rapid over-exploitation.

Figure 10. China's imports of hongmu from West Africa (by volume)



Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

As early as 1998, Senegal listed kosso as a "semi protected" species with a complete ban on export (Forest Code, Law No 98-03 and Decree No 98-03) and the Senegalese government has conducted several enforcement operations against the illegal trade. However, with the active involvement of rebel forces from the Casamance region, tons of *Pterocarpus erinaceus* have been smuggled from Senegal to neighboring countries--predominantly Gambia--before being shipped to China. [122,123] This is visible in the fact that while Gambia is one of the smallest countries in Africa with little forest resources left, it was China's third largest hongmu supplier in 2015. Despite their efforts to control the trade in Senegal, the authorities are powerless once the timber has illegally crossed into neighboring countries. Senegal therefore decided to list its populations of *Pterocarpus erinaceus* in CITES Appendix III with annotation, which came into force on May 9, 2016.

Past experiences suggest that an Appendix III listing might not suffice to protect a hongmu species from commercial extinction when transnational networks are actively involved in its illegal trade. Recognizing the magnitude of the smuggling problem and the unsustainability of the current harvest, Senegal's government, supported by ten other West African range states as well as Chad and the EU, have submitted a proposal (Prop. 57) to include *Pterocarpus erinaceus* in Appendix II at CoP17.[124]

Americas

Although Central America represents a small fraction of the global hongmu trade, the region's several *Dalbergia* species have very limited distributions and are therefore vulnerable to commercial extinction.

Seven of the 33 species recognized in China's National Hongmu Standard are distributed in Central and South America (*Dalbergia cearensis*, *Dalbergia frutescens*, *Dalbergia granadillo*, *Dalbergia nigra*, *Dalbergia retusa*, *Dalbergia spruceang*, and *Dalbergia stevensonii*). Since 2010, these species have faced growing pressure from the hongmu trade. This is particularly true of species in Central America, where lower coca revenues have led

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[121] *W. K. and W. N. Bandoh. 2014. Situational Analysis of Pterocarpus erinaceus (Rosewood): Evidence of Unsustainable Exploitation in Ghana? First National Forestry Conference 16-18 September 2014, Kumasi; Adjonou (Op. cit.).*

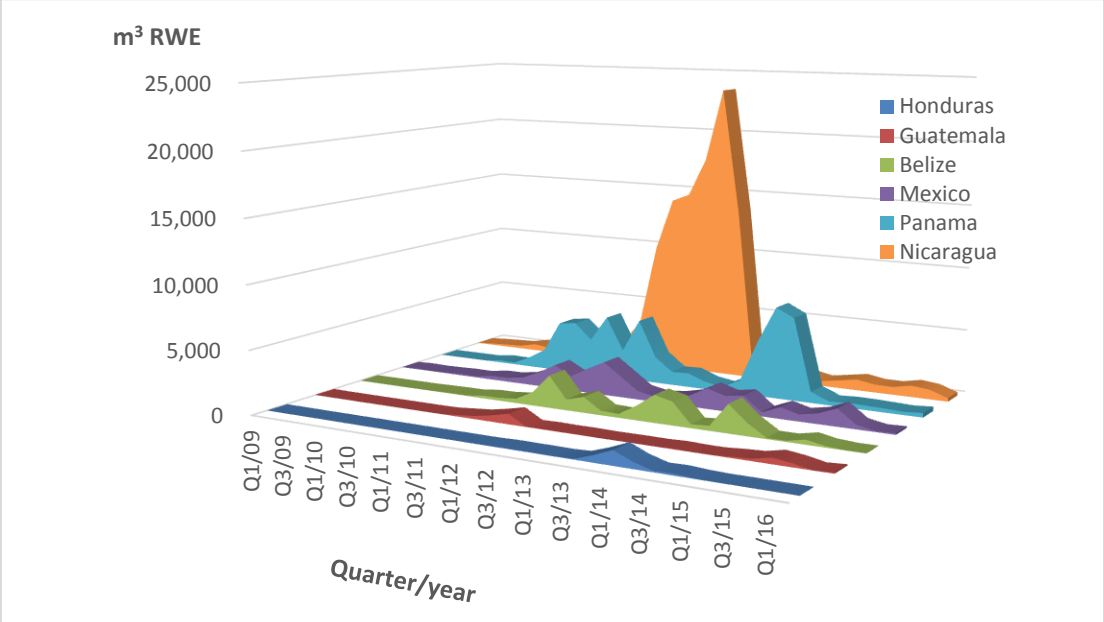
[122] Gueye, B.S. 2015. *Illegal logging and trade of rosewood: case study of Senegambia*. Presentation by Babacar Salif Gueye, Ministry of Environment, Senegal to Chatham House Illegal Logging Stakeholder Update Meeting, 25th June 2015.

[123] *See: http://www.lemonde.fr/afrique/article/2016/05/26/les-saigneurs-du-vene_4926559_3212.html [accessed September 19, 2016].*

[124] *Ibid.*

existing organized criminal networks, in collaboration with the "wood mafia," to shift to trafficking hongmu and laundering its associated cash flows. [125] Central America has been hit by successive waves of boom and bust in the hongmu trade, beginning in Panama, then moving to Nicaragua and Mexico. The official exports of hongmu from the region reduced significantly after the successive CITES-listing of the four hongmu species and major enforcement crackdowns.

Figure 11. China's imports of hongmu from Central America, by volume



Source: EIA, 2016 based on Chinese customs data, obtained from the GTA

To evade regulations and enforcement, the network of illegal harvesters and traders have diversified their smuggling routes (for instance, from Guatemala to Honduras and El Salvador), targeting the remaining *Dalbergia* populations located in protected areas or remote indigenous lands.[126] These illegal shipments sometimes involve forged export permits with the collaboration of bribed officials.[127] Authorities report increased misdeclarations of Hongmu Standard-listed species, [128] taking advantage in several cases of the non CITES-listed lookalike species,[129] all destined for China, including Hong Kong. Hence, the region's hongmu species as well as lookalike Dalbergia species are both under threat.

Even with these CITES listings the illegal harvesting and trade in the region's Dalbergia species continues. *Dalbergia stevensonii* was once common throughout Belize.[130] Now most of the species' distribution is concentrated in the Toledo district in southern Belize, with only small scattered additional populations in Guatemala and southern Mexico. Local estimates in 2010 suggested a loss of 90% of historical rosewood stocks in Belize.[131] This decline is the result of the gradual destruction of its habitat and logging for the hongmu trade.[132]

Faced with rapidly declining stocks, Belize prohibited all raw rosewood exports in 1992 but lifted the ban in 1996.[133] In March 2012, the new Minister of Forestry, Fisheries and Sustainable Development enacted a

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[125] *See: http://connectas.org/codicia-sobre-el-rosul-mafia-saquea-tesoro/ [accessed September 19, 2016].*

[126] *See: http://www.insightcrime.org/news-briefs/high-exotic-wood-prices-driving-illegal-logging-in-panama [accessed September 19, 2016].*

[127] *See: http://www.insightcrime.org/news-briefs/nicaragua-timber-trafficking-major-problem-in-centams-largest-forest-reserve [accessed September 19, 2016].*

[128] *EIA. 2016. Unpublished source.*

[129] EIA. 2014. Rosewood and the ongoing illegal logging crisis in Belize. London/Washington DC.

[130] FFI. 2007. Rosewood (Dalbergia stevensonii) in Southern Belize: a preliminary assessment.

[131] *Meerman et al. 2010. Belize Forest Cover Change 1990-2000-2005.*

[132] *EIA 2014 Rosewood and the ongoing illegal logging crisis in Belize. Washington DC.*

[133] Under Statutory Instrument No. 87 of 1992, see http://news.mongabay.com/2013/0211-stott-rosewoodban.html [accessed September 19, 2016].

moratorium on the harvest and export of hongmu timber species.[134] Despite this progressive move, the illegal harvest of the species has continued.[135] In recognition of the demand for *Dalbergia stevensonii*, Guatemala listed its populations in CITES Appendix III in 2008. In an effort to further support the ban and bring international support to the crisis, Belize proposed listing *Dalbergia stevensonii* and its lookalike *Dalbergia retusa* in CITES Appendix II in 2013, which was adopted by the CoP. However, in the past three years, and despite the highly publicized moratorium, sawn wood and logs have continued to be exported to China, pushing the species closer to commercial extinction. Traders have repeatedly taken advantage of the current gaps in the CITES listings, misdeclaring *Dalbergia retusa* as the unregulated and similar-looking *Dalbergia bariensis* in violation of the national moratorium and the CITES listing.[136]

[134] Belize Press Office. (March 16, 2012). Rosewood moratorium. www.belize.gov.bz.

[135] Belize News 5. (January 10, 2013). Illegal rosewood harvested down south. Available from: http://edition.channel5belizearchives/80598 [accessed September 19, 2016].

[136] EIA. 2014. Rosewood and the ongoing illegal logging crisis in Belize. London/Washington DC.

7. Recommendations

On the eve of the 17th meeting of the CITES Conference of the Parties, only eight hongmu species are listed in the CITES Appendices.[137] Because most hongmu species are not protected under CITES, and because the main consumer country, China, and the key trade and processing hub Vietnam, do not prohibit the import of illegally harvested and/or traded timber,[138] illegal wood of these species is legally placed on the markets there.

Parties to CITES need to recognize the severity of the threat and support proposals to protect any hongmu species, and lookalike or replacement species, in the CITES Appendices.

At CoP17, EIA calls on all CITES Parties to support the following proposals:

- Proposal 53: Amendment of #5 to #4 for listing of *Dalbergia cochinchinensis*;
- Proposal 54: Inclusion of 13 timber species of genus *Dalbergia*, native to Mexico and Central America, in Appendix II;
- Proposal 55: Genus listing of *Dalbergia* species in Appendix II;
- Proposal 56: Inclusion of *Guibourtia tessmannii*, *pellegriniana* and *demeusei* in Appendix II;
- Proposal 57: Transfer of *Pterocarpus erinaceus* from Appendix III to Appendix II.

Given its current importance in the international hongmu trade and given that no specific proposal have been submitted at CoP17 to list *Pterocarpus macrocarpus/pedatus* (Burmese Rosewood), it is essential that Parties support any proposal put forward following CoP17 to list this species, preferably on Appendix II. Depending on the outcome of Prop.54, Parties should also support any proposal to list *Dalbergia oliveri/bariensis*, also on Appendix II, after CoP17.

EIA calls on China and Vietnam to:

- Implement CITES regulations related to the amendment of appendices adopted at CoP17 and report results;
- Institute and implement mandatory laws that strictly prohibit the placement of illegal timber on their markets, regardless of origin.

[137] *Dalbergia cochinchinensis, Dalbergia granadillo, Dalbergia nigro, Dalbergia louvelii, Dalbergia retusa, Dalbergia stevensonii, Pterocarpus erinaceus, and Pterocarpus santalinus.*

[138] *Hoare, A. 2015. Tackling Illegal Logging and the Related Trade What Progress and Where Next? Chatham House Report. London.*