

THE HONGMU CHALLENGE:

A briefing for the 66th meeting of the CITES Standing Committee, January 2016

environmental investigation agency

ACKNOWLEDGEMENTS

This briefing was written and edited by the Environmental Investigation Agency (EIA). This document has been produced with the financial assistance of UKaid, the European Union, the Norwegian Agency for Development Cooperation (NORAD), The Tilia Fund and Good Energies Foundation. The contents of this publication are the sole responsibility of EIA.

January 2016

© Environmental Investigation Agency 2016

All images © EIA unless otherwise stated.

Report design:
www.designsolutions.me.uk

ENVIRONMENTAL INVESTIGATION AGENCY (EIA)

62/63 Upper Street, London N1 0NY, UK
Tel: +44 (0) 20 7354 7960
email: ukinfo@eia-international.org

www.eia-international.org

EIA US

P.O.Box 53343
Washington DC 20009 USA
Tel: +1 202 483 6621
email: usinfo@eia-international.org

FRONT COVER:
Artisanal rosewood carving in Dong Ky, Vietnam, October 2013
© Tom Johnson/EIA

INTRODUCTION

The Hongmu sector is a significant threat to the select group of timber species targeted and constitutes a pressing conservation challenge for CITES and its Parties.

Since 2009, Asian demand has boomed for luxury furniture made with rare, high-value and deeply hued rosewoods, mahoganies and ebonies. Principally targeting 33 species within the *Pterocarpus*, *Diospyros*, *Dalbergia*, *Millettia* and *Cassia* genera, sales in China's Hongmu sector exceeded $25 billion in 2014.

The sector is driving systematic illegal and unsustainable extraction at unprecedented rates and scales. Across Asia, Africa and Latin America, the nature of the industry is the same – unsustainable extraction leads to domestic protection which is then undermined by smuggling aided by corrupt officials; finally, better-governed range states seek CITES protections.

Once CITES regulations come into force or when resources become exhausted, the criminal networks underpinning the trade are able to move quickly between species and countries.

Key consuming countries – China and Vietnam – have no enforceable controls against illegally logged timber imports. CITES empowers these Parties as enforcement partners.

Nascent proposals to list the entire *Dalbergia* genus and listings of other species involved are important initiatives. However, around 75 per cent of the global Hongmu trade is now focused on just three species – *Pterocarpus erinaceus*, *Pterocarpus macrocarpus/pedatus*, and *Dalbergia oliveri/bariensis* – none which are currently listed. CITES is failing to address the Hongmu challenge.

Parties to CITES need to recognise the severity and the source of the problem and support proposals seeking to protect tree species affected by the Hongmu industry.



Siamese Rosewood *(Dalbergia cochinchinensis)* being guarded in Phu Pha Yon National Park, Thailand, 2013.

© Roger Arnold/EIA



Hongmu furniture for sale in China, 2013.

TABLE 1. The 33 species included in China's National Hongmu Standard (2000), grouped into regional distributions, and their CITES listings.

Species name	Common/trade names	CITES listing (year listed)
ASIA		
Pterocarpus santalinus	Red Sandalwood	Appendix II; annotation #7 (2007)
*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	
Dalbergia odorifera	Huang Hua Li, Fragrant Rosewood	
Dalbergia cultrata	Burmese Blackwood	
Dalbergia fusca	Black Rosewood, Yinzat	
Dalbergia latifolia	Indian Rosewood	
*Dalbergia bariensis***	Burmese Rosewood, Tamalan	
Dalbergia cochinchinesis	Siamese Rosewood	Appendix II; annotation #5 (2013)
*Dalbergia oliveri***	Burmese rosewood, Tamalan	
Diospyros ebenum	Ceylon Ebony	
Diospyros pilosanthera	Bolong-eta	
Diospyros poncei	Ponce's Kamagong	
*Diospyros philippensis****	Kamagong	
*Diospyros discolour****	Kamagong	
Millettia leucantha	Sothon/Sathon [Laos]	
*Cassia siamea*****	Siamese Senna	
AFRICA		
Pterocarpus erinaceus	Kosso, African Barwood, African kino	
Dalbergia melanoxylon	Africa Blackwood	
Dalbergia louvelii	Violet Rosewood, Bois de Rose	Appendix II (2013)
Millettia laurentii	Wenge, Bokonge, Awoung	
Diospyros crassiflora	African ebony, Gabon Ebony	
LATIN AMERICA		
Dalbergia nigra	Brazilian Rosewood	Appendix I (1992)
Dalbergia spruceana	Amazon Rosewood	
Dalbergia stevensonii	Honduras Rosewood	Appendix II; annotation #6 (2013)
Dalbergia cearensis	Kingwood	
Dalbergia frutescens	Brazilian Tulipwood	
Dalbergia granadillo	Cocobolo	Appendix II; annotation #6 (2013)
Dalbergia retusa	Cocobolo	Appendix II; annotation #6 (2013)

State Forestry Administration of China, 2007 <http://www.forestry.gov.cn/portal/main/s/525/content-104951.html> accessed Dec 15 2015 and Hongmu National Standard (2000) of China, GB/T 19107-2000 <http://peach.forestry.gov.cn/u/cms/www/201404/04125611g8yw.pdf> accessed Dec 15 2015.

* *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*

WHAT IS HONGMU?

Meaning 'red wood' in Chinese, the term Hongmu refers to a range of richly hued durable tropical hardwoods used to produce high-end reproduction furniture, flooring and handicrafts. While significant demand exists in Vietnam, China is the predominant consumer market for Hongmu products, where the finished furniture and raw materials are considered secure investments. China's 2000 National Hongmu Standard identifies 33 species across the *Pterocarpus*, *Diospyros*, *Dalbergia*, *Millettia* and *Cassia* genera (Table 1) as recognised Hongmu species.[1]

Traditionally, only royalty and elites in China were privileged to own Hongmu, with materials sourced from India and South-East Asia.[2] However, in recent years China's growing middle class has driven up demand, usually for low to mid-range Hongmu species, resulting in the sector reaching industrial scales. Rapid growth has created a poorly structured market with little regulation.[3] Although Hongmu products appear to celebrate cultural heritage, mass production of antique reproductions with rare species is in danger of hijacking this tradition. One of the biggest drivers of demand since 2009 has been market speculation as Hongmu is widely sold as a sound investment opportunity, supported by rising demand and a diminishing supply.[4]

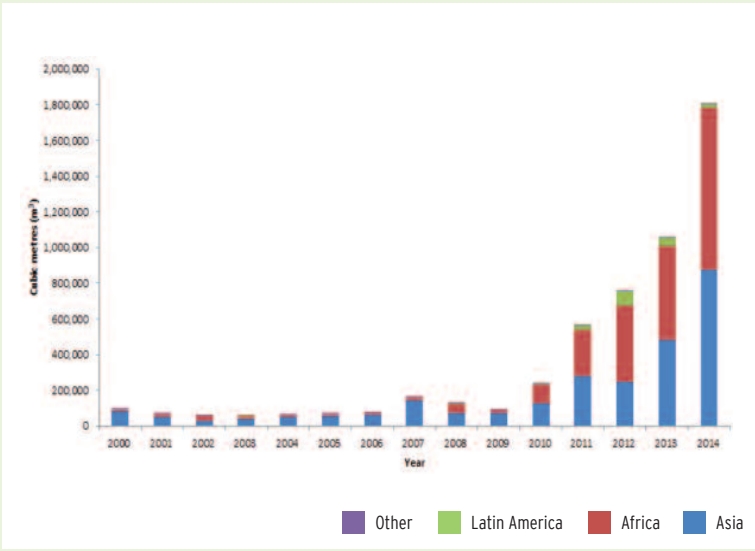
Despite efforts to restrict the export of Hongmu raw materials from numerous range states, Hongmu production is the fastest growing sub-sector of China's timber industry. Imports of Hongmu logs grew six times by value from 2005-15.[5] In 2014, over 30,000 Chinese companies produced or traded Hongmu products, generating domestic retail revenues of over $25bn.[6] Although China's Hongmu imports reduced in 2015, the overwhelming trend since 2009 is of exponential growth.

Various levels of the Chinese Government have encouraged and endorsed the expansion of the Hongmu industry to generate employment, tax revenues, and wider economic growth. In 2015, State officials witnessed a Hongmu trading centre being set up under the China Forestry Exchange.[7] Local branches of State-owned banks have 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.[8] In 2014, the government of Pingxiang provided financial rewards

and tax incentives aiming to help 100 Hongmu companies attain over $1.5m turnover within five years.[9]

The industry depends on imports of raw materials (the majority of it logs) from Asia, Africa and Latin America. Traditionally, South-East Asia and India were the main sources, but in recent years Africa and to some degree Latin America have become increasingly important sources. While Asia has some of the rarer and therefore more valuable Hongmu species, and still supplies more than half of the value of China's imports, exports from Africa are now competing with Asia by volume and value.[10] Approximately 98 per cent of all of China's Hongmu imports, both by value and volume, are from Africa and Asia (Fig 1 and Fig 2).[11]

FIGURE 1: CHINA'S HONGMU LOG IMPORTS BY VOLUME (HS CODE: 44039930)
Source: Analysis of Chinese customs data using the Global Trade Atlas.
Available from: http://www.worldtradestatistics.com/gta/ [Accessed on December 7, 2015]



ILLEGAL AND UNSUSTAINABLE TRADE

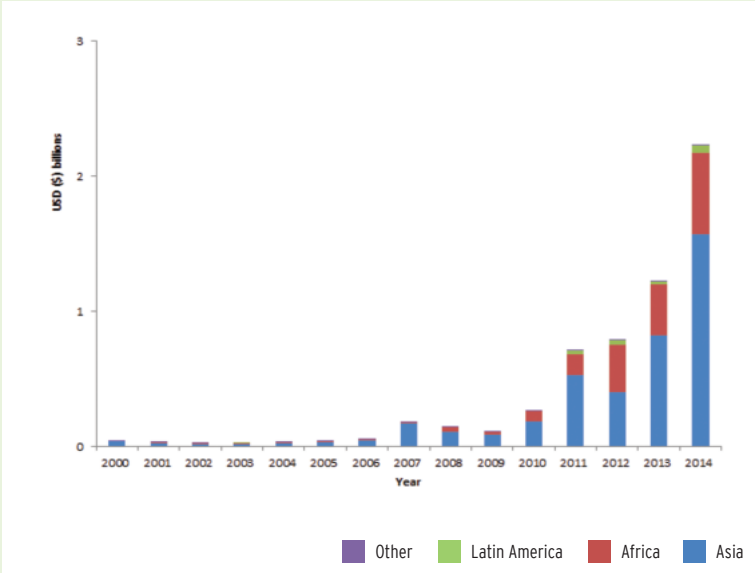
Illegal Logging & Timber Smuggling:

Crime is a glaring characteristic of the global Hongmu trade. The increasing value of the limited key species targeted has attracted criminal syndicates, illegal loggers and corrupt officials alike. Since the sector boomed in 2009/10, a wave of hot investment capital has driven a surge of systematic illegal harvesting and timber smuggling in source countries throughout Asia, Africa and Latin America.[12,13]

The more desired species included in China's Hongmu Standard are now mostly restricted to remote regions and protected areas, where harvesting is either strictly prohibited or very limited by law.[14,15,16] Once illegally felled, the timber is stockpiled locally before being smuggled across borders or shipped, often misdeclared as lookalike species. Nearly all Hongmu timber is traded as rough-sawn flitches or as logs for further processing in China and Vietnam.

All Hongmu source countries in the Mekong region have strict log export bans and trade in a number of the more threatened species is completely prohibited. Despite these provisions, illegal cross-border log and sawn timber trade is clearly evident across the Mekong.[17,18] The same occurs in west Africa, where most countries have adopted total bans on harvesting and export.[19] In Latin America, despite several moratoriums on exports and recent CITES listings, the illegal trade in Hongmu species is still rampant.[20]

FIGURE 2: CHINA'S HONGMU LOG IMPORTS BY VALUE (HS CODE: 44039930)
Source: Analysis of Chinese customs data using the Global Trade Atlas.
Available from: http://www.worldtradestatistics.com/gta/ [Accessed on December 7, 2015]



Hongmu trade is also linked to and drives violence in source and transit countries. In West Africa, Hongmu species are increasingly known as "blood timbers" due to connections between illegal Hongmu trade and rebel uprisings; for example in the Senegalese Casamance, and in Cote d'Ivoire.[21] In Thailand, more than 150 forest rangers, police, soldiers and illegal loggers have been killed in firefights during rosewood enforcement operations in recent years.[22]

In the absence of effective timber trade controls and regulations in China, domestic legislation and enforcement actions in Hongmu source countries have completely failed to control this illegal trade.

"Crime is a glaring characteristic of the global Hongmu trade."



Siamese Rosewood *(Dalbergia cochinchinensis)* enforcement operations in Thailand, 2013.

© Roger Arnold/EIA

UNDERMINING SITE-BASED PROTECTIONS

With the rapid depletion of Siamese rosewood (*Dalbergia cochinchinensis*) 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. Despite this high level of site-based protection, Siamese rosewood continues to be harvested illegally from the country's protected areas, with even the roots of this species sought after.[27] In the absence of effective legislation regulating timber imports into China and Vietnam, and with the growing-value of this increasingly rare species, site-based enforcement will continue to be ineffective and inefficient in controlling illegal logging for trade.



Rosewood tree being cut in Masoala National Park, Madagascar, August 2009.

© Toby Smith/Getty Images

ROSEWOOD TRADE DRIVING HABITAT DEGRADATION

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* and *Diospyros* trees is catalysing broader ecosystems disturbances in Madagascar.

Logging gangs often poach endangered wildlife (including the island's famous lemurs) for either subsistence while in the forest or sale in wildlife markets. For every rosewood log harvested, numerous lighter weight trees are used to float log rafts out of the forest. The rosewood trade is directly degrading Madagascar's unique tropical forest ecosystems.

UNSUSTAINABLE TRADE: A THREAT TO FRAGILE ECOSYSTEMS

There is limited data on standing stocks for Hongmu species in nearly all range states, which makes it difficult to gauge exactly the trade's unsustainable nature. Myanmar, however, provides one startling example – based on estimates of standing stocks for *Pterocarpus macrocarpus* and *Dalbergia oliveri* and current trade levels, both species are predicted to become commercially extinct within the next three to 13 years.[23] Another example concerns *Dalbergia cochinchinensis* (Siamese rosewood). In 2013, the CITES Trade Database recorded 41,000 m^3 of trade in *D.cochinchinensis*, while Thailand – a major source – had estimated national standing stocks of only 63,500 m^3 two years earlier.

Overexploitation for the Hongmu trade is being keenly felt throughout west Africa too, where the harvesting of *Pterocarpus erinaceus* from vulnerable savannah ecosystems is increasing the risk of desertification[24,25] and depriving local communities of a resource traditionally used for fuel, construction, musical instruments, traditional medicine and animal fodder.[26]

REGIONAL SOURCES OF HONGMU

Asia

Asia is the epicentre of the global Hongmu trade. It incorporates the two main demand countries (China and, to a lesser extent, Vietnam) and contains nearly two-thirds of the species identified in China's Hongmu Standard (See Table 1).

Hongmu traders historically focused on the two species native to China. As standing stocks declined and reached commercial extinction, traders diversified to species with similar qualities in South and South-East Asia. With the commercial extinction of Huang Hua Li (*Dalbergia ordorifia*) in China and red sandalwood (*Pterocarpus santialinus*) in India, and the CITES restriction placed on the latter, the trade in Siamese rosewood (*Dalbergia cochinchinensis*) grew rapidly and Siamese rosewood became the most sought-after Hongmu species globally.[28]



ABOVE:
Hongmu furniture being carved in Dong Ky, Vietnam, October 2012.

Although Siamese rosewood was listed on CITES Appendix II in 2013 and is virtually commercially extinct, it continues to command a high price, prompting proposals to strengthen the listing with an annotation 4 at CoP17.[29]

The main species now dominating the Hongmu trade in South-East Asia 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.[30] The proximity of these countries to China, their weak forest governance and the presence of high-value Hongmu species have made them targets for the criminal networks that underpin much of the global trade.

Burmese rosewood has similar properties to the rarer Siamese rosewood and has emerged as the major replacement for it.[31] Most of its natural distribution is in Myanmar, where it is being illegally harvested and traded in significant volumes; approximately one-third of Myanmar's timber trade with China is estimated to be this species.[32]

Despite being traditionally considered one of the lower quality Hongmu species, padauk (*Pterocarpus macrocarpus*) now comprises a significant proportion of the global Hongmu trade by volume, with Laos and Myanmar the biggest source countries. In 2014, an estimated 781,400 m^3 of *Pterocarpus macrocarpus* logs, and 229,796 m^3 of *Dalbergia oliveri* logs were traded internationally, the vast majority ultimately going to China.[33]

Efforts to protect these two species through CITES have not yet born fruit. In light of pressures from trade and the distribution data available, commercial extinction of Burmese padauk and Burmese rosewood is an imminent threat across the region.



Seized logs of Kosso *(Pterocarpus erinaceus)* by enforcement authorities in West Africa. August 2014.

SENEGAL: THE NEED FOR A CITES LISTING

Senegal listed kosso (*Pterocarpus erinaceus*), as a "semi-protected" species with a complete ban on export in 1998 (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, tonnes of *Pterocarpus erinaceus* have been smuggled from Senegal to neighbouring countries, especially into Gambia, before being shipped to China. Despite their efforts to control the trade in Senegal, the authorities are powerless once the timber has illegally crossed into neighbouring countries. Senegal has therefore decided to list its populations of *Pterocarpus erinaceus* on CITES Appendix III with annotation

#1. Building on the regional awareness about the illegal and unsustainable exploitation of *Pterocarpus erinaceus*, Senegal intends to reach out to other range states and submit a proposal to include the species on CITES Appendix II in time for CoP 17 in South Africa in 2016.

Africa

Since 2010, Africa has become a significant source region, surpassing Asia by volume in some years. This diversification has largely been in response to the increasing rarity of Asia's Hongmu species, the rapid globalisation of trade in general and the increasing demand from China's growing middle class for lower-end Hongmu species.

The main African Hongmu species being harvested is *Pterocarpus erinaceus*, better known as 'kosso' in China. *Petrocarpus erinaceus* is found in the savanna forests of west Africa.[34] Over the past six years, Chinese imports of kosso logs increased about 500-fold by value and volume, from 2,788m^3 worth US$ one million in 2009 to 705,117m^3 worth US$496 million in 2014.[35] During the third quarter of 2015, approximately 42 per cent of the value and 65 per cent of the volume of China's Hongmu log imports came from west Africa.

A year-by-year comparison of Chinese import data indicates that west Africa has experienced a wave of boom-and-bust Hongmu trade cycles.[36] The first country affected by increased rosewood exploitation was Gambia (2011-12), followed by Benin (2012-13) and Côte d'Ivoire (2013-14), Ghana (2013-14) and Nigeria (2014-15). Commercial networks moved quickly from one country to another, depending on control measures put in place and accessibility of the resource. Once the regional population of kosso is commercially exhausted, these networks will likely focus on 'new' rosewood species for the trade, triggering fresh cycles of rapid over-exploitation.

Latin America

Seven of the 33 species recognised in China's National Hongmu Standard are distributed in Latin America. Since 2010, these species have faced growing pressure from the Hongmu trade. Replacement species not listed in China's Hongmu standard but having similar qualities are also being targeted by traders. Although the volume from Latin America represents a small fraction of the global Hongmu trade, the region has several species with small distributions and therefore vulnerable to commercial extinction. To curb the growing pressure on *Dalbergia* species in this region, a number of Latin American countries have successfully listed species in this genus onto the CITES appendices. However, even with these CITES listings the illegal harvesting and trade in the region's *Dalbergia* species continues.

Dalbergia stevensonii was once locally common in Belize.[37] Now most of the species is concentrated in the Toledo district in southern Belize, with only rare and scattered populations in Guatemala and southern Mexico outside of this. Local estimates in 2010 suggested a loss of 90 per cent of historical rosewood stands in Belize.[38] This decline is the result of the gradual destruction of its habitat and logging for the Hongmu trade.[39]

Faced with rapidly declining stocks, Belize prohibited all raw rosewood exports in 1992 but lifted the ban in 1996.[40] In March 2012, the new Minister of Forestry, Fisheries and Sustainable Development enacted a moratorium on the harvest and export of Hongmu species.[41] Despite this progressive move, the illegal harvest of the species has continued.[42] In recognition of the rarity of *Dalbergia stevensonii*, Guatemala listed its populations on CITES Appendix III in 2008. In an effort to further support the ban and bring international support to the crisis, Belize listed *Dalbergia stevensonii* and its lookalike *Dalbergia retusa* on CITES Appendix II in 2013. However, in the past three years, and despite the highly publicised moratorium, sawn wood and logs have continued to be exported to China, pushing the species closer to commercial extinction. Traffickers 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.[43]

THE NEED FOR CITES CONTROLS

The majority of Hongmu range states have domestic laws seeking to control harvesting and trade in key species. These laws either constitute complete bans on harvesting or trade, or are partial protections where harvesting must be authorised by relevant officials. A number of countries have also explicitly banned the export of unprocessed logs, the most common form of trade.

Despite these protections, the Hongmu trade has grown exponentially and the number of species approaching commercial extinction is increasing. This is largely because the main demand countries, China and Vietnam, have no laws to adequately control their timber imports. Demand for Hongmu timber in these countries and the absence of effective regulations have precipitated a wave of boom-and-bust harvesting cycles that initially targeted countries in Asia and later diversified to Africa and Latin America.

Although China has introduced some guidelines for overseas forestry enterprises and a draft Timber Legality Verification System, these are both voluntary. With the huge sums of money involved in the Hongmu trade, voluntary guidelines are always likely to be woefully inadequate at offering effective regulation. Until China and Vietnam

"Hongmu trade has grown exponentially and the number of species approaching commercial extinction is increasing."

BELOW:
Hongmu furniture showroom, China, 2013.







TOP:
Hongmu log yard, Guanlan Market in Shenzhen City, China, 2013.

ABOVE:
Rough-sawn Padauk *(Pterocarpus macrocarpus/pedatus)* stacked and ready for sale in the Myanmar Timber Enterprise (MTE) depot, Myanmar, 2013.

implement mandatory regulations which reciprocate domestic protections in Hongmu source countries, CITES represents the most effective way of regulating this trade; both countries respect and enforce CITES listings.

Only seven of the 33 officially recognised species on China's National Hongmu Standard are CITES-listed (Table 1). In addition to these, Madagascar included domestic stocks of all its species in the Dalbergia and Diospyros genera on CITES Appendix II in 2013.

An analysis of Chinese customs data, regional trade patterns and enforcement operations shows that approximately 80 per cent of the global Hongmu trade is comprised of just two species – *Pterocarpus erinaceus* and P*terocarpus macrocarpus*. *Dalbergia oliveri* also features prominently, mainly as a replacement for CITES-listed Siamese rosewood. All three species are structurally threatened by the unregulated and unsustainable Hongmu industry, are consistently illegally traded and cannot be sufficiently protected by domestic laws alone. None are protected under CITES.

China's National Hongmu Standard can be used as a proxy measure for assessing the conservation status of the species it includes; it is highly likely, given the characteristics of the trade, that all species on this list will face the risk of extinction in the near future. CITES is based on a precautionary principle and there is ample evidence now that the trade in several Hongmu species, including replacements not included in the industry standard, are being traded at unsustainable levels and are threatened with extinction.



RECOMMENDATIONS

EIA calls on the CITES Secretariat, Member States and Parties to:

1. Support all proposals to protect Hongmu and any lookalike or replacement species, particularly the three most traded species of *Pterocarpus erinaceus*, *Pterocarpus macrocarpus* and *Dalbergia oliveri*;

2. Support the proposed amendment to the annotation for the Appendix II listing for *Dalbergia cochinchinensis* so its CITES listing covers all forms of trade;

3. Encourage the Standing Committee to direct the Secretariat to prepare a paper on enforcement of CITES-listed Hongmu species for discussion at CoP17, with recommendations for action against the illegal trade;

4. Encourage the up-listings of Hongmu and lookalike species when measures implemented to control trade are shown to be insufficient;

5. Support the full and transparent implementation of legal measures, including enactment of log export bans, for species already listed on CITES on both production and demand sides;

6. Support any *Dalbergia* genus-wide CITES listings in order to combat the smuggling of CITES listed species fraudulently declared as non-listed species;

7. Recognise that *Pterocarpus erinaceus* and *Pterocarpus macrocarpus* comprise nearly 80 per cent of the global Hongmu trade and that *Dalbergia* genus-wide listings alone will not control or regulate this unsustainable industry or its impacts.

REFERENCES

1. State Forestry Administration of China. 2007. Available from: http://www.forestry.gov.cn/portal/main/s/525/content-104951.html [Accessed Dec 15, 2015] 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 Dec 15, 2015].
2. China Weekly. Cultural beauty carved on wood. May, 2015. Available from: http://www.chinaweekly.cn/bencandy.php?fid=63&id=7537 [Accessed December 7, 2015].
3. China Redwood Committee. 2015. China Hongmu Industry Development Plan for 2015-2025 [draft, March 2015].
4. EIA. 2014. Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong. London, U.K.
5. Analysis of Chinese customs data using the Global Trade Atlas. Available from: http://www.worldtradestatistics.com/gta/ [Accessed on December 7, 2015].
6. China Redwood Committee. 2015. China Hongmu Industry Development Plan for 2015-2025 [draft, March 2015].
7. Anon. 2014. China Forestry Exchange formally sets up a Hongmu trade centre. Available from: http://www.chinaforest.com.cn/world/1150.htm [Accessed December 7, 2015].
8. Congzuo News. China Construction Bank injects vitality into Congzuo's Hongmu industry. Dec, 2014. Available from: http://www.czslycy.com/Item/981.aspx [Accessed Dec 18, 2015] 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 Dec 18, 2015].
9. Anon. 2014. Pingxiang governments' opinions on increasing support for the Hongmu cultural industry. Available from: http://www.pxszf.gov.cn/zhaoshangyinzi2/2014-10-28/7138.html [accessed December 7 2015]
10. Analysis of Chinese customs data using the Global Trade Atlas. Available from: http://www.worldtradestatistics.com/ gta/ [Accessed on December 7, 2015]
11. Analysis of Chinese customs data using the Global Trade Atlas. Available from: http://www.worldtradestatistics.com/gta/ [Accessed on December 7, 2015].
12. Insight Crime. 2014. Exotic wood high prices drive illegal logging in Panama [in Spanish]. Available from: http://es.insightcrime.org/noticias-del-dia/altos-precios-de-exotica-madera-impulsan-a-la-tala-ilegal-en-panama [Accessed December 8, 2015].
13. EIA. 2014. Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong. London, U.K.
14. Insight Crime. 2014. Exotic wood high prices drive illegal logging in Panama [in Spanish]. Available from: http://es.insightcrime.org/noticias-del-dia/altos-precios-de-exotica-madera-impulsan-a-la-tala-ilegal-en-panama [Accessed December 8, 2015].
15. Global Witness. 2015. The cost of luxury. Cambodia's illegal trade in precious wood with China. Global Witness, London, U.K.
16. EIA. 2014. Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong. London, U.K.
17. EIA. 2015. Organised chaos: the illicit timber trade between Myanmar and China. London, U.K.
18. Forest Trends. 2010. Timber markets and trade between Laos and Vietnam: a commodity chain analysis of Vietnamese-driven timber flows. Washington D.C., U.S.A
19. Burkina Faso: Export of logs and processed products is prohibited (Decree No 2005 - 003/MECV/MCPEA, 9 March 2005). Cote d'Ivoire: P. erinaceus species cannot be exported (Decree No. 2013-508, 25 July 2013). Guinea Bissau: Moratorium on all timber exports passed in July 2014. Senegal: P. erinaceus export is strictly prohibited (Law No 98-03 Act, 8 January 1998 and Decree No 98-16, 20 February 1998, Article 63).
20. EIA. 2014. Rosewood and the ongoing illegal logging crisis in Belize. London/Washington D.C.
21. UN. 2014. Group of Experts on Côte d'Ivoire, report, S/2014/266, April 14, 2014 and 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.
22. EIA. 2015. Unpublished analysis of media reports in Thailand and Cambodia, and of government released figures.
23. EIA. 2015. Unpublished analysis based on: 2011 standing stock estimates by MOECF (Myanmar), 2015 estimates of proportional trade volumes by China's South-west Foresty University and Chinese Customs Data.
24. 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.
25. 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; Adjo nou (Op. cit.).
26. 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; Anderson, J., *et al*. 1994 ; Karou. D., *et al*. 2005. Antimalarial activity of Sida acuta, Burm F.(Malvacease) and Pterocarpus erinaceus poir. (Fabaceae). J. Ethnopharmacol. 89: 291-294.
27. 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 December 23, 2015].
28. EIA. 2014. Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong. London, U.K.
29. PC22 Doc. 22.3, AMENDMENT OF THE ANNOTATION TO THE LISTING OF DALBERGIA COCHINCHINENSIS INCLUDED IN APPENDIX II, https://cites.org/sites/default/files/eng/com/pc/22/E-PC22-22-03.pdf
30. EIA. 2014. Routes of extinction: The corruption and violence destroying Siamese Rosewood in the Mekong. London, U.K.
31. EIA. 2015. Addressing ASEAN's rosewood crisis: an urgent call to action. London, U.K.
32. 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.
33. 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.
34. Aubreville, A. 1950. Flore forestière soudano-guinéenne. A.OF – Cameroun-AEF. Société d'Editions Géographiques, Maritimes et Coloniales, Paris.
35. Based on: Lawson, S. 2015. The illegal rosewood boom in West Africa. Paper presented at the Chatham House Workshop. 25-26 June, 2015, London and statements made by key actors of the supply chain
36. Analysis of Chinese customs data using the Global Trade Atlas. Available from: http://www.worldtradestatistics.com/gta/ [Accessed on December 7, 2015].
37. FFI. 2007. Rosewood (Dalbergia stevensonii) in Southern Belize: a preliminary assessment.
38. Meerman *et al*. 2010. Belize Forest Cover Change 1990-2000-2005.
39. EIA 2014 Rosewood and the ongoing illegal logging crisis in Belize. London/Washington DC.
40. Under Statutory Instrument No. 87 of 1992, see http://news.mongabay.com/2013/0211-stott-rosewood-ban.html
41. Belize Press Office. (March 16, 2012). Rosewood Moratorium. www.belize.gov.bz.
42. Belize News 5. (January 10, 2013). Illegal rosewood harvested down south. Available from: http://edition.channel5belizearchives/80598 [Accessed Dec 7, 2015].
43. EIA. 2014. Rosewood and the ongoing illegal logging crisis in Belize. London/Washington DC.

ENVIRONMENTAL INVESTIGATION AGENCY (EIA)

EIA - LONDON

62/63 Upper Street
London N1 ONY, UK
Tel: +44 (0) 20 7354 7960
email: ukinfo@eia-international.org

www.eia-international.org

EIA - WASHINGTON, DC

PO Box 53343
Washington, DC 20009 USA
Tel: +1 202 483-6621
email: info@eia-global.org

www.eia-global.org