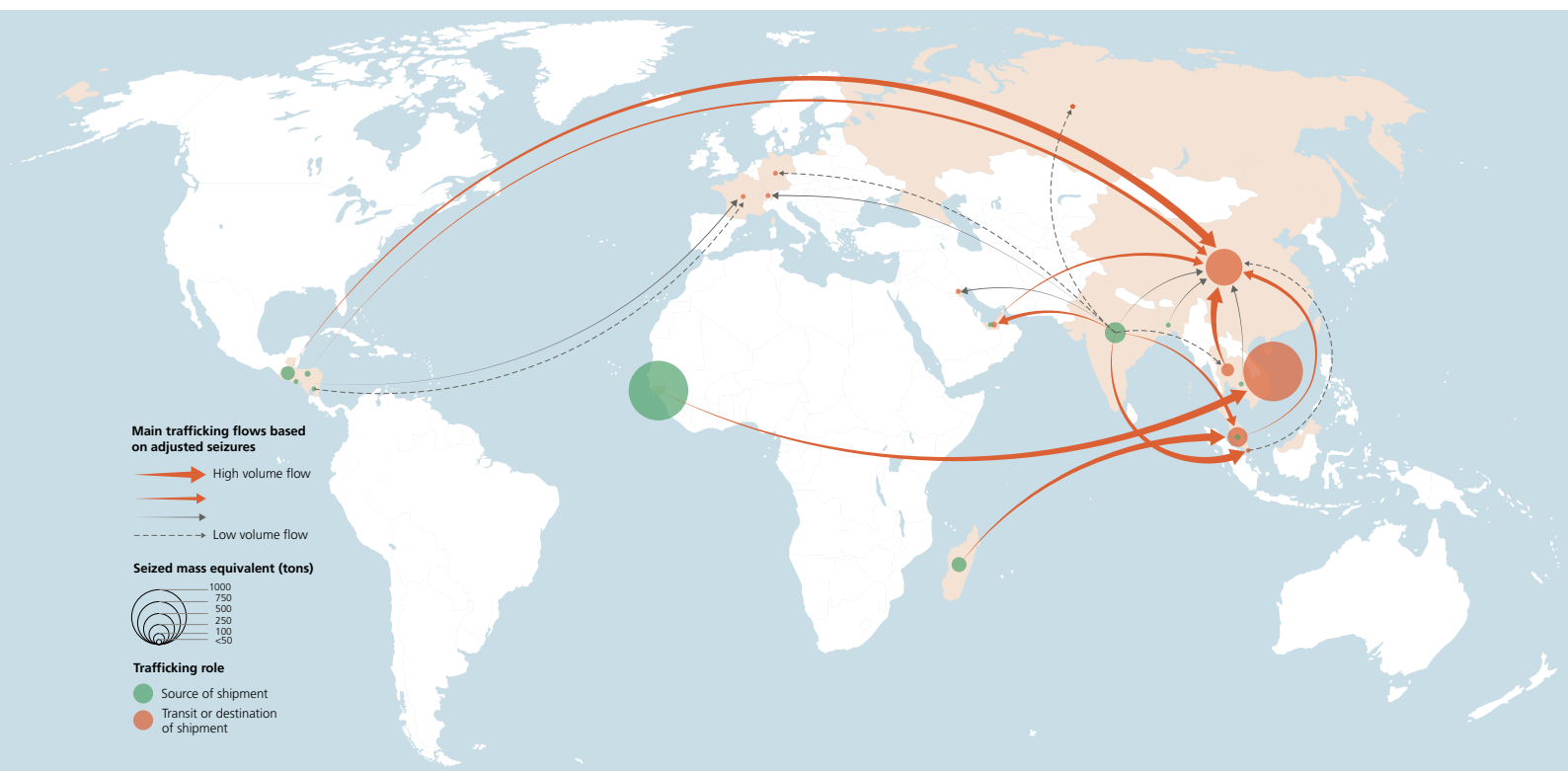


# ROSEWOOD TIMBER

2

Map 1

Trafficking flow map - Rosewood (2015-2018)\*



Source: UNODC World WISE Database \*The year 2018 is based on partial data.

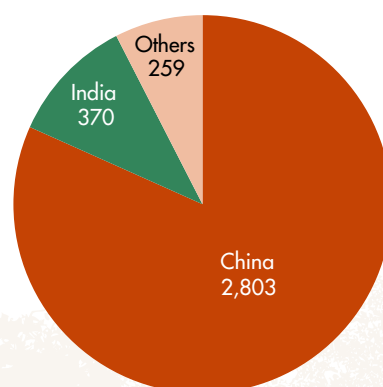
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

“Rosewood” is a trade term for a wide range of tropical hardwoods, not a botanical category. It appears that illegal rosewood and other tropical hardwood timber is entering some legal industry supply chains, including the international wood furniture trade. Demand for tropical hardwood timber has grown greatly in the last two decades, and where trade associated with this demand is not well regulated, it can be incompatible with the survival of these species and the forests that contain them. Both local and international controls have been gradually put in place to counter over-exploitation, yet key operators constantly adapt their tactics to circumvent these controls.

In order to understand the illegal trade in rosewood and associated fraudulent practices, it is important to understand the legal market and value chain. The following description of legal trade does not imply that all this trade is illegal. Global imports of tropical hardwood logs totalled 18 million cubic meters in 2018, valued at over three billion US dollars.<sup>1</sup> Some 82 per cent of the value of this import demand came from industries based in China, which currently lead the world in furniture manufacture.<sup>2</sup> Up to one-fifth of these imports include timber species described as “rosewood”.<sup>3</sup>

Fig. 1 Imports of “tropical wood in the rough” (US\$ millions) in 2018



Source: ITC Trade Map

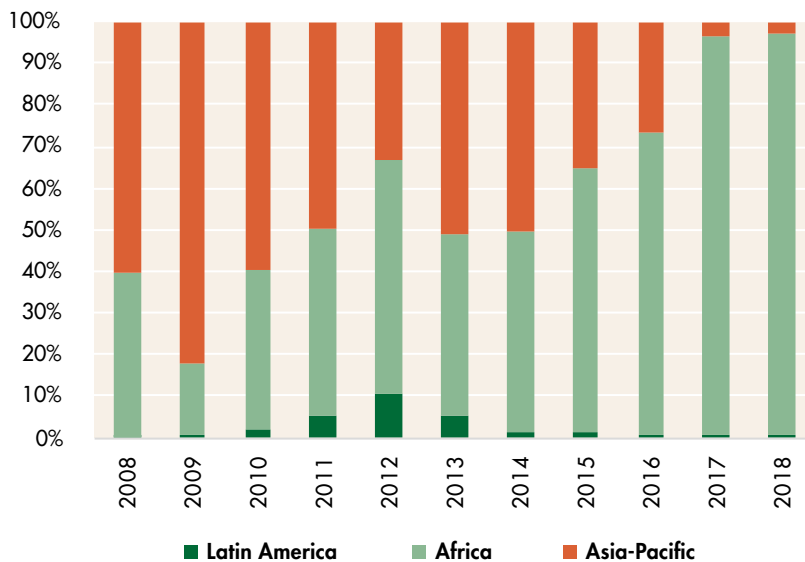


Because there is no universal definition of “rosewood”, there are no global statistics on the rosewood market – in most national systems, and imports are typically registered as tropical hardwood “not elsewhere specified”. While traditional rosewoods have many uses,<sup>4</sup> as a practical matter today most of the trade refers to tropical hardwoods suitable for making traditional furniture in the Asian style, typically referred to as *hongmu*.<sup>5</sup> Most of these rosewood species used for *hongmu* come from the

*Dalbergia* and *Pterocarpus* genera,<sup>6</sup> but a growing number of species, including those from other genera, appear to have become integrated into the trade. In the past, CITES Parties have acknowledged that “rosewood timber species” is a common commercial name that encompasses hundreds of species within around nine genera of tree species in trade.<sup>7</sup> Table 1 shows rosewood species currently listed in CITES Appendices.

Traditionally, *hongmu* furniture was constructed from species found in countries of Eastern and Southern Asia. Economic and population growth in the region led to greater demand for these products relative to the natural supply. Over time, Asian species of rosewood became over-exploited.<sup>8</sup> This pushed rosewood traders to look farther afield for supplies of *Dalbergia* and *Pterocarpus* species, to places where the species were not yet protected by national or international legislation.

**Fig. 2** Share of the volume of rosewood log imports to China by regional source, 2008-2018



Source: World Trade Atlas

Over the last decade, the share of total rosewood imports to China coming from Africa has steadily increased (Figure 2), with a portion of this share suspected to have been illegally sourced in or exported from Africa. As this demand has grown, many source countries have taken measures to ensure their exports are sustainable, including restrictions on harvesting or exporting rosewood species and bans on log exports (roundwood export bans). There is evidence to suggest that in some countries illegal trade emerged circumventing these controls.<sup>9</sup> The international community has also intervened and placed many species under CITES control. Among the most notable include the listing of *Dalbergia nigra* on Appendix I in 1992, the listing of *Pterocarpus santalinus* on Appendix II in 2007, and the listing

**Table 1** CITES listed tree-species in international trade under the name “rosewood”

APPENDIX	TAXA	DATE OF ORIGINAL LISTING IN THE APPENDICES	DATE OF LAST AMENDMENT TO THE LISTING
I	<i>Dalbergia nigra</i>	11.06.92	N/A
	<i>Dalbergia</i> spp. #15 (except for the species listed in Appendix I)	12.06.13	26.11.19
	<i>Guibourtia demeusei</i> #15	02.01.17	26.11.19
	<i>Guibourtia pellegriniana</i> #15	02.01.17	26.11.19
	<i>Guibourtia tessmannii</i> #15	02.01.17	26.11.19
II	<i>Paubrasilia echinata</i> #10	13.09.07	N/A
	<i>Platymiscium parviflorum</i> #4	01.07.75	26.11.19
	<i>Pterocarpus erinaceus</i>	09.05.16	02.01.17
	<i>Pterocarpus santalinus</i> #7	16.02.95	13.09.07
	<i>Pterocarpus tinctorius</i> #6	26.11.19	N/A
	<i>Senna meridionalis</i>	12.06.13	N/A

of all *Dalbergia* species of Madagascar in 2013. Due to the difficulties of distinguishing *Dalbergia* species, the entire genus was listed in 2016, with the listing taking effect in 2017.<sup>10</sup>

Up until 2013, one of the more prominent non-Asian sources for rosewood was Madagascar, where at least 48 species of *Dalbergia* are known to occur (of which 47 are endemic).<sup>11</sup> Since the 1980s, recognizing that it is losing its unique wild areas at a rapid pace, Madagascar has implemented a series of export bans and logging prohibitions that were later suspended or rescinded.<sup>12</sup> After the CITES listing in 2013,<sup>13</sup> there followed a series of seizures enforcing these controls, including the 2014 seizure of 3,000 tons of Malagasy rosewood by Singapore. A recommendation to suspend trade in species of *Dalbergia* from Madagascar was made by the CITES Standing Committee in 2016 and remains in place.<sup>14</sup>

The last WWCR focused on another part of the continent: West Africa. From around 2011, great volumes of a particular species were exported from different countries in this region: *Pterocarpus erinaceus*, known in Nigeria as “kosso”.<sup>15</sup> Kosso was not listed on the CITES Appendices at the time, but its export was often occurring in violation of a range of national laws and regulations. Kosso is the only species recognised as rosewood in Asia that grows in West Africa, so any Asian imports of rosewood from West Africa are highly likely to be kosso.<sup>16</sup> Because the species was not placed on Appendix II until 2017, prior to its CITES-listing it could be imported by destination countries without a CITES permit. This resulted in imports taking place despite the fact that harvesting in some cases had been illegal or that exports were in contravention of national laws. As a legal import, these flows were captured in the national import statistics of the destination countries, and they showed the rise of kosso to dominate rosewood imports.<sup>17</sup>

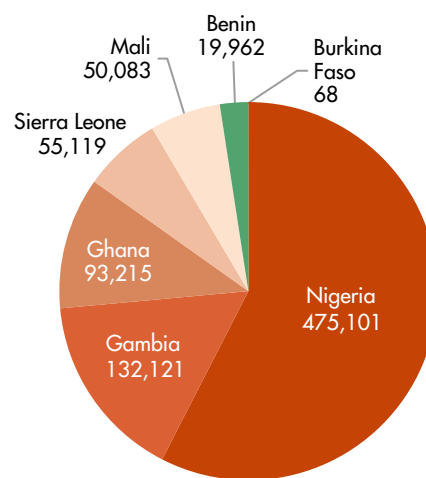
The CITES Appendix II listing of *Pterocarpus erinaceus* in 2017<sup>18</sup> required all exporting countries to certify that the trade was legal in origin and would not negatively impact the survival of the species. According to CITES trade data,<sup>19</sup> CITES Parties reported importing over 825,000 cubic metres of kosso logs in 2017. This is equivalent to about four million trees.<sup>20</sup> Based on these data, Nigeria was the exporter of 58 per cent of the volume that year (Figure 3). Some 99 per cent of the CITES reported kosso exports in 2017 were imported by China.<sup>21</sup>

Another way to look at this flow is through trade data based on the Harmonised System (HS). Based on these data, it is estimated that Asian countries imported about 1.4 million cubic metres of rosewood (presumably kosso) from West African countries in 2017, of which 58 per cent came from Nigeria. This represents the largest volume of kosso ever imported and an increase of over one-third for Nigeria over the previous year (Figure 5). In the previous *World Wildlife Crime Report*, the flow of kosso from West Africa to Asia was described as illegally sourced, since most of the source countries had imposed domestic laws on harvest or export that were violated when the product was exported in contravention of those laws. In 2017, some of this flow was accompanied by CITES certificates, despite the fact that in some countries these laws were still in place. For example, these included a timber export ban in Nigeria.<sup>22</sup> The volume of the trade was so large that it prompted a mission by the CITES Secretariat to visit Nigeria in May 2018, to evaluate the basis for these permits.

The mission found that the timber might have been obtained in accordance with national law but it was not in accordance with the Convention. The CITES Secretariat pointed to the absence of recent scientific studies to estimate the level of sustainable harvest that could be authorized. In other

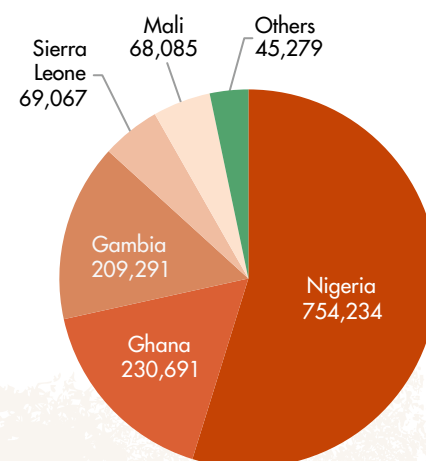
words, CITES certificates were being issued without any evidence that the trade would not be harmful to the survival of the species, which is the point of certification. The CITES Secretariat described this trade as “lawful but awful” and in October 2018 the

**Fig. 3** Distribution of CITES regulated imports of kosso\* logs (cubic metres) by exporting country, 2017



Source: CITES Trade Database  
\* *Pterocarpus erinaceus*

**Fig. 4** Distribution of Asian countries imports of kosso logs from West Africa (cubic metres) by exporting country, 2017



Source: World Trade Atlas, UN Comtrade





Standing Committee recommended that Parties suspend trade in this species with Nigeria.<sup>23</sup>

CITES recommended that West and Central African states with domestic legislation in place prohibiting the export of timber and timber products, establish a voluntary 'zero export quota' for kosso.<sup>24</sup> Also, at its 70th meeting, the CITES' Standing Committee requested the CITES Plants Committee to consider the inclusion of kosso from all range States in the Review of Significant Trade process.<sup>25</sup>

Alongside this trade, the smuggling of kosso continues. In 2017, Singapore seized over 1,000 tons of kosso coming from Guinea-Bissau on its way to Viet Nam without CITES documentation.<sup>26</sup> At the same time, it appears other species are being drawn into the illegal rosewood trade. National trade data show that the Democratic Republic of the Congo, the Congo, and Mozambique are major suppliers of logs classified as "rosewood", but these are unlikely to be kosso, or any other rosewood species in the trade standard, because no recognised

species is found in this region. Rather it appears these are exports of *Pterocarpus tinctorius*, known as "mukula" in Central Africa. Mukula is not among the species on the Chinese rosewood trade standard, but it bears a strong resemblance to other African *Pterocarpus* species. It was listed on CITES Appendix II in 2019 because, as the proposal justified:

*While Pterocarpus tinctorius is not on the official hongmu list, it has achieved market demand due to its lookalike characteristics. Chinese buyers in Zambia reported to CIFOR interviewers that an early boom in P. tinctorius (beginning in 2010) was actually due to its being used as a false rosewood: shipments were sent through intermediary traders and nations to Viet Nam and the Philippines, where it was mixed with Pterocarpus santalinus (red sandalwood) and sold onto the Chinese furniture market.<sup>27</sup>*

There appears to be a tendency to refer to a number of African *Pterocarpus* species as "red sandalwood" or "red

sanders", terms that normally apply to *Pterocarpus santalinus*, an established rosewood endemic to South Eastern India.<sup>28</sup> Mukula also appears to be sold as "Zambian blood rosewood"<sup>29</sup> or "dye red sandalwood".<sup>30</sup> Other African genera of the *Fabaceae* family, such as *Guibourtia*, known as "bubinga" in Central Africa, may also be feeding into the illegal rosewood trade, and several species were listed in Appendix II, effective in 2017.<sup>31</sup> Bubinga is not listed as rosewood in the Chinese trade standard,<sup>32</sup> but, according to the Proposal for the listing of these species:

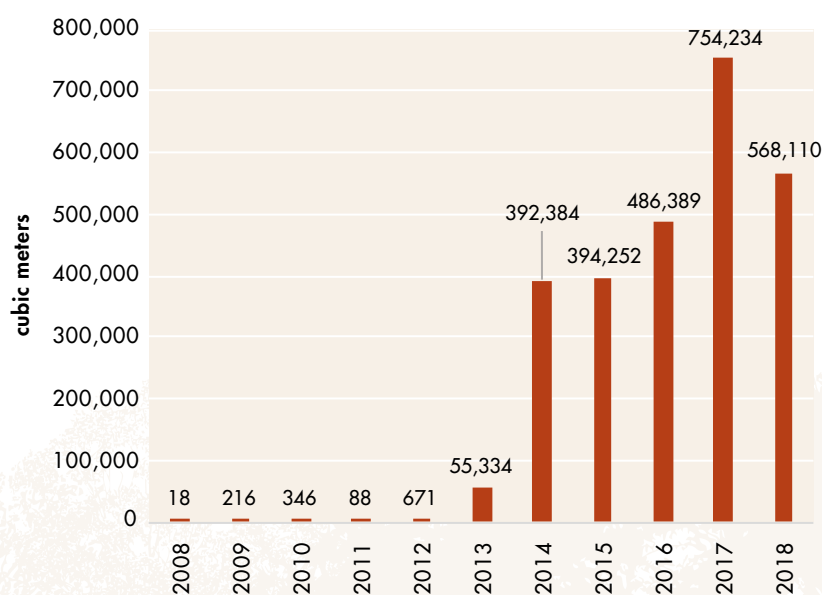
*The woods of the different Bubinga species, the aesthetic qualities of which are close to those of the Asian rosewood species which are most highly prized in the Hongmu tradition, have gradually become established as the first-choice alternative for this burgeoning sector.<sup>33</sup>*

According to World WISE, in 2019, 300 containers of bubinga were seized in Gabon. Another 74 tons were seized by China at Hong Kong, China, coming from Gabon.<sup>34</sup> It is possible that other species or genera will become informally integrated into the trade in ways that are not captured in the national or international statistics.

## Sourcing

Much of the following discussion is based on qualitative fieldwork conducted by UNODC in nine West African countries<sup>35</sup> in two periods: 75 interviews conducted over a period of six months spanning 2014-2015 and 46 interviews conducted over a period of two months in 2018. These interviews included senior national governmental officials, local authorities, border guards and port administrators, as well as traders and others active in the legal and illegal market. In addition, a range of site visits were conducted, including both harvest areas and timber markets. This fieldwork took place in the context of

**Fig. 5** Volume of kosso logs (cubic metres) exported from Nigeria and imported by Asian countries, 2008-2018 (trade suspended October 2018)



Source: World Trade Atlas, UN Comtrade

long-term ethnographic research on the illegal timber trade in this region.

Kosso (*Pterocarpus erinaceus*) is found mainly in West Africa and some northern parts of Central Africa.<sup>36</sup> Often growing in arid areas with sparse forest cover, it is nitrogen fixing, fire resistant, and a source of animal fodder.<sup>37</sup> One of the cheapest rosewoods,<sup>38</sup> its ecosystem value as a species seems to exceed its export value. According to the *International Union for the Conservation of Nature* (IUCN), it is classified in 2018 as “endangered” with a decreasing population trend.<sup>39</sup>

Aside from Nigeria, the other countries in the region responsible for the largest share of recorded exports of kosso are Ghana and Gambia. These three countries were collectively responsible for 85 per cent of the volume traded in 2017.<sup>40</sup> In 2018, Sierra Leone also emerged as a top exporter (Figure 6).

--- In Ghana, an academic study estimating the rate of extraction between 2004 and 2013 found, “The current level of exploitation is unsustainable...”<sup>41</sup> Exports from Ghana have more than doubled since that time. The government of Ghana has imposed and withdrawn bans on harvesting and export of rosewood several times since 2011, and, in April of 2019, a total ban on harvesting, processing and export of rosewood was imposed to “eliminate illegal activities that were endangering the species, especially in northern Ghana”, although the Ministry of Lands and Natural Resources has indicated that ‘salvage permits’ would be issued for rosewood log stocks.<sup>42</sup> On 26 August 2019, the Ghanaian government established the Committee to Investigate Allegation of Corruption in Rosewood Trade in Ghana.<sup>43</sup>

--- According to the IUCN, “Supplies of [kosso] are suspected to be exhausted from Gambia...”<sup>44</sup> Despite this fact, Gambia continues to be a major exporter, second only to Nigeria globally in 2017 according to the CITES Trade data. A 2019 Wildlife Crime Threat Assessment Report on West and Central Africa<sup>45</sup> commissioned by the CITES Secretariat, and prepared by UNODC states, that in the case of the Gambia illegal exports of rosewood are estimated to be worth about half of the country’s total exports, about 10 per cent of its GDP, and more than 20 times the budget of the Ministry of Environment, Climate Change and Natural Resources.

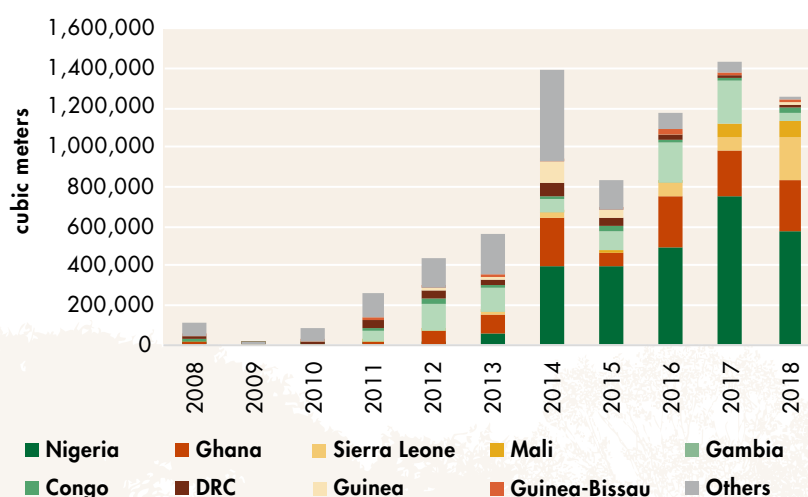
--- Like Nigeria, Sierra Leone is a country that has increased exports of kosso since the CITES Appendix II listing in 2017, with export volumes tripling between 2017 and 2018, despite periodic export bans that year. In 2018, the longstanding log export ban was temporarily lifted, and this may have fuelled the surge in exports. The ban was reinstated by the President on 4 April 2018, as part of his first act in office<sup>46</sup>

and then quickly rescinded again afterwards.<sup>47</sup> According to the Ministry of Finance, by raising the tariff on exports from US\$1,500 to US\$2,500 per container, the total amount realised from timber export between October 2018 and March 2019 was \$16.5 million,<sup>48</sup> suggesting that 6,600 containers of timber were exported in those six months.

Comparing data on exports as reflected in the CITES Trade Database<sup>49</sup> with national import data, it appears that considerably more kosso was reported as imports than was reported as having CITES export permits issued, according to available export data for 2017. Trade data rarely line up neatly, and part of these differences may be due to delays between the year the permit was issued and when the export occurred, but the volumes involved are significant in some cases.

The fact that these four countries (Nigeria, Gambia, Ghana, and Sierra Leone) are currently exporting large volumes of rosewood does not mean the rosewood they are exporting came from within their counties. Interviews with traders indicate that Nigerian exports are supplemented by wood

**Fig. 6** Asian country imports of kosso logs (cubic metres) by exporting country, 2008-2018



Source: World Trade Atlas, UN Comtrade



from Cameroon.<sup>50</sup> In Gambia, forestry officials interviewed estimated that nearly all the rosewood exported comes from the Casamance area of Senegal.<sup>51</sup> According to traders interviewed, exports from Ghana appear to be supplemented by illegal imports from Burkina Faso.<sup>52</sup> Under CITES, however, this trade between African countries would require export permits, and the subsequent re-export would require a designated re-export permit. In other words, under the CITES implementation laws of all these countries, all this trade would be illegal because the required permits were not issued.

These are not the only countries that appear to be exporting more rosewood than their known stocks would allow. For example, kosso has been a protected species in Mali since 1995. The country has been targeted by rosewood traffickers since at least 2003<sup>53</sup> and has very few forested areas remaining.<sup>54</sup> Nonetheless, according to harmonised system trade data, it managed to export over 80,000 cubic metres of rosewood in 2018, which represents about half a million trees.<sup>55</sup>

Recent interviews with kosso traders in West Africa suggested some of the rosewood being exported from West Africa was coming from outside the recognised range of the species, including from the Democratic Republic of the Congo along the Angolan border. It seems likely that a closely related species is being traded as kosso. The most likely candidate is *Pterocarpus tinctorius*, or “mukula”, as it is known in Zambia. In 2018, researchers estimated that mukula was being extracted from Zambia at a rate of 110,000 cubic metres per annum, with estimated bribes paid to state officials of about US\$1.7 million.<sup>56</sup>

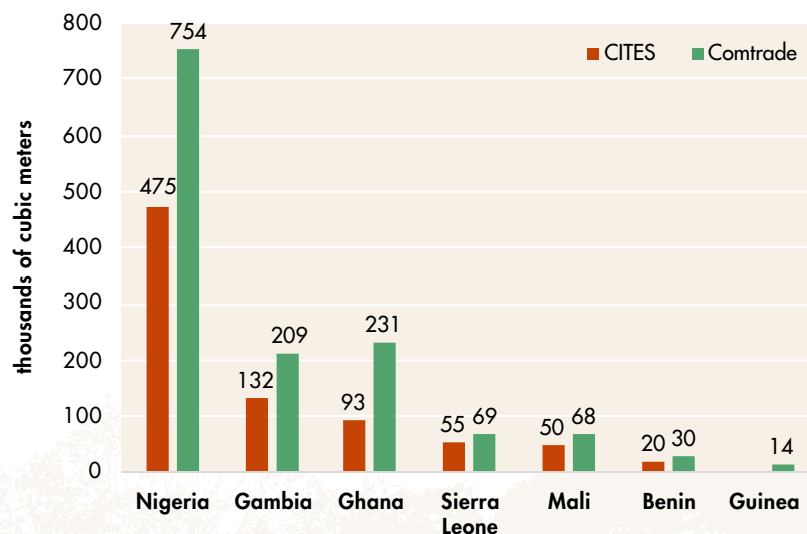
The interface between kosso exporters and illegal loggers appears to be professional timber traders, many of whom have moved between countries to pursue supplies. Fieldwork conducted by UNODC in Nigeria give some idea of how this might be taking place more generally.<sup>57</sup> Traders interviewed often came from a logging area and had the logistical capacity to move the wood to the major cities. These traders “empower” (or “activate”) local community leaders to

source kosso, paying them a nominal fee for the service.<sup>58</sup> These leaders in turn recruit other community heads to promote logging. Designated depots are established in the periphery of a forested area and a “depot chairman” is assigned.

Local people are then recruited to find prime trees and local labour employed to extract them, often for very low wages. Typical labour costs cited were US\$8.28 per log cut to chain-saw operators; US\$ 5.52 per log to “pushers” who manually transport the log from the felling site to the depot; and US\$1.38 per log to loaders, who work in teams of five or six and divide this fee among them. This labour is generally conducted without safety equipment.

Transport of illegally obtained logs from the depots by land is generally not a problem, although truckers are subject to roadside “taxes” from various dubious local authorities. During interviews, traders showed handfuls of printed receipts from these bodies that they had paid. As the more accessible kosso stocks become depleted, a seasonality in exports can be seen in some countries, with a dip during the rainy season when roads to remote areas become impassable.

**Fig. 7** Volume of kosso log import permits and volume of kosso logs\* imported by Asian countries based on trade statistics in 2017 (cubic metres) by exporting country



Source: CITES Trade Database, UN Comtrade

\* That is, estimated volume of logs classified as rosewood from West Africa, which would almost certainly be kosso logs or logs passed off as kosso.

## Trafficking

CITES-regulated wood from Africa, Asia and Latin America continues to be seized and CITES continues to monitor both illegal and legal trade. For example, in November 2018, CITES suspended commercial trade in the genus *Dalbergia* from Lao People's Democratic Republic (Lao PDR), including finished products, such as carvings and furniture. The suspension will remain “until Lao PDR makes scientifically based non-detriment findings for trade in the relevant species, including *D. cochinchinensis* and *D. oliveri* in the country to the satisfaction of the CITES Secretariat.”<sup>59</sup> However, since 2015, most of the rosewood imported by China



came from Africa, much of it illegally sourced. For this reason, this chapter focuses primarily on the flow from Africa and African rosewoods.

Due in part to the bulk of the product, overseas shipments of logs are generally containerized. Seizures recorded in the World WISE database show that logs may be concealed behind worked planks or species may be intermixed or mislabelled, but this is generally the extent of physical concealment.<sup>60</sup> Planks may be used at the mouth of a container to conceal whole logs in countries with a roundwood export ban. For example, Benin is one of two exporting countries of sawn rosewood to China in the region,<sup>61</sup> and interviews conducted by UNODC in the country in 2014<sup>62</sup> found that kosso planks were frequently used at the mouth of a container to conceal logs within. Interviews with officials in the region in 2014 and 2018 showed that countries rarely have the capacity to unload or scan departing timber containers to verify the contents, so loading the outer third of the container with planks allows good cover for illegal log exports.

Logs of illegal origin may be consolidated in transit countries, so the origin and species of the wood can be concealed. On arrival in the destination countries, illicit shipments are laundered into mainstream timber markets. The buyers of this wood may be unaware that the product they are purchasing was illegally harvested or traded.

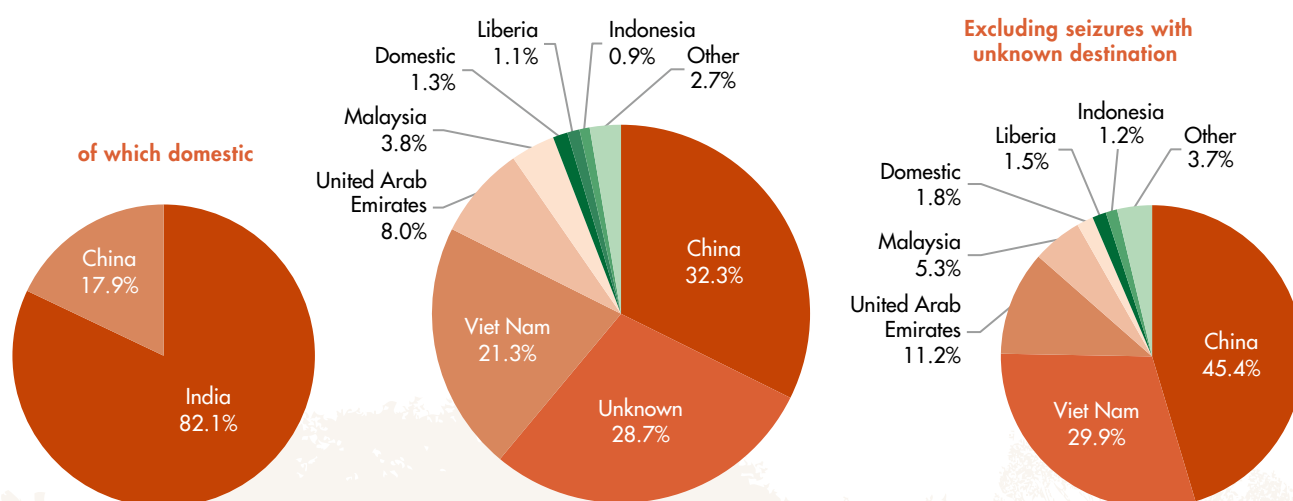
The World WISE seizure data suggest that China and Viet Nam are the main destinations for trafficked rosewood, and three-quarters of all the logs seized globally (where the destination was known) were on their way to one of the two countries. The United Arab Emirates has also been the destination of a number of significant seizures, as has Malaysia.

In most countries, the sheer volume of the trade makes comprehensive inspection impossible. If Nigeria exported around 750,000 cubic metres of kosso in 2017 (Figure 5), that is equivalent to nearly 40,000 containers of wood, or over 100 containers per day.<sup>63</sup> According to interviews conducted by UNODC in Nigeria in 2018, the Forestry

Inspection Unit has only one officer designated to inspect the loads leaving the two ports in Lagos (Apapa and Tin Can Island, which are situated about one half hour drive apart) and two officers in Port Harcourt. Interviews with officials in the ports indicated that timber loads were never unloaded, even in cases where irregularities were suspected; scanners were used for imports only; and that there was very little space or scope to detain shipments for further inquiry. Apapa Port, for example, is owned by a private company (APM), and charges the government a daily rate for the storage of containers. As a result, interviews suggested that questionable shipments are generally returned to the shippers rather than seized.

According to interviews with timber traders in the region, corruption is an issue throughout the trafficking chain, from the bribes paid to local authorities to the road taxes and the bribes at ports. Multiple layers of overlapping bureaucracy in some countries further complicate the issue. In Nigeria, for example, federal authorities such as Customs, the National Park Service, the national police, the National

**Fig. 8** : Percentage distribution of seizures of *Dalbergia* and *Pterocarpus* by reported country of destination (in mass equivalent), 2005-2017



Source: UNODC World WISE Database



Agricultural Quarantine Service, the National Environmental Standards and Regulations Enforcement Agency, and the Forestry Department of the Ministry of Environment all have some responsibility for timber enforcement with varying mandates and capacities, but most of the regulation takes place at the state level. In addition, falsified CITES permits have been reported by senior officials interviewed by UNODC in 2018.

In response to illegal logging, many countries have seized wood and prevented the export of privately held timber stocks. The result is the accumulation of stockpiles of considerable value in poor countries, degrading through exposure and held in place only through the power of local law enforcement.

It appears that the primary illegal exporters of rosewood from Africa are Asian expatriate traders. UNODC field observations show these traders conducting their business illegally are in for the long term. For example, the same traders known for their involvement in illegal activities in 2014 can be seen today in Guinea-Bissau. They are mostly found in the urban export areas in West Africa, as risks in the source areas are high. For example, they were frequently targeted for kidnapping by local gangs during the early years of rosewood exploitation in Nigeria, according to interviews with officials in the region conducted in 2014.

## Destination markets

Most of the tropical hardwood logs in international trade today are destined for Asia's massive furniture industry. China alone produced over 44 per cent of the value of world tropical hardwood furniture in 2016, valued at about US\$20 billion. Due to protections afforded forests in China, this industry was based almost entirely on imported logs. The country has also dominated exports of tropical hardwood furniture, topping US\$11

billion in exports in 2016, 59 per cent of the global total. Rosewood comprised about 20 per cent of the value of log imports in 2017, based on import declarations, most of which were destined for Hunagpu (Guangdong) and Shanghai ports.<sup>64</sup>

However, in response to rising manufacturing costs in China, furniture production has been relocating to Viet Nam, where costs are lower.<sup>65</sup> Viet Nam exported more than US\$3 billion in tropical hardwood furniture in 2016, while three other South-East Asian countries combined (Indonesia, Malaysia, and Thailand) exported a similar amount. In addition to China, the United States of America, European Union countries and Japan are destinations for wood furniture exports.<sup>66</sup> To feed this growing industry, imports of tropical hardwood logs from Africa (including rosewood) have increased by a factor of 10 since 2010 (Figure 9).

Based on a market analyst's report commissioned by UNODC,<sup>67</sup> Chinese demand for rosewood furniture appears to have dropped since 2014 due to a number of factors:

--- According to media sources, it appears housing investment has slowed,<sup>68</sup> resulting in a decline in consumer spending on new furniture.

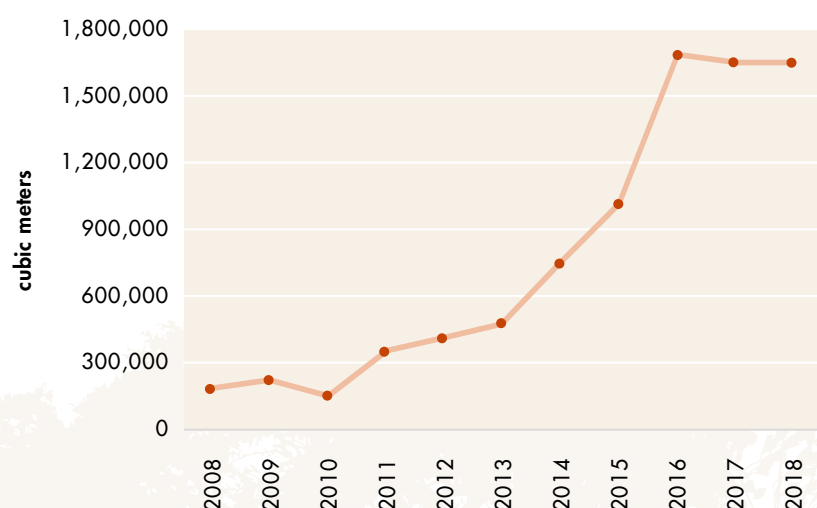
--- On the high end, the government has spoken out against conspicuous consumption and anti-corruption efforts have looked critically at spending on luxury goods.<sup>69</sup>

--- It also appears that demand in 2014 was buoyed by speculation, and that the drop in 2015 was the result of oversupply and market correction.<sup>70</sup>

In response, China's rosewood furniture industry has undergone considerable structural change and rationalisation in response to overcapacity, changing consumer demand, rising raw material and production costs, and increases in compliance costs associated with legality and environmental controls.<sup>71</sup>

In light of the new peak in imports from Africa in 2017 (see Figure 6 above), the market is likely far from exhausted.

**Fig. 9** Imports of African logs (cubic metres) by Viet Nam, 2008-2018



Source: COMTRADE



## Endnotes

- 1 Based on UN Comtrade data as captured by ITC Trade Map, Tropical wood in the rough, commodity HS code 440349 (2017 revision).
- 2 Ibid.
- 3 This chapter draws on the Harmonised System (HS) classification of trade data, captured in UN COMTRADE and national statistics. These data can be accessed through databases such as the International Trade Centre's Trade Map or commercial providers such as Trade Atlas. These data indicate that for China, rosewood (defined in Chinese National Standard 2017 and captured in China in HS code 44034980 'Tropical Rosewood in the rough') comprised 13% of all tropical hardwood log imports by weight and 20% by value in 2018.
- 4 For example, *Dalbergia* species are used in the manufacture of musical instruments, but the CITES Conference of the Parties (CoP) 18 in 2019 found that commercial and non-commercial trade in musical instruments was not detrimental to the species and these instruments were excepted from the listing.
- 5 红木 *Hongmu* (red wood) refers to just one of several sets of species that are used in traditional furniture manufacture, and other terms are used to refer to different groups of species. In China, the best definition of 'rosewood' comes from the species included in Chinese National Standard for Legal Marketing Purposes (GB/T 18107-2017, effective 1 July 2018): *Pterocarpus santalinus*, *Pterocarpus dalbergioides*, *Pterocarpus erinaceus*, *Pterocarpus indicus*, *Pterocarpus macrocarpus*, *Pterocarpus marsupium*, *Dalbergia odorifera*, *Dalbergia cultrata*, *Dalbergia latifolia*, *Dalbergia melanoxylon*, *Dalbergia nigra*, *Dalbergia spruceana*, *Dalbergia stevensonii*, *Dalbergia louvelii*, *Dalbergia cearensis*, *Dalbergia bariensis*, *Dalbergia cochinchinensis*, *Dalbergia frutescens* var. *Tomentosa*, *Dalbergia granadillo*, *Dalbergia oliveri*, *Dalbergia retusa*, *Millettia laurentii*, *Millettia leucantha*, *Senna siamea*, *Diospyros ebenum*, *Dalbergia crassiflora*, *Dalbergia celebica*, *Dalbergia philippensis*, and *Dalbergia pilosanthera*. Many species used in *hongmu* are also sought after by makers of other fine wood products, such as musical instruments, but, based on import statistics for protected species, the quantities used are much smaller.
- 6 The *Dalbergia* and *Pterocarpus* species comprise 25 of the 29 recognized species above.
- 7 CITES CoP 18, Working document 74 (2019), *Species specific matters: rosewood timber species [leguminosae (fabaceae)]*.
- 8 See, for example, CITES CoP17 Prop.55 (2016); available at: <https://cites.org/sites/default/files/eng/cop/17/prop/060216/E-CoP17-Prop-55.pdf>
- 9 CITES CoP16 (2013) Prop. 60, p. 6 and CITES CoP17 (2016) Prop.55, p. 10.
- 10 CITES CoP17 Prop. 54 (2016): *Include 13 timber species of genus Dalbergia (native to Mexico and Central America) in Appendix II*; CITES CoP17 Prop. 55 (2016): *Include the genus Dalbergia in CITES Appendix II with exception to the species included in Appendix I*.
- 11 Waeber, P., Schuurman, D., Ramamonjisoa, B., Langrand, M., Barber, C., Innes, J., Lowry, P. and Wilmé, L., 'Uplisting of Malagasy precious woods critical for their survival'. *Biological Conservation*, Vol 235, 2019, pp 89-92; CITES, Sixty-fifth meeting of the Standing Committee, *A preliminary Dalbergia checklist for Madagascar for CITES*, SC65 Inf. 21, 2014.
- 12 Ibid.
- 13 CITES CoP16 Prop. 63 (2013), *Inclusion of the populations of Madagascar in Appendix II, and limited to logs, sawn wood and veneer sheets by an annotation*.
- 14 CITES Notification to the Parties No. 2018/007, 15 January 2018.
- 15 *Pterocarpus erinaceus* is also known as *vène* in the Francophone countries, *pau de sangue* in Guinea-Bissau, *krayie/kpatro* in Ghana, and *keno* in the Gambia.
- 16 Of the 29 species recognised under the 2017 China trade standard, only one grows in West Africa: *kosso*. The other species are found in South-East Asia, Central America or Madagascar. It is theoretically possible that species from these other regions could be trans-shipped via West Africa, though this would make little commercial sense.
- 17 See UNODC, *World Wildlife Crime Report: Trafficking in Protected Species*, 2016, Chapter 3.
- 18 According to CITES CoP17 Prop. 57 (2016), "The last few years have seen a dramatic increase in trade of *Pterocarpus erinaceus* timber, in response to rising demand in Asia for rosewood furniture and increasing scarcity of other officially recognized 'rosewood' species." Before this, it was placed on Appendix III at the request of Senegal. See CITES, Notification to the Parties, 2016/008 (February 2016), available at: <https://cites.org/sites/default/files/notif/E-Notif-2016-008.pdf>.
- 19 Since the CITES listing only took effect in 2017, this is the first year CITES data are available. UNEP-WCMC (Comps.) 2019, *Full CITES Trade Database Download*, Version 2019.2; available at: [trade.cites.org](http://trade.cites.org).
- 20 As discussed below, a cubic meter of *kosso* is estimated to weigh on average roughly one metric ton, each log weighs about 200 kg, and each log is equated to one tree, so 825,000 metric tons divided by 200 kg gives an estimate of 4,125,000 trees.
- 21 Viet Nam reported importing 17 cubic meters (out of 825,000).
- 22 Nigeria Customs Service, *Export Prohibition List*, item 2 (of 8) is "Timber (rough or sawn)" (available at: [https://customs.gov.ng/?page\\_id=3079](https://customs.gov.ng/?page_id=3079)).
- 23 CITES, Seventieth Meeting of the Standing Committee, SC70 Doc.27.3.5 (2018), *Application of Article XIII in Nigeria*.
- 24 Decision 18.88, paragraph 6, recommendation q), on "Controlling trade in specimens of *Pterocarpus erinaceus*". See: *Recommendations to Parties in West and Central Africa for consideration in their implementation of measures and activities to address wildlife crime affecting the two subregions*, available at: [https://cites.org/sites/default/files/eng/prog/enforcement/CoP18\\_Doc\\_34\\_Annex2\\_EN.pdf](https://cites.org/sites/default/files/eng/prog/enforcement/CoP18_Doc_34_Annex2_EN.pdf).
- 25 CITES, Seventieth Meeting of the Standing Committee, SC70, *Summary Record*, para. 27.3.5 1. d) (2018). Available at: <https://cites.org/sites/default/files/eng/com/sc70/summary/SC70-SR.pdf>.
- 26 World WISE.
- 27 CITES CoP18 Prop.54 (2019), *Consideration of proposals for amendment of appendices I and II*.
- 28 See, for example, <http://chinatimber.org/price/69232.html>. Chinatimber.org is a timber network with 160,000 registered members. It was founded in 2009 by Dongguan Xingye International Logistics City Co., Ltd.
- 29 "赞比亚血檀原木", <https://www.1688.com/jiage/-D4DEB1C8D1C7D1AACCB-4D4ADC4BE.html>
- 30 "将染料紫檀", <http://chinatimber.org/price/69423.html> (see also prior note on chinatimber.org).
- 31 CITES CoP17 Prop. 56 (2016), *Consideration of proposals for amendment of appendices I and II. Guibourtia demeusei, Guibourtia pellegriniana, and Guibourtia tessmannii* were included in Appendix II. Other CITES listed species that could possibly be used as rosewood include *Paubrasilia echinata* and *Platymiscium parviflorum*.
- 32 红木 *Hongmu* (red wood) refers to just one of several sets of species that are used in traditional furniture manufacture, and other terms are used to refer to different groups of species. Given the distribution of the market, the best definition of 'rosewood' are the species included in Chinese National Standard for Legal Marketing Purposes (GB/T 18107-2017, effective 1 July 2018): *Pterocarpus santalinus*, *Pterocarpus dalbergioides*, *Pterocarpus erinaceus*, *Pterocarpus indicus*, *Pterocarpus macrocarpus*, *Pterocarpus marsupium*, *Dalbergia odorifera*, *Dalbergia cultrata*, *Dalbergia latifolia*, *Dalbergia melanoxylon*, *Dalbergia nigra*, *Dalbergia spruceana*, *Dalbergia stevensonii*, *Dalbergia louvelii*, *Dalbergia cearensis*, *Dalbergia bariensis*, *Dalbergia cochinchinensis*, *Dalbergia frutescens* var. *Tomentosa*, *Dalbergia granadillo*, *Dalbergia oliveri*, *Dalbergia retusa*, *Millettia laurentii*, *Millettia leucantha*, *Senna siamea*, *Diospyros ebenum*, *Dalbergia crassiflora*, *Dalbergia celebica*, *Dalbergia philippensis*, and *Dalbergia pilosanthera*. Many species used in *hongmu* are also sought after by makers of other fine wood products, such as musical instruments, but, based on import statistics for protected species, the quantities used are much smaller.
- 33 Ibid.
- 34 Hong Kong Customs. (11 June, 2019). "Hong Kong Customs seizes suspected scheduled Guibourtia species wood logs." (Available at: [https://www.customs.gov.hk/en/publication\\_press/press/index\\_id\\_2585.html](https://www.customs.gov.hk/en/publication_press/press/index_id_2585.html)).
- 35 Benin, Burkina Faso, Gambia, Ghana, Guinea-Bissau, Mali, Nigeria, Senegal and Togo.
- 36 According to the IUCN, its range includes Benin, Burkina Faso, Cameroon, Central African Republic, Côte d'Ivoire, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo. Barstow, M., 'Pterocarpus erinaceus', *The IUCN Red List of Threatened Species 2018: e.T62027797A62027800*.
- 37 Ibid.



- 38 See Table 1 in Ted Leggett, 'The rapid rise of rosewood trafficking in West Africa', *Forum on Crime and Society*, Vol 9, Nos 1 and 2, 2018, p 71.
- 39 See IUCN 2019 op cit.
- 40 CITES CoP 18, Working document 34 (CoP18 Doc. 34; 2019), *Wildlife crime enforcement support in West and Central Africa*.
- 41 Dumenu, W.K and Bando, W.N. 'Exploitation of African Rosewood (*Pterocarpus erinaceus*) in Ghana: A situation analysis', *Ghana Journal of Forestry*, Vol. 32, pp. 1-15, 2016.
- 42 International Tropical Timber Organization (ITTO), *Tropical Timber Market Report*, Vol. 23, No. 6, 16-31 March 2019.
- 43 Ghana, Ministry of Lands and Natural Resources, *Lands and Natural Resources Minister investigate alleged corruption in rosewood*, news story (posted on the Ministry's website [www.mlnr.gov.gh](http://www.mlnr.gov.gh)), 28 August 2019.
- 44 Barstow, M., 'Pterocarpus erinaceus', *The IUCN Red List of Threatened Species 2018: e.T62027797A62027800*. Available at: <http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T62027797A62027800.en>. Downloaded on 18 September 2019.
- 45 CITES CoP 18, Working document 34 (CoP18 Doc. 34; 2019), *Wildlife crime enforcement support in West and Central Africa*.
- 46 President Julius Maada Bio, *Executive Order No 1*, 9 April 2018.
- 47 International Tropical Timber Organization (ITTO), *Tropical Timber Market Report*, Vol. 22, No. 16, 16-31 August 2018.
- 48 Sierra Leone, Ministry of Finance, *2018 Annual Review* (available at: <https://mof.gov.sl/wp-content/uploads/2019/07/FIRST-Year-Achievements-of-MoF-under-the-New-Direction.pdf>).
- 49 Available at: <https://trade.cites.org/>.
- 50 Based on interviews with traders conducted in Nigeria in 2018. See Methodological Annex for details.
- 51 Based on interviews conducted in the Gambia in 2018. The exception being one senior Forestry official, who estimated that only 60% of the Gambia's exports came from the Casamance. See Methodological Annex for details.
- 52 Based on interviews in Burkina Faso in 2014. See Methodological Annex for details.
- 53 Based on interviews with forestry officials and traders in Mali in 2015. See Methodological Annex for details.
- 54 As of 2015, only 4% of the territory of Mali was forested, according to the World Bank's World Development Indicators (<https://databank.worldbank.org/source/world-development-indicators>). See Methodological Annex for details.
- 55 Depending on its moisture content, kosso has a density close to water (around 800-890 kg per m<sup>3</sup>), so one cubic meter is around one metric ton. Standard kosso logs are about 2.1 meters in length and of varying circumference, but on average about 200 kg, or one-fifth of a cubic meter.
- In most cases, one kosso log represents one entire tree, so 80,000 m<sup>3</sup> \* 5 = 400,000 trees.
- 56 Cerutti, P., Gumbo, D., Moombe, K., Schoneveld, G., Nasi, R., Bourland, N. and Weng, X., *Informality, global capital, rural development and the environment: Mukula (rosewood) trade between China and Zambia*, International Institute for Environment and Development, (London) and Center for International Forestry Research, (Lusaka), 2018.
- 57 Based on fieldwork conducted in Nigeria in 2018. See Methodological Annex for details.
- 58 Prices cited in interviews include US\$138 to US\$193 for a district head and only US\$28 to US\$55 for a village head as a one-off fee.
- 59 CITES, *Countries currently subject to a recommendation to suspend trade*, online running list, available at: <https://www.cites.org/eng/resources/ref/suspend.php>. See CITES, Seventy-first Meeting of the Standing Committee, SC71, *Summary Record*, p. 4, para. 10.1.a) (2019); available at: <https://cites.org/sites/default/files/eng/com/sc71/exsum/E-SC71-SR.pdf>. Also, for example, according to COMTRADE data, the Lao People's Democratic Republic supplied about 9% of China's rosewood log imports in 2017, down from about 25% in 2014. A significant increase in imports from Myanmar occurred in anticipation of a log export ban, which was implemented in April 2014. See UNODC, *Criminal justice response to wildlife and forest crime in Myanmar*, UNODC Regional Office for Southeast Asia and the Pacific, Bangkok, 2015. In 2017, import demand was stimulated by a total ban on commercial logging in national forests in China. See the statement of the Director of the State Forestry Administration, Zhao Shucon, 'State Forestry Administration: Strictly protect all natural forests' (available at: <http://news.sciencenet.cn/htmlnews/2015/2/313822.shtm>). Production in 2018 was interrupted by the introduction of stricter environmental controls, which impacted wood processing industries. These include the rollout of the People's Republic of China Water Pollution Prevention and Control Law (available at: [http://www.gov.cn/flfg/2008-02/28/content\\_905050.htm](http://www.gov.cn/flfg/2008-02/28/content_905050.htm)) and the Law of the People's Republic of China on Prevention and Control of Atmospheric Pollution (available at: [http://www.npc.gov.cn/zgrdw/npc/zfjc/zfjcelys/2018-07/09/content\\_2057589.htm](http://www.npc.gov.cn/zgrdw/npc/zfjc/zfjcelys/2018-07/09/content_2057589.htm)).
- 60 Some rosewood concealed in cover loads has been observed, however. For example, World WISE contains a seizure in which the Gambia detained containers in July 2018 where *P. erinaceus* logs were concealed behind a load of plastic waste.
- 61 According to national trade statistics, with the other being Nigeria, which only began exporting sawn rosewood in 2014 but was the leading exporter in 2017.
- 62 See the Methodological Annex of the UNODC *World Wildlife Crime Report 2016*.
- 63 Based on a conservative estimate of 20 cubic meters per container.
- 64 Based on data from the World Trade Atlas.
- 65 Russell, T., 'The Vietnam connection', *Furniture Today*, 7 October 2019.
- 66 Based on UN Comtrade data (<https://comtrade.un.org/>).
- 67 See Methodological Annex for details.
- 68 Based on data from the National Bureau of Statistics of China, as cited in Yu, X., 'China's real estate market expected to adjust in H2', *China Daily*, 26 June 2019.
- 69 See, for example, Xi Jinping, *Eight-point Regulation of the Centre* (中央八项规定), 4 December 2012, which admonishes party leaders to "practice thrift".
- 70 International Tropical Timber Organization (ITTO), *Analysis of trade trends for CITES-listed tree species and the impact on Chinese SMEs*, Project Technical Report, Research Institute of Forestry Information and Policy, Chinese Academy of Forestry (unpublished report), 2018.
- 71 Based on market analysts' report commissioned by UNODC. See Methodological Annex for details.