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

Twenty-fifth meeting of the Plants Committee
Geneva (Switzerland), 17 and 20-23 July 2020

Interpretation and implementation matters

General compliance and enforcement

Review of Significant Trade in specimens of Appendix-II species

INCLUSION OF *PTEROCARPUS ERINACEUS* FROM ALL RANGE STATES IN THE REVIEW OF SIGNIFICANT TRADE

1. This document has been prepared by the Secretariat.

Background

2. At its 70th meeting[1] (SC70, Sochi, October 2018), the Standing Committee requested the Plants Committee to consider the inclusion of *Pterocarpus erinaceus* from all range States in the Review of Significant Trade (RST) and report its findings and recommendations to the 73rd meeting of the Standing Committee (SC73).

3. Based on the recommendations found in document CoP18 Doc. 34 on *Wildlife crime enforcement in West and Central Africa*, the Conference of the Parties, at its 18th meeting (CoP18, Geneva, 2019), adopted Decisions 18.88 to 18.93 on *Wildlife crime enforcement support in West and Central Africa*. Decision 18.92 follows up on the recommendation by the Standing Committee referred to in paragraph 2, as follows:

> ***18.92 Directed to the Standing Committee***
>
> *The Standing Committee shall:*
>
> *a) consider the report from the Secretariat in accordance with Decision 18.93, paragraph d) and progress made by Parties in West and Central Africa in strengthening CITES implementation and make further recommendations as appropriate; and*
>
> *b) consider any report from the Plants Committee, in response to the recommendation agreed at its 70th meeting, concerning the inclusion of* Pterocarpus erinaceus *from all range States in the Review of Significant Trade and make recommendations as required.*

Inclusion of *Pterocarpus erinaceus* in the RST as an exceptional case

4. Considerations by the Plants Committee regarding the inclusion of *Pterocarpus erinaceus* from all range States in the RST process follow a recommendation from the Standing Committee, and a complementary instruction from the Conference of the Parties. The Secretariat is of the view that including *Pterocarpus erinaceus* in the RST process qualifies as an exceptional case as per paragraph 1 c) (Stage 1) of Resolution Conf. 12.8 (Rev. CoP18) on *Review of Significant Trade in specimens of Appendix-II species*, quoted below:

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[1] *See SC70 summary record (SC70 SR), at: https://cites.org/sites/default/files/eng/com/sc/70/exsum/E-SC70-SR.pdf*

1. *DIRECTS the Animals and Plants Committees, in cooperation with the Secretariat and experts, and in consultation with range States, to review the biological, trade and other relevant information on Appendix-II species subject to significant levels of trade, to identify problems and solutions concerning the implementation of Article IV, paragraphs 2 (a), 3 and 6 (a), in accordance with the following procedure and as outlined in Annex 1 of this Resolution:*

Stage 1: Selection of species/country combinations to be reviewed

[…]

c) in exceptional cases, outside of steps 1 a) and b) above, and where new information provided to the Secretariat by a proponent indicates that rapid action may be needed concerning problems relating to the implementation of Article IV (for a species/country combination), the Secretariat:

i) will verify that the proponent has provided a justification for the exceptional case, including supporting information;

ii) may produce, or request a consultant produce a summary of trade from the CITES Trade Database in relation to the species/country combination concerned as necessary; and

iii) will, as soon as possible, provide the justification and, if appropriate, a trade summary to the Animals or Plants Committee for their intersessional review and decision on whether or not to include the species/country combination in Stage 2 of the review process;

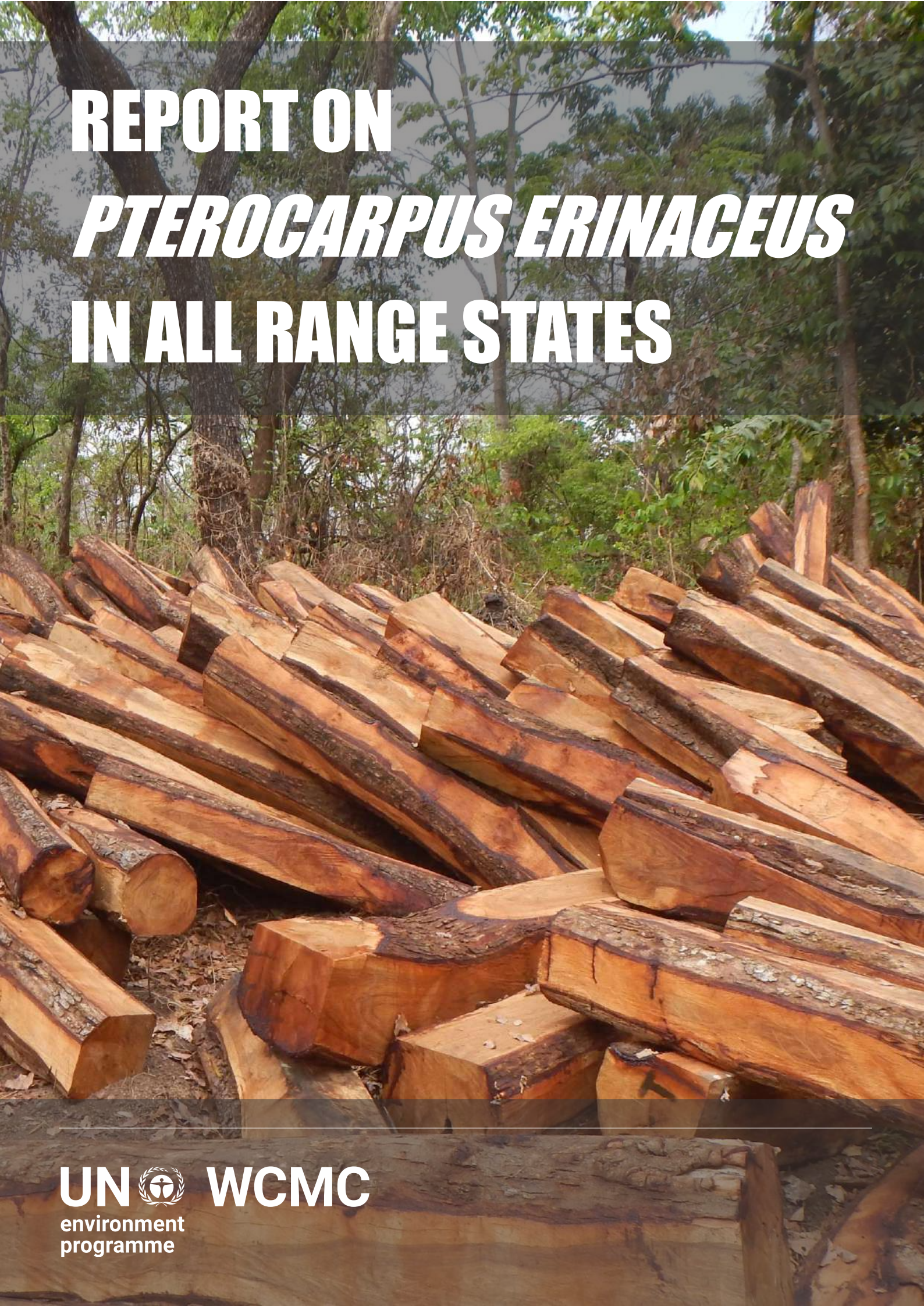
5. In compliance with subparagraph 1 c) ii) of Resolution Conf. 12.8 (Rev. CoP18), the Secretariat requested the World Conservation Monitoring Centre of the United Nations Environment Programme (UNEP-WCMC) to produce a report on the international trade in the species for each of the 17 range States of *Pterocarpus erinaceus*. The report also provides supporting information on the biology and management of the species across its range and summarizes the effects of international trade in *P. erinaceus* for the range States concerned, including possible problems relating to the implementation of Article IV. It is available in the Annex to this document in line with subparagraph 1 c) iii) Resolution Conf. 12.8 (Rev. CoP18).

6. Following the process outlined in paragraph 1 d) of Resolution Conf. 12.8 (Rev. CoP18), the Secretariat will, within 30 days after the Plants Committee completes its review, notify any range State for which its trade in *P. erinaceus* has been selected for the next stage, providing an overview of the review process and an explanation for the selection.

Recommendations

7. The Plants Committee is invited to review intersessionally the Annex to this document and to decide on which, if any, *Pterocarpus erinaceus*/country combination should be included in Stage 2 of the review process.

REPORT ON *PTEROCARPUS ERINACEUS* IN ALL RANGE STATES



UN environment programme

WCMC

Report on *Pterocarpus erinaceus* in all range States

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Pterocarpus erinaceus logs in Sierra Leone / Xander van der Burgt © Royal Botanic Gardens, Kew.

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Executive Summary

At its 70th meeting (SC70, Sochi, 2018), the Standing Committee of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) agreed a recommendation requesting the CITES Plants Committee to consider the inclusion of *Pterocarpus erinaceus* (African rosewood) from all range States in the CITES Review of Significant Trade [RST; Resolution Conf. 12.8 (Rev. CoP18)]. This recommendation was further endorsed by the 18th meeting of the Conference of the Parties to CITES (CoP18, Geneva, 2019), in Decision 18.92, which drew upon the information in a threat assessment on illegal wildlife trade in West and Central Africa (CoP18 Doc. 34), and which directs the Standing Committee to, inter alia, "*consider any report from the Plants Committee, in response to the recommendation agreed at its 70th meeting, concerning the inclusion of* Pterocarpus erinaceus *from all range States in the Review of Significant Trade and make recommendations as required*". The inclusion of *P. erinaceus* in the RST process qualifies as an exceptional case as per paragraph 1 c) (Stage 1) of Resolution Conf. 12.8 (Rev. CoP18). In accordance with paragraph 1 e) of Res. Conf. 12.8 (Rev. CoP18), this report provides conclusions about the effects of legal international trade on *P. erinaceus* within all range States, highlighting any problems concerning the implementation of Article IV of CITES, in order to assist the Plants Committee in categorising range States as required in Stage 3 of the resolution. It also provides information on illegal trade in the species, where applicable, and provides additional recommendations to safeguard future trade in the species and encourage CITES compliance by range States.

In accordance with subparagraph 1 c) ii) of Resolution Conf. 12.8 (Rev. CoP18) the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) was commissioned by the CITES Secretariat to compile reviews for all 17 range States[1] of *P. erinaceus* for consideration by the CITES Plants Committee. All range States were consulted by UNEP-WCMC and asked to provide information on the scientific basis by which they had established that exports were non-detrimental and compliant with Article IV, including details on the population status and threats to the species within their country, as well as information on trade, legal protection, and management actions. Nine range States provided a response to the RST consultation (*see **Table 2.2** in Methods section*).

Range States were divided into three provisional categorisations ('*action is needed*', '*unknown status*' and '*less concern*'), in accordance with paragraph 1e) of Resolution Conf. 12.8 (Rev. CoP18) for intersessional review by the Plants Committee.

Of the 17 range States of *P. erinaceus*:

- Seven range States - Benin, Gambia, Ghana, Guinea Bissau, Mali, Nigeria and Sierra Leone - were provisionally categorised as '**Action is needed**' on the basis that available information suggests that the provisions of Article IV, paragraph 2 (a), or 3, are not being implemented;
- Ten range States - Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Guinea, Liberia, Niger, Senegal and Togo - were provisionally categorised as '**Less concern**' on the basis that available information indicated that either wild-sourced trade was not anticipated, or it could not be confirmed that the country was a range State (but see further recommendations below). There were no cases where the provisions of Article IV appeared to be met.

[1] Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Full details of the categorisations for the 17 range States of *P. erinaceus* under review are provided in **Table 1.2** (p. v). In addition to the provisional categorisations proposed for each range State, recommendations have been made for the species across its range.

Additional recommendations

Further recommendations related to Article IV

Export quotas: In Decision 18.88, Parties of West and Central Africa are encouraged to implement the recommendations contained within Annex 2 of document CoP18 Doc.34[2]; which included *inter alia*, the **establishment of a zero export quota for *P. erinaceus* in range States where domestic legislation prohibits export**. Only Guinea-Bissau has, to date, implemented a voluntary zero export quota in accordance with Res. Conf. 14.7 (Rev. CoP15), although Nigeria has communicated an "intention to do so for the next three years". Other range States that have legislation prohibiting the export of *P. erinaceus* wood products in some form include: Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Mali, Senegal, Sierra Leone, and Togo – **these Parties are encouraged to implement zero quotas in order to strengthen their export controls.**

Non-detriment findings: In line with the findings outlined in document CoP18 Doc. 34[3] that very few countries in West and Central Africa have the capacity for making robust scientific-based non-detriment findings, no range State of *P. erinaceus* demonstrated that the provisions of Article IV were being met. **Further guidance and capacity building in relation to timber NDFs are therefore required across the range** to ensure that any future exports are science-based and that ongoing adaptive management is in place, which could be addressed through implementation of Decision 18.93, paragraph c).

Safeguards for future trade: *P. erinaceus* is a high value timber, and its trade has been characterised by boom and bust cycles where major export centres have shifted from one country to another as stocks have become exhausted. Furthermore, in some instances, national bans have been lifted to allow for periodic exports of *P. erinaceus*. It is therefore important to note that the situation in range States that are categorised as 'Less concern', on the basis that trade has either not occurred or is not anticipated due to existing legislation restricting harvest or export, could change. The Standing Committee at its 73rd meeting, could therefore consider whether it may be appropriate to take a precautionary approach, and recommend that **as an exceptional case, no exports of *P. erinaceus* should take place from any range State unless a scientifically robust non-detriment finding has been submitted to the CITES Secretariat and the CITES Plants Committee (PC) Chair for their consideration and approval.**

Recommendations not related to Article IV

Legislation: Only four *P. erinaceus* range States have legislation placed in Category 1 under the CITES National Legislation Project, whilst the legislation of seven range States is currently in Category 2, with six range States in Category 3 (see **Table 1.1**). In CoP18 Doc. 34 Annex 2, Parties in West and Central Africa with Category 2 and 3 legislation are recommended to **reach out to the Secretariat for advice in order to work towards improving their CITES implementing regulations.**

Illegal trade: It is recommended that 11 range States are individually referred to the Standing Committee based on documented illegal trade, irrespective of scale, (which is difficult to determine in most cases), however, the issue is so widespread and pervasive that it may be appropriate to **refer**

[2] https://cites.org/sites/default/files/eng/prog/enforcement/CoP18_Doc_34_Annex2_EN.pdf
[3] https://cites.org/sites/default/files/eng/prog/enforcement/E-CoP18-34.pdf

the species from all range States to the Standing Committee for further consideration under Decision 18.92 on *P. erinaceus*; it is likely that the species would also be relevant to the Task Force on illegal trade in CITES-listed tree species (Decision 18.79), when convened.

Movement between range States: Related to the above point, cross-border movement/trade between neighbouring range States was a recurring theme that arose when reviewing the species. **Range States are encouraged to ensure that any cross-border movement is legal and regulated in accordance with CITES, and that measures are implemented or strengthened to detect and address any illegal movement of *P. erinaceus* between range States, through strict enforcement action.**

Demand-side measures: *P. erinaceus* importing Parties - particularly **China and Viet Nam** (which represented >99% and <1% of imports of *P. erinaceus* logs 2016-2018, respectively, according to CITES trade data) **should further support range States to enable sustainable trade, particularly in the development of NDFs and ensuring that trade is legal, as well as by raising any concerns with the relevant Party, Committee or the Secretariat**, in accordance with Decision 18.90**. China should be encouraged to strictly implement its amended Forest Law**, which entered into force on 1 July 2020, that bans the buying, processing or transport of illegally sourced timber (Article 66). **China are encouraged to clarify whether this new law covers imports as well as domestic timber and to outline the provisions under which it can ensure that imports of *P. erinaceus* are legal.** China may also wish to consider whether it might be appropriate to expand its communication exchange mechanisms to check permits immediately (currently in place with Nigeria) to other key *P. erinaceus* exporting countries.

Table 1.1: Categories of the National Legislation Project. Adapted from the National Legislation Project Legislative status table (November 2019). Further updates may be reported to the Standing Committee.

Party	Category	Last update
1) Benin	2	July 2019
2) Burkina Faso	2	CoP18
3) Cameroon	1	Nov. 2019
4) Central African Republic	3	Oct. 2019
5) Chad	2	CoP18
6) Côte d'Ivoire	3	Sept. 2019
7) Gambia	2	Mar. 2019
8) Ghana	3	CoP18
9) Guinea	2	Nov. 2019
10) Guinea Bissau	1	Nov. 2019
11) Liberia	3	Nov. 2019
12) Mali	2	CoP18
13) Niger	3	Oct. 2019
14) Nigeria	1	Nov. 2019
15) Senegal	1	Nov. 2019
16) Sierra Leone	3	Feb. 2017
17) Togo	2	Mar. 2019

Category 1: legislation that is believed generally to meet all four requirements for effective implementation of CITES; Category 2: legislation that is believed generally to meet one to three of the four requirements for effective implementation of CITES; Category 3: legislation that is believed generally not to meet any of the four requirements for effective implementation of CITES.

Table 1.2: Recommended (provisional) categorisations for the 17 range States of *Pterocarpus erinaceus* that were recommended for inclusion within the Review of Significant Trade at SC70 based on the effects of international trade and problems concerning the implementation of Article IV.

Range State	Summary	Recommendation
Global status	*Pterocarpus erinaceus* is listed as Endangered globally by the IUCN based on a 2017 assessment. It is known to occur from Senegal and Gambia to Chad and the Central African Republic.	
Benin	Reported to be widespread, present in six out of the country's ten phytogeographical zones. No population size estimates were available, however, exporters in the mid-2010s considered *Pterocarpus* timber in Benin to have become commercially exhausted. A 2017 IUCN Red List assessment for the species estimated a subpopulation decline across Gambia, Benin and Côte d'Ivoire of 80%. Benin was among the largest exporters of the species when trade began to boom in the early 2010s, but there is little to no data measuring the impact of trade on harvested populations. Classified as Endangered on Benin's National Red List in 2011 as a result of extensive commercial extraction and habitat deterioration. A 1996 decree listed *P. erinaceus* as a protected species; as such felling, delimbing, uprooting and cutting is prohibited under Benin's Forest Code. Benin also generally prohibited the export of raw, unprocessed timber, poles, posts, squared logs, thick planks, rough-sawn boards with sapwood and charcoal derived from natural forests. A decree in March 2017 (2 months after the Appendix II listing of *P. erinaceus* came into force) authorised the export of timber product stocks harvested in 2015 and 2016 up until December 2017. CITES annual reports have been received from Benin for 2016 and 2018, but not yet for 2017. Trade 2016-2018 predominantly consisted of wild-sourced logs and sawn wood totalling 41 007 m^3 for commercial purposes; all trade was reported by importers only. Lower volumes of pre-Convention logs and sawn wood totalling 4 755 m^3 were also reported by importers over this period, including in 2018. Benin is included in a current CITES Tree Species Programme project. No response to the consultation relating to the RST was received. Wild-sourced trade appears to have taken place 2016-2018 despite national protection, the species is Endangered in the country and it is unclear if any national management is taking place as a basis for non-detriment findings; therefore categorized as **Action is needed**. Although not related to the implementation of Article IV, illegal trade and exports of timber have also been noted to be an issue; **referral to the Standing Committee is therefore recommended.**	**Action is needed** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Range State	Summary	Recommendation
Burkina Faso	Occurs widely in southern Burkina Faso but considered likely to be absent from the north. Based on data from a national forest inventory 2012-2015, the species' total estimated volume for 2015 was reportedly >6 million m^3. With the exception of two protected areas: W National Park and Comoé-Lerba Wildlife Reserve, surveys in specific areas indicated unstable populations; a lack of recruitment was implied based on low densities in small diameter size classes. Some populations were reported to be in decline or rare, and populations in Cassou and Laba forests were considered to be critically endangered by authors of a study published in 2019. Threats to *P. erinaceus* in Burkina Faso were reported to include harvesting for fodder, medicinal purposes and use in construction, grazing, and clearance for agriculture; commercial logging was also reported to occur in agroforestry areas. While the current scale is uncertain, illegal exploitation of *P. erinaceus* was also reported to be an issue. In the CITES listing proposal, it was reported that the species was illegally harvested in Burkina Faso and smuggled into neighbouring countries. The exploitation and trade of timber was suspended in Burkina Faso in 2005, meaning that exports are not permitted; however, wild-sourced trade appears to have taken place despite this. A CITES annual report has been received from Burkina Faso for 2016, but not yet for 2017 or 2018. Direct trade in *P. erinaceus* 2016-2018 consisted entirely of 204 m^3 of wild-sourced logs for commercial purposes in 2017 and 2018, reported by China only. According to Chinese customs data from the Global Trade Atlas, rosewood logs imported by China from Burkina Faso over the period 2009-2018 totalled 637 m^3. Burkina Faso did not respond to the consultation relating to the RST. On the basis that no legal international trade is anticipated due to a ban on harvest and trade at the national level, the provisions of Article IV are not applicable, therefore categorised as **Less concern**. However, although the scale of the problem is unclear, illegal trade and export is a concern not related to the implementation of Article IV. **Referral to the Standing Committee is therefore recommended.**	Less concern *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*
Cameroon	Reported to occur in at least six of the ten administrative regions of Cameroon. The North, Far North and Adamaoua regions were considered to be the main areas of occurrence, reportedly containing vast natural stands. Two national forest inventories have been carried out in 1980 and in 2003-2004, however no data from the first was available. The results of the 2003-2004 inventory indicated that *P. erinaceus* did not meet the threshold for a rare species. CITES annual reports have been received from Cameroon for 2016 and 2017, but not yet for 2018. No trade in *P. erinaceus* was reported for 2016-2018. Chinese customs data extracted from the Global Trade Atlas indicated that in the same period, 375 m^3 of "rosewood" was imported from Cameroon to China, and in the period 2009-2018 a total of 3416 m^3 was imported. However, this trade could represent *P. erinaceus* and/or *Diospyros crassiflora*.	Less concern *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*

Range State	Summary	Recommendation
	Cameroon responded to the consultation relating to the RST. Demand for the species in international trade was reported to have driven uncontrolled and illegal logging of *P. erinaceus* in Cameroon, and this was identified as the main future threat. A number of reports have noted illegal trade and export of the species to neighbouring Nigeria, which is currently subject to an import suspension with regard to compliance and enforcement of the Convention for *P. erinaceus*. Harvesting and processing of the species does not currently follow any established management standard, and the management measures in place were considered insufficient to curb exploitation of the species. Efforts to address this have been made, with a Strategic Action Plan for sustainable management of *P. erinaceus* proposed. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**. However, illegal trade and export is a concern not related to the implementation of Article IV, **referral to the Standing Committee is therefore recommended**.	
Central African Republic	The occurrence of *P. erinaceus* in Central African Republic is uncertain. CITES annual reports have not yet been received from Central African Republic for 2016-2018; no exporter-reported trade data was therefore available. No trade in *P. erinaceus* from Central African Republic was reported by importers 2016-2018 according to CITES trade data. According to Chinese customs data extracted from the Global Trade Atlas data, 50 m^3 of rosewood logs were reported to have been imported by China from the Central African Republic in 2017. However, this could represent *P. erinaceus* and/or *Diospyros crassiflora*. Central African Republic did not respond to the consultation relating to the RST. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern.** The apparent non-submission of three consecutive annual reports is a concern not related to the implementation of Article IV, therefore **referral to the Standing Committee is recommended**.	Less concern *[Referral to the Standing Committee on the basis of non-submission of CITES annual reports for three consecutive years]*
Chad	*P. erinaceus* has been recorded in the south of Chad. Little information could be found in relation to status or threats to the species in Chad, and Chad did not respond to the consultation relating to the RST. One study conducted in southwest Chad found that overgrazing had led to lack of regeneration of the species. No further information on the status of *P. erinaceus* or its management could be located. A CITES annual report has been received from Chad for 2016, but not yet for 2017 or 2018. No trade in *P. erinaceus* from Chad was reported 2016-2018. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**.	Less concern

Range State	Summary	Recommendation
Côte d'Ivoire	Reported to occur from the centre to the north of Côte d'Ivoire, with the majority of the population distributed above the 8th parallel of latitude and the highest population density found in the country's extreme north. The species was stated to be disappearing, with an inferred population decline of 80% over the period 2011-2014 as a result of logging. An inventory of *P. erinaceus* is planned as part of a current CITES Tree Species Programme project. CITES annual reports have been received from Côte d'Ivoire for all years 2016-2018. No trade in *P. erinaceus* from Côte d'Ivoire was reported 2016-2018. Côte d'Ivoire responded to the consultation relating to RST. The exploitation, cutting, transport, marketing and export of *Pterocarpus* spp. were banned in 2013, however, illegal exploitation of *P. erinaceus* remains a current threat. The CITES MA made reference to recent seizures of *P. erinaceus* that had taken place in 2019. In addition, according to a 2019 UNODC threat assessment, exports from Ghana appeared to be supplemented by illegal imports of *P. erinaceus* from Côte d'Ivoire. The CITES MA stated their intention to discuss export of pre-ban stockpiles and seized containers of *P. erinaceus* (>590 000 logs in total) with the CITES Secretariat. On the basis of no legal trade due to the ban on harvest and export, the provisions of Article IV are not applicable, therefore categorised as **Less concern**. However, although the scale of the problem is unclear, illegal trade and export of timber is a concern not related to the implementation of Article IV. **Referral to the Standing Committee is therefore recommended.**	Less concern *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*
Gambia	Field based accounts of the distribution of *P. erinaceus* could not be located. According to a 2019 UNODC report, Gambia's MA had no distribution or population data for *P. erinaceus* in the country, although a range of officials interviewed reported that Gambia no longer had any commercial stands. The 2017 IUCN Red List assessment for the species estimated a subpopulation decline across Gambia, Benin and Côte d'Ivoire of 80%. A limited field survey in Gambia reportedly took place in 2010, but no data from this were available for review. CITES annual reports for 2016-2018 were received from Gambia after the trade data were downloaded for this report and were therefore not included in the analysis. CITES trade data from the only importer (China) indicated 221 854 m^3 and 45 000 kg of wild-sourced logs were imported over this period for commercial purposes. Chinese customs data extracted from the Global Trade Atlas indicated that a higher volume of 417 198 m^3 of rosewood logs had been imported by China from Gambia over this period. The majority (85% to 95%) of rosewood exported from Gambia is believed to have been illegally harvested in Senegal, where *P. erinaceus* is a protected species and exports are banned for all wood products. No trade from Senegal to Gambia, nor indirect trade originating in Senegal and re-exported via Gambia, was recorded in the CITES Trade Database.	Action is needed *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*

Range State	Summary	Recommendation
	Gambia did not respond to the consultation relating to the RST. Gambia's 2018 Forest Act listed *P. erinaceus* as a protected species, and also included a number of requirements aiming to curtail illegal trade from Senegal. Although Gambia announced the immediate suspension of all import, transport and export of timber in February 2017, this ban has been temporarily lifted twice to allow re-exports for limited periods of time. Given ongoing trade and the absence of up-to-date data on the population status and distribution of the species in the country, it is considered unlikely that robust scientifically based non-detriment findings could be made. On this basis, categorised as **Action is needed**. Illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, therefore **referral to the Standing Committee is recommended**.	
Ghana	Occurs in six regions of Ghana. National inventory data indicated that the species declined considerably in all regions as a result of harvest for timber and local use between 2013 and 2017. The population was considered by some authors to be under threat, with a lack of individuals in small size classes indicating population instability. CITES annual reports have been received from Ghana for 2017 and 2018, but not yet for 2016. Trade 2016-2018 consisted of 245 438 m^3 logs and sawn wood according to importers; lower quantities were reported by Ghana. Discrepancies have been noted between the volume of rosewood exported from Ghana according to data from Ghana's Timber Industry Development Division and imports into China according to Chinese Customs data extracted from the Global Trade Atlas, with import volumes consistently higher than export volumes. Illegal trade was considered to be a significant issue in the country, including smuggling from neighbouring countries into Ghana. Ghana have implemented five bans on felling and exporting the species since 2012. Each ban was lifted intermittently to allow exports of salvaged timber, but concerns have been raised that salvage permits were widely misapplied and granted under the wrong conditions. A current ban was implemented in March 2019. Ghana responded to the consultation relating to the RST. The MA noted that no non-detriment findings for exports had taken place to date, and that trade had not been well regulated. However, research by the Forestry Commission had been undertaken to estimate potential future quotas (the quota analysis was not provided). It is unclear if the current ban will remain in force given the recent legislative history and exports of the species from Ghana. Noting the decline in population status in the country, it is considered unlikely that robust scientifically based non-detriment findings can be made. On this basis, categorised as **Action is needed**. Illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, therefore **referral to the Standing Committee is recommended**.	Action is needed *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*

Range State	Summary	Recommendation
Guinea	Occurs in all four of Guinea's natural regions, but not inventoried at national level. Reportedly widespread and common in woodlands (the most common and least threatened of Guinea's natural habitats), but mature specimens were reported to have been extirpated due to overharvesting for export from 2005 to 2010, alongside local use. Guinea has been subject to an SC recommendation to suspend all commercial trade in CITES-listed species since May 2013 (under Article XIII), but is seeking CITES approval to export a stockpile of 14 500 m^3 of pre-Convention *P. erinaceus*. The SC recommended Guinea adopt adequate safeguards to mitigate potential risks associated with the stockpile export and invited Guinea to report on implementation of an updated set of recommendations 90 days before SC73. CITES annual reports have been received from Guinea for all years 2016-2018; no direct trade in *P. erinaceus* from Guinea was reported over this period according to CITES data; however, rosewood imports from Guinea were included in Chinese customs data totalling 2276 m^3 2016-2018 (*P. erinaceus* was subject to the CITES suspension since its inclusion in Appendix III on 9 May 2016). Guinea has never published CITES export quotas for the species despite a recommendation from the SC for Guinea to establish a voluntary 'zero quota' for *P. erinaceus* harvested after the inclusion of the species in Appendix II. Guinea responded to the consultation relating to the RST. Cutting, transport and export of timber were prohibited throughout the national territory in 2010, except for domestic use. A revised forestry law was adopted in 2017, setting out the regulations for timber exploitation under state, private, and other forms of ownership which prohibited the export of logs and rough sawn timber. In 2019, the Conservation Action Plan working group indicated "there is no evidence of excessive cutting of this species in Guinea at present". It is unclear whether Guinea intends to resume export of *P. erinaceus* other than its pre-Convention stockpiles. On the basis of no legal trade, the provisions of Article IV are not applicable, therefore categorised as **Less concern**.	Less concern *[The Standing Committee to monitor progress on relevant species-specific recommendations under the ongoing Article XIII process]*
Guinea Bissau	Found throughout the country except for the Arquipélago dos Bijagós. No information on population size could be located. The last forest inventory was conducted in 1985; plans are in place to conduct a new general forest inventory in November 2020. Uncontrolled exploitation of *P. erinaceus* reached unprecedented levels following a coup d'état in 2012 and reportedly remained high until a moratorium on felling and export was introduced in 2015. Guinea-Bissau responded to the consultation relating to the RST. The CITES MA considered the population trend to be increasing due to a reduction in logging pressure since the moratorium, but illegal felling and trade remained a concern. The moratorium expired on 15 April 2020, after which a general reorganization and redistribution of concessions to industrial timber operators was envisaged. No further information was provided regarding the nature of these expected changes, but the MA indicated it would like to resume exports of *P. erinaceus* timber if the results of the reorganisation	Action is needed *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*

Range State	Summary	Recommendation
	prove positive. A large stockpile of rosewood has been accumulated through seizures; in 2018 traders and official representatives reported that this consisted of over 400 000 logs. Guinea-Bissau was subject to a SC recommendation to suspend all commercial trade between March 2016 and January 2018, and had zero quotas in place for wild-sourced trade during 2018 and 2019 in line with the moratorium. In January 2018, the country notified CITES Parties of its intention to export 24 338 m^3 of pre-Convention timber, noting that no further exports for pre-Convention timber would be authorised after December 2018. A CITES annual report has been received from Guinea-Bissau for 2016 but not yet for 2017 or 2018. Trade 2016-2018 consisted of 12 421 m^3 of pre-Convention (96%) and wild-sourced (4%) logs imported for commercial purposes in 2018, reported by the importers China (74%) and Viet Nam (26%) only. The MA later clarified that a total of 24 807 m^3 pre-Convention timber was exported in 2018; this exceeds the stated amount to be exported by c. 500 m^3, though the volume of timber exported was stated to be an estimate. The MA reported this left a remaining stockpile of 4510 m^3 of timber that it hoped to gain authorisation from the Secretariat to export. Since data regarding the current status and management of *P. erinaceus* in Guinea-Bissau are not yet available, it is unclear whether a scientifically based non-detriment finding can be made; for these reasons, **categorised as Action is needed**. A number of concerns have been identified with regard to the vulnerability of the stockpile to illegal trade; as these may represent problems not related to the implementation of Article IV, **referral to the Standing Committee is therefore recommended**.	
Liberia	Not a range State for *P. erinaceus*, as confirmed by Liberia in response to the consultation relating to the RST. A CITES annual reports has been received from Liberia for 2016, but not yet for 2017 or 2018. No trade in *P. erinaceus* from Liberia was reported 2016-2018. A suspension on all commercial trade in CITES-listed species from Liberia has been in place since 15 March 2016. On the basis that the species does not occur naturally in Liberia, categorised as **Less concern**.	Less concern
Mali	A 2013-2014 inventory in in the southern regions of Kayes, Koulikora, Sikasso and Segou showed highest densities of the species in the cercles of Bafoulabé and Kita (in the Kayes region), as well as the cercles of Kadiolo, Yanfolila, Kolondieba and Bougouni (in the Sikasso region). In general, young stands (<25cm diameter class) were noted to be abundant in areas where the species occurs, implying that regeneration remains high. The three most important current threats in the country were considered by the CITES MA to be overexploitation, bushfires, and climate change. CITES annual reports have been received for 2016 and 2017, but not yet for 2018. Direct trade in wild sourced *P. erinaceus* from Mali 2016-2018 comprised 95 203 m^3 logs and 2029 m^3 sawn wood imported for commercial purposes, reported by	Action is needed *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade and discrepancies with export data omissions from CITES*

Range State	Summary	Recommendation
	China only. Mali responded to the consultation relating to RST, providing additional trade data in their response. A total of 52 112.1 m^3 of *P.erinaceus* was exported from 2000 to 2017, 84 700 m^3 in 2018, and 70 300 m^3 in 2019. Rosewood exports in 2017 as indicated by the CITES MA of Mali and Chinese customs data (high volumes) do not appear to have been included in Mali's 2017 annual report to CITES for that year, highlighting a discrepancy. Illegal trade was reported to have been ongoing since 2003, notably at the border with Senegal. On 27 May 2020, the country suspended the exploitation of timber or sawn timber in all forms throughout the national territory until further notice. The export of unprocessed wood products is also banned, but concerns have been raised about a lack of clear definitions for unprocessed and transformed timber in relevant pieces of legislation. Accordingly, it is unclear if any exports of wild sourced specimens could legally take place. Wild-sourced trade appears to have taken place 2016-2018, and it is unclear how harvest quotas are set and whether there is any scientific basis for non-detriment findings; therefore categorized as **Action is needed**. Other issues not related to the implementation of Article IV include illegal trade and exports of timber, as well as the omission of data on exports of *P. erinaceus* in the CITES annual report for 2017. **Referral to the Standing Committee is therefore recommended.**	***annual reports]***
Niger	Occurs in Niger at the northern edge of the species range. Recorded from three areas in southwestern Niger: Tamou Wildlife Reserve, W National Park, and a forest in the department of Gaya. No further information on the species distribution in Niger could be found. No national forestry inventory has been conducted, but the species was classified as endangered nationally in 2005, and critically endangered in W National Park and Tamou Wildlife Reserve by authors of a study published in 2019.A lack of recruitment is implied based on low densities in small diameter size classes across sites surveyed. The main threats to *P. erinaceus* were reported to be pollarding for use as livestock fodder outside of protected areas (i.e. W National Park) and climate change. No evidence of illegal trade could be located. CITES annual reports have been received from Niger submitted annual reports for 2016 and 2017, but not yet for 2018. No trade in *P. erinaceus* from Niger were reported 2016-2018. Niger did not respond to the consultation relating to the RST. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**.	**Less concern**

Range State	Summary	Recommendation
Nigeria	Found throughout central and eastern states. Nigeria is considered to have the largest remaining stocks of the three major exporting countries (Nigeria, Gambia and Ghana); however, population declines in the country were estimated to have been as high as 80% between 2009 and 2015 and are believed to be on-going. A recent inventory conducted in the States of Taraba, Adamawa and Kogi (the current principal centres of exploitation) showed an absence of trees in small size classes, indicating an unstable population structure. *P. erinaceus* in Nigeria mainly occurs outside of gazetted forest reserves where the species may be harvested without any plan for management or replacement. Illegal, unregulated and unstainable harvest were considered the main threats, together with weak national enforcement, poor cooperation between relevant agencies and challenges posed by the intricacies of the federal and state legal framework relating to the harvest and trade of timber. In October 2018, the SC decided to suspend trade in *P. erinaceus* from Nigeria until the Party makes a scientifically based non-detriment finding to the satisfaction of the Secretariat and PC Chair; this was communicated to CITES Parties in November 2018 (Notif. 2018/084). The export of rough or sawn timber as well as round and roughly squared wood are prohibited. CITES annual reports have been received from Nigeria for 2016 and 2018, but not yet for 2017. Trade 2016-2018 predominantly comprised 840 672 m^3 of wild-sourced logs and 11 065 950 kg of wild-sourced logs and sawn wood imported by China for commercial purposes, as reported by China. Nigeria reported less exports, with 233 744m^3 of wild-sourced sawn wood and 251 249m^3 of sawn wood reported without a source; Nigeria did not report any trade by weight. Nigeria did not respond to the consultation relating to the RST. However, since 2018, Nigeria has been sharing drafts of a NDF with the CITES Secretariat, with a view to compliance with SC recommendations, and lifting of the trade suspension. In line with the Secretariat's recommendation, the latest draft of Nigeria's NDF (submitted to the Secretariat in December 2019) proposed to publish a zero export quota for the species for the next three years, until necessary research has been conducted and adaptive management measures have been installed. Given that future exports are clearly intended, Nigeria's progress towards making a scientifically based NDF for the species could be considered by the Plants Committee under the RST in addition to the current requirement for NDF review by the Secretariat and PC Chair. Accordingly, categorized as **Action is needed.**	**Action is needed** ***[The Standing Committee to continue to monitor progress under the ongoing Article XIII process]***
Senegal	Occurs in southern Senegal, with the regions of Kolda, Tambacounda and Ziguinchor identified as holding important populations. Inventories conducted from 2002-2016 show that the species has experienced ecological disturbance, with few individuals in large size classes. The population is considered to be declining. Senegal responded to the consultation relating to the RST. *P. erinaceus* is partially protected, meaning that felling, cutting	**Less concern** ***[Referral to the Standing Committee on the basis of on-***

Range State	Summary	Recommendation
	and uprooting of the species is prohibited without prior authorization from the Directorate of Water, Forestry, Hunting and Soil Conservation. Ministerial Orders setting the terms and conditions for forestry harvesting campaigns issued after the inclusion of the species in Appendix II have all prohibited its export. A CITES annual report has been received from Senegal for 2016, but not yet for 2017. The annual report for 2018 has been received by the CITES Secretariat; however, as it was received after the trade data were downloaded for this report, it was not included in the analysis. Trade 2016-2018 consisted entirely of 3500 wild-sourced carvings for commercial purposes in 2017, reported by the importer (Italy) only. Chinese customs data extracted from the Global Trade Atlas additionally indicated that >800 m^3 rosewood logs were imported from Senegal in 2017 and 2018 (although it is unclear if Senegal was the origin country of these exports). Illegal trade is an issue, with large volumes of *P. erinaceus* being illegally felled in the Casamance region and subsequently trafficked across the Gambian border for export. Forestry officials interviewed by UNODC indicated that 85% to 95% of rosewood exported from Gambia originated in Senegal (equating to possibly over a million trees between June 2012 and April 2020). A joint enforcement initiative between Senegal and Gambia to combat illegal logging and the associated timber trade in Casamance was announced in August 2018, with security forces stationed at timber landing sites and joint border patrols to stop traffickers. On the basis that no legal trade is currently occurring due to a ban on harvest and export (which appears to include artisanal wood), the provisions of Article IV are not applicable, therefore categorised as **Less concern**. Illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, **therefore referral to the Standing Committee** is recommended.	***going concerns of illegal trade]***
Sierra Leone	Occurs in the north, northwest and east of Sierra Leone, in eight of the country's 16 administrative districts. The population size was reported to be unknown. In one study area near the Guinean border, the species was considered abundant overall, but with fewer than expected trees in large size classes, and anecdotal evidence indicated that a decline in the country overall may be as high as 80%. The country's National Biodiversity Strategy and Action Plan for 2017-2026 referred to the "devastating" effect of logging for *P. erinaceus* timber in woodlands in the north. A CITES annual report has been received from Sierra Leone for 2016, but not yet for 2017 or 2018. The country has never published export quotas for *P. erinaceus*. Trade 2016-2018 predominantly consisted of 203 148 m^3 and 2 877 500 kg of wild-sourced logs imported by China. Sierra Leone reported 3906 m^3 of sawn wood exported to China (CITES data only available for 2016). According to Chinese customs data from the Global Trade Atlas, rosewood logs imported by China from Sierra Leone over the period 2009-2018 totalled 403 463 m^3. Sierra Leone was noted by UNODC to have become the largest exporter of rosewood in recent years. Sierra Leone responded to the consultation relating to the RST. A log export ban has been in place in Sierra Leone for over	**Action is needed** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Range State	Summary	Recommendation
	a decade but has been lifted intermittently to allow the export of pre-ban stockpiles. In addition, illegal log exports have been reported, including alleged smuggling of logs from Sierra Leone to neighbouring Guinea. Some illegal logging of *P. erinaceus* has been reported from protected forests, and the Forest Division was noted to have limited capacity for forest management and law enforcement. A request for funding to establish an NDF was noted to have been submitted. Although a national ban on the harvest, transport and export of logs is in place, this ban does not appear to include processed wood and has also been lifted intermittently to allow export of stockpiled logs. Despite high volumes of log exports, the CITES Management Authority of Sierra Leone has stated that a robust scientifically based non-detriment finding (NDF) has not yet been conducted for *P. erinaceus.* On this basis, *P. erinaceus* from Sierra Leone is categorised as **Action is needed**. The illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, therefore it may be relevant to consider **referral to the Standing Committee**.	
Togo	Reported to be widespread throughout Togo and found in all five of the country's ecological zones. Togo was reportedly one of the first range States to experience large-scale exploitation of *P. erinaceus* timber. According to a 2017 IUCN Red List assessment, Togo's population suffered an inferred population decline of >80% 2011-2014 and stocks were considered depleted. However, based on data from a national forest inventory 2015-2016, FAO estimated the species' total volume for 2015 to be 2.67 million m^3; a different study estimated a significantly higher total volume for 2016 at >10 million m^3 at the national level. A lack of trees in small size classes was recorded in two ecological zones, indicating that population stuctures had been affected. A CITES annual report has been received from Togo for 2016, but not yet for 2017 or 2018. The country has never published export quotas for *P. erinaceus*. No direct exports of *P. erinaceus* from Togo, indirect trade originating in Togo, or imports from Togo were reported 2016-2018. However, according to Chinese customs data from the Global Trade Atlas, rosewood logs imported by China from Togo over the period 2009-2018 totalled 210 233 m^3, with imports decreasing steadily from 2014 to zero in 2017, and 56 m^3 reported in 2018. Previously, a very high level of illegal trade from the country had been identified; although it remains unclear if this is a current threat given the country's stocks. In a 2019 report on the use of *P. erinaceus* in Togo, it was noted that there is insufficient reliable information on illegal exploitation of *P. erinaceus* in the country. Togo is included in a current CITES Tree Species Programme project. No response to the consultation relating to the RST was received. In 2016, a 10-year moratorium was imposed on the issuance of permits for the harvest and transport (thus including export), as well as import and re-export of *P. erinaceus* logs. Information on the moratorium's impact on illegal harvest and trade in the species since 2016 was lacking, though the moratorium has reportedly halted the legal trade in *P. erinaceus* logs. The moratorium appears to cover logs only; however, the absence of processed *P. erinaceus* timber from Togo reported by Togo (2016) or by importers (2016-2018) in CITES annual reports suggests that such trade is not	Less concern *[Referral to the Standing Committee on the basis of concerns of illegal trade]*

Range State	Summary	Recommendation
	currently taking place. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**. However, although the current scale is unknown due to a lack of reliable data, illegal trade and export may be a concern not related to the implementation of Article IV. **Referral to the Standing Committee is therefore recommended**.	

Introduction

The Review of Significant Trade (hereafter abbreviated to RST) was established to ensure that the provisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (specifically Article IV, relating to non-detriment findings) are properly applied for Appendix II species in order to ensure that international trade in CITES-listed species is maintained within biologically sustainable levels. The procedure for the RST is set out in Resolution Conf. 12.8 (Rev. CoP18). The resolution "*DIRECTS the Animals and Plants Committees, in cooperation with the Secretariat and experts, and in consultation with range States, to review the biological, trade and other relevant information on Appendix-II species subject to significant levels of trade, to identify problems and solutions concerning the implementation of Article IV, paragraphs 2 (a), 3 and 6 (a).*"

Under paragraph 1 c) of Res. Conf. 12.8 (Rev. CoP18), species may be included in the RST as exceptional cases where information indicates that rapid action may be needed due to problems relating to the implementation of Article IV. Subparagraph 1 c) ii) of Resolution Conf. 12.8 (Rev. CoP18) directs the Secretariat to produce, or request a consultant produce a summary of trade from the CITES Trade Database in relation to the species/country combination concerned as necessary. The UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) was therefore asked by the CITES Secretariat to produce a report on the international trade in the species for each of the 17 range States of *P. erinaceus*. This report also provides supporting information on the biology and management of the species across its range and provisionally classifies each range State into one of three categories defined in paragraph 1 (e) of Resolution Conf. 12.8 (Rev. CoP18):

- **'action is needed'** shall include species/country combinations for which the available information suggests that the provisions of Article IV, paragraph 2 (a), or 3, are not being implemented;
- **'unknown status'** shall include species/country combinations for which the Secretariat (or consultants) could not determine whether or not these provisions are being implemented; and
- **'less concern'** shall include species/country combinations for which the available information appears to indicate that these provisions are being met.

The provisional recommendations for the 17 range States of *P. erinaceus* assessed can be found in **Table 1.2** (p.v).

Methods

An overview of *Pterocarpus erinaceus* provides information on the history of the species in the CITES Review of Significant Trade; species characteristics; and global distribution, conservation status, threats, trade and management. Each country review provides the following information: current distribution, conservation status and population trends, threats, recent trade, and management of the species in each range State, including any relevant legislation. The national legislation category as defined under the CITES National Legislation Project (CoP17 Doc. 22 Annex 3 (Rev.1)) for each range State is noted, based on the most recent update available (November 2019) at the time of writing.

This report uses two main data sources to assess patterns of trade in *P. erinaceus*: the CITES Trade Database and Chinese customs data extracted from the Global Trade Atlas. *P. erinaceus* was listed in CITES Appendix II on 2nd January 2017 and was previously listed by Senegal in CITES Appendix III on 9th May 2016. As such, **CITES trade data** are available for 2016-2018; however, it should be noted that data for 2016 may be an underestimate of total trade in this year, as Parties were only required to report trade in this species from the Appendix III listing date onward. Further, any country-level suspensions pertaining to CITES listed species are only applicable to *P. erinaceus* from the date of listing on Appendix III. Data were downloaded from the CITES Trade Database (trade.cites.org) on 12 May 2020. Unless otherwise specified, trade tables include all direct trade (i.e. excluding re-export data) in the taxa under review and include all sources, terms and units reported in trade. Trade volumes are provided as reported by both exporters and importers. Re-export data are noted separately, where appropriate. A list of CITES annual reports received from each range State included in the process, along with the date each became a Party to CITES, is provided in Table 2.1. China and Viet Nam were identified as the main importers of *P. erinaceus*; annual reports had been received from China and Viet Nam for all three years 2016-2018.

Table 2.1: Overview of annual report submissions by range States under review, 2016-2018.

Country	Entry into force of CITES	2016	2017	2018
Benin	28/05/1984	✓	×	✓
Burkina Faso	15/01/1990	✓	×	×
Cameroon	03/09/1981	✓	✓	×
Central African Republic	25/11/1980	×	×	×
Chad	03/05/1989	✓	×	×
Côte d'Ivoire	19/02/1995	✓	✓	✓
Gambia	24/11/1977	[✓]*	[✓]*	[✓]*
Ghana	12/02/1976	×	✓	✓
Guinea	20/12/1981	✓	✓	✓
Guinea-Bissau	14/08/1990	✓	×	×
Liberia	09/06/1981	✓	×	×
Mali	16/10/1994	✓	✓	×
Niger	07/12/1975	✓	✓	×
Nigeria	01/07/1975	✓	×	✓
Senegal	03/11/1977	✓	×	[✓]*
Sierra Leone	26/01/1995	✓	×	×
Togo	21/01/1979	✓	×	×

*Senegal's report for 2018 and Gambia's reports for 2016, 2017 and 2018 have now been received by the CITES Secretariat; however, as they were received after the data were downloaded for this report, they are not included herein.

Data from the **Global Trade Atlas** from 2009-2018[4], where available, are presented alongside CITES trade data in order to provide insight on trade patterns preceding the listing of *P. erinaceus* in 2016, as well as the three years for which CITES trade data are available. The Global Trade Atlas collates official import/export data on HS commodity codes from over 200 different countries (IHS Markit, 2020). In this report, data on import volumes are shown for two particular HS codes used by Chinese customs: HS 4403.99.30[5] ("wood in the rough of rosewood") from 2009-2016, and HS 4403.49.80 ("wood in the rough of tropical rosewood") from 2017-2018. An important caveat to consider is that these figures may not differentiate between direct trade, where rosewood was harvested in the country from which it was then exported, and indirect trade, where rosewood may have been harvested in a different origin country and has transited through one or several different countries. Sawn wood is also reported in Chinese customs data, however this was reported to represent a fraction of trade volumes in unprocessed wood (CoP18 Doc. 34, Annex 4); therefore, only trade data relating to the above two HS codes are provided in this report for simplicity. Except for Cameroon, Central African Republic and Nigeria, imports into China from the 14 remaining range States pertaining to these two HS codes are presumed to represent *P. erinaceus*. This is because the Chinese State Administration of Quality Supervision, Inspection and Quarantine established a national standard in 2000 (GB/T 18107-2000) defining the species covered by the rosewood category (Wenbin and Xiufang, 2013), and *P. erinaceus* is the only native species to be recognised as rosewood under this national standard according to distributions detailed in Kew's Plants of the World Online[6]. For Cameroon, Central African Republic and Nigeria, two native species are recognised as rosewood by the Chinese national standard: *P. erinaceus* and *Diospyros crassiflora*[7]. Therefore, data pertaining to these two HS codes for exports from Cameroon, Central African Republic and Nigeria are presumed to represent *P. erinaceus* and/or *D. crassiflora.*

CITES trade data indicates that China is the major importer of *P. erinaceus* (*see Trade Overview section*); however, it should be remembered that the customs data sections in this report only represent reported imports into China only, unless otherwise specified. It should also be noted that the Chinese customs data stem from a source with a separate reporting mechanism to CITES trade data, and there is no guarantee that they only represent trade in the species under review.

The CITES Management Authorities for each range State were contacted by UNEP-WCMC in April 2020; range States that had not provided a response were contacted again in June 2020. Authorities were asked to provide information relevant to the formation of non-detriment findings, including distribution, conservation status, trade and management of *P. erinaceus*. Where possible, national experts were also contacted to provide additional country-specific information. Responses were received from nine range States (see **Table 2.2**); no response was received from the remaining eight range States by the time of report submission (September 2020). A compilation of range State responses is provided in PC25 Doc. 15.5 Annex 2.

[4] Conversions have been applied to data since 2014.
[5] The first 6 digits of an HS commodity code are international standard; for timber trade, these generally denote the level of processing as well as a rough origin (i.e tropical or non-tropical timber). Additional HS digits represent country specific extensions.
[6] http://www.plantsoftheworldonline.org/
[7] Assumed to refer to *Diospyros crassiflora* Hiern, which is considered by IUCN to be species in its own right occurring in West African countries, and not *Diospyros crassiflora* H. Perrier, which is considered by the CITES Standard Reference for *Diospyros* sp. in Madagascar and IUCN to be a synonym of *D. mcphersonii* (a species endemic to Madagascar).

Table 2.2: Overview of range State responses to the RST consultation.

Country	Response received as part of RST consultation
Benin	×
Burkina Faso	×
Cameroon	✓
Central African Republic	×
Chad	×
Côte d'Ivoire	✓
Gambia	×
Ghana	✓
Guinea	✓
Guinea-Bissau	✓
Liberia	✓
Mali	✓
Niger	×
Nigeria	×
Senegal	✓
Sierra Leone	✓
Togo	×

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Overview

History of *Pterocarpus erinaceus* in the RST

At its 70th meeting, the CITES Standing Committee adopted a recommendation requesting the CITES Plants Committee consider the inclusion of Pterocarpus erinaceus from all range States in the Review of Significant Trade (RST). This recommendation was further endorsed by the 18th meeting of the Conference of the Parties to CITES in Decision 18.92. P. erinaceus was included in Stage 1 of the RST as an exceptional case under paragraph 1 c) of Resolution Conf. 12.8 (Rev. CoP18) - as rapid action was considered to be needed due to problems relating to implementation of Article IV.

Species characteristics

Biology: *Pterocarpus erinaceus* is a small deciduous tree belonging to the family Leguminosae (Louppe *et al.*, 2008). It is a pioneer species (IUCN/TRAFFIC, 2016) that is found in semi-arid to sub-humid tree savannas, dry forests, and the edges of humid forest (Louppe *et al.*, 2008; Conservatoire et Jardin Botanique de la Ville de Genève and South African National Biodiversity Institute, 2012; Chabi *et al.*, 2013). It occurs in regions with 600–1600 mm annual rainfall, a long dry season of up to 9 months, and a mean annual temperature of 15–32°C (Louppe *et al.*, 2008). Louppe *et al.* (2008) reported the species' altitudinal range at 600–1200 m, whereas the Conservatoire et Jardin Botanique de la Ville de Genève (2012) indicated that it is found at a wider range of 200-1030 m above sea level. It was reported to occur on all soil types but to prefer light to medium, free-draining, acid to neutral soils (Louppe *et al.*, 2008). *P. erinaceus* usually flowers in December to February (Louppe *et al.*, 2008); its flowers have been noted to be much visited by bees which are thought to be the species' pollinators (Louppe *et al.*, 2008).

The species was reported to reach a height of 15 to 25 m and a diameter of 75-100 cm (Louppe *et al.*, 2008), and was reported to be able to reach maturity at around 5cm stem diameter (van der Burgt 2016 *in litt*., to the IUCN/TRAFFIC Analyses Team in IUCN/TRAFFIC, 2016). Seedlings of *P. erinaceus* were noted to grow slowly; in Mali, the species was reported to reach a height of 15 cm after one year and of 42 cm after two years (Louppe *et al.*, 2008). In good conditions, the species grows faster and was reported to reach a height of 25 cm 21 weeks after germination and up to 100 cm in 2 years (Louppe *et al.*, 2008). Planted seedlings monitored in Côte d'Ivoire reached 50 cm after 18 months, 2.8 m after 2.5 years, 4.4 m after 4.5 years and 5.5 m after 5.5 years. (Louppe *et al.*, 2008). Mbow *et al.* (2013) monitored three *P. erinaceus* specimens in a semi-arid protected forest in Senegal, calculating a mean annual diameter increment for the species of 0.40 cm from age 1-10, and 0.58 cm from age 1-20. In the IUCN Red List assessment for the species, Barstow (2018) used a growth rate of 15 cm per year to calculate that *P. erinaceus* would take an average of 100 years to reach its adult height of 15 m; they further divided the 100 years taken for the species to reach full height by the species diameter at full height to estimate a diameter growth rate of 1 to 1.3 cm per year. Using these figures and those from Mbow *et al.* (2013), Barstow (2018) estimated that *P. erinaceus* reaches maturity from between 5 and 10 years of age, and that it would take the tree between 30 and 100 years to reach an exploitable diameter of 40 cm. The species' generation length was estimated to be between 50 and 150 years (Barstow, 2018).

P. erinaceus can survive annual bushfires (Louppe *et al.*, 2008; CABI, 2013), although experiments assessing the impact of different fire regimes after clear-cutting found the species to be able to recover much faster in areas that were fully protected from it (Brookman-Amissah *et al.*, 1980). Assessments of the species' regeneration potential are conflicting. Louppe *et al*. (2008) reported that natural regeneration of the species was 'often abundant' and Chabi *et al.* (2013) recorded good regeneration of the species in a forest in central Benin. However, Barstow (2018) considered the

regeneration capacity of *P. erinaceus* to be low, noting that in Burkina Faso, Togo and Niger it is predicted that a 20-year rotation period would be required to enable 50% regeneration of the species in certain habitats (Segla *et al.*, 2016). It has been noted that large numbers of seedlings do not necessarily correspond to an equivalent population of saplings (Nacoulma *et al.*, 2011); this is thought be a consequence of climate change and browsing livestock (Barstow, 2018). These concerns have been echoed by the Forestry Research Institute of Nigeria, who noted that the genus *Pterocarpus* appeared to suffer significant recruitment issues in areas where high numbers of ungulates were present (FRIN, 2019).

Distribution: *P. erinaceus* is endemic to West Africa, with a range stretching from Senegal and Gambia to Chad and the Central African Republic (Louppe *et al.*, 2008). The northern limit of the species was reported to be 14°N, where it is "a small stunted tree limited by rainfall" (CABI, 2013). Louppe *et al.* (2008) list Benin, Burkina Faso, Cameroon, Chad, Central African Republic, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo as range States; however, the species listing proposal (CoP17 Prop. 57), which used GBIF[8] records to denote the species range, excluded the Central African Republic, Chad, Liberia, and Sierra Leone from this list. A presence prediction model based on GBIF records of the species, bioclimatic variables of the WorldClim dataset and the ISRIC Soil Database is shown in **Figure 3.1** (van Andel *et al.*, 2015).

Occurrence records for the species in Chad were found in Bechir *et al.* (2009), who recorded the species' presence during an evaluation of the seasonal availability of fodder timber in the country's Sudanian zone; however, no on-the-ground occurrence records could be found for the species in the Central African Republic[9]. According to one expert, *P. erinaceus* may have previously occurred in the north of Liberia, however, it was not widespread and could no longer be found at locations from where it had previously been reported (Not1More *in litt.* to UNEP-WCMC, 2020). The CITES Management Authority (MA) of Liberia (*in litt*. to UNEP-WCMC, 2020) confirmed that *P. erinaceus* does not occur in the country. The species' presence in Sierra Leone was confirmed by the CITES MA of Sierra Leone (*in litt*. to UNEP-WCMC, 2020), who stated that it occurred in savanna woodland spanning eight of the country's 16 administrative districts.

The species is not thought to have been introduced outside of its native range (CABI, 2013).

[8] Global Biodiversity Information Facility

[9] The CITES Nomenclature Specialist of the Plants Committee has been asked to further review the distribution of *P. erinaceus* in these countries based on the uncertainties uncovered as part of this report.

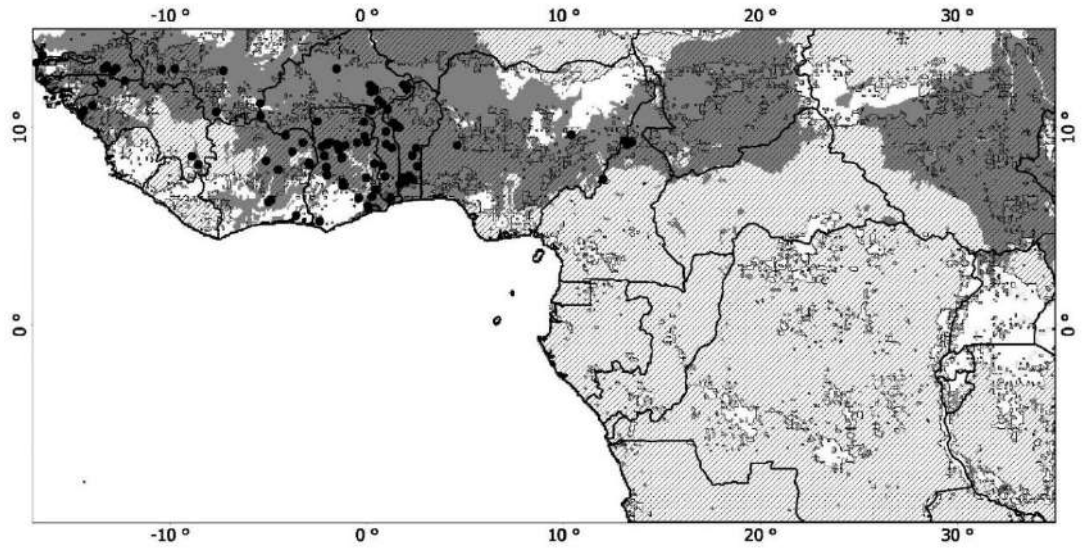

Figure 3.1: Presence prediction of *P. erinaceus* in West Africa, based on GBIF records of the species, bioclimatic variables of the WorldClim dataset, and the ISRIC Soil Database. Dots show collection localities, dark grey area shows predicted presence, hatched area shows natural vegetation, white areas show cropland. Reproduced with permission from van Andel *et al.* (2015).

UNODC's 2019 threat assessment report on illegal wildlife trade in West and Central Africa additionally noted that experienced *P. erinaceus* traders claimed to be sourcing the species from the Democratic Republic of the Congo (DRC) along the Angolan border (CoP18 Doc. 34); however, in reality these exports were considered likely to be the similar-looking species *Pterocarpus tinctorius* (UNODC, 2020). For the purpose of this review, *P. erinaceus* was considered to have the 17 range states listed in Louppe *et al.* (2008).

Population status and trends: The species was categorised as Endangered globally by the IUCN in 2017, on the basis that over the next 100 years its populations are expected to decline by over 50% due to unsustainable logging, habitat conversion and fuel collection (Barstow, 2018). No estimates of the global population size could be located, although the species' widespread distribution means that it was considered likely to have a 'very large population' (Barstow, 2018). A number of studies have documented the density of *P. erinaceus* across discrete parts of its range (e.g. Lykke, 1998; Glele Kakaï *et al.*, 2008; Nacoulma *et al.*, 2011; Chabi *et al.*, 2013; Houehanou *et al.*, 2013; Segla *et al.*, 2016;), and a number of range States reported that they had conducted recent inventories (e.g. Nigeria, Mali, Senegal, all *in litt.* to UNEP-WCMC, 2020), although there are significant gaps in coverage. Segla *et al.* (2016) noted that differences in usage patterns as well as variations in climate are thought to drive differences in structural characters of *P. erinaceus* across its distribution. They used two methods (perpendicular transects and random sampling) to complete forest inventories of the species across 11 sites in West Africa, finding significant differences between the average density, height and Lorey's mean height[10] of the species, across different zones (**Table 3.1**).

[10] Calculated by taking the sum of tree height multiplied by tree basal area for all trees, divided by the basal area of the stand.

Table 3.1: Structural parameters of *P. erinaceus* recorded across 11 sites in West Africa. Source: Segla *et al.* (2016).

Structural parameter	Sahelian zone	Sudanian zone	Guinean zone
Density (trees/ha)	1.17 ±0.75	49.20 ±63.2	110.9 ±1.15
Average diameter (cm)	49.63 ±19.44	29.02 ±15.44	26.63 ±7.89
Average height (m)	10.18 ±2.27	9.51 ±2.75	14.16 ±2.88
Average merchantable height (m)	4.08 ±1.35	3.43 ±1.49	3.63 ±2.63
Basal area (m^2/ha)	0.30 ±0.10	2.46 ±2.88	13.57 ±1.10
Lorey's mean height (m)	11.34	10.91	12.83

Each climate zone was also found to have different size class distributions (**Figure 3.2**). In the Sahelian and Sudanian zones, most individuals recorded were in mid-sized diameter classes, with younger and larger individuals poorly represented (Segla *et al.*, 2016). Small individuals between 10 and 25 cm in diameter were predominant in the inventories carries out in the Guinean zone (Segla *et al.*, 2016).

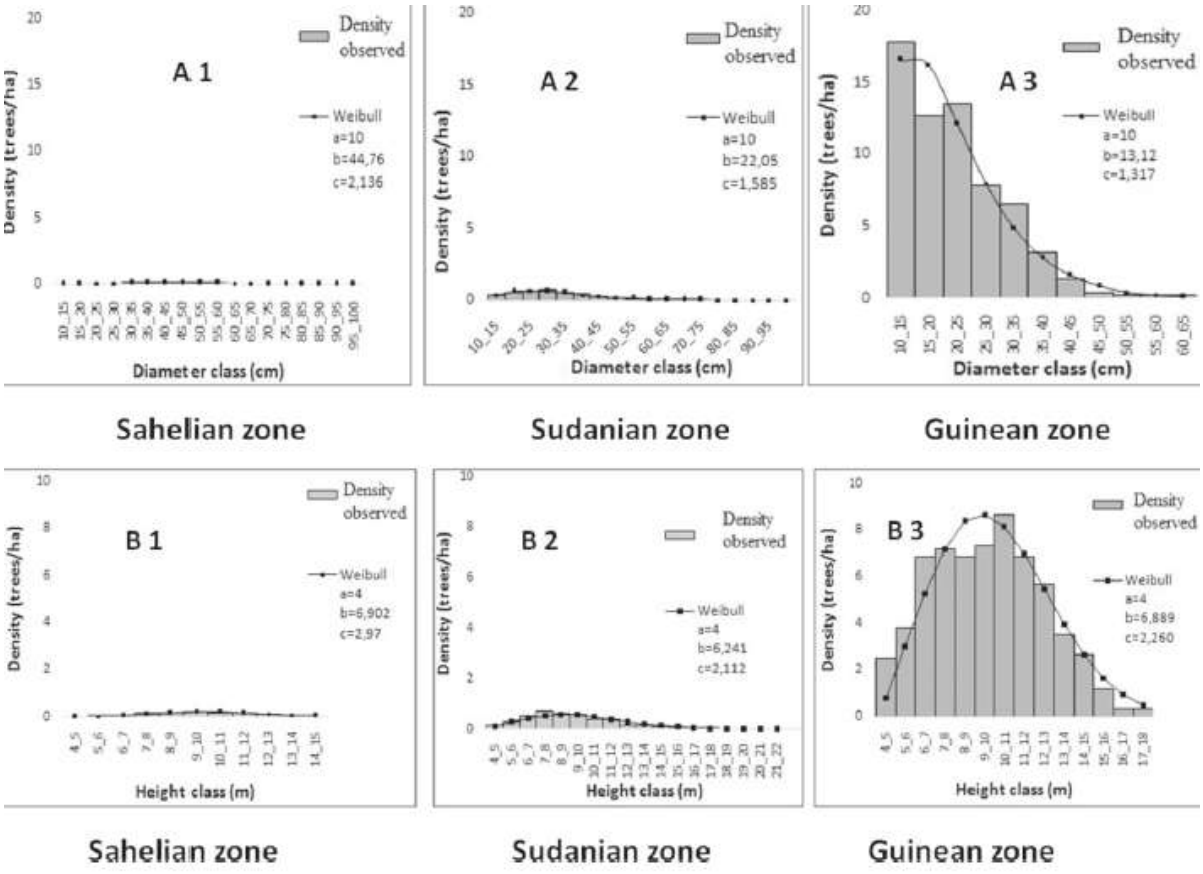

Figure 3.2: Size class distributions of *P. erinaceus* recorded across 11 sites in West Africa. Reproduced with permission from Segla *et al.* (2016).

Threats: *P. erinaceus* is a multi-use species (Akoegninou *et al.*, 2006; Louppe *et al.*, 2008; Zizka *et al.*, 2015), with patterns of use varying across its distribution; the threats facing the species are therefore numerous and complex, with different uses having the potential to impact *P. erinaceus* populations in different ways.

The greatest driver of recent *P. erinaceus* declines across the majority of its range States is extraction of the species for timber (Barstow, 2018; Adjonou *et al.*, 2019). *P. erinaceus* is a valuable

hardwood species used, *inter alia,* in furniture work, construction, joinery, musical instruments and handicraft production (Akoegninou *et al.*, 2006; Louppe *et al.*, 2008; Dumenu, 2019). Walters (2019) considered that an individual harvested for timber needed to have a circumference above 32 cm (10 cm DBH) and have at least 2.5 m between the roots and the crown, while Segla *et al.* (2016) calculated merchantable heights for the species of 4.08 ± 1.35 m in the Sahelian zone and 3.63 ± 2.63 m in the Guinean zone. As it is the medium to large specimens of the species that are targeted for timber production, this has the potential to leave *P. erinaceus* populations largely skewed towards immature specimens (Dumenu, 2019).

The reddish-brown tint of the species' heartwood means that it is considered to be a species of 'rosewood', and it is one of 33 species included in China's National Hongmu Standard (2000) (Treanor, 2015; Environmental Investigation Agency, 2016). Trade in *P. erinaceus* is tightly bound to demand in Asian markets (particularly China) for Hongmu and is affected by the availability and desirability of other rosewood species. Rapid demand increases for Hongmu in general from China have been recorded since the early 2000s (Treanor, 2015; Environmental Investigation Agency, 2016); these increases have been partly attributed to the country's burgeoning middle class, which is thought to be driving demand for less expensive species such as *P. erinaceus* (Treanor, 2015). By volume, Treanor (2015) calculated that Hongmu imports (mainly logs) into China had increased by 1700% between 2000 and 2014, with the value of China's imports of Hongmu logs increasing six-fold between 2005 and 2015 (EIA, 2016 based on an analysis of Chinese customs data using the Global Trade Atlas). In some cases, exports of *P. erinaceus* can account for a significant percentage of a country's GDP; in Gambia, for example, illegal exports of *P. erinaceus* in a single year (~USD 100 million as declared by importers) were estimated to account for approximately 10% of the country's GDP and half the value of the country's total exports in 2016 (CoP18 Doc. 34, Annex 4).

Demand for *P. erinaceus* in particular was reported to have been rapidly increased from 2009 onward and is thought to have been influenced by the 2013 listings of various *Dalbergia* species in the CITES Appendices (Dumenu and Bandoh, 2016; CoP17 Inf. 34). As exports of rosewoods from Asia have declined, exports in rosewood from West and Central Africa have risen. Figures elaborated from the Global Trade Atlas and Comtrade data estimated West Africa to be the source of over 80% of the world's rosewood[11] logs in 2017 (**Figure 3.3**), with the 2020 World Wildlife Crime Report indicating that this positive trend continued in 2018 (UNODC, 2020). Barstow (2018) reported that there was a lack of established plantations for the species, indicating that trade is likely to be wild-sourced.

[11] Since *P. erinaceus* is the only species recognised as rosewood in most of West Africa, imports of 'rosewood' are thought highly likely to represent this species (UNODC, 2020; see *Methodology*).

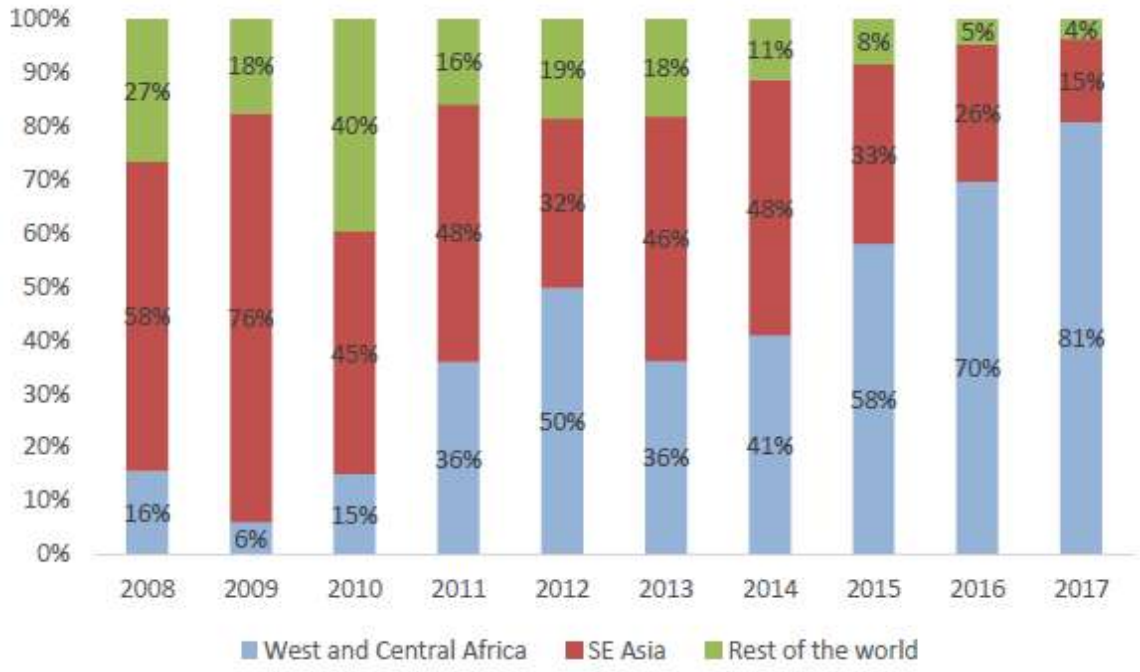

Figure 3.3: Share of rosewood log supply by exporting region. Figure elaborated from Global Trade Atlas and Comtrade data. Reproduced with permission from Annex 4 of CoP18 Doc. 34 (UNODC 2019 threat assessment report).

Other notable threats include the species' domestic use as livestock fodder. *P. erinaceus* is considered to be a particularly valuable species used for this purpose in the Sahelian and Sudanian zones of West Africa, in part because its leafy branches persist towards the end of the dry season when not much else is available (Petit and Mallet, 2001; Louppe *et al.*, 2008; Houehanou *et al.*, 2011). Leaves for use as fodder have been reported to be sold in urban centres in Burkina Faso, Mali, Niger and Togo (Segla *et al.*, 2016). Overexploitation for this purpose was considered to be the largest historical threat to the species, with over-pollarded populations characterised by relatively low numbers of young individuals (Segla *et al.*, 2016). This use was considered to be responsible for the extirpation of the species in the late 1990s around Mali's capital Bamako (Bonkoungouet *et al.*, 1998 in CoP17 Prop. 57), as well as one of the key factors limiting the expansion of the species in the Sahelian zone (Segla *et al.*, 2016). It is a current threat in countries like Burkina Faso (Nacoulma *et al.*, 2011) and Niger; in the latter country, pruning for use as fodder has been noted in protected areas (Rabiou *et al.*, 2015, 2019).

P. erinaceus is also used for charcoal production (Louppe *et al.*, 2008; Zizka *et al.*, 2015) and for firewood, particularly in Gambia, Senegal, Guinea Bissau and Mali (Barstow, 2018). The species is additionally a widely used medicinal plant; its bark exudate, known as 'kino', was reported to be used in tanning, but is also considered to be an important traditional medicine used to treat, *inter alia*, dysentery, fever, eye complaints, ulcers and sores, etc. (Akoegninou *et al.*, 2006; Louppe *et al.*, 2008). Additional medicinal uses involve the species' roots and leaves (Diallo *et al.*, 2002; Louppe *et al.*, 2008; Yaoitcha *et al.*, 2015). There are few data on the scale of threat presented by local use, particularly in recent years following the *P. erinaceus* export trade boom; however, a number of studies were identified that considered local use to be a potential cause of unstable population structures in the late 2000s (e.g. Kokou *et al.*, 2009; Nacoulma *et al.*, 2011; Houehanou *et al.*, 2013).

Few data are similarly available that consider the impacts of land use change on the species; van Andel *et al.* (2015) used a species distribution model based on the land cover, climate and soil data to estimate that 64% of the potential range of *P. erinaceus* was still covered by natural vegetation,

although the authors noted that the broad environmental suitability for the species may misleadingly suggest lower levels of anthropogenic threat. A modelling study for *P. erinaceus* found that the potential niche for the species could increase from 22 to 47% in 2050 and by 27 to 53% in 2070, depending on the climate scenario; however, expansion expected to be observed in the gulf of Guinea was associated with a considerable decrease in the species' range in the Sahel and central Nigeria (Adjonou *et al.*, 2020)

Overview of trade:

Senegal listed all populations of *P. erinaceus* in CITES Appendix III on 9th May 2016 with Annotation #1[12]. All populations of were subsequently listed in CITES Appendix II on 2nd January 2017 without an annotation. As such, CITES trade data is only available for 2016-2018, and data for 2016 may be incomplete as Parties were not required to report on trade that took place in 2016 prior to the Appendix III listing date. This report draws data from two information sources to give an overview in trade and potential trade in *P. erinaceus*; the CITES Trade Database and Chinese customs data extracted from the Global Trade Atlas. The latter is included on the basis that CITES trade data identifies China as the largest importer of the species. More information about the two datasets used and the caveats associated with them are given in the *Methodology* section.

CITES trade data: According to data within the CITES Trade Database, global direct trade in *P. erinaceus* 2016-2018 was predominantly in logs. In total, 154 414 m^3 was traded for commercial purposes over this period as reported by exporters and 1 628 947 m^3 as reported by importers; countries of import of logs (China (>99%) and Viet Nam (<1%) reported more than ten times the volume recorded by the range States). Based on importer reported data, over 90% of logs reported in m^3 came from four range States (**Figure 3.4**): Nigeria (52%), Ghana (14%), Gambia (14%) and Sierra Leone (12%). Trade peaked in 2017; according UNODC (2020), the ~825 000 m^3 logs exported in 2017 alone were estimated to be the equivalent of four million trees.

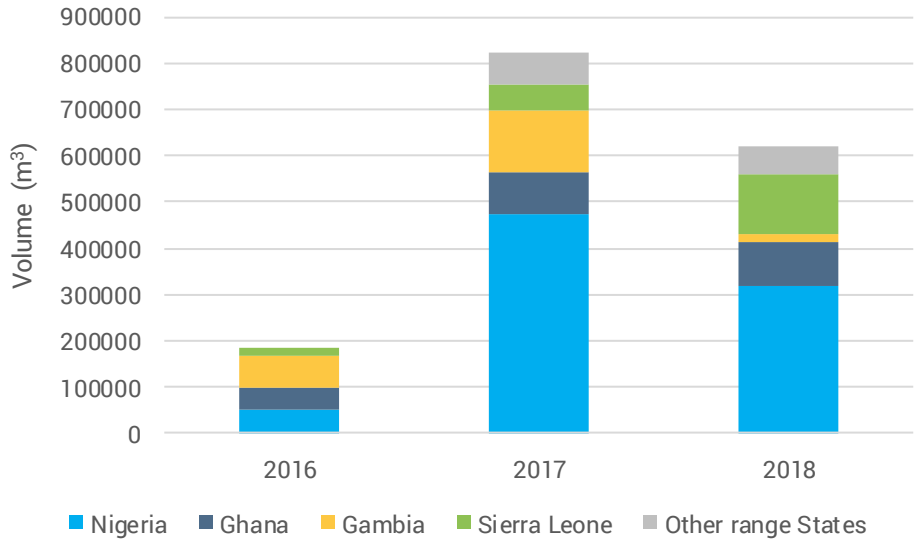

Figure 3.4: Volume of rosewood logs (m^3) imported from West African range states of *P. erinaceus* as reported by countries of import, 2016-2018. Source: CITES Trade Database.

[12] All parts and derivatives except a) seeds, spores and pollen (including pollinia); b) seedling or tissue cultures obtained *in vitro*, in solid or liquid media, transported in sterile containers; c) cut flowers of artificially propagated plants; and d) fruits, and parts and derivatives thereof, of artificially propagated plants of the genus *Vanilla*.

Trade in logs was also reported by weight, with 12 104 950 kg reported by importers only, from Nigeria (76%) and Sierra Leone (24%).

Sawn wood exports 2016-2018 comprised 488 899 m^3 reported by exporters and 136 058 m^3 reported by importers, primarily from Nigeria (65%) and Benin (18%) according to importers. Trade by weight was also reported by importers and totalled 1 883 518 kg; all of this trade was reported from Nigeria. Almost all trade in logs and sawn wood was wild-sourced, with low levels of pre-Convention and artificially-propagated trade; 251 249 m^3 of sawn wood in 2018 was reported by Nigeria without a source code specified. Lower volumes of trade in wood products were reported by importers only and comprised 21 307 m^3 wild-sourced products imported from Nigeria (95%) and Sierra Leone (5%).

Discrepancies in trade volumes may relate to differences in reporting or non-submission of all CITES annual reports 2016-2018 (*see Methods*).

Chinese customs data: Chinese customs data extracted from the Global Trade Atlas show that imports by China of rosewood logs from *Pterocarpus erinaceus* range States in West and Central African countries increased substantially over the last decade, from 2942 m^3 in 2009 to 1 016 319 m^3 in 2018 (**Figure 3.5**); this represented an increase in estimated monetary value from USD 259 423 to over USD 477 million (roughly 1800 times the 2009 value). Imports of showed a first peak at 975 406 m^3 in 2014 and reached their highest peak of 1 191 975 m^3 in 2017.

Export patterns from many West African countries were reported to have followed boom and bust cycles, with high levels of rosewood exports shifting from one country to another as stocks become depleted (EIA, 2017, 2020). This mirrors trends seen globally (Figure 3.3). Within West Africa, Nigeria was the predominant source of rosewood log imports by China between 2009-2018, accounting for over 41% of all rosewood logs exported from range States, principally in the last five years of the period; since 2014, it accounted for between 35% and 58% of rosewood logs imported by China annually from range States (Figure 3.4). The second and third highest countries of origin were Ghana (17% of rosewood log imports over the period) and Gambia (17%), followed by Sierra Leone (8%) and Benin (7%). These five range States accounted for 90% of China's imports during this period. Imports from Ghana fluctuated between 130 000 and 175 000 m^3 2016-2018, while imports from Gambia were highest in 2016 and 2017 with a reduction in 2018. Over 88% of imports from Sierra Leone were reported 2016-2018, whereas imports from Benin have been decreasing since 2016. The figures imply that the majority of trade comes from a relatively low number of key range States; however, given free trade in the Economic Community of West African States (ECOWAS) and the porosity of borders in the region, UNODC's 2019 threat assessment report noted that these exporting countries are not necessarily the place where the timber was harvested (CoP18 Doc. 34, Annex 4). Interviews with timber traders and enforcement officials revealed that the three top exporters (Nigeria, Ghana and Gambia) served as a transit area for illegally sourced timber from other countries (CoP18 Doc. 34, Annex 4).

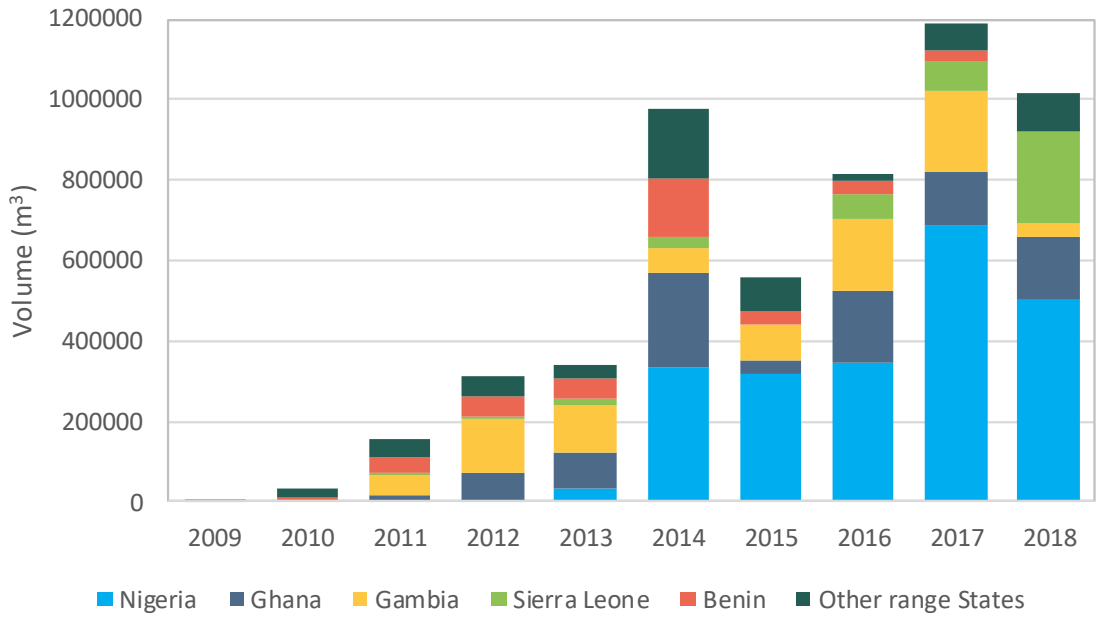

Figure 3.5: Volume of rosewood logs (m^3) imported by China from West African range states of *P. erinaceus*, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Source: Chinese customs data extracted from the Global Trade Atlas.

Overview of management:

A large proportion of range States have introduced restrictions on felling and export of *P. erinaceus* (see ***Table 3.2*** *and country reviews*); seven have classified it as a protected or partially protected species in their country, and in 12 countries, the export of *P. erinaceus* wood products is restricted in some form (either through species specific bans or general bans on the export of particular products such as raw, unprocessed wood). Nevertheless, as noted by CoP18 Doc. 34 on *Wildlife Crime Enforcement Support in West and Central Africa*, there are a wide range of challenges facing the range States of *P. erinaceus* relating to inadequate legislation, a lack of enforcement, illegal trade and fraudulent use of permits, and corruption. In the context of CITES implementation, eleven of the 17 *P. erinaceus* range States are already subject to Standing Committee recommendations to suspend trade. Two are subject to a general suspension on commercial trade in all taxa, either on the basis of compliance and enforcement (Guinea) or national legislation (Liberia). The remainder are species-specific suspensions, in place either due to non-implementation of Article IV highlighted through the RST (Benin, Cameroon, Ghana, Guinea and Togo for multiple species and Côte d'Ivoire, Mali, Niger, Senegal for individual species), in addition to a current suspension on trade in *P. erinaceus* from Nigeria on the basis of compliance.

Of the range States where export of *P. erinaceus* remains legal, none appear to have established a scientifically based non-detriment (NDF) finding for the species, and therefore none appear to be managing the species in accordance with Article IV of the Convention. These findings echo those of UNODC, who noted that CITES Management Authorities were authorizing exports of *P. erinaceus* products despite "non-existent or outdated non-detriment findings" (CoP18 Doc. 34, Annex 4) - so-called 'lawful but awful' trade conducted under the cover of genuine CITES permits (SC70 Doc. 27.3.5). Nigeria (the largest exporter) has been in the process of drafting an NDF for the species since 2018, and has been sharing draft NDFs with the CITES Secretariat with a view to complying with SC recommendations and lifting the trade suspension for *P. erinaceus* that is currently in place in the country (Notif. 2018/084). Ghana, the second largest exporter, noted that NDFs for the species had not been made (CITES MA of Ghana *in litt.* to UNEP-WCMC). A lack of capacity and resources to

undertake necessary inventories and set sustainable harvest quotas based on robust science is apparent across the region. *P. erinaceus* was identified as a potential priority taxon for the Secretariat for development of additional improved NDF guidance materials (SC70 Doc. 27.3.5, see Decision 18.132), but the final list of species has not yet been established.

Table 3.2: Summary of country-level protection and national export bans for *Pterocarpus erinaceus*.

Country	Designated a protected species	Current national export ban	
		Ban	Ban covers
Benin	✓	✓	Unprocessed timber
Burkina Faso	✓	✓	National timber operations and trade suspended, thereby halting exports
Cameroon	×	×	
Central African Republic	×	Unclear	Timber
Chad	×	Unclear	Wood and charcoal
Côte d'Ivoire	✓	✓	*Pterocarpus* spp.
Gambia	✓	✓	Timber (exact scope uncertain)
Ghana	×	✓	Rosewood
Guinea	×	✓	Logs and rough sawn timber
Guinea Bissau	Partially	✓	Logs
Liberia			
Mali	Partially	✓	Unprocessed wood products
Niger	×	×	
Nigeria	Species protections set at state level	✓	Timber (rough or sawn)
Senegal	✓	✓	*P. erinaceus*
Sierra Leone	×	✓	Logs
Togo	Unclear	✓	*P. erinaceus* logs

P. erinaceus occurs in numerous protected areas (Houehanou *et al.*, 2013; Inoussa *et al.*, 2017; Amara *et al.*, 2019; Rabiou *et al.*, 2019; Sandjong Sani *et al.*, 2019; Sainge *et al.*, 2020; Walters, 2019), however Barstow (2018) noted that these did not hold significantly larger subpopulations than non-protected areas and that the extent to which they offered protection to *P. erinaceus* was variable.

Problems identified that are not related to the implementation of Article IV, paras 2(a) or 3.

Despite a range of countries implementing national protection for the species, illegality in various forms is considered to be a major issue in the context of *P. erinaceus* management and trade throughout its range. UNODC's 2019 threat assessment report stated that "in the past, it was clear that nearly all the rosewood received in Asia from West Africa was illegally exported, contrary to national log export bans, national species-specific controls, or other national regulations" (CoP18 Doc. 34, Annex 4). In comparison to the number and size of rosewood seizures from Asia and Latin America, *P. erinaceus* was not reported to be a widely seized species (CoP18 Doc. 43); this was attributed to there being no reason to transport the species clandestinely with "legal" channels remaining available (CoP18 Doc. 43, Annex 4).

In some cases, allegations of illegality span the entire trade chain from harvest to import (EIA, 2017, see SC69 Doc. 29.1 and SC 69 Summary Record; EIA, 2019). China (by far the largest importer of

P. erinaceus, according to the CITES Trade Database) adopted an amended Forest Law[13] in December 2019, which entered into force on 1 July 2020. Importantly, Article 65 of the revised Forest Law bans the buying, processing or transporting of illegally sourced timber. It remains to be seen how effectively the law will be implemented, including whether it will cover imports as well as domestic timber, but the move has been welcomed by the international community (ClientEarth, 2020; Global Witness, 2020; RECOFTC, 2020). In addition, China has worked with large exporters such as Nigeria to introduce communication exchange mechanisms to check permits immediately with their trading partners (SC70 Doc. 27.3.5).

In light of concerns relating to excessive illegal cutting of *P. erinaceus*, the African Union organized the first policy dialogue workshop on strengthening the protection and conservation of rosewood in West Africa in Accra, Ghana in July 2019 (CoP18 Inf. 85). This workshop included representation from ECOWAS, the African Union, the Food and Agriculture Organization (FAO), the CITES Secretariat, research institutions, civil society and the private sector, and resulted in the *Accra Declaration On Combatting Illegal Trade In Rosewoods, Timber And Forest Products In West Africa*[14]. The declaration recognizes that timber trafficking is increasingly being considered a serious transnational organized crime and is incrementally targeting rosewood species in West Africa (CoP18 Inf. 85). It noted alarm at the rate at which rosewood tree species in particular are receding today in West Africa, as well as the explosion of trafficking in timber and forest products (CoP18 Inf. 85). The declaration makes a number of recommendations including, *inter alia*, calls for/to (1) high-level decision makers to prioritise the fight against illegal timber, (2) strengthen the capacity of local communities to fight against illegal trade in timber and forest products, and (3) provide sufficient resources (in the form of equipment, research, and identification resources) to strengthen implementation (CoP18 Inf. 85).

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[14] https://cites.org/sites/default/files/eng/cop/18/inf/E-CoP18-Inf-085.pdf

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Range State reviews

Benin

BENIN:	Reported to be widespread, present in six out of the country's ten phytogeographical zones. No population size estimates were available, however, exporters in the mid-2010s considered *Pterocarpus* timber in Benin to have become commercially exhausted. A 2017 IUCN Red List assessment for the species estimated a subpopulation decline across Gambia, Benin and Côte d'Ivoire of 80%. Benin was among the largest exporters of the species when trade began to boom in the early 2010s, but there is little to no data measuring the impact of trade on harvested populations. Classified as Endangered on Benin's National Red List in 2011 as a result of extensive commercial extraction and habitat deterioration. A 1996 decree listed *P. erinaceus* as a protected species; as such felling, delimbing, uprooting and cutting is prohibited under Benin's Forest Code. Benin also generally prohibited the export of raw, unprocessed timber, poles, posts, squared logs, thick planks, rough-sawn boards with sapwood and charcoal derived from natural forests. A decree in March 2017 (2 months after the Appendix II listing of *P. erinaceus* came into force) authorised the export of timber product stocks harvested in 2015 and 2016 up until December 2017. CITES annual reports have been received from Benin for 2016 and 2018, but not yet for 2017. Trade 2016-2018 predominantly consisted of wild-sourced logs and sawn wood totalling 41 007 m^3 for commercial purposes; all trade was reported by importers only. Lower volumes of pre-Convention logs and sawn wood totalling 4 755 m^3 were also reported by importers over this period, including in 2018. Benin is included in a current CITES Tree Species Programme project. No response to the consultation relating to the RST was received. Wild-sourced trade appears to have taken place 2016-2018 despite national protection, the species is Endangered in the country and it is unclear if any national management is taking place as a basis for non-detriment findings; therefore categorized as **Action is needed**. Although not related to the implementation of Article IV, illegal trade and exports of timber have also been noted to be an issue; **referral to the Standing Committee is therefore recommended.**	**RECOMMENDATION:** **Action is needed** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Distribution: *Pterocarpus erinaceus* was reported to be widespread throughout the country, based on a 2017 study of existing literature as well as semi-structured interviews and focus group discussions with timber industry stakeholders (Akpona *et al.*, 2017). The species was reported to be present in six out of the country's ten phytogeographical zones, and only absent from the far south (Akpona *et al.*, 2017).

Population status and trends: Country-wide estimates of population trends were unavailable, although *P. erinaceus* was classified as Endangered in Benin's national red list in 2011 (Adomou *et al.*, 2011 in van Andel *et al.*, 2015). Three studies were located that detailed the average

density and size class distribution of *P. erinaceus* in specific areas in Benin: Glele Kakaï *et al.* (2008), Houehanou *et al.* (2013) and Chabi *et al.* (2013). It is important to note that data presented in and Glele Kakaï *et al.* (2008) and Houehanou *et al.* (2013) were collected prior to the *P. erinaceus* trade boom that Benin experienced in the early 2010s (see *Trade* section). The data presented in Chabi *et al.* (2013) was collected in February 2011.

Table 4.1.1 shows the results of the Glele Kakaï *et al.* (2008) surveys of 319 tree-savanna plots and 81 woodland plots in Ouémé Supérieur and Wari-Maro forest, central Benin. *P. erinaceus* was found to be present at densities of 22.86 trees/ha in the former habitat and 23.36 trees/ha in the latter habitat (Glele Kakaï *et al.*, 2008) (**Table 4.1.1**). The authors reported that the size class distribution of the species in these areas followed a unimodal, bell-shaped distribution (**Figure 4.1.1**); they noted that such distributions are characteristic of monospecific or even-aged stands, although an uneven-aged stand subjected to various pressures could also result in the distribution observed (Glele Kakaï *et al.*, 2008). Winfield *et al.* (CoP17 Inf. 48) commented that while the size class distributions in the study suggested that recruitment was occurring in these areas, it was not occurring at a sufficient level to suggest that the population was stable.

Table 4.1.1: Structural parameters of *Pterocarpus erinaceus* recorded across 319 tree-savanna plots and 81 woodland plots in Ouémé Supérieur and Wari-Maro forest, central Benin. Source: Glele Kakaï *et al.* (2008).

Measure	Tree savanna	Woodland
Density (trees/ha)	22.86	23.36
Average diameter (cm)	36.91	40.86
Basal area (m^2/ha)	2.54	3.60
Average height (m)	13.44	16.28

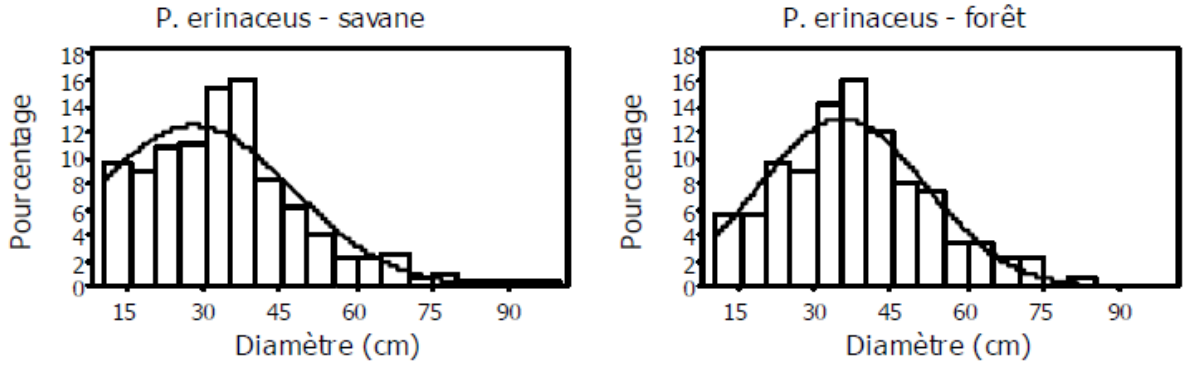

Figure 4.1.1: Size class distributions for *Pterocarpus erinaceus* recorded across 319 tree-savanna plots (left) and 81 woodland plots (right) in Ouémé Supérieur and Wari-Maro forest, central Benin. Reproduced with permission from Glele Kakaï *et al.* (2008).

Houehanou *et al.* (2013) sampled 120 plots in protected and surrounding unprotected areas of the Pendjari Biosphere Reserve located in the Sudanian zone of Benin. They found that the adult density of *P. erinaceus* with diameter at breast height (DBH) ≥10 cm was significantly higher in protected than in unprotected savannas (respectively 12 ±3.7 trees/ha and 5 ±1.9 trees/ha), but that there was no significant difference in juvenile density between the two classes of sites (2 ±0.7 stems/ha in protected savanna, 1 ±0.6 stems/ha in unprotected savanna) (Houehanou *et al.*, 2013). The difference in adult densities was reported to be indicative of human pressure; the authors noted that local residents mainly used *P. erinaceus* for firewood, and that this had led to the felling of many adult individuals in land use areas (Houehanou *et al.*, 2013). Size class distributions of *P. erinaceus* in protected areas were considered to indicate that these populations were declining (**Figure 4.1.2**); however, a relatively high proportion of juvenile individuals in the population (33%) led the authors to conclude that the conservation of the species "may not be strongly compromised" (Houehanou *et*

al., 2013). The population of *P. erinaceus* in fallows was noted to be characterised by an absence of many of the larger diameter classes (Houehanou *et al.*, 2013).

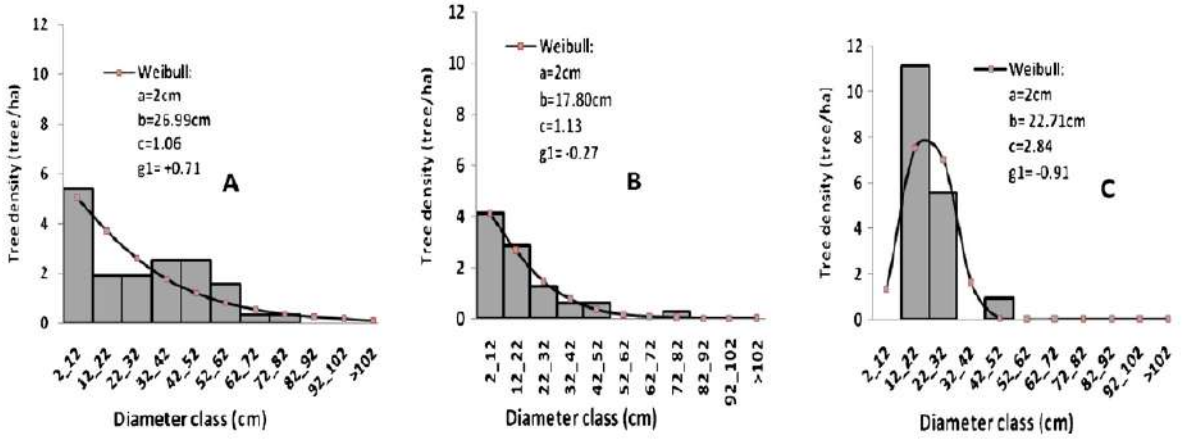

Figure 4.1.2 Size class distributions for *Pterocarpus erinaceus* in the Pendjari Biosphere Reserve. (A) shows distributions in protected savanna, (B) shows distributions for unprotected savanna, and (C) shows distributions in fallows. Reproduced with permission from Houehanou *et al.* (2013).

Lastly, the density of *P. erinaceus* trees across different habitat types in northern Wari-Maro forest recorded by Chabi *et al.* (2013) is shown in **Table 4.1.2**. The authors considered these numbers to be "very low" and an indication that the forest was being over-exploited (Chabi *et al.*, 2013). The DBH size class distribution of *P. erinaceus* was considered to show good regeneration, however, the authors cautioned that the exploitation rates for the species were likely to be increasing as a consequence of the scarcity of *Afzelia africana* and *Khaya senegalensis* (Chabi *et al.*, 2013). Further surveys in Wari-Maro Forest Reserve in late 2013/early 2014 found that *P. erinaceus* was perceived by informants to be "rare" (Yaoitcha *et al.*, 2015). Timber exporters approached by investigators from the Environmental Investigation Agency (EIA) in the mid-2010s considered *Pterocarpus* in Benin to have become commercially exhausted, with the species "becoming almost extinct" (EIA, 2017). The 2017 IUCN Red List assessment for the species estimated a subpopulation decline across Gambia, Benin and Côte d'Ivoire of 80% (Barstow, 2018), but the data underlying this estimate are unclear.

Table 4.1.2: Densities of *Pterocarpus erinaceus* recorded in northern Wari-Maro forest, Central Benin. Source: Chabi *et al.* (2013).

Habitat	Trees/ ha
Gallery forest	2
Dense dry forest/ semi-deciduous forest	10
Woodland and tree savanna	17
Tree and shrub savanna	8
Tree and shrub savanna on rocky slopes	40
Cultivated wooded and shrub savanna	4

Trade:

CITES trade data: CITES annual reports were submitted by Benin in 2016 and 2018, but a report from 2017 has not yet been received. Benin has never published any CITES export quotas for *P. erinaceus*.

According to the CITES Trade Database, direct trade in *P. erinaceus* from Benin 2016-2018 predominantly consisted of wild-sourced logs and sawn wood totalling 41 007 m^3 imported for commercial purposes, as reported by importers only (**Table 4.1.3**). More than 99% of the wild-sourced logs and sawn wood were imported by China, with the remainder imported by Viet Nam.

Lower volumes of pre-Convention logs and sawn wood totalling 4755 m^3 were also imported by China and Viet Nam over this period. The majority of trade was reported in 2017 (80% of trade in logs, sawn wood, and timber by volume). Benin's annual report for 2018 noted that no permits for flora had been issued in that year; a permit analysis of 2018 imports reported by China and Viet Nam suggests that these shipments were imported on permits issued in 2017.

No indirect trade in *P. erinaceus* originating in Benin was reported 2016-2018.

Table 4.1.3: Direct exports of *Pterocarpus erinaceus* from Benin, 2016-2018. Quantities have been rounded to whole numbers, where appropriate. '-' denotes that a CITES annual report for Benin has not been received. All trade reported over this period was for commercial purposes.

Term	Unit	Source	Reported by	2016	2017	2018	Total
logs	m^3	O	Exporter		-		
			Importer			325	325
		W	Exporter		-		
			Importer		19962	99	20061
sawn wood	kg	W	Exporter		-		
			Importer		18		18
	m^3	O	Exporter		-		
			Importer		290	4140	4430
		W	Exporter		-		
			Importer		16200	4746	20946
timber	m^3	W	Exporter		-		
			Importer		1624		1624

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.

Chinese customs data: Chinese customs data extracted from the Global Trade Atlas show Benin to have been among the largest exporters of rosewood[15] when trade in *P. erinaceus* was first beginning to boom in the early 2010s (**Figure 3.5**). A total of 383 311m^3 of rosewood logs worth over USD 180 million was reported to have been imported into China from Benin between 2009 and 2018 (**Figure 4.1.3**); this accounted for 7% of the total amount of rosewood logs imported by China from *P. erinaceus* range States over this period. After increasing from 2009-2012, imports of rosewood logs from Benin showed an overall gradually decreasing trend from 2012 onwards, with the exception of a sharp peak in 2014 where exports were close to three times as high as in 2012. This decrease was considered by EIA (2017), to have been caused by supplies of rosewood becoming exhausted, with traders subsequently shifting operations to other West African countries.

[15] Presumed to be *P. erinaceus* as it is the only species to occur in Benin considered to be rosewood under the Chinese national standard.

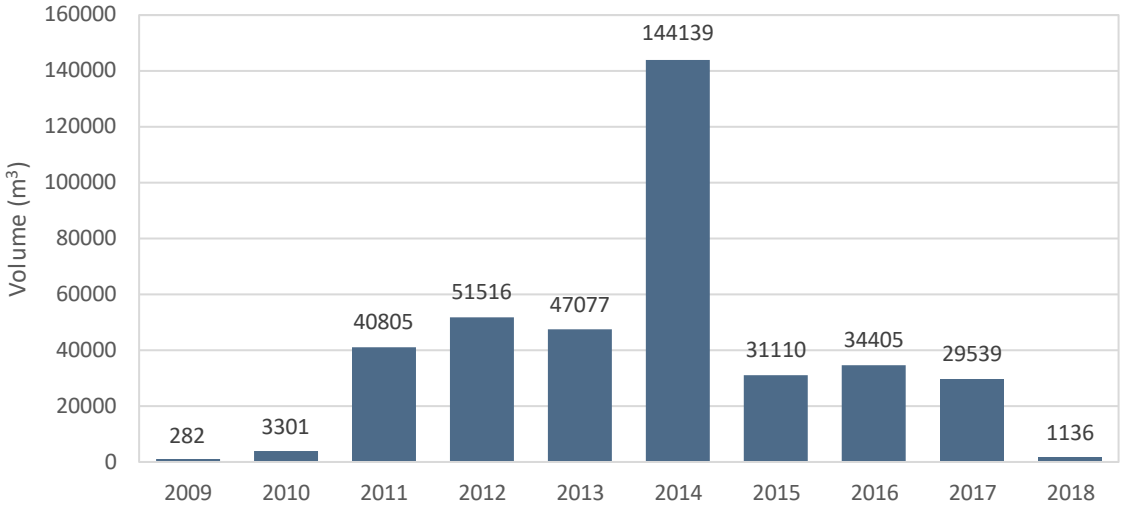

Figure 4.1.3: Volume of rosewood[12] logs (m^3) from Benin imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: Benin's national red list considered the principal threats to the species to be extensive commercial extraction and habitat deterioration (Adomou *et al.*, 2011 in van Andel *et al.*, 2015). Illegal trade has previously been noted to be an issue, with interviews conducted in Benin in 2014 revealing that *P. erinaceus* "planks" were frequently used to conceal logs within containers (CoP18 Doc. 34 Annex 4). Whether it is legal to export planks from Benin is unclear; the export of *"madriers"* from natural forests (here interpreted to mean thick planks) was prohibited by Article 5 of Interministerial Decree-2007/0053/MEPN/MIC/DC/SGM/DGFRN/DGCE, but PC22 Inf. 13 and the CITES listing proposal for the species both indicate that this piece of legislation only prohibits the export of all woody species in their raw form.

The principal drivers of deforestation and forest degradation in Benin were considered to be illegal tree felling, land clearance for agriculture, bushfires, charcoal production and overgrazing (Akpona *et al.*, 2017). Based on these threats, *P. erinaceus* was highlighted as a priority species for conservation in Benin by Akpona *et al.* (2017) and Yaoitcha *et al.* (2015), who noted its high economic and socio-cultural value.

Management: Benin became a Party to CITES on 28th February 1984, with entry into force on 28th May 1984. Through its National Legislation Project, the CITES Secretariat categorised the national legislation in Benin as legislation that is believed generally to meet one to three of the four requirements for effective implementation of CITES (Category 2). The Secretariat's legislative table published in November 2019[16] reported that a new CITES law was expected to enter into force before the end of 2019, however the CITES Secretariat (*in litt.* to UNEP-WCMC, 2020) noted that there had been some delay to finalising the legislative process in Benin.

Domestic forestry legislation: *P. erinaceus* was listed as a protected species by the implementing decree of Benin's Forest Code (Decree No. 96-271 of 2 July 1996, Article 25 (Republic of Benin, 1996)). According to Article 36 of the Forest Code (Law No. 93-009 of 2 July 1993 (Republic of Benin, 1993)), this prohibits the felling, delimbing, uprooting and cutting of the species except in cases

[16] https://cites.org/legislation/National_Legislation_Project [Accessed 27 April 2020].

authorised by the Forest Administration. A Finance Act for the 2018 financial year was additionally reported to have prohibited logging of *P. erinaceus* until further notice (General Directorate of Water, Forests and Hunting Benin, 2019).

Provisions for importing and exporting timber products are set out in Interministerial Decree-2007/0053/MEPN/MIC/DC/SGM/DGFRN/DGCE (Republic of Benin, 2007). Article 3 of this Decree prohibits the export of raw, unprocessed timber. Article 5 states that the export of *les poteaux, equarris, madriers, plots de bois et charbon de bois* (interpreted here to mean poles, posts, squared logs, thick planks, rough-sawn boards with sapwood and charcoal) derived from natural forests is also prohibited; however, PC22 Inf. 13 and the CITES listing proposal for the species both indicate that this piece of legislation only prohibits the export of all woody species in their raw form. Article 9 of the Interministerial Decree states that technical advice for the export sawn timber products from natural forests is issued by the Directorate in charge of forests on the basis of exportable timber volumes defined and published each year by circular note of the Minister in charge of forests (these circulars could not be located). Article 8 states that the re-export from Benin and the transit through Benin of raw, unprocessed timber is also prohibited.

Benin's government was additionally noted to have issued a decree in March 2017 (2 months after the Appendix II listing of *P. erinaceus* came into force), authorising the export of timber product stocks harvested in 2015 and 2016 up until December 2017 (General Directorate of Water, Forests and Hunting Benin, 2019).

Other management measures: Benin is one of three countries in which the CITES Tree Species Programme funded a project on capacity-building for sustainable management of *P. erinaceus*[17].

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Burkina Faso

BURKINA FASO:	Occurs widely in southern Burkina Faso but considered likely to be absent from the north. Based on data from a national forest inventory 2012-2015, the species' total estimated volume for 2015 was reportedly >6 million m^3. With the exception of two protected areas: W National Park and Comoé-Lerba Wildlife Reserve, surveys in specific areas indicated unstable populations; a lack of recruitment was implied based on low densities in small diameter size classes. Some populations were reported to be in decline or rare, and populations in Cassou and Laba forests were considered to be critically endangered by authors of a study published in 2019. Threats to *P. erinaceus* in Burkina Faso were reported to include harvesting for fodder, medicinal purposes and use in construction, grazing, and clearance for agriculture; commercial logging was also reported to occur in agroforestry areas. While the current scale is uncertain, illegal exploitation of *P. erinaceus* was also reported to be an issue. In the CITES listing proposal, it was reported that the species was illegally harvested in Burkina Faso and smuggled into neighbouring countries. The exploitation and trade of timber was suspended in Burkina Faso in 2005, meaning that exports are not permitted; however, wild-sourced trade appears to have taken place despite this. A CITES annual report has been received from Burkina Faso for 2016, but not yet for 2017 or 2018. Direct trade in *P. erinaceus* 2016-2018 consisted entirely of 204 m^3 of wild-sourced logs for commercial purposes in 2017 and 2018, reported by China only. According to Chinese customs data from the Global Trade Atlas, rosewood logs imported by China from Burkina Faso over the period 2009-2018 totalled 637 m^3. Burkina Faso did not respond to the consultation relating to the RST. On the basis that no legal international trade is anticipated due to a ban on harvest and trade at the national level, the provisions of Article IV are not applicable, therefore categorised as **Less concern**. However, although the scale of the problem is unclear, illegal trade and export is a concern not related to the implementation of Article IV. **Referral to the Standing Committee is therefore recommended.**	**RECOMMENDATION:** Less concern *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*

Distribution: A biodiversity atlas for Burkina Faso showed *Pterocarpus erinaceus* to be distributed broadly across the southern half of the country (Thiombiano and Kampmann, 2010). The species was considered to have a high probability of occurrence across the whole of the south but to be absent from the north (Thiombiano and Kampmann, 2010).

Population status and trends: A national forest inventory was carried out in Burkina Faso by the Ministry of Environment and Sustainable Development between 2012 and 2015 (Government of Burkina Faso, 2019). According to FAO (2020), the results of the inventory indicated that, in 2015, the volume of standing trees of *P. erinaceus* in Burkina Faso was 6.04 million m^3. Four studies were additionally located that detailed the average density and size class distributions of *P. erinaceus* in

specific areas in Burkina Faso: Ouedraogo *et al.* (2006), Nacoulma *et al.* (2011), Sanon *et al.* (2015) and Rabiou *et al.* (2015c). For all studies except Ouedraogo *et al.* (2006), the year in which the surveys took place could not be located.

Ouedraogo *et al.* (2006) carried out field surveys of *P. erinaceus* in eastern Burkina Faso in the Sudanian zone between 2001-2003. The results indicated that populations of *P. erinaceus* were declining in all stands surveyed, with population structures dominated by aging trees and low numbers observed in small diameter classes (Ouedraogo *et al.*, 2006). The average density of *P. erinaceus* with DBH ≥ 5 cm was reported to be 9.80 ± 4.31 trees/1000 m^2 and the average diameter was 28.69 ± 8.70 cm (Ouedraogo *et al.*, 2006). Regeneration was reported to be hindered by the climatic conditions and anthropogenic pressure (Ouedraogo *et al.*, 2006).

Nacoulma *et al.* (2011) surveyed *P. erinaceus* in the protected area W National Park and its adjacent hunting zones, and in unprotected agroforestry parklands in eastern Burkina Faso (see **Table 4.2.1**). The densities of adult trees (>10 cm DBH) and seedlings (0-5 cm DBH) were significantly higher in the protected area compared to the agroforestry parklands, and no saplings (5-10 cm DBH) at all were recorded in agroforestry parklands (Nacoulma *et al.*, 2011). The population structure in W National Park was considered to be stable showing a reverse J-shaped distribution, however the diameter size classes recorded in the agroforestry parklands indicated an unstable population structure (Nacoulma *et al.*, 2011). The authors concluded that this could be due to anthropogenic pressures, such as clearance for agriculture, grazing, harvesting for fodder and medicinal purposes, as well as differences in ecological conditions (Nacoulma *et al.*, 2011). Levels of pruning and debarking were observed to be high in the agroforestry parklands; only 11% of *P. erinaceus* individuals observed in the study had not been debarked to some extent, and 96% of individuals had been pruned, with the intensity of pruning considered to be severe for >50% of these trees (Nacoulma *et al.*, 2011). The authors also noted that the absence of larger diameter size classes in the agroforestry parklands indicated the impact of other types of pressures, such as commercial logging (Nacoulma *et al.*, 2011).

Table 4.2.1: Structural parameters of *P. erinaceus* recorded in W National Park and unprotected adjacent agroforestry parklands in eastern Burkina Faso. Source: Nacoulma *et al.* (2011).

Structural parameter	W National Park	Agroforestry parklands
Mean DBH (cm)	28.56 ± 0.94	30.76 ± 1.17
Height (m)	8.71 ± 0.25	6.11 ± 0.22
Density of seedlings (0-5 cm diameter)	244.44 ± 101.98	6.67 ± 6.67
Density of saplings (5-10 cm diameter)	3.95 ± 1.28	0
Density of trees (>10 cm diameter)	43.46 ± 3.70	20.25 ± 1.94

In Koulbi Classified Forest in the extreme south of Burkina Faso, Sanon *et al.* (2015) recorded an adult density (>5 cm DBH) for *P. erinaceus* of 23 trees/ha and an average DBH of 31.96 cm. The diameter size classes showed a bell-shaped distribution, with low representation of small diameter trees (Sanon *et al.*, 2015). The authors concluded that the unstable population structure of *P. erinaceus* was due to a combination of climatic conditions and anthropogenic factors, noting that bush fires, grazing and harvesting of timber were common in the forests of Koulbi (Sanon *et al.*, 2015).

Rabiou *et al.* (2015c) conducted surveys in five areas across Burkina Faso: Tiogo forest and Saponé forest in the northern Sudanian zone, Cassou forest and Laba forest in the southern Sudanian zone, and the wildlife reserve of Comoé-Lerabas in the Sudano-Guinean zone in the south. The density of *P. erinaceus* was found to vary according to the climatic zone and level of protection, with the highest densities observed in the protected area of Comoé-Lerba forest in the most southern climatic zone (see **Table 4.2.2**) (Rabiou *et al.*, 2015b). The populations of *P. erinaceus* in all areas

except Comoé-Lerba forest were over-represented by large-diameter trees, with small dimeter individuals very poorly represented (Rabiou *et al.*, 2015b). The population structure of Comoé-Lerba forest showed a reverse J-curve with small diameter individuals dominating (Rabiou *et al.*, 2015b), indicating better conditions for recruitment and regeneration. The authors attributed this exception to the ecological and climatic conditions of the area, as well as the sites protected status; all survey areas in Burkina Faso except Comoé-Léraba forest were reported to be subject to pressure from pruning and debarking (Rabiou *et al.*, 2015b). Referring (presumably) to the same survey, Rabiou *et al.* (2019) noted that the state of regeneration in Cassou forest was less critical when compared to Laba forest. Despite this however, the authors considered the species to be critically endangered in both Cassou and Laba forests (Rabiou *et al.*, 2019).

Table 4.2.2: Structural parameters of *P. erinaceus* recorded at five sites in Burkina Faso. Source: Rabiou *et al.* (2015b, 2019).

	Northern Sudanian zone		Southern Sudanian zone		Sudano-Guinean zone
Structural parameter	Saponé (Rabiou *et al.*, 2015b)	Tiogo (Rabiou *et al.*, 2015b)	Cassou (Rabiou *et al.*, 2015b, 2019)	Laba (Rabiou *et al.*, 2015b, 2019)	Comoé-Léraba (Rabiou *et al.*, 2015b)
Diameter (cm)	25.6 ± 8.7	36.6 ± 15.8	25.49±7.8	33.63±10	24.2 ± 17.6
Height (m)	8.4 ± 1.7	9.16 ± 2.2	8.07±1.6	9.29±2.08	10.21 ± 2.7
Commercial height (m)	3.2 ± 1.1	3.6 ± 1.6	3.53±1.05	3.95±1.42	4.4 ± 1.7
Basal area (m2/ha)	0.32	0.14	0.54	0.286	1.17
Height of Lorey (m)	8.9	11.1	8.68	9.99	13.7
Crown (m)	6.7 ± 2.1	8.6 ± 3.1	6.3±2.15	6.25±2.48	5.8 ± 3.5
Density (tree/ha)	5.0 ± 2.7	2.2 ± 1.6	9.401	2.84	15.0 ± 1.1

Based on these surveys, Rabiou *et al.* (2015a) estimated the volume of commercial timber available as 53 975 m^3 in Cassou, 136 m^3 in Saponé, 46 958 m^3 in Tiogo and 20 966 m^3 in Laba.

According to Ouedraogo (2007), the species is threatened to disappear in six localities of west Burkina Fasu (Bobo-Diulasso, Peni, Wolonkoto et Banakeledaga, Dinderesso and the University park of Bobo-Dioulasso). In these locations Ouedraogo (2007) considered the species to be "rare"; the regeneration rate of *P. erinaceus* was considered to be good, but threatened by logging, bush fires, climatic conditions and loss of land for agriculture purposes.

Trade:

CITES trade data: Burkina Faso submitted a CITES annual report for 2016 but the reports for 2017 and 2018 have not yet been received. Burkina Faso has never published a CITES export quota for the species.

According to the CITES Trade Database, China was the only importer of *P. erinaceus* from Burkina Faso 2016-2018. Direct trade in *P. erinaceus* 2016-2018 consisted entirely of 204 m^3 of wild-sourced logs for commercial purposes in 2017 (33%) and 2018 (67%), reported by China only. No indirect trade in *P. erinaceus* originating in Burkina Faso was reported 2016-2018.

Chinese customs data: Chinese customs data extracted from the Global Trade Atlas show relatively small volumes of rosewood[18] exported from Burkina Faso to China between 2009 and 2018 (**Figure 3.5; Figure 4.2.1**). A total of 637 m^3 (worth approximately USD 330 000) was reported to have been

[18] Presumed to be *P. erinaceus* as it is the only species to occur in Burkina Faso considered to be rosewood under the Chinese national standard.

imported into China over this period, accounting for ~0.01% of the total amount of rosewood logs imported by China from *P. erinaceus* range States.

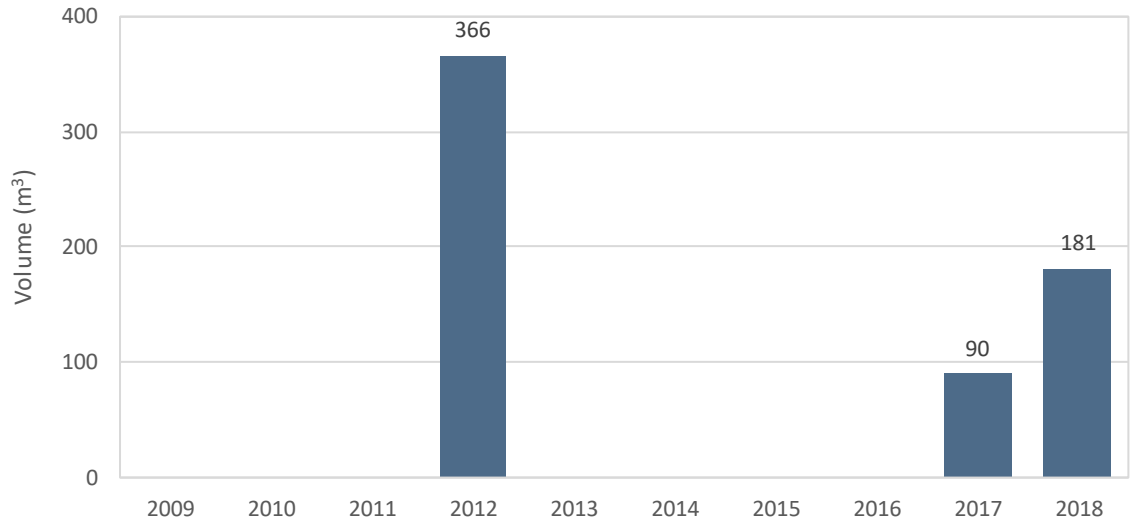

Figure 4.2.1: Volume of rosewood[13] logs (m^3) from Burkina Faso imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: The principal threats to *P. erinaceus* may differ across Burkina Faso's climatic zones in line with the species' differing use profiles.

Nacoulma *et al.* (2011) attributed the unstable population structure observed for the species in agroforestry parklands adjacent to W National Park in south-eastern Burkina Faso to have potentially been caused by a combination of land clearance for agriculture, livestock grazing, and/or harvesting for fodder and medicinal purposes. Sanou *et al.* (2011) noted that *P. erinaceus* was the most-sold tree species for use as forage in Bobo-Dioulasso (south-western Burkina Faso); they attributed declines observed in this area to excessive pruning and noted that their results agreed with those from Kiéma, 2007 (in Sanou *et al.*, 2011) who observed the extirpation of the species in areas adjacent to urban centres. Touré (2001) noted overharvesting for use as fodder to be a threat to the species in western Burkina Faso in general.

Vegetation clearance for cultivation of cash crops was perceived to be the main driver of change in forest cover in Sissili province in southern Burkina Faso, where *P. erinaceus* was considered to be a declining species (Pare *et al.*, 2010). However, as *P. erinaceus* was recorded to occur in fallows, it was unclear whether this threat was considered to be species-specific (Pare *et al.*, 2010). Illegal extraction of charcoal and stems, as well as impacts resulting from population growth, were also perceived to be important conservation issues in the area in general, but the study did not specify how relevant these threats were to *P. erinaceus* in particular. According to Ouedraogo (2007), *P. erinaceus* stems have been exploited for construction and production of crafts by local people (statues and musical instruments).

More recently, a 2016 press release from the Burkina Faso Government noted that increased degradation of vegetation in the Cascades Region had been caused by industrial overexploitation of timber, combined with "fraudulent exploitation" (Portail du Service d'Information du Gouvernement burkinabe, 2016). It was unclear whether *P. erinaceus* was one of the species targeted in this case; however, concerns about illegal harvest and trade of *P. erinaceus* have been raised more generally in

the country. Logs of the species were reported to have been harvested illegally in Burkina Faso and smuggled into neighbouring Côte d'Ivoire, Ghana and Mali, formally re-imported into Burkina Faso and then re-exported to one of the principal ports of the region (Lome (Togo), Accra (Ghana) or Abidjan (Côte d'Ivoire) (Burkina Faso, 2016 in CoP17 Prop. 57). In 2014, it was reported that the Director of Forestry was suspended for alleged involvement in illegal rosewood export (Lawson, 2015 in CoP17 Prop. 57). No estimates could be located of the scale of illegal activity in recent years, as well as the relative size of this threat in comparison to any threats posed by overharvesting for local or domestic use.

Management: Burkina Faso became a Party to CITES on 13th October 1989, with entry into force on 11th January 1990. The CITES Authorities of Burkina Faso were contacted as part of this review, but no response had been received at the time of writing. Through its national legislation project, the CITES Secretariat categorised the national legislation in Burkina Faso as legislation that is believed generally not to meet all of the requirements for the implementation of CITES (Category 2). The latest legislative table update (from November 2019)[19] noted that Burkina Faso had committed to drafting legislation in the form of a decree and had formally requested assistance.

Domestic forestry legislation: Decree No 2005 – 003/MECV/MCPEA of 9th March 2005 suspended the exploitation and trade of timber at the national level (Government of Burkina Faso, 2005). The decree was reported to be in force in 2018 (Environmental Investigation Agency, 2018), and no information was found to suggest that it does not remain in place. A press release published on the Burkina Faso Government's website noted that an exception was granted to two sawmills in Banfora in order to allow them time to convert to other activities; however, it was noted that the two sawmills had continued operations "without interruption and sometimes with the complicity of the forest administration" (Portail du Service d'Information du Gouvernement burkinabe, 2016). In September 2016 the two sawmills were informed that they could no longer continue their activities by harvesting wild-sourced timber (Portail du Service d'Information du Gouvernement burkinabe, 2016). A dialogue between the Ministry of the Environment, Green Economy and Climate Change and the actors involved subsequently took place, during which a number of proposals were agreed to be retained in the discussion process: *inter alia*, the need for additional time to be granted to allow sawmills to meet orders, invoices and pending charges, the need for an inventory to assess the exploitation potential of timber species, and the establishment of private plantations (Portail du Service d'Information du Gouvernement burkinabe, 2016). No updates could be located regarding whether the proposals had been implemented and whether the sawmills continued to be in operation.

Species specific protection for *P. erinaceus* was set out in Order No. 2004-019/MECV of 7th July 2004 (Government of Burkina Faso, 2004), which listed it as a forest species benefitting from special protection measures. Article 2 of the Order stipulates that protected species could not be felled, uprooted, cut or burnt without authorization from the competent forest authority (Government of Burkina Faso, 2004). It is unclear whether this Order remains valid; it was originally related to the implementation of the Forest Code adopted in 1997 (Law No. 006/97/ADP), which has since been repealed by a new Forest Code (Law No. 003-2011) (Government of Burkina Faso, 2011). Article 44 of the new Forest Code states that 'Some forest species, due to their specific ethno-botanical interest or the risk of extinction that threatens them, benefit from special protection measures'. The same Article specifies that the list of species afforded this protection 'is established by the order of the Minster of Forests'; however, as of 2016, no implementing decree relating to the protection of species within the framework of the new Forest Code was reported to have been published (CoP17 Prop. 57). This appears to still be the case.

[19] https://cites.org/legislation/National_Legislation_Project [Accessed 27 May 2020].

Other management measures: Management plans were located for W Transboundary Reserve spanning 2005-2010 (Ministry of the Environment and Fisheries Resources, 2005; Programme Régional Parc W/ ECOPAS, 2005), which profile the key threats to the reserve and set out an action plan to tackle them. Threats identified include *inter alia* the high persistence of bushfires, the strong pressure on natural sources in the reserves' periphery (*P. erinaceus* in particular is mentioned as a species affected by overexploitation for use as fodder), and a lack of resources, equipment and infrastructure. No other species-specific management measures could be located.

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Cameroon

CAMEROON:	Reported to occur in at least six of the ten administrative regions of Cameroon. The North, Far North and Adamaoua regions were considered to be the main areas of occurrence, reportedly containing vast natural stands. Two national forest inventories have been carried out in 1980 and in 2003-2004, however no data from the first was available. The results of the 2003-2004 inventory indicated that *P. erinaceus* did not meet the threshold for a rare species. CITES annual reports have been received from Cameroon for 2016 and 2017, but not yet for 2018. No trade in *P. erinaceus* was reported for 2016-2018. Chinese customs data extracted from the Global Trade Atlas indicated that in the same period, 375 m^3 of "rosewood" was imported from Cameroon to China, and in the period 2009-2018 a total of 3416 m^3 was imported. However, this trade could represent *P. erinaceus* and/or *Diospyros crassiflora*. Cameroon responded to the consultation relating to the RST. Demand for the species in international trade was reported to have driven uncontrolled and illegal logging of *P. erinaceus* in Cameroon, and this was identified as the main future threat. A number of reports have noted illegal trade and export of the species to neighbouring Nigeria, which is currently subject to an import suspension with regard to compliance and enforcement of the Convention for *P. erinaceus*. Harvesting and processing of the species does not currently follow any established management standard, and the management measures in place were considered insufficient to curb exploitation of the species. Efforts to address this have been made, with a Strategic Action Plan for sustainable management of *P. erinaceus* proposed. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**. However, illegal trade and export is a concern not related to the implementation of Article IV, **referral to the Standing Committee is therefore recommended**.	**RECOMMENDATION:** **Less concern** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Distribution: *Pterocarpus erinaceus* occurs in at least six of the ten administrative regions in Cameroon: in the North West, South West, East, Adamaoua [south of the North region], North, and Far North regions based on data obtained from interviews conducted in 2020 and from herbarium collections dating between 1953 and 1991 (CITES Management Authority (MA) of Cameroon *in litt*. to UNEP-WCMC, 2020). Kamga-Waladjo *et al.* (2011) also recorded *P. erinaceus* on communal grazing land in the West region. The North, Far North, and Adamaoua regions were considered to be the main areas of occurrence, reportedly containing vast natural stands (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020).

Population status and trends: Two national forest inventories have been carried out in Cameroon; the first conducted in the 1980s was limited to the forest areas in the South and the

second survey, carried out by FAO from 2003-2004, covered a wider area and included the northern savanna regions (Adamaoua, North and Far North) (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020). The CITES MA of Cameroon (*in litt.* to UNEP-WCMC, 2020) noted that although it was the most comprehensive to date, the FAO inventory only completed 85% of the planned surveys. The FAO forest inventory sampled a total of 400 ha nationwide and recorded a total of 66 *P. erinaceus* trees, representing an overall density of 0.16 stems/ha nationwide and 0.71 stems/ha in the three northern regions (considered the main area of occupancy), and a relative frequency of 0.43%, which was above the threshold of <0.01% considered by FAO to indicate that a species was rare and/or possibly threatened at that time (FAO, 2005). The CITES MA of Cameroon noted that it was difficult to assess population trends of *P. erinaceus* in the country due to the low coverage rate of the national forest inventory conducted in the 1980s and the absence of raw data from the FAO forest inventory (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020). It was also noted that it was not possible to determine the diametric structure of *P. erinaceus* populations or detect any issues with regeneration from the FAO data (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020).

The population status and/or densities of *P. erinaceus* has been recorded in various protected areas in the North, Far North and North-West regions, as well as in a non-cultivated plain in the Far North region (Table 4.3.1).

Table 4.3.1: Density and abundance of *Pterocarpus erinaceus* at six sites in Cameroon.

Area/Site of survey	Region	Date of survey	Densities (trees/ha)	Status	Author
Mozogo-Gokoro National Park	Far North	2012-2015	6.09		Sandjong Sani *et al.*, 2019
Kalfou Forest Reserve	Far North			Endangered and vulnerable	Froumsia *et al.*, 2012
Bénoué National Park	North	1977		Common in riparian forest as lower tree or thicket forming layer	Stark and Hudson, 1985
Kimbi-Fungom National Park	North-West		1.25 in gallery forest; 0.09 in savanna	Rare	Sainge *et al.*, 2020
Mbembe Forest Reserve	North-West	2012	11 in grassland savanna		Sainge *et al.*, 2012
Moutourwa	Far North	2015	1.5		Todou *et al.*, 2016

Trade:

CITES trade data: CITES annual reports were submitted by Cameroon in 2016 and 2017 but the report for 2018 has not yet been received. Cameroon has never published any CITES export quotas for *P. erinaceus*. According to the CITES Trade Database, no direct or indirect exports of *P. erinaceus* from Cameroon were reported 2016-2018.

Chinese customs data: According to Chinese customs data extracted from the Global Trade Atlas, 3416 m^3 of rosewood logs (considered to represent *P. erinaceus* and/or *Diospyros crassiflora*) worth approximately USD 2.9 million were imported by China from Cameroon between 2009-2018 (Figure 4.3.1). Imports showed a peak in 2011, accounting for close to a third of trade from the country over the period. Trade was also higher than average in 2012, 2013 and 2016; in all other years of the period, imports remained below 200 m^3.

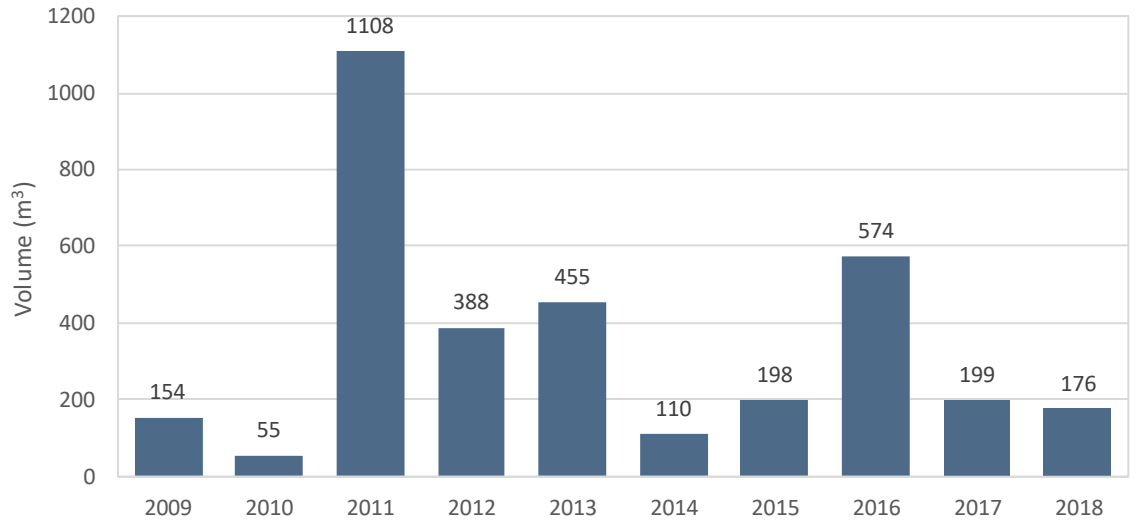

Figure 4.3.1: Volume of rosewood logs (m^3) from Cameroon imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: The CITES MA of Cameroon (*in litt*. to UNEP-WCMC, 2020) reported that the species is at increasing risk of unregulated logging. A 2019 UNODC threat assessment report stated that interviews with traders indicated that imports from Cameroon supplemented the local *P. erinaceus* supply in Nigeria (CoP18 Doc. 34). Similarly, the CITES MA of Cameroon (*in litt*. to UNEP-WCMC, 2020) stated that, according to information received from forest administration services, *P. erinaceus* timber is illegally harvested in Cameroon and is exported to China via Nigeria. The Environmental Investigation Agency (EIA) interviewed major traders in one of the regional markets of Adamawa State (Nigeria) located approx. 25 km from the border with Cameroon (EIA, 2017). The traders remarked that most *P. erinaceus* logs for export were illegally logged in Cameroon, with demand for the species starting in 2016 (EIA, 2017). The same report noted that EIA investigators were offered a guaranteed supply of 7000 *P. erinaceus* logs per month from Cameroon (EIA, 2017).

A recent study of land use and land cover change in the Kimbi-Fungom National Park (North-West region) recorded evidence of illegal logging of *P. erinaceus* (Zeh *et al.*, 2019), with the logs being trafficked to Nigeria via the Katsina Ala river (Zeh *et al.*, 2019). Given the high demand for the species in recent years, the CITES MA of Cameroon (*in litt.* to UNEP-WCMC, 2020) considered that illegal and uncontrolled harvesting could become the main threat to the species in the country.

P. erinaceus is also used in traditional medicine in Cameroon with the leaves (Saotoing *et al.*, 2011) and bark (Malzy, 1954; Jiofack *et al.*, 2009) utilised. The species was also noted to be exploited for forage in the North region (Gautier *et al.*, 2005) and in the Mozogo-Gokoro National Park in the Far North of Cameroon (Sandjong Sani *et al.*, 2013). While over-exploitation of the species for use as livestock fodder was considered to be the principal threat to the species in the past (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020), information could not be located regarding whether other domestic uses were considered to be a threat to the species at present.

Management: Cameroon became a Party to CITES on 5th June 1981, with entry into force on 3rd September 1981. Through its national legislation project, the CITES Secretariat categorised the national legislation in Cameroon as legislation that is believed generally to meet all four requirements for effective implementation of CITES (Category 1).

Domestic forestry legislation: Cameroon's Forest Code (Law No. 94/01 of 20 January 1994) divides the forests of Cameroon in two main categories: (i) the permanent forest domain comprise State forests, including areas protected for wildlife and various types of forest reserves (including production forests), and Communal forests; and (ii) the non-permanent forest estate including community forests and private forests (Republic of Cameroon, 1994). Article 22 of the Forest Code states that any activities within State or Communal forests must be carried out in accordance with a management plan; where the State forest is divided into Forest Management Units (FMU), each FMU must have a management plan (Republic of Cameroon, 1994). Decree No. 0222/A/MINEF of 25 May 2001 details the procedures for the preparation, approval, monitoring and control of the implementation of management plans for production forests in the permanent forest estate.

Logs of 23 species are prohibited from export from Cameroon, as listed in Annex I-B of Cameroon's FLEGT Voluntary Partnership Agreement with the European Union (The European Union and The Republic of Cameroon, 2011), but this does not include *P. erinaceus*.

The legal instruments for the sustainable management of forests were considered by the CITES MA of Cameroon to be sound, but a lack of implementation was identified as a challenge (Cameroon CITES MA *in litt*. to UNEP-WCMC, 2020).

Other management measures and challenges: According to the CITES MA of Cameroon (*in litt*. to UNEP-WCMC, 2020), harvesting and processing of *P. erinaceus* in Cameroon does not currently follow any established management standard, and the management measures in place were considered insufficient to curb the uncontrolled and illegal logging of *P. erinaceus*. However, the MA reported that a Strategic Action Plan for sustainable management of *P. erinaceus* had been developed. Proposed activities included, *inter alia*, the completion of the national forest inventory conducted from 2003 to 2004, and the preparation and implementation of management plans (including establishing a minimum exploitable diameter, rotation period, annual harvesting quotas, and monitoring systems) (CITES MA of Cameroon *in litt*. to UNEP-WCMC. 2020). The plan made two key recommendations: (1) a revision of Decree No. 0222/A/MINEF of 25 May 2001 based on new inventory guidelines developed in 2019, and (2) the development of a non-detriment finding to be presented at the Plants Committee (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020).

Due to a lack of information on the precise distribution of the species within the country from the FAO inventory, the CITES MA of Cameroon noted that it was very difficult to determine the number, size or type of protected areas needed to conserve the species' habitat, or to determine the types of habitat conservation programmes needed outside of protected areas (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020).

Corruption was considered by civil society organisation FODER to be a persistent issue within Cameroon's forestry sector, with weak application of the law, and lack of sanctions or accountability of State officials considered among the main causes (Talla and Wete Soh, 2017). The CITES MA of Cameroon noted that community forests were considered the most effective means of combatting the illegal logging and harvesting of *P. erinaceus* (CITES MA of Cameroon *in litt*. to UNEP-WCMC, 2020).

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Central African Republic

CENTRAL AFRICAN REPUBLIC:	The occurrence of *P. erinaceus* in Central African Republic is uncertain. CITES annual reports have not yet been received from Central African Republic for 2016-2018; no exporter-reported trade data was therefore available. No trade in *P. erinaceus* from Central African Republic was reported by importers 2016-2018 according to CITES trade data. According to Chinese customs data extracted from the Global Trade Atlas data, 50 m^3 of rosewood logs were reported to have been imported by China from the Central African Republic in 2017. However, this could represent *P. erinaceus* and/or *Diospyros crassiflora*. Central African Republic did not respond to the consultation relating to the RST. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern.** The apparent non-submission of three consecutive annual reports is a concern not related to the implementation of Article IV, therefore **referral to the Standing Committee is recommended**.	RECOMMENDATION: Less concern *[Referral to the Standing Committee on the basis of non-submission of CITES annual reports for three consecutive years]*

Distribution: The occurrence of *Pterocarpus erinaceus* in Central African Republic is uncertain. The country was considered a range State of *P. erinaceus* in descriptions of the species' global range by Booth and Wickens (1988) and Louppe *et al.* (2008), and a map of the species global range by (Bonnet *et al.*, 2008; Adjonou *et al.*, 2019) included the north-west of the country. A species distribution model also predicted the species occurrence in north-west Central African Republic (van Andel *et al.*, 2015). However, a phytogeographic map of Central African Republic from 1986 did not include *P. erinaceus* (Boulvert, 1986) and Central African Republic was not considered a range State in the CITES listing proposal (CoP17 Prop. 57).

No field studies reporting the occurrence of *P. erinaceus* in Central African Republic could be located. The uncertainty regarding the species occurrence in Central African Republic was referred to the CITES Nomenclature Specialist of the Plants Committee.

Population status and trends: No information on population status and trends of *P. erinaceus* in Central African Republic could be located.

Trade:

CITES trade data: CITES annual reports have not yet been received from Central African Republic for all years 2016-2018. Central African Republic has never published any export quotas for the species. According to the CITES Trade Database, no direct or indirect exports of *P. erinaceus* from Central African Republic were reported by importers 2016-2018.

Chinese customs data: According to Global Trade Atlas data, 50 m^3 of rosewood logs (considered to represent *P. erinaceus* and/or *Diospyros crassiflora*), with an estimated value of USD 16 336 were imported by China from the Central African Republic in 2017, the only reported imports from this country over the period 2009-2018.

Threats: No information on specific threats to *P. erinaceus* in Central African Republic could be located.

Management: Central African Republic became a Party to CITES on 27th August 1980, with entry into force on 25rd November 1980.

A Decision by the Minister of Water, Forestry, Hunting and Fishing in 2003 suspended all timber logging and export unless specific authorisation was granted to resume logging on a case by case basis (Le Ministre des Eaux Forêts Chasses et Pêches du République Centrafricaine, 2003). The current status of this Decision is unclear. The national Forest Code (Law No. 08.022, 2008) establishes the legal framework for management of the forest sector in Central African Republic. Under the Forest Code logging is prohibited in protected areas (République Centrafricaine, 2008). Decree No. 09.118 (2009), implementing the Forest Code, states that permits for exploitation may only be issued for production forests in the southwest of the country called Massif Forestier du Sud Ouest (Ministre des Eaux, Forêts, Chasse et Pêche, 2009). A further implementing decree to the Forest Code, listing protected timber species, did not include *P. erinaceus* (Order No. 09.021, République Centrafricaine, 2009).

Through its national legislation project, the CITES Secretariat categorised the national legislation in the Central African Republic as legislation that is believed generally not to meet the requirements for implementation of CITES (Category 3). A legislative status table prepared by the CITES Secretariat and published in November 2019[20] noted that draft legislation had been prepared and comments provided by the Secretariat.

The CITES Authorities of Central African Republic were contacted as part of this review; however, no response had been received at the time of writing.

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Chad

CHAD:		RECOMMENDATION:
	P. erinaceus has been recorded in the south of Chad. Little information could be found in relation to status or threats to the species in Chad, and Chad did not respond to the consultation relating to the RST. One study conducted in southwest Chad found that overgrazing had led to lack of regeneration of the species. No further information on the status of *P. erinaceus* or its management could be located. A CITES annual report has been received from Chad for 2016, but not yet for 2017 or 2018. No trade in *P. erinaceus* from Chad was reported 2016-2018. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**.	Less concern

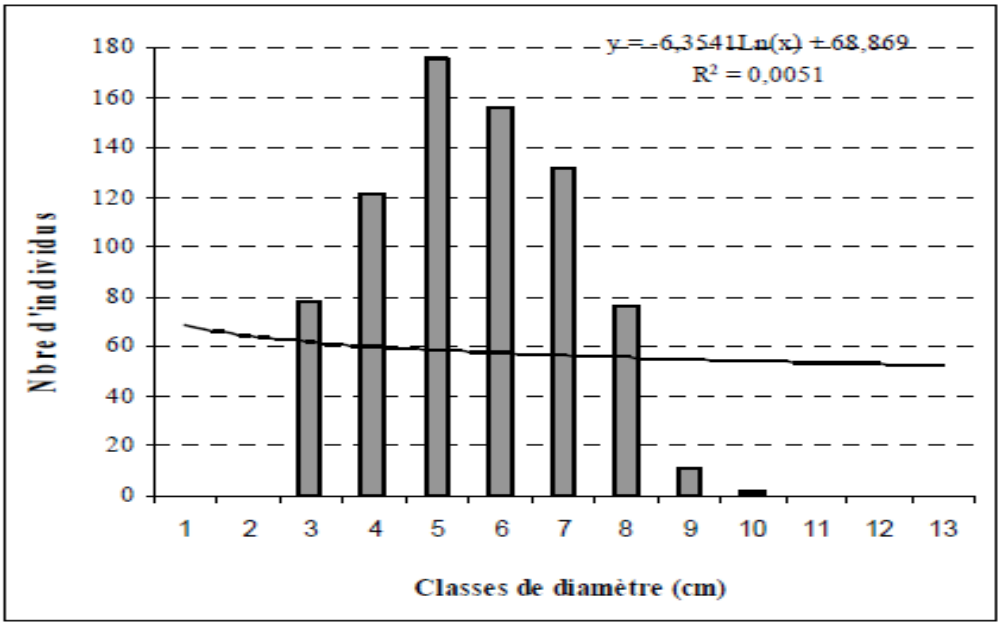
Distribution: Chad was considered a range State of *Pterocarpus erinaceus* by Booth and Wickens (1988) and Louppe *et al.* (2008) and a map of the species global range by Bonnet *et al.* (2008, in Adjonou *et al.*, 2019) included the far south of the country. A species distribution model based on GBIF[21] records, climate variables and soil suitability also predicted the species to occur in southern Chad (van Andel *et al.*, 2015).

Bechir *et al.* (2009) recorded the species' presence during an evaluation of the seasonal availability of fodder trees in the country's Sudanian zone in the south. The species was also recorded in the south of Chad by Grondard (1964) and was reported to occur there by Lebrun *et al.* (1972 in Brundu and Camarda, 2013) and Lebrun and Stork (2008 in African Plant Database, 2012). A recent "Flora of Chad" based on collated herbarium records and inventories noted that *P. erinaceus* was reportedly recorded in the Binder-Léré Faunal Reserve in southern Chad by a botanist, however it was noted that this claim and the species presence in Chad required further confirmation (César and Chatelain, 2019). Chad was not considered a range State in the CITES listing proposal for the species (CoP17 Prop. 57).

The uncertainty regarding the species occurrence in Chad was referred to the CITES Nomenclature Specialist of the Plants Committee.

Population status and trends: No national forest inventory has been conducted in Chad (FAO, 2020) and therefore national population data is lacking. *P. erinaceus* was reported to be among the most abundant species at seven out of 10 woodland sites surveyed in the southwest of Chad, with an average density of 72 mature trees/ha (Bechir and Kabore-Zoungrana, 2012). However, smaller trees with a diameter up to 15 cm were entirely absent (Figure 5.1) and the authors concluded that, as a result of overgrazing by cattle, there was no regeneration of the species in the survey area (Bechir and Kabore-Zoungrana, 2012).

[21] Global Biodiversity Information Facility



d : *Pterocarpus erinaceus*

Figure 5.1: Distribution of diameter classes of *Pterocarpus erinaceus* in 7 surveyed areas in south-west Chad. The y-axis shows the number of trees, and the x-axis shows diameter classes in centimetres with the following key: 1 = [5-10 cm]; 2 = [10-15 cm]; 3 = [15-20 cm]; 4 = [20-25 cm] ; 5 = [25-30 cm]; 6 = [30-35 cm]; 7 = [35-40 cm]; 8 = [40-45 cm]; 9 = [45-50 cm]; 10 = [50-55 cm]; 11 = [55-60 cm]; 12 = [60-65 cm]; 13 = [65-70 cm]; 14 = [70-75 cm]; 15 = ≥ 75 cm. Reproduced with permission from Bechir and Kabore-Zoungrana (2012).

Trade:

CITES trade data: A CITES annual report was submitted by Chad for 2016, but the reports for 2017 and 2018 have not yet been received. Chad has never published any export quotas for *P. erinaceus*.

According to the CITES Trade Database, no direct or indirect exports of *P. erinaceus* from Chad were reported 2016-2018.

Chinese customs data: No reports of imports from Chad were recorded within the Chinese customs data extracted from the Global Trade Atlas 2009-2018.

Threats: No information on threats specific to *P. erinaceus* in Chad could be located.

Management: Chad became a Party to CITES on 2nd February 1989, with entry into force on 3rd May 1989. Through its national legislation project, the CITES Secretariat categorised the national legislation in Chad as legislation that is believed generally to not meet all the requirements for the implementation of CITES (Category 2). A legislative status table prepared by the CITES Secretariat and published in November 2019[22] noted that a draft amendment law and specific CITES regulation was to be prepared.

Relevant legislation in Chad includes Order N°025/MEERH/SECHVP/SG/DFLCD/2008 of 06 August 2008, which reportedly prohibited the export of wood and charcoal and their use by companies throughout the country (OFAC, 2013); this piece of legislation could not be accessed to provide

[22] https://cites.org/eng/legislation/National_Legislation_Project [Accessed 27 April 2020].

further details or verify whether it is still in place. Law N°14 / PR/ 2008 of 2nd June 2008 provides the framework for the conservation and management of forests in Chad. According to Article 50, certain forest species benefit from special protection measures; no list of protected species could be located.

The CITES Authorities of Chad were contacted as part of this review, but no response had been received at the time of writing.

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Côte d'Ivoire

COTE D'IVOIRE:	Reported to occur from the centre to the north of Côte d'Ivoire, with the majority of the population distributed above the 8th parallel of latitude and the highest population density found in the country's extreme north. The species was stated to be disappearing, with an inferred population decline of 80% over the period 2011-2014 as a result of logging. An inventory of *P. erinaceus* is planned as part of a current CITES Tree Species Programme project. CITES annual reports have been received from Côte d'Ivoire for all years 2016-2018. No trade in *P. erinaceus* from Côte d'Ivoire was reported 2016-2018. Côte d'Ivoire responded to the consultation relating to RST. The exploitation, cutting, transport, marketing and export of *Pterocarpus* spp. were banned in 2013, however, illegal exploitation of *P. erinaceus* remains a current threat. The CITES MA made reference to recent seizures of *P. erinaceus* that had taken place in 2019. In addition, according to a 2019 UNODC threat assessment, exports from Ghana appeared to be supplemented by illegal imports of *P. erinaceus* from Côte d'Ivoire. The CITES MA stated their intention to discuss export of pre-ban stockpiles and seized containers of *P. erinaceus* (>590 000 logs in total) with the CITES Secretariat. On the basis of no legal trade due to the ban on harvest and export, the provisions of Article IV are not applicable, therefore categorised as **Less concern**. However, although the scale of the problem is unclear, illegal trade and export of timber is a concern not related to the implementation of Article IV. **Referral to the Standing Committee is therefore recommended.**	RECOMMENDATION: Less concern *[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]*

Distribution: The national range of *Pterocarpus erinaceus* extends from the centre of Côte d'Ivoire to the savanna in the north of the country (Goba *et al.*, 2019b; CITES Management Authority (MA) of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). Goba *et al.* (2019b) described *P. erinaceus* as widespread in the Côte d'Ivoire savanna.

Population status and trends: Although no national forest inventory has yet been carried out for *P. erinaceus* in Côte d'Ivoire, the majority of the species' distribution was reported to be above the 8th parallel of latitude (northern Côte d'Ivoire), with the highest population density of *P. erinaceus* found in the "extreme north" of the country (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). In the species' 2017 global IUCN Red List assessment, *P. erinaceus* timber stocks in Côte d'Ivoire were "suspected to be exhausted", with an inferred population decline of >80% in 2011-2014 (Barstow, 2018) (however, the data underlying this estimate are unclear). Côte d'Ivoire's Ministry of Water and Forests (MINEF, in which the CITES MA sits) additionally noted that the exploitation of *P. erinaceus* above the 8th parallel "has contributed to the loss and degradation of its populations, to the point where this species is tending to disappear" (Ministry of Water and Forests, 2018).

A study by Goba *et al.* (2019a) (study date not specified) at sites in the Guinean, Sub-Sudanian and Sudanian savanna ecosystems of Côte d'Ivoire reported average *P. erinaceus* population densities of 9.9 ± 4.6 trees/ha, 12.6 ± 6.3 trees/ha, and 2.4 ± 0.77 trees/ha respectively (see **Table 4.6.1**).

P. erinaceus stands in the Guinean and Sub-Sudanian savanna exhibited an inverse "J-shaped" population structure dominated by individuals in smaller size classes[23], whereas stands in the Sudanian savanna had a "bell-shaped" population structure, with greater representation (74%) of individuals belonging to intermediate size classes (15-45 cm), and low numbers of young individuals, indicating a "naturally declining aged population" (Goba *et al.*, 2019a) (see **Figure 4.6.1**). The authors suggested that the comparatively lower regeneration potential observed in the Sudanian savanna was due to grazing pressure and longer dry seasons reducing survival of younger individuals (Goba *et al.*, 2019a). Although cutting, debarking and pruning of *P. erinaceus* was recorded within all three ecosystems, the Guinean savanna had the highest proportion of cut and debarked individuals (Goba *et al.*, 2019a). It was suggested that "excessive harvesting" of *P. erinaceus* may have contributed to the loss of trees in larger size classes from the Guinean and Sub-Sudanian savannas, as such trees are "more profitable for export" (Goba *et al.*, 2019a). The species was described as one of the savanna ecosystem's "most threatened woody species" (Goba *et al.*, 2019a).

Table 4.6.1: Comparison of *Pterocarpus erinaceus* mean structural parameters in three types of Ivorian savanna ecosystem. Source: Goba *et al.* (2019a).

Savanna type	Average number of individuals	Average density (trees/ha)	Average diameter (cm)	Average height (m)	Average bole height (m)	Average basal area (m^2/ha)
Guinean	351	9.95 ± 4.56	23.10 ± 10.20	9.44 ± 2.67	3.36 ± 1.51	0.41 ± 0.24
Sub-Sudanian	547	12.60 ± 6.31	23.00 ± 12.70	10.10 ± 3.38	4.04 ± 2.82	0.70 ± 0.43
Sudanian	210	2.37 ± 0.77	33.90 ± 12.30	10.60 ± 2.26	3.83 ± 1.78	0.29 ± 0.14
Total	1108	8.76 ± 6.30	25.10 ± 12.60	9.97 ± 3.00	3.78 ± 2.31	0.47 ± 0.36

Trade:

CITES trade data: CITES annual reports have been received from Côte d'Ivoire for all years 2016-2018. Côte d'Ivoire has never published any CITES export quotas for the species. According to the CITES Trade Database, no direct or indirect exports of *P. erinaceus* from Côte d'Ivoire were reported by any Party 2016-2018.

Chinese customs data: No reports of imports from Côte d'Ivoire were recorded within the Chinese customs data extracted from the Global Trade Atlas 2009-2018.

Trade statistics from CITES MA of Côte d'Ivoire: The CITES MA of Côte d'Ivoire (*in litt*. to UNEP-WCMC, 2020) provided data on logging and export of *P. erinaceus* (under the timber trade name 'bois de vêne') for 2010-2013, recorded by the Department of Production and Forest Industries (DPIF). A significant discrepancy between the harvest and export volume was reported for 2012-2013 (see **Table 4.6.2**) (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). The apparently low levels of export compared to high harvest volumes of *P. erinaceus* for these years is notable, as it has been highlighted that in Côte d'Ivoire the species is mainly harvested for timber export and livestock fodder (Goba *et al.*, 2019b). The MA related these discrepancies to seizures made over the period 2012-2013 (see *Threats* section), concluding that the unregulated export of several thousand cubic metres of 'bois de vêne' had taken place over this period (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020).

Table 4.6.2: Statistical data of legal logging of *P. erinaceus* in Côte d'Ivoire recorded by the Department of Production and Forest Industries (DPIF).

[23] With trees of diameter classes between 10 and 30 cm dominating (77%) in the Guinean savannah, and trees with a diameter class between 5 and 30 cm dominating (89%) in the Sub-Sudanian savannah.

	2010	2011	2012	2013
Number of *P. erinaceus* logging permits issued	4	12	38	62
Harvest volume of *P. erinaceus* recorded by the DPIF (m^3)	2313	2969	10 907	613 550
Export volume of *P. erinaceus* recorded by the DPIF (m^3)	Not reported	Not reported	1399	1606

Source: CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC (2020).

Threats: Despite being a pyrophilic (fire-tolerant) species, the main threat to *P. erinaceus* in Côte d'Ivoire was reported to be bush fires, although the CITES MA stated that international trade was an ongoing "significant threat" (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). Goba *et al.* (2019b) noted that within Côte d'Ivoire the species was mainly harvested for its timber and its leaves, for export and for use as livestock fodder, respectively. The harvest was described by Goba *et al.* (2019b) as constant, due to the species' high value timber.

The CITES MA of Côte d'Ivoire reported that illegal harvest of *P. erinaceus* above the 8th parallel had been taking place since 2005, with increased exploitation seen after 2007 in line with the species' increased commercial value on the international market (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). The CITES MA added that the country's "post-electoral crisis" in 2011 exacerbated the exploitation of *P. erinaceus* due to the absence of the Forest Administration from some central and northern regions (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). In response, a decree prohibiting the exploitation, cutting, transport, marketing and export of *Pterocarpus* spp. was adopted in 2013 (see *Management* section) (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). However, illegal activities were implied to be ongoing, with the CITES MA making reference to recent seizures of *P. erinaceus* that had taken place in 2019 (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020).

There have been several reported seizures of illegally harvested timber in Côte d'Ivoire, including 30 containers of illegal rosewood seized at the ports of Abidjan and San Pedro (southern Côte d'Ivoire) in January 2012 in which senior officials were implicated (AllAfrica, 2012 in PC22 Inf. 13). In reference to these seizures, the Ministry of Water and Forests identified the rosewood as *P. erinaceus* (Ministry of Water and Forests, 2018). Between January 2012 and September 2013, the government reportedly arrested 74 individuals for illegal logging north of the 8th parallel and seized a total of 6051m^3 of illegal timber with a market value of USD 1 250 126 (United Nations, 2014), which was assumed to be mostly *P. erinaceus* (PC22 Inf. 13). In April 2019, MINEF reported seizing five containers containing 100 m^3 of '*P. erinaceus* in Vridi (southern Côte d'Ivoire) (MINEF, 2019); the volume of seized timber was estimated as equivalent to ~200 felled trees (SYNICI, 2019). Other recent seizures of sawn timber in Côte d'Ivoire did not specify the species involved (MINEF, 2020a, 2020b). The concealment of protected species in log yards and amongst legal wood piles was also reported to occur in the country (NEPCon, 2017). In addition, exports of *P. erinaceus* from Ghana have reportedly been supplemented by illegal imports of the species from Côte d'Ivoire (CoP18 Doc. 34 Annex 4).

Management: Côte d'Ivoire became a Party to CITES on 21st November 1994, with entry into force on 19th February 1995. Through its national legislation project, the CITES Secretariat categorised the national legislation in Côte d'Ivoire as legislation that is believed generally not to meet any of the four requirements for effective implementation of CITES (Category 3). The CITES

Secretariat's legislative status table published in November 2019[24] noted that the Secretariat had provided comments to a draft law and implementing regulations, and the CITES Management Authority of Côte d'Ivoire stated that drafts of national CITES implementing legislation and the accompanying implementing decree had been prepared and were undergoing government review (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020).

Current domestic forestry legislation: Legal protection of *P. erinaceus* in Côte d'Ivoire is regulated by two pieces of legislation:

- Decree No. 2013-508 of 25 July 2013 prohibiting the exploitation, cutting, transport, marketing and export of *Pterocarpus* spp.;
- Law No. 2019-675 of 23 July 2019 on the Forestry Code, which makes specific provisions for the protection of certain forest species with heavy penalties (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). The publication of the associated implementing regulations is anticipated in 2020 following a multi-stakeholder consultation process (MINEF, 2020c).

After Decree No. 2013-508 came into force banning the harvest and trade in the genus, a three-month transitional period between late 2013 and early 2014 was granted by Interministerial Order No. 502/MINEF/MEMIS/MPMEF/MPMB of 5th December 2013 (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). Export of pre-ban stockpiles was permitted during the transitional period, although stockpiled logs were required to be processed prior to export (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020).

Despite the 2013 ban, illegal exploitation of *P. erinaceus* was reported to have continued in the north of the country, with "certain communities, control services and private companies" noted to be complicit, poorly informed or unaware of the legal requirements for the species (Ministry of Water and Forests, 2018). However, the CITES MA of Côte d'Ivoire (*in litt.* to UNEP-WCMC, 2020) stated that the ban "has made it possible to reduce the exploitation of this species to almost nothing".

Previous domestic forestry legislation: The Ivorian Forest Administration has published a number of pieces of legislation to regulate exploitation of *Pterocarpus* spp. in the country from 2011 onwards (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). Although the logging of "natural forests" above the 8th parallel of latitude in Côte d'Ivoire has reportedly been prohibited since 1982 (presumably by Decision 1505/MINEFOR of 7th September 1982, which prohibited exploitation in the savanna zone), two subsequent orders were also published regarding harvest in this region, namely Order No. 0058/MINEF/CAB of 6th February 2013 prohibiting logging above the 8th parallel, and Order No. 00402/MINEF/DGEF/DPIF of 26th March 2013 reinforcing the measures prohibiting the exploitation of timber and cabinet making above the 8th parallel (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020).

The harvest and export of *Pterocarpus* spp. from Côte d'Ivoire was initially prohibited by Order No. 00038/MINEF of 31st January 2012 (MINEF, 2013; Republique de Côte d'Ivoire, 2013). However, subsequent Order No. 00521/MINEF/CAB of 24th May 2012 reportedly specified that the genus could be legally logged in authorised Perimeters of Forest Exploitation (PEFs) below the 8th parallel, with a minimum cutting diameter of 50 cm (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). It appears that *Pterocarpus* spp. timber from such PEFs could be exported only after processing, according to Order No. 00628/MINEF/DGEF/DPIF of 28th June 2013 that prohibited the export of raw logs, squared logs and planks of *Pterocarpus* spp. The CITES MA additionally noted that much of the timber harvested and exported during this period "may have escaped the control of the Forest Administration" (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). Following the continued

[24] https://cites.org/legislation/National_Legislation_Project [Accessed 30th April 2020].

illegal exploitation of *Pterocarpus* spp. despite these measures, the Government then adopted the stricter Decree No. 2013-508 of 25th July 2013 prohibiting the exploitation, cutting, transport, marketing and export of *Pterocarpus* spp.

Stockpiles: The CITES MA reported that large stocks of unprocessed *P. erinaceus* logs still remained in rural domain forests and some classified forests in the centre and north of the country; evaluation by the Regional Directorates of Water and Forests during 2018-2019 found that such stockpiles contained ~606 433 *P. erinaceus* logs, of which 569 785 logs, equivalent to ~300 851 m^3 of timber, were "still usable" (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). The CITES MA further noted the presence of 28 775 logs, equivalent to 8632.5 m^3 of *P. erinaceus* timber, in containers seized by the Forest and Customs Administrations (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). The CITES MA stated that MINEF intends to enter into discussions with the CITES Secretariat with the aim of exporting these seized and pre-cut logs, noting that "to this end, the preparation of a non-detriment finding for *P. erinaceus* is planned during the year 2020" (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020).

National forestry: Almost 90% of the wood produced in Côte d'Ivoire was reported to be exploited from forest harvesting areas or PEFs of the State's rural domain (Cerutti *et al.*, 2015; Wild Chimpanzee Foundation, 2017), where there was reportedly a lack of specific information on illegal logging (IDEF, 2020b). Independent external observation of logging in the rural domain revealed numerous dysfunctions and shortcomings relating to compliance with regulations in force (IDEF, 2020a; Mulley, 2020). A number of shortcomings relating to compliance were also identified in the classified forests of the permanent forest domain, including logging outside of authorised areas, logging and authorisation to cut prohibited species, and logging prior to the necessary authorisations having been issued (Wild Chimpanzee Foundation, 2015, 2017).

Other management measures: *P. erinaceus* was reported to occur in multiple protected areas within Côte d'Ivoire, namely Akabo (Goba *et al.*, 2019a), Kahanso, Kouassi-Ndawa, Moyenne Marahoué, Ouarigué and Yalo (Goba *et al.*, 2019b). However, with the exception of Kouassi-Ndawa, these areas were noted to be subject to anthropogenic pressures including uncontrolled land clearance, grazing and illegal logging (Goba *et al*., 2019a, 2019b).

As part of an ongoing CITES Tree Species Programme project, a national population inventory for *P. erinaceus* is planned to support the formulation of non-detriment findings (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). In addition, a national forest inventory, funded by the French Development Agency, was reported to be underway, although this does not focus specifically on *P. erinaceus* (CITES MA of Côte d'Ivoire *in litt.* to UNEP-WCMC, 2020). The national forest inventory was initiated in March 2019 and is scheduled to last two years (ONF International, 2020).

The CITES MA (*in litt.* to UNEP-WCMC, 2020) additionally noted that Société de Développement des Forêts (SODEFOR – a state-owned forestry company) were conducting plantation trials for *P. erinaceus*, and a few nurseries had been established for the species by Regional Directorates of the Ministry of Water and Forests.

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Gambia

GAMBIA:	Field based accounts of the distribution of *P. erinaceus* could not be located. According to a 2019 UNODC report, Gambia's MA had no distribution or population data for *P. erinaceus* in the country, although a range of officials interviewed reported that Gambia no longer had any commercial stands. The 2017 IUCN Red List assessment for the species estimated a subpopulation decline across Gambia, Benin and Côte d'Ivoire of 80%. A limited field survey in Gambia reportedly took place in 2010, but no data from this were available for review. CITES annual reports for 2016-2018 were received from Gambia after the trade data were downloaded for this report and were therefore not included in the analysis. CITES trade data from the only importer (China) indicated 221 854 m^3 and 45 000 kg of wild-sourced logs were imported over this period for commercial purposes. Chinese customs data extracted from the Global Trade Atlas indicated that a higher volume of 417 198 m^3 of rosewood logs had been imported by China from Gambia over this period. The majority (85% to 95%) of rosewood exported from Gambia is believed to have been illegally harvested in Senegal, where *P. erinaceus* is a protected species and exports are banned for all wood products. No trade from Senegal to Gambia, nor indirect trade originating in Senegal and re-exported via Gambia, was recorded in the CITES Trade Database. Gambia did not respond to the consultation relating to the RST. Gambia's 2018 Forest Act listed *P. erinaceus* as a protected species, and also included a number of requirements aiming to curtail illegal trade from Senegal. Although Gambia announced the immediate suspension of all import, transport and export of timber in February 2017, this ban has been temporarily lifted twice to allow re-exports for limited periods of time. Given ongoing trade and the absence of up-to-date data on the population status and distribution of the species in the country, it is considered unlikely that robust scientifically based non-detriment findings could be made. On this basis, categorised as **Action is needed**. Illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, therefore **referral to the Standing Committee is recommended**.	**RECOMMENDATION:** **Action is needed** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Distribution: A species distribution model predicted the presence of *Pterocarpus erinaceus* throughout most of Gambia (van Andel *et al.*, 2015; **Figure 3.1**); however, no field-based accounts of the species' distribution in the country could be located.

Population status and trends: A 2019 UNODC threat assessment report on illegal wildlife trade in West and Central Africa (CoP18 Doc. 34, Annex 4) noted that Gambia's Management Authority (MA) had no distribution or population data for *P. erinaceus* in the country, although a range of officials interviewed reported that Gambia no longer had any commercial stands. The 2017 IUCN Red List assessment for the species estimated a subpopulation decline across Gambia, Benin

and Côte d'Ivoire of 80% (Barstow, 2018), but the data underlying this estimate are unclear. The last limited survey of the species in the country was reported to have been conducted in 2010 (CoP18 Doc. 34, Annex 4), however details of the findings or extent of this survey could not be located. A technical advisor to the Gambian Ministry of the Environment noted that the forests of Gambia are very depleted, with an absence of large *Pterocarpus* specimens (BBC News Africa, 2020), and an EIA report (EIA, 2020) noted that Gambia's Ministry of Forestry and the Environment had described *P. erinaceus* to be "near extinction" in 2011/2012.

The only density estimates or population trend data for the species that could be located were from two forest inventories carried out in 1982 and 1997, i.e. before the *P. erinaceus* trade boom began in the early 2010s (Silla, 1999). A decline in the number of trees/ha and the volume (m^3) of trees/ha was recorded in open woodlands, but changes in tree and shrub savanna habitats were noted to have been much less dramatic (Table 4.7.1) (Silla, 1999).

Table 4.7.1: Structural parameters of *P. erinaceus* in Gambia as recorded in forest inventories carried out in 1982 and 1997. Source: Silla, 1999.

	Open woodlands		Tree and shrub savanna	
Measure	**1982**	**1997**	**1982**	**1997**
Number/ha	25	9.7	8	5
Volume (m^3)/ha	11.4	4.9	2	2
Regeneration/ha	23	70	18	31

Trade:

CITES trade data: CITES annual reports have not yet been received from Gambia for 2016-2018[25]; no exporter reported data was therefore available for this period. Gambia has never published any CITES export quotas for the species. According to the CITES Trade Database, direct trade in *P. erinaceus* from Gambia 2016-2018 predominantly consisted of 221 854 m^3 of wild-sourced logs imported by China for commercial purposes, reported by China only (**Table 4.7.2**). Over half of this trade (59%) was reported in 2017 (the year the trade ban was put in place) and comprised 131 538 m^3 of logs. Other large quantities in trade 2017 included 45 000 kg of wild-sourced logs imported by China for commercial purposes.

Table 4.7.2: Direct exports of *Pterocarpus erinaceus* from Gambia, 2016-2018. Quantities have been rounded to whole numbers, where appropriate. All trade was reported for commercial purposes. '-' in the year columns denotes that a CITES annual report for Gambia has not been received.

Term	Unit	Source	Reported by	2016	2017	2018	Total
logs	kg	W	Exporter	-	-	-	
			Importer		45000		45000
	m^3	O	Exporter	-	-	-	
			Importer	17	540		557
		W	Exporter	-	-	-	
			Importer	72315	131536	18003	221854
	-	W	Exporter	-	-	-	
			Importer	68			68
sawn wood	m^3	W	Exporter	-	-	-	
			Importer	1030	3335	3504	7869

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.

No indirect trade originating in Gambia was reported 2016-2018.

[25] Gambia's reports for 2016, 2017 and 2018 have now been received by the CITES Secretariat; however, as they were received after the trade data were downloaded for this report, they were not included in the analysis.

UNODC's 2019 threat assessment report (CoP18 Doc. 34, Annex 4) stated that data provided by the MA of Gambia showed that 486 m^3 of rosewood logs was certified for export in 2016 and 456 m^3 was certified for export in 2017, equivalent to around 50 containers of 4000 logs. This is over two orders of magnitude lower than the volumes of logs in trade as indicated by importer reported data in the CITES Trade Database.

Chinese customs data: Chinese customs data extracted from the Global Trade Atlas show Gambia to be one of the three major West African exporters of rosewood[26] to China (**Figure 3.4**; **Figure 4.7.1**). A total of 889 032 m^3 (worth over USD 430 million) was reported to have been imported into China from Gambia between 2009 and 2018; this accounted for 16.5% of the total amount of rosewood logs imported by China from *P. erinaceus* range States over this period. Imports showed an increasing trend from 2010 to 2017, with the exception of two years (2013 and 2014) where trade levels decreased. Imports peaked at 204 787 m^3 in 2017 (the year the trade ban was put in place), after which they decreased more than six-fold in 2018. From June to December 2019 China was further reported to have imported 60 363 tons of timber worth c. 39 million USD (EIA, 2020). Trade levels indicated by data included in Global Trade Atlas were higher than import levels reported by China in their annual reports to CITES for 2016[27]-2018.

UNODC estimated annual illegal exports of rosewood from Gambia to be worth ~USD 100 million as declared by importers; this was estimated to account for approximately half the value of the country's total exports in 2016 and 10% of its GDP (CoP18 Doc. 34, Annex 4).

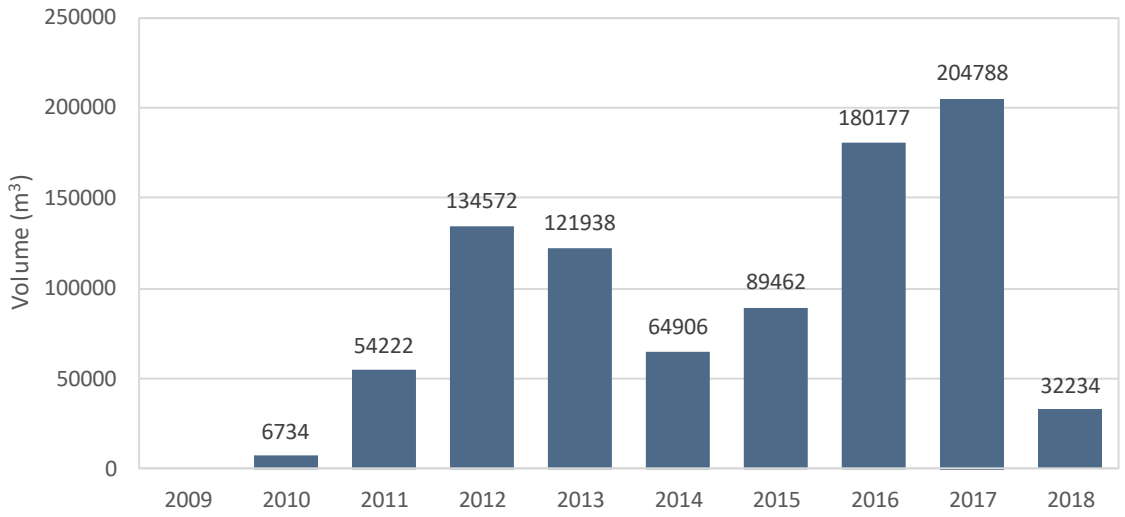

Figure 4.7.1: Volume of rosewood[20] logs (m^3) from Gambia imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: Gambia was one of the earliest West African countries to experience a boom in *P. erinaceus* trade (PC22 Inf. 13; EIA, 2017), and was reported to have exported the equivalent of 1.7 million *P. erinaceus* trees since 2011 (EIA, 2020). The country's own stocks of the species are

[26] Presumed to be *P. erinaceus* as it is the only species to occur in Gambia considered to be rosewood under the Chinese national standard.
[27] Trade data for 2016 may be incomplete as the Appendix III listing came into force on 9th May 2016, and Parties are not required to report trade that took place in 2016 prior to this date.

considered to have become seriously depleted (CoP18 Doc. 34, Annex 4; EIA, 2020); despite this, Gambia has remained one of the largest exporters of *P. erinaceus* in recent years with the majority of recent timber exports thought to have been harvested illegally in other countries (CoP18 Doc. 34, Annex 4; EIA, 2020). Forestry officials interviewed as part of a 2019 UNODC threat assessment report, for example, indicated that "anything from 85% to 95% of rosewood exported from the country originated in Senegal" [28] (CoP18 Doc. 34, Annex 4). Despite this, no trade in *P. erinaceus* from Senegal to Gambia, nor indirect trade originating in Senegal and re-exported via Gambia, was recorded in the CITES Trade Database 2016-2018. Interviews carried out by EIA additionally found some evidence to indicate that rosewood was being illegally smuggled into Gambia from northern Guinea-Bissau (EIA, 2020).

The majority of Senegalese *P. erinaceus* was reported to have originated from Casamance, an area in southern Senegal which borders Gambia and Guinea-Bissau (CoP18 Doc. 34, Annex 4), and was considered to be 'conflict timber' by the Senegalese State (Gueye, 2014) (see Senegal section). Because the export of logs is reportedly banned under Senegalese law, all trade in *P. erinaceus* logs entering Gambia via Senegal was considered to be illegal (CoP18 Doc. 34, Annex 4). Seizures at the Senegal/Gambian border were reported to have been significant, with a 2019 UNODC report noting that the Gambian state had custody of over 100 000 rosewood logs seized at various points along the border (CoP18 Doc. 34, Annex 4). An investigation conducted by BBC Africa Eye in 2019/2020 reported that 12 timber depots along a 170 km stretch of Gambia's border with the Casamance region in Senegal had been filled with rosewood and other timber, despite a ban on exports in place in both countries (BBC News Africa, 2020).

Illegal trade is therefore considered to be a prominent issue (CoP18 Doc. 34, Annex 4; EIA, 2020). Forms of illegality reported have included falsified CITES permits, concealment of *P. erinaceus* logs behind other materials, misdeclaration of squared logs as sawn wood to circumvent Gambia's log export ban, and corruption (CoP18 Doc. 34, Annex 4; BBC News Africa, 2020; EIA, 2020). Between June 2014 and March 2017, for example, an exclusive timber export licence for all species of timber was alleged to have been held by a single company that was claimed to be closely affiliated with Gambia's former president (CoP18 Doc. 34, Annex 4; EIA, 2020; TRIAL International 2020); all other companies were reported to have been required to pay a fee to this company in order to gain access to export *P. erinaceus* (CoP18 Doc. 34, Annex 4). Numerous allegations of illegality have been made against the operation of the company, including that it facilitated the traffic of over 315 000 tons of conflict timber from Senegal to China worth ~USD163 million (EIA, 2020; TRIAL International, 2020).

An Economic Commission was noted to have been established to investigate allegations of criminal activity by the country's former administration (CoP18 Doc. 34, Annex 4); however, the EIA (2020) considered that the situation in recent years has not improved. In particular, they pointed to figures showing that similar levels of rosewood timber originating in Gambia were imported into China between January 2017 and December 2018 (218 813 tons) as between January 2015 and December 2016 (241 254 tons) (EIA, 2020), despite the Gambian Ministry of Environment's announcement suspending all import, transport and export of timber in February 2017. In July 2020, shipping company *Compagnie Maritime d'Affrètement Compagnie Générale Maritime* (CMA CGM) announced it had decided to halt its timber exports from Gambia until further notice, after its own investigations found that "there was probably some protected rosewood inside their shipments from The Gambia to China" (BBC News, 2020).

[28] One senior official was reported to have put this figure at 60%.

It is unclear whether overexploitation of *P. erinaceus* for firewood, as indicated in reports from the late 1990s (Silla, 1999), continues to be a relevant threat, or whether there is additional pressure on the species as a result of habitat degradation or other forms of use.

Management: Gambia became a Party to CITES on 26th August 1977, with entry into force on 24th November 1977. The CITES Authorities of Gambia were contacted as part of this review, but no response had been received at the time of writing. Through its national legislation project, the CITES Secretariat categorised the national legislation in Gambia as legislation that is believed generally to meet one to three of the four requirements for effective implementation of CITES (Category 2). The CITES Secretariat's legislative status table published in November 2019[29] noted that a draft bill had been finalised and validated by all CITES stakeholders, with next steps identified as cabinet approval and submission of this legislation.

Previous domestic forestry legislation (2011-2016): The harvest and export of domestic *P. erinaceus* was reportedly prohibited by the Gambian Ministry of Forestry and Environment in June 2011[30] (Department of Forestry Letter ATB 145/213/01 (226) in: EIA, 2020); however, the re-export of *P. erinaceus* harvested outside of the country remained permitted as was clarified by the Ministry of Forestry and Environment in October 2011 (Department of Forestry Letter PE97/01/Part XI (272) in: EIA, 2020).

In response to concerns regarding the import of logs from Senegal in contravention of Senegal's export ban, Gambia additionally announced a ban on timber imports in 2016 (The Economist, 2016; EIA, 2020); however, concerns have been raised regarding the intent of the ban and its efficacy (EIA, 2020).

Current forestry legislation (2017-): The Gambian Ministry of Environment was reported to have expanded the scope of the 2016 restrictions by announcing the immediate suspension of all import, transport and export of timber in February 2017 (Global Wood Markets Info, 2017; WTO, 2017; EIA, 2020). However, following stakeholder consultation, the ban was temporarily lifted for a 10-week period from mid-May 2017 to allow the re-export of stockpiled logs from Senegal (EIA, 2020). UNODC's 2019 threat assessment report described a slightly different timeline, noting that the CITES MA of Gambia had stated that a log export ban was put in place in June 2017; a number of traders that had already purchased wood were reportedly allowed to export it until late 2017 (CoP18 Doc. 34, Annex 4). EIA (2020) noted that forestry employees and government officials such as the Permanent Secretary of the Ministry of Environment, Climate Change and Natural Resources had been threatened by traffickers during enforcement of the ban. From December 2018 to May 2019, the ban on re-exports was reportedly lifted for a second time (EIA, 2020).

A Forest Act was adopted in 2018 under Gambia's current administration that lists *P. erinaceus* as a protected species; as such, it is an offence to fell, cut, burn, injure, take or remove it (EIA, 2020). The maximum fine for illegal logging was increased 10-fold from the USD 100 stated in the previous Forest Act (of 1998) and includes the possibility of one year of imprisonment (CoP18 Doc. 34, Annex 4; EIA, 2020).

According to EIA (2020), the 2018 Forest Act also includes a number of requirements aiming to curtail illegal trade from Senegal; it specifies that importers must produce "evidence of lawful export from the country of origin," as well as an "import certificate issued by the Department of Forestry". Imports can additionally only take place through a designated customs entry port (EIA, 2020). In August 2018, Senegal and Gambia announced a joint enforcement initiative to combat illegal

[29] https://cites.org/legislation/National_Legislation_Project [Accessed 06 April 2020].

[30] Gueye (2014) dated a ban on the export of rosewood from November 2012.

logging and the associated timber trade in Casamance, with security forces stationed at timber landing sites and joint border patrols to stop traffickers (EIA, 2020).

Capacity issues: UNODC highlighted that enforcement in Gambia may be constrained by a lack of resources (CoP18 Doc. 34, Annex 4). It was noted that among forestry officials, only the Minister of Environment appeared to have access to the internet, and that the CITES Management Authority did not have access to a car and had no official access to ports (CoP18 Doc. 34, Annex 4). In 2017, the University of the Gambia and the National Agriculture Research Institute submitted a project proposal to the CITES Tree Species Programme to develop an NDF for *P. erinaceus*, *Cordyla pinnata* and *Khaya senegalensis,* however the proposal was not selected for support (CITES Secretariat pers. comm. to UNEP-WCMC, 2020).

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Ghana

GHANA:	Occurs in six regions of Ghana. National inventory data indicated that the species declined considerably in all regions as a result of harvest for timber and local use between 2013 and 2017. The population was considered by some authors to be under threat, with a lack of individuals in small size classes indicating population instability. CITES annual reports have been received from Ghana for 2017 and 2018, but not yet for 2016. Trade 2016-2018 consisted of 245 438 m^3 logs and sawn wood according to importers; lower quantities were reported by Ghana. Discrepancies have been noted between the volume of rosewood exported from Ghana according to data from Ghana's Timber Industry Development Division and imports into China according to Chinese Customs data extracted from the Global Trade Atlas, with import volumes consistently higher than export volumes. Illegal trade was considered to be a significant issue in the country, including smuggling from neighbouring countries into Ghana. Ghana have implemented five bans on felling and exporting the species since 2012. Each ban was lifted intermittently to allow exports of salvaged timber, but concerns have been raised that salvage permits were widely misapplied and granted under the wrong conditions. A current ban was implemented in March 2019. Ghana responded to the consultation relating to the RST. The MA noted that no non-detriment findings for exports had taken place to date, and that trade had not been well regulated. However, research by the Forestry Commission had been undertaken to estimate potential future quotas (the quota analysis was not provided). It is unclear if the current ban will remain in force given the recent legislative history and exports of the species from Ghana. Noting the decline in population status in the country, it is considered unlikely that robust scientifically based non-detriment findings can be made. On this basis, categorised as **Action is needed**. Illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, therefore **referral to the Standing Committee is recommended**.	**RECOMMENDATION:** **Action is needed** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Distribution: The species was reported to be predominantly found in the Forest-Savanna Transition, Sudan savanna and Guinean savanna ecological zones, and to occur in parts of the Brong Ahafo, Volta, Northern, Upper East and Upper West regions of the country (Dumenu and Bandoh, 2016). Coleman (2014) and the CITES Management Authority (MA) of Ghana (*in litt*. to UNEP-WCMC, 2020) additionally reported *P. erinaceus* to occur in the Ashanti region in central Ghana. The total area of savanna zone in Ghana where the species occurs was estimated as 156 948 km^2 (CITES MA of Ghana *in litt*. to UNEP-WCMC, 2020). Four districts (Atebubu, Buipe,

Kintampo and Nkwanta) were thought to contain c. 72% of the country's estimated *P. erinaceus* stocks (RMSC and FSD[31], 2013 in Dumenu and Bandoh, 2016).

Population status and trends: Although the RMSC and FSC (2017) considered that the species was "common", with highest densities along riverine forests, other literature indicated that the population of *P. erinaeus* in Ghana has declined considerably in recent years. Dumenu and Bandoh (2016) used the Ghanaian Forest Services Division's 2013 inventory report on rosewood to investigate the size class distribution of the species across six regions and fifteen forest districts in Ghana[32]. These covered the country's Sudan Savanna, Guinea Savanna and Forest-Savanna Transition ecological zones (Dumenu and Bandoh, 2016). The inventory showed that the size class distribution of *P. erinaceus* failed to conform to a reverse J curve, with a particular lack of individuals in the smallest diameter class (**Figure 4.8.1**). This was considered to indicate that the population was unstable and had been subject to considerable disturbance, most likely in the form of exploitation for charcoal and firewood, land clearance for agriculture and livestock grazing, and harvesting for fodder (Dumenu and Bandoh, 2016). With only 9% of trees included in the smallest size class (2 to 9.9 cm), the authors raised concerns about whether regeneration rates would be enough to sustain the stock base for timber exploitation (Dumenu and Bandoh, 2016). Taking into account estimated rates of exploitation, the minimum felling rate and the relatively slow growth rate of the species, they considered *P. erinaceus* to be "under serious threat" and that it could be "potentially described as vulnerable" (Dumenu and Bandoh, 2016).

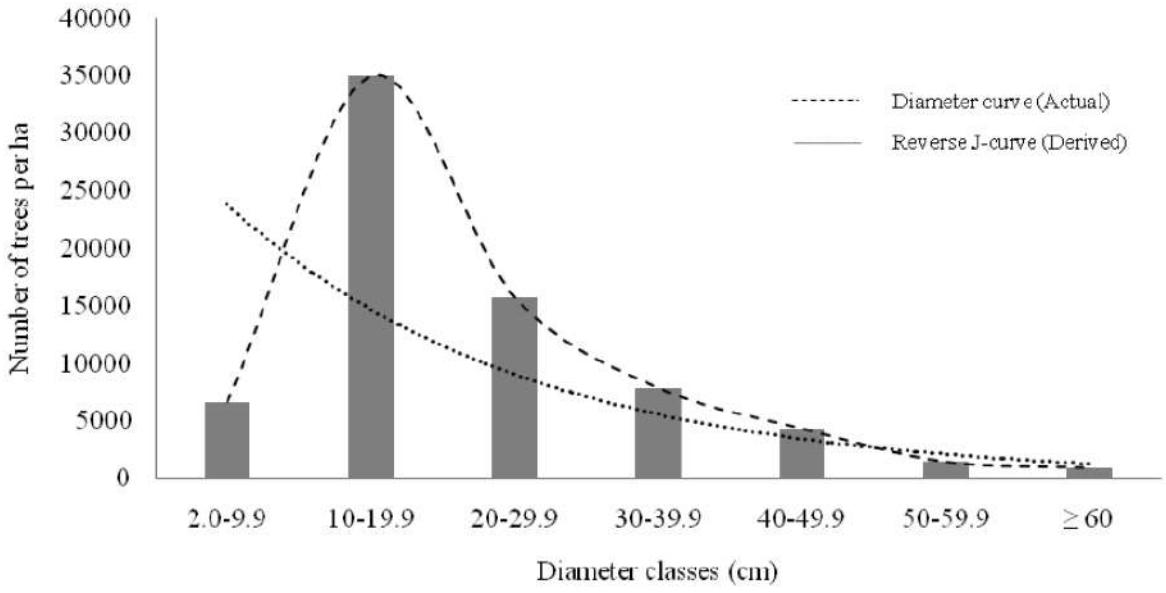

Figure 4.8.1: Size class distribution of *P. erinaceus* based on data extracted from Ghanaian Forest Services Division's 2013 inventory report on rosewood. Figure reproduced with permission from Dumenu and Bandoh (2016).

The CITES MA of Ghana (*in litt*. to UNEP-WCMC, 2020) noted that the 2013 inventory had been updated in 2017, and provided a report of the results in RMSC and FSD (2017). The mean stem

[31] Resource Management Support Centre (research arm of the Forestry Commission) and Forestry Services Division

[32] Ashanti (Kumawu forest district), Brong Ahafo (Sunyani, Dorma Ahenkro, Atebubu, Kintampo forest districts); Northern (Yendi, Buipe and Bole forest districts); Upper East (Bolgatanga, Bawku, Navrongo forest districts), Upper West (Lawra and Tumu forest districts) and Volta (Jasikan and Nkwanta forest districts)

densities for six forest regions are outlined in **Table 4.8.1**. The highest mean volume recorded in Upper East region, and the total standing volume of all stems 20 cm DBH or more was calculated to be 29 059 302 m^3, corresponding to 28 852 102 stems (RMSC and FSD 2017). The number of stems per km^2 had noticeably declined across all regions between the two surveys in 2013 and 2017, indicating a downward population trend (**Figure 4.8.2**; Source RMSC and FSD, 2017).

Table 4.8.1: Mean stem numbers and volume (m^3) per 100 ha estimates of rosewood by 14 Forest districts based on a 2017 inventory. Source: CITES MA of Ghana (*in litt*. to UNEP-WCMC, 2020; RMSC and FSD, 2017).

Region	Forest districts	Mean stem nos /km^2	SE % stems	Mean volume (m^3)/ km^2	SE % volume
Ashanti	1	882	2.51	278.94	0.58
Brong Ahafo	4	1,373	2.1	424.23	0.76
Northern	3	1,305	2.34	768.51	1.63
Upper East	2	1,419	2.07	1,471.14	2.7
Upper West	2	1,789	5.1	884.74	1.12
Volta	2	1,440	0.58	958.99	2.69

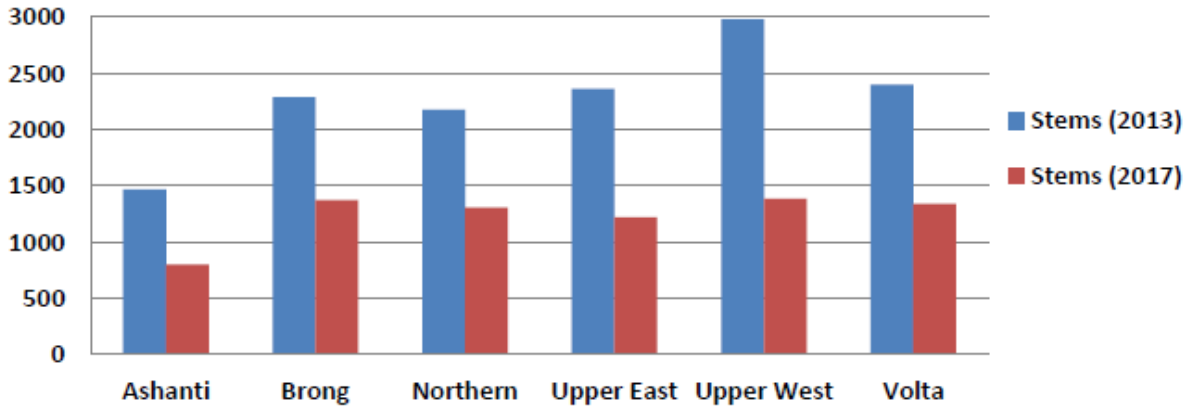

Figure 4.8.2: Comparison of rosewood stem numbers per km in 2013 and 2017 across regions in Ghana. Reproduced with permission from RMSC and FSD (2017).

A study by Appiah (2013) was additionally located that included a local breakdown of the size class distribution of *P. erinaceus* in five locations in a tropical dry deciduous forest in Afram Plains. Based on general tree basal area and volume, an index of forest condition and percentage forest cover, the forest itself was considered to be highly degraded, likely as a result of logging, shifting cultivation and wildfires (Appiah, 2013). Size class distributions for *P. erinaceus* were highly left-skewed with a high proportion of individuals in smaller size classes, although it should be noted that the size class categories used are quite wide (**Figure 4.8.3**). Dumenu (2019) noted more generally that, in the absence of larger, more mature trees necessary to contribute to the survival of the species through seed production and regeneration, the long-term viability of rosewood populations in Ghana was uncertain.

The CITES MA of Ghana (*in litt*. to UNEP-WCMC, 2020) noted that the RMSC and the Forest Institute of Ghana (FORIG) had established plantations and were studying growth rates of the species. A plantation unit of the Forestry Commission was additionally reported to have established a 41 ha plantation in 2015 for management and research purposes to consider the feasibility of artificial stands (CITES MA of Ghana *in litt.* to UNEP-WCMC, 2020).

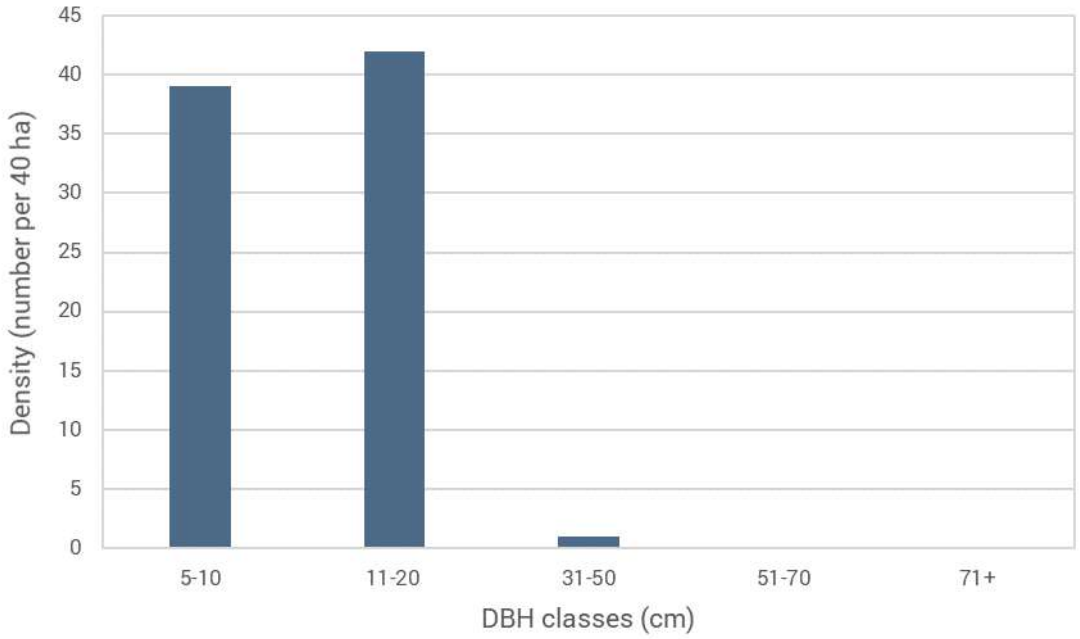

Figure 4.8.3: Size class distribution of *P. erinaceus* in five locations in a tropical dry deciduous forest in Afram Plains. (Note: categories for x-axis reflect original source). Source: Appiah (2013).

Trade:

CITES trade data: CITES annual reports were submitted by Ghana for 2017 and 2018, but the report for 2016 has not yet been received. Ghana has never published any CITES export quotas for the species.

According to the CITES Trade Database, direct trade in *P. erinaceus* from Ghana 2016-2018 predominantly consisted of wild-sourced logs and sawn wood totalling 245 438 m^3 imported for commercial purposes, as reported by China (98%) and Viet Nam (2%; Table **4.8.2**). Ghana typically reported lower quantities of *P. erinaceus* in trade than trading partners, reporting 154 306 m^3 of wild-sourced logs 2017-2018 (compared with 234 082 m^3 as reported by importing countries). Other notable trade included 13 709 pieces of wild-sourced sawn wood reported in 2017 by Viet Nam only; a permit analysis suggested that over 80% of the permits reported by Viet Nam as sawn wood pieces were reported by Ghana by volume (m^3), totalling different values in cubic metres for the number of pieces. It is unclear if the 127 m^3 of artificially propagated logs exported in 2017 originated from the plantations referred to above.

According to the CITES MA of Ghana (*in litt*. to UNEP-WCMC, 2020), exports in 2016 totalled 96,684 m^3; some of this trade is likely to have occurred prior to the Appendix III listing.

Table 4.8.2: Direct exports of *Pterocarpus erinaceus* from Ghana, 2016-2018. Quantities have been rounded to whole numbers, where appropriate. '-' in the year columns denotes that a CITES annual report for Ghana has not been received. All trade was for commercial purposes.

Term	Unit	Source	Reported by	2016	2017	2018	Total
logs	m^3	A	Exporter	-	127		127
			Importer				
		O	Exporter	-			
			Importer		17		17
		W	Exporter	-	77835	76451	154286
			Importer	46428	93198	94456	234082
sawn wood	m^3	W	Exporter	-			
			Importer	277	1775	9304	11355
	-	W	Exporter	-			
			Importer		13709	20	13729
timber	m^3	W	Exporter	-			
			Importer		249		249

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.

Indirect trade in *P. erinaceus* originating in Ghana 2016-2018 comprised 167 m^3 of wild-sourced logs imported by China via Gambia in 2016, and 120 m^3 of pre-Convention sawn wood imported by Viet Nam via Togo in 2018 for commercial purposes, reported by importers only (**Table 4.8.3**).

Table 4.8.3: Indirect exports of *Pterocarpus erinaceus* originating in Ghana, 2016-2018. Quantities have been rounded to whole numbers, where appropriate. All trade was for commercial purposes.

Term	Unit	Source	Reported by	2016	2017	2018	Total
logs	m^3	W	Exporter				
			Importer	167			167
sawn wood	m^3	O	Exporter				
			Importer			120	120

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020

Data from the Forestry Commission of Ghana's Timber Industry Development Division (TIDD) and Chinese customs data: In recent years, China was reported to have been the principal destination for *P. erinaceus* exported from Ghana, accounting for over 96% of Ghana's exports of *P. erinaceus* logs and sawn wood (Dumenu, 2019). Chinese customs data extracted from the Global Trade Atlas showed Ghana to be one of the three major West African exporters of rosewood[33] between 2009 and 2018 (**Figure 3.4**), with exports over this period valued at over USD 441 million. **Figure 4.8.4** shows trade in rosewood from 2010 to the first three months of 2018 according to TIDD and Chinese customs data extracted by the Global Trade Atlas, as reported in Dumenu (2019). In total, Ghana exported 506 199 m^3 round wood equivalent (RWE) and 953 827 m^3 over this period, according to TIDD data and Chinese customs data respectively. The data show exports increasing rapidly between 2010 and 2014 and reducing notably in 2015, before recovering to relatively high levels in 2016, despite the imposition of successive felling and export bans since 2012 (*see Management section*).

Both import and export data indicate a general decrease in trade volumes following the inclusion of the species in CITES Appendix II in 2017, but Dumenu (2019) considered this downward trend to be more indicative of a dwindling resource base than the implementation of the new listing (Dumenu, 2019). Caution was additionally recommended in light of discrepancies between export volumes denoted by TIDD data and the CITES Trade Database, and import volumes reported by China in their

[33] Presumed to be *P. erinaceus* as it is the only species to occur in Ghana considered to be rosewood under the Chinese national standard.

customs data, which are significantly higher (**Table 4.8.4**). This was considered to strongly indicate that large quantities of undeclared and illegal volumes of rosewood were potentially being traded in non-compliance with the Convention (Dumenu, 2019).

Dumenu (2019) additionally noted discrepancies between the forms of rosewood reported by China and by Ghana; while China's import data was reported to show that only sawn wood and round logs were imported from Ghana for the period under review, Ghana's export data showed that lumber, plywood, sliced/rotary veneer and kitchen parts were exported to China over the same period.

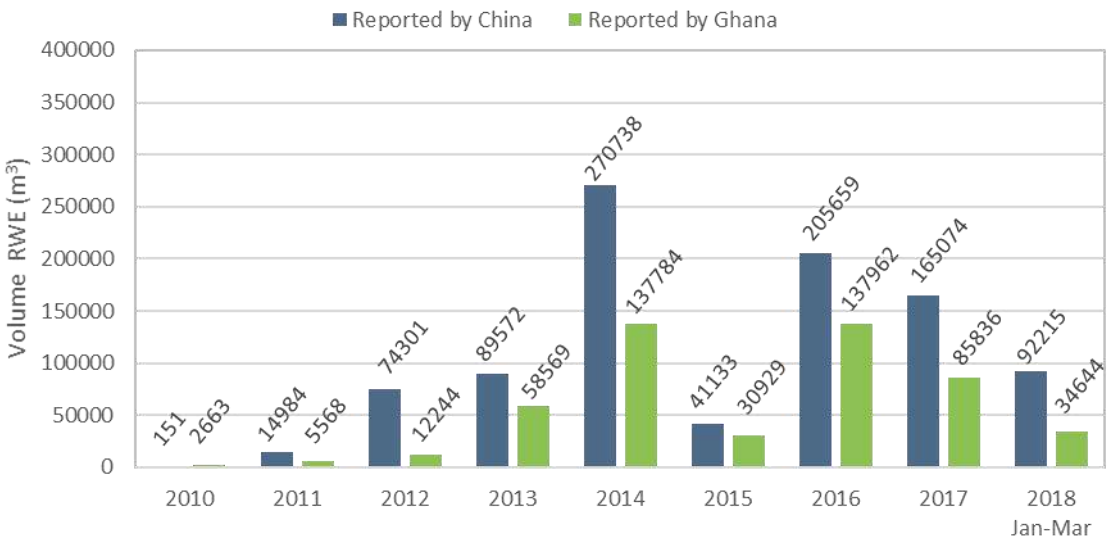

Figure 4.8.4 Volume of rosewood[27] exported from Ghana according to TIDD data (green) and imports into China according to Chinese Customs data obtained from the Global Trade Atlas (2010-2018) (blue). TIDD data has been converted into round wood equivalent (RWE) using the formula $RWE = \frac{TEV}{CE}$, where TEV=Total export volume (m^3), and CE= Wood-Mizer conversion efficiency. Figure reproduced with permission from Dumenu (2019).

Table 4.8.4: Comparison of *P. erinaceus* trade volumes exported from Ghana according to different sources, 2016-2017.

Year	Exporter reported quantity (wild-sourced only) according to the CITES Trade Database*	Importer reported quantity (wild-sourced only) according to the CITES Trade Database*	Export volume according to TIDD**	Import volume into China according to customs data**
2016	Annual report not yet received	46 428 m^3 logs 277 m^3 sawn wood	96 549 m^3 (137 962 m^3 RWE)	205 629 m^3
2017	77 835 m^3 (logs)	93 198 m^3 logs 1775 m^3 sawn wood 13709 pieces of sawn wood 249 m^3 timber	58 541 m^3 (85 836 m^3 RWE)	165 074 m^3

*Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.
**Source: Dumenu 2019.

Threats: The CITES Management Authority of Ghana (*in litt*. to UNEP-WCMC, 2020) considered the main threats to *P. erinaceus* in the country to be wildfires, charcoal production, traditional farming practises and illegal harvesting. In addition to these threats, RMSC and FSD (2017) acknowledged the "massive exploitation" that had taken place in the previous decade for export to Asia, with ongoing harvest in the districts of Buipe and Bole and high levels of illegal harvest. The lack of

regeneration of trees between 2-9 cm DBH was considered to be predominantly due to wildfires (RMSC and FSD, 2017). A research scientist at the Forestry Institute of Ghana considered timber production to be the principal threat to the species (Dumenu *in litt.* to UNEP-WCMC, 2020). Harvesting was noted to have occurred in all six regions of occurrence (CITES Management Authority of Ghana (*in litt*. to UNEP-WCMC, 2020).

Illegal trade was considered to be a significant issue both for *P. erinaceus* harvested in Ghana, as well as for *P.erinaceus* sourced from neighbouring countries that has been smuggled into Ghana (CoP18 Doc. 34, Annex 4); Dumenu (2019) noted that there are reports of illegally sourced rosewood from Burkina Faso, Togo and Côte d'Ivoire transiting through the country. Between February and December 2017, 4986 m^3 of rosewood were seized by authorities in Ghana (Dumenu, 2019), although Dumenu (2019) noted that this volume was considerably lower than the 79 239 m^3 that was "unaccounted" for in the same year (i.e. the difference between the volume of rosewood exported from Ghana according to TIDD data and the recorded imports into China according to Chinese customs data obtained from the Global Trade Atlas). More information regarding sources of illegality is provided in the *Management* section below.

Interviews with wildlife and district forestry officials revealed that non-protected areas such as farmlands had been logged of rosewood to the extent that protected areas were now being encroached, with Mole National Park, Gbele Game Reserve and the Wechiau Community Hippo Sanctuary highlighted as examples of areas where this had already taken place (Dumenu, 2019).

Dumeno and Bandoh (2016) have additionally rated the intensity of use for the species as charcoal and firewood, fodder, and medicine to be high, moderate and marginal, respectively; however, the authors noted that quantitative estimates of the amount of *P. erinaceus* harvested for these uses was unavailable. Demand for woodfuel in the country was expected to rise alongside population increases over the next 30 years (Dumenu and Bandoh, 2016). Charcoal production and logging were reported to encourage the spread and increase the severity of fires in a study area in the Afram Plains (Appiah, 2013).

Management: Ghana became a Party to CITES on 14th November 1975, with entry into force on 12th February 1976. Through its National Legislation Project, the CITES Secretariat categorised the national legislation in Ghana as legislation that is believed generally not to meet any of the four requirements for effective implementation of CITES (Category 3). The Secretariat's November 2019[34] legislative status table noted that a bill had been through its second reading in Parliament, with next steps including enactment of the bill and submission to the Secretariat for analysis.

[34] https://cites.org/legislation/National_Legislation_Project [Accessed 06 April 2020].

Figure 4.8.5: Timeline of felling bans in Ghana, 2012-2019. Compiled using information from Dumenu (2019) and EIA (2019).

Domestic forestry legislation: Ghana was reported to have implemented the first of five bans on felling and exporting rosewood in 2012 (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019; Dumenu, 2019; EIA, 2019) (**Figure 4.8.5**), with each ban lifted intermittently to allow companies to salvage rosewood using salvage permits. The conditions for issuing a salvage permit in Ghana are stipulated in the Timber Resource Management and Legality Licencing Regulations 2017. Salvage permits may be granted (1) for the salvage of "any marked or unmarked abandoned timber" (Article 28) or (2) "for an area of land undergoing development as in the case of road construction, expansion of human settlement or cultivation of farms" (Article 29). The most recent ban on harvest and export (and that which currently remains in force at the time of writing (July 2020)) was put in place in March 2019 (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019; CITES MA of Ghana, *in litt.* to UNEP-WCMC, 2020; EIA, 2019). There is an exemption for salvaged and confiscated wood, which can be auctioned by the government (Forestry Commission) for export (CITES MA of Ghana, *in litt.* to UNEP-WCMC, 2020).

Some of these bans were accompanied by the withdrawal of permits in place at that time. In 2014, for instance, Ghana was reported to have revoked the licences of all seven of the companies authorised to export rosewood and revoked all permits to sell rosewood trees (globaltimber.org, n.d.). In 2017, upon the entry into force of the species' CITES Appendix II listing, Ghana's Forestry Commission was reported to have issued a 'Stop Work' order stating that all permits for harvesting, transport and export of rosewood expired on December 31, 2016 (Dumenu, 2019).

Challenges and concerns: Some authors have argued that the series of felling and export bans imposed since 2012 have had little effect in halting the exploitation of *P. erinaceus* (Dumenu and Bandoh, 2016; Dumenu, 2019), with a systemic lack of enforcement and monitoring, prevailing corruption, a lack of accountability and low transparency highlighted as key reasons that bans have been ineffective (Dumenu, 2019). These concerns were echoed by the EIA (2019), who used Chinese customs data to calculate that over 540 000 tons of *P. erinaceus* were imported from Ghana between January 2015 and June 2019 while bans were in place. This was calculated to be the equivalent of approximately 6 million trees (EIA, 2019).

Salvage permits were considered to be an area of particular concern due to reports that they have been widely misapplied and granted under the wrong conditions (Treanor, 2015; Forest Watch Ghana, 2017; NEPCon, 2017; Dumenu, 2019; EIA, 2019); EIA (2019) highlighted such permits had become a major

laundering mechanism for illegal timber. Dumenu (2019) noted that when the case for salvaging abandoned logs was made in 2014, there was no special inventory to determine the actual volume of logs lying on the ground to be salvaged. Informant interviews were reported to have revealed that salvage permits had been granted without recourse to district forestry officers to ascertain volumes of abandoned logs that ought to be salvaged, and were instead arbitrarily determined by headquarters and permit holders (Dumenu, 2019). Permit holders were thus reported to be moving "from one community to another in search of standing trees for felling in a bid to meet the assigned volumes" (Dumenu, 2019). Treanor (2015) additionally noted that stumpage fees, conveyance fees and district taxes were largely evaded as part of the practice of issuing these permits.

Other sources of illegality within the *P. erinaceus* trade chain in Ghana highlighted by EIA (2019) included 1) the issuance of "conveyance certificates" required to transport rosewood, which were not supposed to have been issued after the ban, and 2) the laundering of illegal rosewood into legal trade through abuse of official sales of timber seized by authorities (EIA, 2019). EIA additionally reported that several traffickers had told EIA undercover investigators that the Ghanaian Forestry Commission was "selling" CITES permits "through local traders or agents closely connected to forestry officials" (EIA, 2019). It alleged that its investigation's findings indicated "widespread corruption and collusion schemes" that implicated "the highest levels of the Forestry Commission and CITES Management Authority". Bills of lading, certificates of origin and CITES permits were reported to be available to traffickers even after the vessel with the rosewood cargo had left shore, with permits reportedly being signed retrospectively after shipments had already reached China (EIA, 2019).

Ghana's response to allegations of illegality: Following the publication of EIA's 2019 report in which the above concerns were highlighted, the Ghanaian government created a Committee to Investigate Allegation of Corruption in Rosewood Trade in Ghana[35], which shared its findings with the Minister of Land and National Resources in January 2020 (Ghana News Agency, 2020). The Committee's report noted that it "did not have adequate evidence to establish corruption cases against any officials of government", but explained that field investigations had found institutional weaknesses and lapses, attributed largely to the highly informal nature of the trade (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). This was reported to have resulted in "widespread irregularities" along the value chain of the species (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019).

The Committee considered that the number of *P. erinaceus* trees that the EIA had calculated were imported to China from Ghana between January 2015 and June 2019 (6 million) represented a "gross overestimation", noting that inventory data available indicated that Ghana did not have that quantity of merchantable rosewood trees to be harvested and exported during the period in question (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). It instead estimated that the number of *P. erinaceus* trees harvested from 2010 to 2019 was 489 766 individuals (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019).

The March 2019 national ban on rosewood trade was considered to have been an effective deterrent to communities that harvest rosewood, as evidenced by low numbers of fresh logs in sawmills and local communities (isolated incidences of harvesting were reported to be limited to the Upper West Region (Funsi and Tumu areas) (Committee of Inquiry into Allegations of Corruption in Rosewood

[35] Comprised of the Deputy Minister for Lands and Natural Resources (Chair), a Member of Parliament for the Ashanti Region, the Chairman of the Parliamentary Select Committee on Lands and Forestry, a representative of the Customs Division of the Ghana Revenue Authority, a representative of CSIR – Forestry Research Institute of Ghana, a representative of the Ministry of Lands and Natural Resources and a representative each from civil society and the private sector.

Trade in Ghana, 2019)). A reduction in rosewood transport was also noted to have been observed, with an "absence of truckloads of rosewood logs along the major routes, which hitherto were a daily occurrence" (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). Most rosewood sawmills were observed to have ceased operations when visited by the Committee in the second half of 2019 (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019).

Despite this progress, it was noted that the ban had had the "least impact" on export volumes of *P. erinaceus*, with indications that existing stockpiles were still being exported from Ghana through misclassification, misdeclaration, and a general lack of capacity among customs officials (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). The Committee thus noted "significant concerns" about the security of rosewood stockpiles in local communities (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019).

The Committee believed that the significant differences between reported volumes of *P. erinaceus* timber imported by China and exported by Ghana were principally due to (1) deliberate misclassification and misdeclaration by freight forwarders[36], and (2) a lack of institutional capacity in timber species identification in Ghanaian Revenue Authority (GRA) Customs (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). TIDD data on exports were noted to largely not conform with GRA Customs Export records (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019).

Regarding the issuance of CITES permits and the traceability of timber, the Committee considered that the "local CITES Secretariat" (assumed in this instance to refer to Ghanaian Management Authority) did not have a monitoring mechanism or a traceability system in place and could therefore not ascertain the location of containers for which permits had been issued (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). The Committee also noted that "most" customs officers of the GRA-export department were unaware that CITES permits were a mandatory requirement for the export of *P. erinaceus* (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019).

The Committee' recommendation to the Minister for Lands and Natural Resources was that the 2019 ban on rosewood harvest, transport, processing and export should remain in place indefinitely or until the completion of an Early Impact Assessment and a non-detriment finding (NDF) (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). It also recommended that the issuance of salvage permits for *P. erinaceus* in any form should be stopped completely and with immediate effect (Committee of Inquiry into Allegations of Corruption in Rosewood Trade in Ghana, 2019). In the interim, it was recommended that all lying logs of *P. erinaceus* should be moved to a central point and auctioned for local processing and restricted sale in the domestic market only. Other important recommendations included the need for/to:

(1) Stronger collaboration among all the state agencies involved in rosewood management

(2) A military presence in the short to medium term in the Mole National Park

(3) Conduct a full inventory of all lying rosewood logs and the establishment of Regional Centres where all confiscated rosewood can be deposited for auctioning

[36] Companies that receive and ship goods on behalf of other companies

(4) Halt any future exports of rosewood, especially at the port of exit, through enhanced cooperation between Ghana Revenue Authority (GRA-Customs) and the Timber Industry Development Division (TIDD) of the Forestry Commission

(5) Conduct an immediate investigation of selected companies that have been identified to have exported Rosewood to Vietnam with fraudulent CITES permits.

(6) Install a tracking system that will monitor all wood products leaving Ghana to ensure that other countries do not use Ghana as port of exit of their wood consignments, and vice versa.

(7) Establish a manual or electronic tracking system for CITES permits to allow traceability.

(8) In the long-term, establish a large-scale plantation of *P. erinaceus* to ensure sustainable supply of the species in the future.

It is unclear how many of the recommended actions have been carried out.

Non-detriment findings: The CITES MA of Ghana (*in litt*. to UNEP-WCMC, 2020) noted that there had been no non-detriment findings for the species to date. The data on harvesting was reported to be "scanty and not clearly documented"; this was considered a consequence of irregular exploitation and institutional data capture deficiencies in Ghana's savanna zone (CITES MA of Ghana, *in litt*. to UNEP-WCMC, 2020). On account of the current ban, no concessions were reported to be in operation currently (CITES MA of Ghana, *in litt*. to UNEP-WCMC, 2020); however, the MA (*in litt*. to UNEP-WCMC, 2020) referred to a report by the RMSC (a research arm of the Forestry Commission) and FSD (2017), which contained a suggested legal harvest quota that was likely to be implemented "when the ban is lifted".

Export quotas: The RMSC and FSD (2017) report submitted by the MA of Ghana (*in litt*. to UNEP-WCMC, 2020) noted that district felling quotas had previously been issued in locations where the 2013 inventory found the species to be common, as a way of regulating harvests until aspects of the species ecology dynamics (e.g. recruitment and increment rates) could be better understood. A national felling quota of 1 075 720 m^3 was calculated using a 40-year life cycle based on the 2013 inventory (RMSC and FSD, 2017). The 2017 inventory update aimed to estimate static volumes and recommend felling quotas per district by re-assessing previous plots and establishing new ones. An analysis (not provided) was undertaken to recalculate district felling quotas, with the highest five quotas of the 28 calculated (representing 56% of the total) outlined in **Table 4.8.5**. Proposed total harvest volumes were calculated as 232 474 m^3, 290 593 m^3 or 387 457 m^3 depending on scenarios for the species lifespan of 50, 40 or 30 years respectively (RMSC and FSD, 2017).

Table 4.8.5: Proposed felling quotas for *P. erinaceus* in Ghana using lifespans of 50, 40 or 30 years for the species. Source: (RMSC and FSD, 2017).

Ranking	Political District	50-Year Scenario Volume (m^3)	40-Year Scenario Volume (m^3)	30-Year Scenario Volume (m^3)
1	West Gonja	35,897	44,871	59,828
2	Gonja Central	33,325	41,656	55,541
3	Bole Bamboi	24,865	31,081	41,442
4	Sisala East	23,452	29,315	39,086
5	Nkwanta North	11,630	14,538	19,383

In addition, the report by RMSC and FSD (2017) suggested that:

- the 50 year life span scenario should be adopted; meaning the national felling quota should be 290 593 m^3;

- permanent sample plots should be established to gather information on ecology (increment, mortality and regeneration) to better determine allowable cuts;
- proper documentation and archiving of logging history needed to be implemented.

It is unclear how these recommendations will be taken forward by the CITES Authorities. Whilst it was noted that other measures in place to protect the species included a conservation education program, law enforcement efforts to prevent illegal harvesting, as well as more general sustainable livelihood support programs undertaken by government, NGOs and donors, (CITES MA of Ghana, *in litt*. to UNEP-WCMC, 2020), no further details were provided.

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Guinea

GUINEA:	Occurs in all four of Guinea's natural regions, but not inventoried at national level. Reportedly widespread and common in woodlands (the most common and least threatened of Guinea's natural habitats), but mature specimens were reported to have been extirpated due to overharvesting for export from 2005 to 2010, alongside local use. Guinea has been subject to an SC recommendation to suspend all commercial trade in CITES-listed species since May 2013 (under Article XIII), but is seeking CITES approval to export a stockpile of 14 500 m^3 of pre-Convention *P. erinaceus*. The SC recommended Guinea adopt adequate safeguards to mitigate potential risks associated with the stockpile export and invited Guinea to report on implementation of an updated set of recommendations 90 days before SC73. CITES annual reports have been received from Guinea for all years 2016-2018; no direct trade in *P. erinaceus* from Guinea was reported over this period according to CITES data; however, rosewood imports from Guinea were included in Chinese customs data totalling 2276 m^3 2016-2018 (*P. erinaceus* was subject to the CITES suspension since its inclusion in Appendix III on 9 May 2016). Guinea has never published CITES export quotas for the species despite a recommendation from the SC for Guinea to establish a voluntary 'zero quota' for *P. erinaceus* harvested after the inclusion of the species in Appendix II. Guinea responded to the consultation relating to the RST. Cutting, transport and export of timber were prohibited throughout the national territory in 2010, except for domestic use. A revised forestry law was adopted in 2017, setting out the regulations for timber exploitation under state, private, and other forms of ownership which prohibited the export of logs and rough sawn timber. In 2019, the Conservation Action Plan working group indicated "there is no evidence of excessive cutting of this species in Guinea at present". It is unclear whether Guinea intends to resume export of *P. erinaceus* other than its pre-Convention stockpiles. On the basis of no legal trade, the provisions of Article IV are not applicable, therefore categorised as **Less concern**.	**RECOMMENDATION:** **Less concern** ***[The Standing Committee to monitor progress on relevant species-specific recommendations under the ongoing Article XIII process]***

Distribution: *Pterocarpus erinaceus* was reported to occur in all four of Guinea's natural regions: Lower (Maritime) Guinea, Middle Guinea, Upper Guinea and Forested Guinea (Conservation Action Plan (CAP) working group on threatened plant species, 2019). According to herbarium records and verified field observations, the species is present in the prefectures of Koundara, Gaoual, Boffa, Boké (Boké Administrative Region), Koubia (Labé Administrative Region), Kindia (Kindia Administrative Region), Kankan (Kankan Administrative Region), and Faranah (Faranah Administrative Region), as well as the Nzérékoré Administrative Region (CAP working group on threatened plant species, 2019). **Figure 4.9.1** shows records of the species presented in a species Conservation Action Plan; it is important to note that the map is considered to underrepresent the range and density of *P. erinaceus*

because, as a common species, "records are rarely made when the species is encountered" (Couch *in litt.* to UNEP-WCMC, 2020).

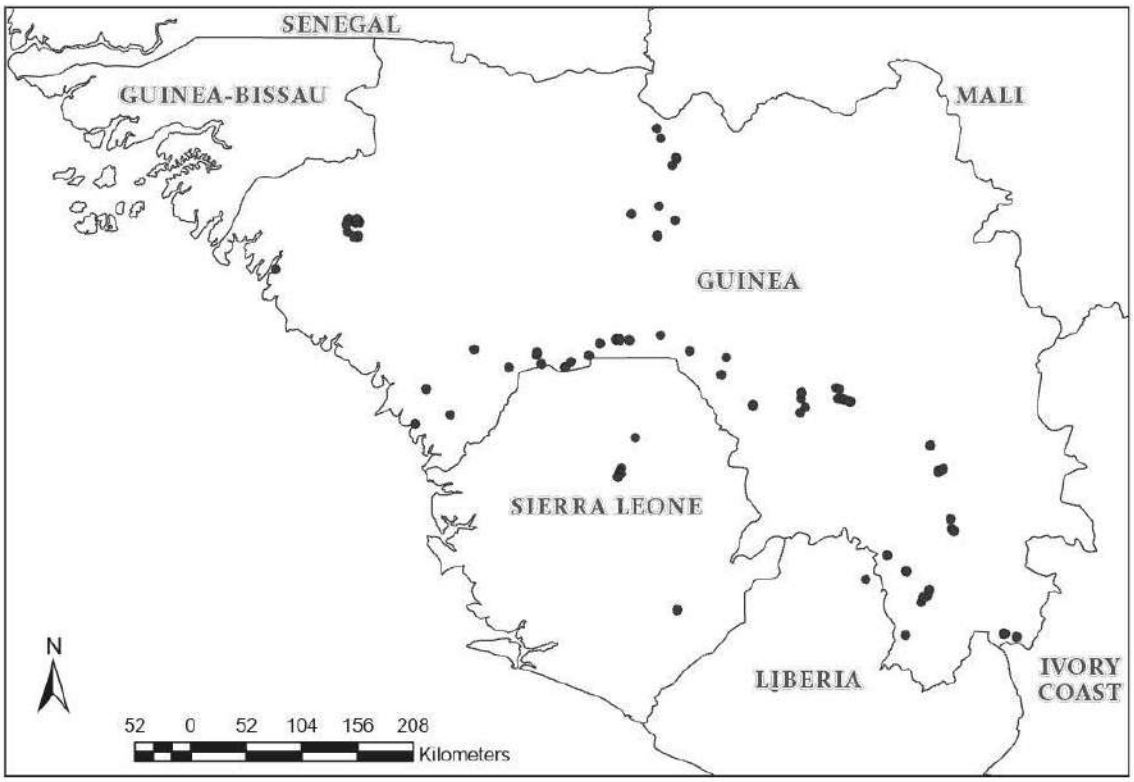

Figure 4.9.1: Distribution of *Pterocarpus erinaceus* in Guinea according to herbarium records and verified field observations. Figure reproduced with permission from CAP working group on threatened plant species (2019).

Population status and trends:

Although the species has not been inventoried at national level, the CITES Management Authority (MA) of Guinea (*in litt.* to UNEP-WCMC, 2020a) reported that over-harvest of *P. erinaceus* between 2005 and 2010 had led to the disappearance of "all adult specimens". The working group for Conservation Action Plans and Tropical Important Plant Areas in Guinea considered the species to be widespread and common in woodland, which was reported to be the most common and least threatened of Guinea's natural habitats (Couch *in litt.* to UNEP-WCMC, 2020). The group noted that there was anecdotal evidence to suggest that the population density of *P. erinaceus* varied across the country; in some areas it was considered that populations might be lower than they have been in the past (Couch *in litt.* to UNEP-WCMC, 2020). The cause of this was noted to be undetermined, but most likely thought to be due to an increase in slash and burn agriculture (Couch *in litt.* to UNEP-WCMC, 2020).

Trade:

CITES trade data: CITES annual reports have been received from Guinea for all years 2016-2018. Guinea has never published CITES export quotas for *P. erinaceus*. All commercial trade in specimens of CITES-listed species from Guinea has been suspended since 16 May 2013 due to implementation, compliance and enforcement issues (Notif. 2013/017, subsequently replaced by Notif. 2019/075).

According to the CITES Trade Database, no direct trade in *P. erinaceus* from Guinea was reported 2016-2018. Indirect trade in *P. erinaceus* originating in Guinea comprised 16.5 m^3 wild-sourced logs for commercial purposes imported by China via Gambia in 2016, as reported by China only.

Chinese customs data: According to Chinese customs data extracted from the Global Trade Atlas, 9612 m^3 of rosewood[37] logs worth over USD 4.6 million were imported by China from Guinea between 2009-2018 (**Figure 4.9.2**). Imports of rosewood logs were highest in 2010 and 2011, with another smaller peak in 2016 (the CITES suspension applied to *P. erinaceus* from its inclusion in Appendix III on 9th May 2016); in those years, imports were five to ten times higher than in the other years of the period, when imports did not exceed 350 m^3 annually.

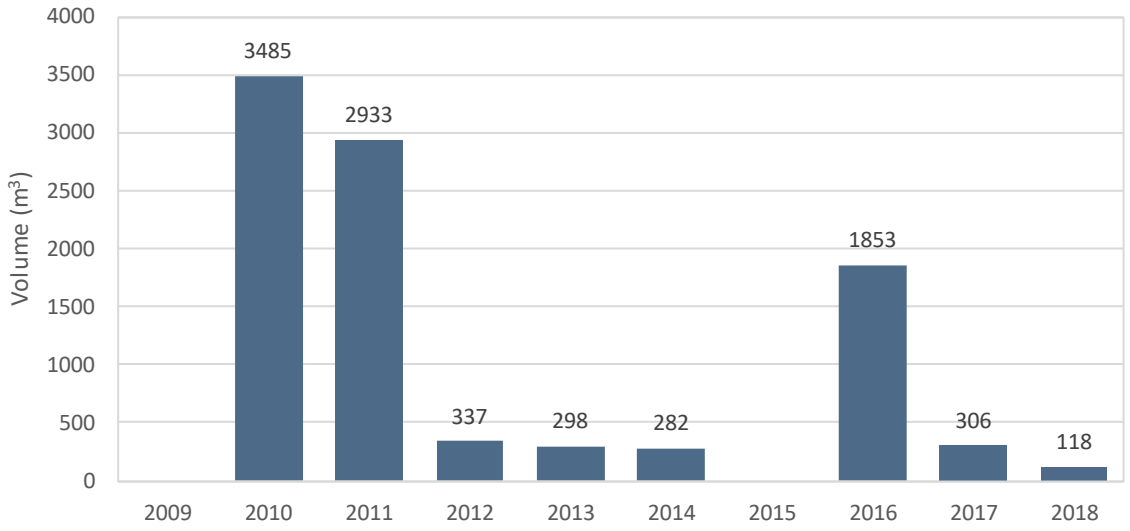

Figure 4.9.2: Volume of rosewood[35] logs from Guinea imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: The working group for Conservation Action Plans and Tropical Important Plant Areas in Guinea noted that anecdotal evidence suggests lower population densities of *P. erinaceus* in some areas of Guinea could be the result of an increase in slash and burn agriculture; however, this could not yet be confirmed (Couch *in litt.* to UNEP-WCMC, 2020). Uncontrolled harvest for export, illegal exploitation, and local harvesting for use as livestock fodder, firewood, charcoal and medicine have all been cited as past threats to *P. erinaceus* in Guinea (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020a). It's unclear if any threats are impacting the current population. It was highlighted that 2005-2010 was the period during which uncontrolled exploitation of the species by non-Guinean actors for export to China was at its peak (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020a). The CAP working group on threatened plant species (2019) indicated that "there is no evidence of excessive cutting of this species in Guinea at present"; however, reduced logging intensity could be related to lack of adult individuals.

Past sources of illegality were reported by the MA to have included document falsification (e.g. of logging permits), modification of volumes specified in permits during transport, corrupt officials, and interference by military and administrative authorities to aid the felling and transport of illegally

[37] Presumed to be *P. erinaceus* as it is the only species to occur in Guinea considered to be rosewood under the Chinese national standard.

logged timber (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020a). However, the CITES Secretariat's second mission to Guinea in January 2019 found that all stakeholders, including NGOs and international organizations, considered that fraud associated with the use of CITES permits that had happened in the past no longer occurs (SC71 Doc. 10.2).

Borders between Guinea, Mali and Senegal (two major source states of *P. erinaceus,* although all trade in the species from Senegal is considered to be illegal (CoP18 Doc. 34, Annex 4)) have been noted to be highly porous, with resources to tackle illegal trade considered to be low (SC71 Summary Record).

Management: Guinea became a Party to CITES on 21st September 1981, with entry into force on 20th December 1981. Through its National Legislation Project, the CITES Secretariat categorised the national legislation in Guinea as legislation that is believed generally to meet one to three of the four requirements for effective implementation of CITES (Category 2). The Secretariat's legislative table published in November 2019[38] reported that, while some implementing legislation was in place, next steps included finalising further implementing legislation and reaching agreement between Guinea and the Secretariat on a revised analysis.

CITES history: Concerns regarding illegal trade in CITES-listed species involving Guinea were first raised at SC61 (Notif. No. 2013/017). A mission was subsequently undertaken in September 2011, in which significant problems were identified related to enforcement, the adoption of adequate legislation, the efficient issuance of permits, the monitoring of significant levels of trade and the making of non-detriment findings; as a result, a list of recommendations to be implemented were formulated in consultation with the relevant Guinean authorities (Notif. No. 2013/017). After limited progress was made these recommendations, a recommendation to suspend all commercial trade in CITES-listed species from Guinea was put in place in May 2013 (Notif. No. 2013/017). Guinea later provided a report describing progress to the Secretariat in December 2015 (SC71 Doc. 10.2); following a second mission to the country, the Secretariat issued an updated set of recommendations in 2019 (see SC71 Doc. 10.2).

One of the recommendations relates particularly to a stock of 14 500 m^3 of non-transformed *P. erinaceus* timber that was harvested in contravention of national laws before 2011 and subsequently confiscated and forfeited to the Government (SC71 Doc. 10.2; CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020b). Guinea has expressed interest in exporting the stockpile under the exemption for pre-Convention specimens in paragraph 2 of Article VII, and an interested buyer of the entire stock was noted to have been identified (SC71 Doc. 10.2). The relevant recommendation asked Guinea to "*adopt adequate safeguards to mitigate any potential risks associated with the export of a stockpile of pre-Convention* Pterocarpus erinaceus, *including a system to identify the logs to be exported and a possible establishment of a voluntary 'zero quota' for export of* Pterocarpus erinaceus *harvested after the inclusion of the species in Appendix II (i.e. after 2 January 2017)*" (SC71 Summary Record).

Guinea has been invited by the Standing Committee to report on the implementation of the updated set of recommendations to the Secretariat 90 days before SC73 (SC71 Summary Record). Until these recommendations have been implemented to the satisfaction of the Secretariat, the Standing Committee recommended that Parties continue to suspend commercial trade with the country (Notif. 2019/075).

Domestic forestry legislation: Guinea prohibited the cutting, transport and export of timber throughout the national territory in 2010 (Arrêté/A/N°7220/PM/SGG of 30/12/2010), although an

[38] https://cites.org/legislation/National_Legislation_Project [Accessed 27 April 2020].

order was issued afterwards authorising logging and transport of timber exclusively for local consumption (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020a, 2020b). It was unclear whether this export ban covered all forest products or just raw, unprocessed timber. A revised forestry law (Ordinary Law L/2017/060/an (Republic of Guinea, 2017)) was adopted and promulgated in 2017, which sets out the regulations for timber exploitation under state, private, and other forms of ownership. SC71 Doc. 10.2 noted that a decree to establish the different categories of species regulated by this law was "currently being developed", but no decree specifying these lists could be located at the time of writing (July 2020). Article 93 of the forestry law prohibits the export of logs and rough sawn timber of all species.

Decree D/2019/237/PRG/SGG of 07 August 2019 was reported to outline the application of the provisions of CITES (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020b). Order A/2020/1591/MEEF/CAB/SGG of 19 May 2020 was reported to have established the categories of species regulated by this decree; *P. erinaceus* was reported to be in Annex II and its exploitation therefore subject to regulation (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020b). Neither piece of legislation could be accessed to provide further details of the nature of these regulations.

Other management measures and challenges: No national management plan exists for the species, and a lack of collaboration between relevant authorities for the management of *P. erinaceus* was also noted to be a relevant issue (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020a). In its sixth national report to the CBD, Guinea reported that it had developed a national forestry action plan with the help of the FAO (Ministry of the Environment, Waters and Forests, 2018). The plan was reported to have highlighted the ecological destruction in Guinea caused by logging, with the situation of Guinean forests in 2018 still noted to be concerning because of a lack of effective monitoring of policies (Ministry of the Environment, Waters and Forests, 2018). A copy of this plan could not be located. An action plan created specifically for *P. erinaceus,* as part of the GBIF-BID "Towards a Red Data Book for Guinea" project (Conservation Action Plan (CAP) working group on threatened plant species, 2019) was published in 2019. This was produced by a working group that included representatives from the Guinean Ministry of the Environment, Water and Forests (Couch *et al.*, 2020), the ministry within which the CITES MA sits.

The plan makes the following recommendations:

(1) *In situ* protection:

- Make an inventory of this species in Guinea and evaluate the density of individuals across different sites.
- Present the results to the local authorities and the Ministry of Environment, Water and Forests.
- Raise awareness among the population about the need to conserve this species.
- Carry out surveys to determine all uses.

(2) *Ex situ* protection:

- Establish a propagation protocol.
- Include this species in reforestation projects, including in degraded or marginal areas.
- Seed banking

The CITES MA of Guinea highlighted these activities in their response to the RST consultation, and additionally included an aim to raise awareness and involve the local population in the creation of *P. erinaceus* plantations (no plantations of the *P. erinaceus* were reported to exist at present) (CITES MA of Guinea *in litt* to UNEP-WCMC, 2020a). The recommendation to implement a national inventory of the species was viewed by the MA of Guinea as being particularly challenging due to financial

difficulties, and a general request to the CITES Secretariat for capacity building assistance was noted to have been made (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020a).

Stockpiles: An inventory of 2010 timber stockpiles carried out in 2016 recorded c. 22 021 m^3 of *P. erinaceus* owned by 41 entities, mainly in the form of planks, as well as an additional 4351 m^3 of mixed species stockpiles that include *P. erinaceus* (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020a). The stockpiles are comprised of timber that was cut legally before 2010, but which could not be exported in light of the provisions of Arrêté/A/N°7220/PM/SGG prohibiting export of timber (CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020b). The government of Guinea also has a stockpile of 14 500 m^3 of non-transformed *P. erinaceus* timber that was harvested in contravention of national laws before 2011, and subsequently confiscated (SC71 Doc. 10.2, *see CITES history*). This was reported to be kept in secure premises in two locations at the outskirts of Conakry (SC71 Doc. 10.2; CITES MA of Guinea *in litt.* to UNEP-WCMC, 2020b).

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Guinea Bissau

GUINEA BISSAU:	Found throughout the country except for the Arquipélago dos Bijagós. No information on population size could be located. The last forest inventory was conducted in 1985; plans are in place to conduct a new general forest inventory in November 2020. Uncontrolled exploitation of *P. erinaceus* reached unprecedented levels following a coup d'état in 2012 and reportedly remained high until a moratorium on felling and export was introduced in 2015. Guinea-Bissau responded to the consultation relating to the RST. The CITES MA considered the population trend to be increasing due to a reduction in logging pressure since the moratorium, but illegal felling and trade remained a concern. The moratorium expired on 15 April 2020, after which a general reorganization and redistribution of concessions to industrial timber operators was envisaged. No further information was provided regarding the nature of these expected changes, but the MA indicated it would like to resume exports of *P. erinaceus* timber if the results of the reorganisation prove positive. A large stockpile of rosewood has been accumulated through seizures; in 2018 traders and official representatives reported that this consisted of over 400 000 logs. Guinea-Bissau was subject to a SC recommendation to suspend all commercial trade between March 2016 and January 2018, and had zero quotas in place for wild-sourced trade during 2018 and 2019 in line with the moratorium. In January 2018, the country notified CITES Parties of its intention to export 24 338 m^3 of pre-Convention timber, noting that no further exports for pre-Convention timber would be authorised after December 2018. A CITES annual report has been received from Guinea-Bissau for 2016 but not yet for 2017 or 2018. Trade 2016-2018 consisted of 12 421 m^3 of pre-Convention (96%) and wild-sourced (4%) logs imported for commercial purposes in 2018, reported by the importers China (74%) and Viet Nam (26%) only. The MA later clarified that a total of 24 807 m^3 pre-Convention timber was exported in 2018; this exceeds the stated amount to be exported by c. 500 m^3, though the volume of timber exported was stated to be an estimate. The MA reported this left a remaining stockpile of 4510 m^3 of timber that it hoped to gain authorisation from the Secretariat to export. Since data regarding the current status and management of *P. erinaceus* in Guinea-Bissau are not yet available, it is unclear whether a scientifically based non-detriment finding can be made; for these reasons, **categorised as Action is needed**. A number of concerns have been identified with regard to the vulnerability of the stockpile to illegal trade; as these may represent problems not related to the implementation of Article IV, **referral to the Standing Committee is therefore recommended**.	**RECOMMENDATION:** **Action is needed** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Distribution: *Pterocarpus erinaceus* was reported have a "national distribution" and to be present "in all forests" (CITES Management Authority (MA) of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a).

An annotated checklist of the vascular flora of Guinea-Bissau noted the species to be present in all regions of the country except the Arquipélago dos Bijagós (Bissagos Islands) (Catarino *et al.*, 2008). Densities as well as the population structure of *P. erinaceus* were noted to vary between regions, but the species' distribution within areas of exploitation was noted to be irregular and fragmented (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a). *P. erinaceus* occurs in national parks (Walters, 2019), but estimates of the species' extent of occurrence in protected areas could not be located.

Population status and trends: Guinea-Bissau's last national forest inventory was carried out in 1985 (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a). The data from this inventory were since reported to have been lost (Not1More *in litt.* to UNEP-WCMC, 2020), but the MA of Guinea-Bissau (*in litt.* to UNEP-WCMC, 2020b) noted that the results showed *P. erinaceus* to be a common species. A new general forest inventory is planned to take place in November 2020 (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a).

In relation to the current status of *P. erinaceus,* the MA of Guinea-Bissau noted that the species was considered to have become highly threatened as a result of logging activity between 2012 and 2015, as well as deforestation in general (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a); however, the MA also noted that the species had hardly been lost from any of its range (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020b). The population trend of the species was considered to be increasing, but "aggressive exploitation" was still noted to be occurring year-on-year (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a).

Trade:

CITES trade data: Guinea-Bissau submitted a CITES annual report for 2016, but reports for 2017 and 2018 have not yet been received. A CITES trade suspension for all commercial trade in CITES-listed specimens from Guinea-Bissau was in place from 15 March 2016 (Notification No. 2016/030) until 22 January 2018 (Notification No. 2018/011). Subsequently, a zero export quota for the species was published on the CITES website for 2018 and 2019.

According to the CITES Trade Database, direct trade in *P. erinaceus* from Guinea-Bissau 2016-2018 consisted of 12 421 m^3 of pre-Convention (96%) and wild-sourced (4%) logs imported for commercial purposes in 2018, reported by importers China (74%) and Viet Nam (26%) only (**Table 4.10.1**).

The MA Guinea-Bissau (*in litt.* to UNEP-WCMC, 2020b) clarified that export of pre-Convention stockpiles of *P. erinaceus* had taken place in two phases: c. 9019.432 m^3 was exported between January and April 2018 and c. 15 787.898 m^3 was exported between May and December 2018. The MA stated that this left a remaining stockpile of 278 20-foot containers corresponding to 4510.828 m^3 of timber, which it hoped to gain authorisation from the Secretariat to export in future.

Table 4.10.1: Direct exports of *Pterocarpus erinaceus* from Guinea-Bissau, 2016-2018. '-' denotes that a CITES annual report for Guinea-Bissau has not been received.

Term	Unit	Purpose	Source	Reported by	2016	2017	2018	Total
logs	m^3	T	O	Exporter		-	-	
				Importer			11902	11902
			W	Exporter		-	-	
				Importer			519	519

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 20/05/2020.

Chinese customs data: According to Chinese customs data extracted from the Global Trade Atlas, 194 320 m^3 of rosewood[39] logs worth over USD 95 million were imported by China from Guinea-Bissau between 2009-2018 (**Figure 4.10.1**). Imports increased steadily from 2010 to 2013, followed by a six-fold increase in 2014. Imports subsequently decreased year on year to zero in 2017; in 2018 they were at similar levels to those before the peak.

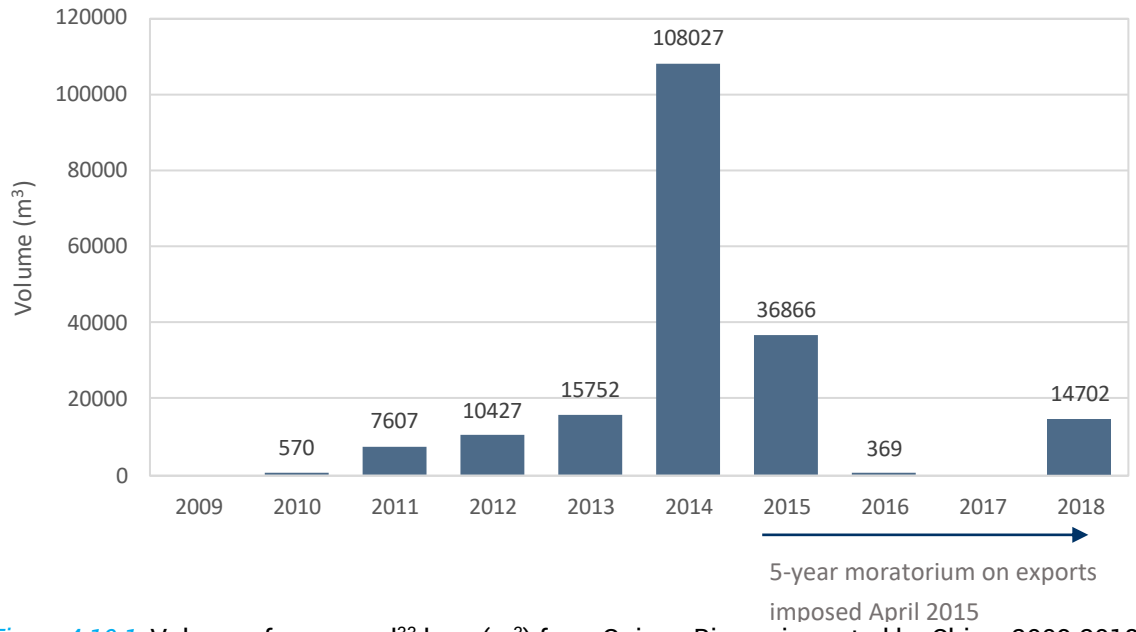

Figure 4.10.1: Volume of rosewood[33] logs (m^3) from Guinea-Bissau imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: The CITES MA of Guinea-Bissau *(in litt.* to UNEP-WCMC, 2020a) noted that *P. erinaceus* had been exploited in the country for a long time without becoming threatened at the national level. However, uncontrolled exploitation for export to China reached unprecedented levels following a coup d'état in 2012, and was considered to have remained high until a moratorium on all timber felling and export was put in place in 2015 (EIA, 2018; Walters 2019; CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a). Guinea-Bissau's former Director of Forestry noted in an interview that between January and May 2014, for example, over 93 156 m^3 of rosewood logs were exported; this was considered to be "over 4 times the sustainable limit", which at the time was estimated to be 15 000-20 000 m^3 per year (Walters, 2019).

The rapid escalation of logging was noted to have been accompanied by a wide array of violations of national legislation (Walters, 2019; CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a), including the forgery of logging licences, obtaining cutting and export licences through bribery schemes, and the export of logs that were misdeclared as processed wood (DW, 2014; Reuters, 2014; The New Humanitarian, 2014). Logging of *P. erinaceus* was additionally reported to have occurred under the guise of misapplied agricultural licenses, in scenarios where there was no intention to convert the land (Anonymous pers. comm. 2017 in Barstow, 2018). Logging pressure was particularly intense in the regions of Oio and Bafatá, with a former director of forestry estimating that 85% of rosewoods harvested in the country were harvested from these areas

[39] Presumed to be *P. erinaceus* as it is the only species to occur in Guinea-Bissau considered to be rosewood under the Chinese national standard.

(Walters, 2019). Interviews with the Institute for Biodiversity and Protected Areas, the institution that manages Guinea-Bissau's national parks, revealed that rates of cutting within parks were considered to be lower than those outside of protected areas; however, illegal cutting around the perimeter and buffer zone of parks was noted to have been an issue during the felling boom (Walters, 2019).

The threat from logging was considered by the CITES MA to have lessened since the imposition of the moratorium; however, illegal activity is considered to have continued (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a; UNODC 2020). There are reports that freshly cut timber has periodically entered the city of Bissau, and that this timber was being laundered as pre-Convention logs (primarily to China) during the sale of some of the country's large stockpile (EIA, 2018). Singapore seized over 1000 tons of *P. erinaceus* coming from Guinea-Bissau on its way to Viet Nam without CITES documentation in 2017, and the same traders known for their involvement in illegal activities in 2014 were noted to have been observed in the field in 2020 (UNODC, 2020). Interviews carried out with traffickers have additionally found some evidence to indicate that rosewood originating in northern Guinea-Bissau may be being illegally smuggled into Gambia (EIA, 2020).

The MA of Guinea-Bissau (*in litt*. to UNEP-WCMC, 2020a) noted that the species was used for firewood, fodder, and traditional medicine in the country, but no information could be found regarding whether these other uses presented a notable threat to the species. Charcoal production and clearance for cashew farming were both considered to be threats to Guinea-Bissau's forests in general (Walters, 2019).

Management: Guinea-Bissau became a Party to CITES on 16th May 1990, with entry into force on 14th August 1990.

CITES relevant legislation: Guinea-Bissau was subject to a recommendation to suspend all commercial trade between 15 March 2016 and 11 January 2018 (Notif. 2016/030, Notif. 2018/011). This was put in place because the Party failed to adopt appropriate legislative measures for effective implementation of the Convention after being identified as a priority Category 3 Party under the CITES National Legislation Project. Guinea-Bissau issued a new Regulation on international trade in endangered species of wild fauna and flora on the 25 May 2017 (Presidential Decree number 3/2017), and was subsequently placed in Category 1[40]. The recommendation to suspend trade was withdrawn in light of this legislative progress (Notif. 2018/011).

Domestic forestry legislation: The Forest Code currently in force in Guinea-Bissau is Law-Decree No. 05/2011(Republic of Guinea-Bissau, 2011). Article 18 of this law prohibits the export of logs, and Article 13 stipulates that export volumes of sawn timber shall be fixed annually, after consulting the Technical Forest Council and in accordance with updated data on national forest cover (Republic of Guinea-Bissau, 2011). Article 24 of the Forest Code notes that a management plan for the area to be exploited is necessary for a concession to be granted. Applications must also specify the type of logging operations authorised and a timetable for carrying them out, as well as the quantity of timber intended to be exported (Republic of Guinea-Bissau, 2011). Prior to the 2012 coup, the Forest Council was reported to have reviewed the management plans submitted and approved only those that would be at a sustainable level based on calculations from the 1985 nationwide forest inventory (Walters, 2019).

Following the election of a new administration in June 2014, Guinea-Bissau's government was reported to have issued a temporary logging ban and a moratorium on all log exports (EIA, 2018). In April 2015, a new moratorium on all timber felling and export was put in place for a duration of five years (Reuters, 2015; CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a); however, as the

[40] Legislation that is believed generally to meet the requirements for implementation of CITES.

Prime Minister was later reported to have clarified that "those with legally binding licences were not being stopped from cutting wood", the exact scope of this ban remains unclear (The Economist, 2015). The CITES MA of Guinea-Bissau (*in litt.* to UNEP-WCMC, 2020b) noted that *P. erinaceus* was listed as a partially protected species by the legislative texts of Law No. 4-A/91 of 29 October (revised in 2010), and that the 2011 Forest Code and the CITES regulation of Guinea-Bissau (Decree No. 03/2017) provided a framework through which to sanction infringements relating to the species. Further details of the exact protections afforded to *P. erinaceus* as a partially protected species could not be located.

The government's five-year moratorium expired on 15 April 2020 (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a). The CITES MA (*in litt.* to UNEP-WCMC, 2020b) noted that a reorganization and redistribution of concessions to industrial timber operators was envisaged once the moratorium expired, however no further information was provided regarding the nature of these expected changes except operators will need to comply with a number of requirements that participation in reforestation schemes will be required for each operator. Once the reorganisation is finalised and if its results prove positive, the MA of Guinea-Bissau (*in litt.* to UNEP-WCMC, 2020b) indicated that it would like to resume exports of *P. erinaceus* timber.

Other management measures and challenges: No harvesting programmes were reported to have been in place since the moratorium came into force in 2015 (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a), with current management "carried out through restocking and restoration activities" (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a). Very little monitoring of populations within logging concessions was reported to have taken place due to a lack of financial resources (CITES MA of Guinea-Bissau *in litt.* to UNEP-WCMC, 2020a).

The CITES MA of Guinea-Bissau (*in litt.* to UNEP-WCMC, 2020a) also highlighted the following as challenges relating to effective management and control of *P. erinaceus* harvesting:

- Uncontrolled bushfires;
- A low level of awareness of cutting and pruning techniques for the species;
- A lack of consultation with regions before issuing licenses and various authorizations;
- The long duration of the logging season (9 months);
- The high number of logging companies operating in the regions;
- A lack of links with regional and international forestry research institutes;
- Difficulties in assessing the operation of sawmills and their compliance with obligations, due to a lack of periodic monitoring;
- Poor promotion of community forests.

A 2019 UNODC threat assessment report highlighted that enforcement in Guinea-Bissau may be constrained by a lack of resources (CoP18 Doc. 34, Annex 4). It noted, *inter alia*, that the Environmental Protection Unit of the National Guard of Guinea-Bissau shared one vehicle with the Ministry of Agriculture, that export records were kept on paper in storage where they were vulnerable to degradation, and that resources to permanently mark stockpiles were unavailable (CoP18 Doc. 34, Annex 4).

Stockpiles: Guinea-Bissau's government was reported to have issued an order to seize already cut timber of *P. erinaceus* in 2015, which resulted in the seizure of 104 000 logs that were reportedly awaiting illegal export to China (The Economist, 2015; EIA, 2018). The country has since

accumulated a large stockpile of rosewood through these seizures; in 2018 traders and official representatives told Environmental Investigation Agency (EIA) investigators that this consisted of over 400 000 logs (EIA, 2018). Of these, 18-24 000 were reported to be stockpiled in the capital, 60 000 were reported to be containerised in the capital and port area, and an estimated 240-360 000 were reported to be unsecured (typically left where they were felled) (EIA, 2018). Guinea-Bissau notified CITES Parties of its intention to export 24 338 m^3 of these pre-Convention stocks in January 2018 (Notif. 2018/010), estimated to be equivalent to 180 000 logs (EIA, 2018). In May 2018, Guinea-Bissau reported that the operation had faced difficulties at first and that only 9021.656 m^3 had been exported thus far; however it further noted that the remaining stockpile of 15 317.344 m^3 would only be authorised for export by the Management Authority until 31 December 2018 (Notif. 2018/051). The MA Guinea-Bissau (*in litt.* to UNEP-WCMC, 2020b) since clarified that 15 787.898 m^3 was exported between May and December 2018, leaving a remaining stockpile of 278 x 20-foot containers corresponding to 4510.828 m^3 of timber. The MA noted that it hoped to gain authorisation from the Secretariat to export this remaining stockpile in future. If the volumes of timber estimated by the MA to have been exported over 2018 are summed (i.e. 9021.656 m^3 exported up to May 2018 +15 787.898 m^3 exported between May and December 2018), Guinea-Bissau exported 24 809.554 m^3 of *P. erinaceus* timber in 2018. This exceeds the stated amount to be exported by c. 500 m^3, although it should be noted that the MA estimated the volume of timber exported on the basis of the number of 20-foot containers shipped. It is therefore unclear whether the 4510.828 m^3 of timber the MA reported to be remaining is considered to be part of the 24 338 m^3 originally referenced.

EIA (2018) raised concerns about these stockpile sales, alleging that its investigators had obtained evidence that traders and exporters were laundering freshly cut rosewood into stockpiles of pre-Convention logs. In the Oio region, for example, illegal fresh cuttings were noted to have been reported by the National Guard (EIA, 2018).

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Liberia

LIBERIA:	Not a range State for *P. erinaceus*, as confirmed by Liberia in response to the consultation relating to the RST. A CITES annual reports has been received from Liberia for 2016, but not yet for 2017 or 2018. No trade in *P. erinaceus* from Liberia was reported 2016-2018. A suspension on all commercial trade in CITES-listed species from Liberia has been in place since 15 March 2016. On the basis that the species does not occur naturally in Liberia, categorised as **Less concern**.	**RECOMMENDATION:** **Less concern**

Distribution: Liberia is not believed to be a range State for this species. Liberia was included in a map of the species range by Louppe *et al.* (2008), but the species occurrence in Liberia was not reported by Booth and Wickens (1988) or Bonnet *et al.* (2008, in Adjonou *et al.,* 2019), or in the CITES listing proposal (CoP17 Prop. 57). A species distribution model predicted the presence of *P. erinaceus* in a very small area in northern Liberia (van Andel *et al.*, 2015). It was noted by one expert that, according to government officials and NGO staff based in-country, the species previously occurred in the north of Liberia, however, it was not widespread and could no longer be found at locations from where it had previously been reported (Not1More *in litt.* to UNEP-WCMC, 2020).

The CITES Management Authority of Liberia (*in litt*. to UNEP-WCMC, 2020) confirmed that *P. erinaceus* does not occur in the country. This was referred to the CITES Nomenclature Specialist of the Plants Committee.

Trade:

CITES trade data: A CITES annual report was submitted by Liberia for 2016, but reports for 2017 and 2018 have not yet been received. Liberia has never published any export quotas for the species. All commercial trade in specimens of CITES-listed species from Liberia has been suspended since 15 March 2016 due to failure to adopt appropriate legislative measures for the effective implementation of the Convention (Notification No. 2016/030, subsequently replaced by Notification No. 2018/012).

According to the CITES Trade Database, no direct or indirect exports of *P. erinaceus* from Liberia were reported 2016-2018.

Chinese customs data: No reports of imports from Liberia were recorded within the Chinese customs data extracted from the Global Trade Atlas 2009-2018.

Management: Liberia became a Party to CITES on 11th March 1981, with entry into force on 9th June 1981.

Through its national legislation project, the CITES Secretariat categorised the national legislation in Liberia as legislation that is believed generally not to meet any of the four requirements for effective

implementation of CITES (Category 3). A legislative status table prepared by the CITES Secretariat and published in November 2019[41] noted that new wildlife legislation has been enacted by the Liberian Parliament and submitted to the CITES Secretariat. A revision to address gaps was underway. Next steps included finalization and submission of revised and implementing legislation, and an agreement between Liberia and the CITES Secretariat on revised legislative analysis.

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Mali

MALI:	A 2013-2014 inventory in in the southern regions of Kayes, Koulikora, Sikasso and Segou showed highest densities of the species in the cercles of Bafoulabé and Kita (in the Kayes region), as well as the cercles of Kadiolo, Yanfolila, Kolondieba and Bougouni (in the Sikasso region). In general, young stands (<25cm diameter class) were noted to be abundant in areas where the species occurs, implying that regeneration remains high. The three most important current threats in the country were considered by the CITES MA to be overexploitation, bushfires, and climate change. CITES annual reports have been received for 2016 and 2017, but not yet for 2018. Direct trade in wild sourced *P. erinaceus* from Mali 2016-2018 comprised 95 203 m^3 logs and 2029 m^3 sawn wood imported for commercial purposes, reported by China only. Mali responded to the consultation relating to RST, providing additional trade data in their response. A total of 52 112.1 m^3 of *P.erinaceus* was exported from 2000 to 2017, 84 700 m^3 in 2018, and 70 300 m^3 in 2019. Rosewood exports in 2017 as indicated by the CITES MA of Mali and Chinese customs data (high volumes) do not appear to have been included in Mali's 2017 annual report to CITES for that year, highlighting a discrepancy. Illegal trade was reported to have been ongoing since 2003, notably at the border with Senegal. On 27 May 2020, the country suspended the exploitation of timber or sawn timber in all forms throughout the national territory until further notice. The export of unprocessed wood products is also banned, but concerns have been raised about a lack of clear definitions for unprocessed and transformed timber in relevant pieces of legislation. Accordingly, it is unclear if any exports of wild sourced specimens could legally take place. Wild-sourced trade appears to have taken place 2016-2018, and it is unclear how harvest quotas are set and whether there is any scientific basis for non-detriment findings; therefore categorized as **Action is needed**. Other issues not related to the implementation of Article IV include illegal trade and exports of timber, as well as the omission of data on exports of *P. erinaceus* in the CITES annual report for 2017. **Referral to the Standing Committee is therefore recommended.**	**RECOMMENDATION:** **Action is needed** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade and discrepancies with export data omissions from CITES annual reports]***

Distribution: A 2014 map of *Pterocarpus erinaceus* distribution in the southern *régions* of Kayes, Koulikora, Sikasso and Segou is shown in **Figure 4.12.1**. The highest densities of the species were reported to be in the *cercles*[42] of Bafoulabé and Kita (in the Kayes region), as well as the *cercles* of Kadiolo, Yanfolila, Kolondieba and Bougouni (in the Sikasso region) (CITES Management Authority

[42] A *cercle* is the second level administrative unit in Mali. Mali has eight *régions* and one capital district (Bamako); the regions are subdivided into 49 *cercles*. Each subdivision bears the name of its capital city.

(MA) of Mali *in litt.* to UNEP-WCMC, 2020). No information was reported to be available regarding the distribution of *P. erinaceus* in the rest of the country (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020).

Plantations of the species were reported to cover more than 575 ha (CITES MA of Mali *in litt*. to UNEP-WCMC, 2020).

Population status and trends: Average densities of *P. erinaceus* in the regions of Kayes, Koulikora, Sikasso and Segou, as recorded in a 2013-2014 inventory, are shown in **Figure 4.12.1**. Densities ranged from 5 to 150 stems/ha, with variations reported to be driven by differences in climate and site conditions; however, the effects of bushfires, climate change and overexploitation were also noted to have affected the density and population trend of the species (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020).

In general, young stands in the "25 cm diameter class" (presumed < 25 cm) were noted to be abundant in areas where the species occurs (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020), implying that there is good regeneration and that mature trees are present. In 2006, the total stock of standing *P. erinaceus* timber for the Sikasso region (in southern Mali) was estimated to be 3 665 330 m^3, equivalent to 7.9% of the total volume of standing timber in the region (46 513 597 m^3) (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020); however, the data underpinning the total volume estimate could not be located.

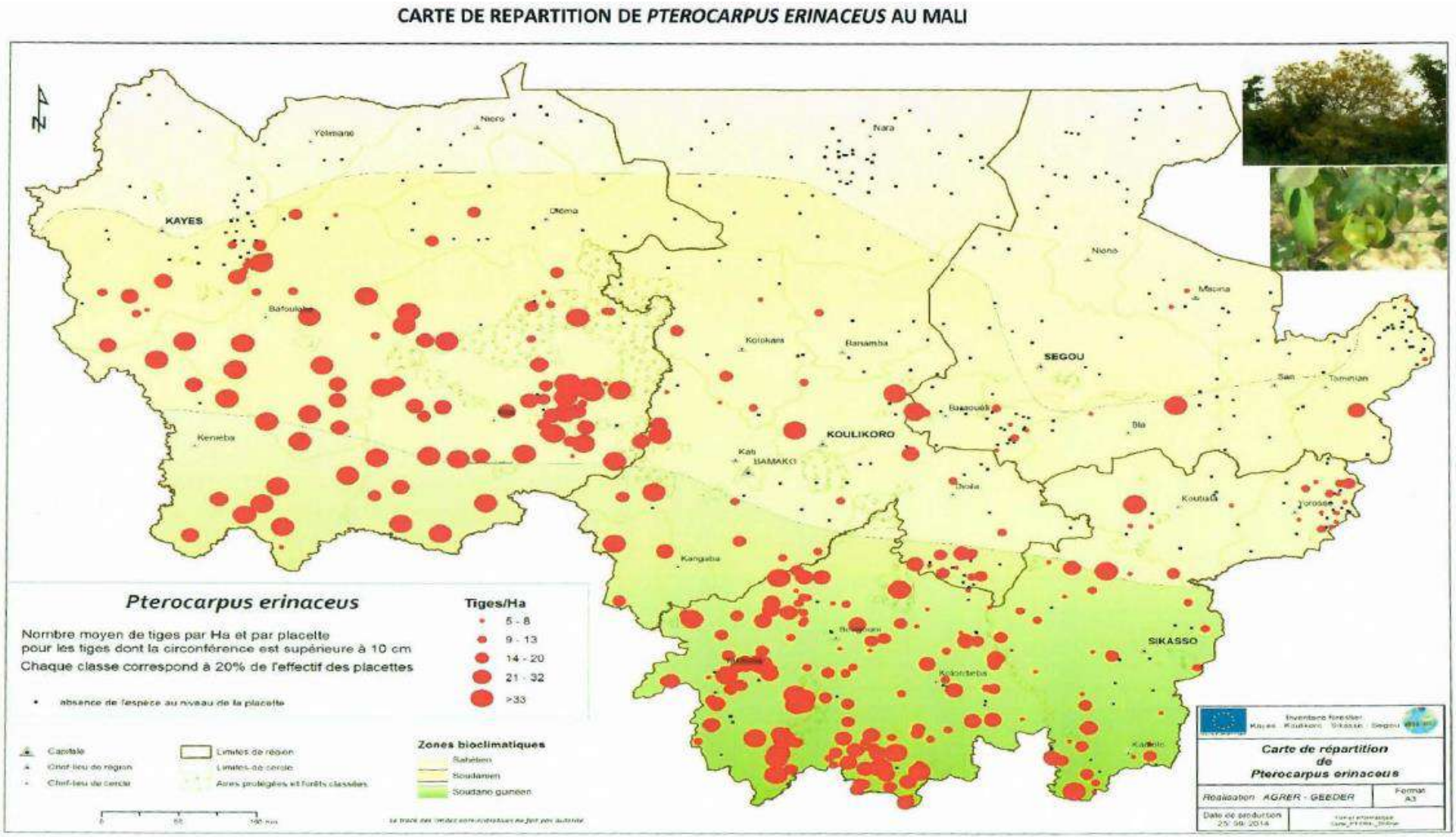

Figure 4.12.1: Distribution and density of *P. erinaceus* in the regions of Kayes, Koulikora, Sikasso and Segou, southern Mali, 2014. Source: CITES MA of Mali *in litt.* to UNEP-WCMC, 2020.

Trade:

CITES trade data: CITES annual reports were submitted by Mali for 2016 and 2017, but the report for 2018 has not yet been received. Mali has never published a CITES export quota for *P. erinaceus*.

According to the CITES Trade Database, China was the only importer of *P. erinaceus* from Mali 2016-2018. Direct trade in the species predominantly comprised 95 203 m^3 of wild-sourced logs imported for commercial purposes, reported by China only in 2017 and 2018. Additional trade in this period included 2029 m^3 of wild-sourced sawn wood imported for commercial purposes in 2017, reported by China only. No direct exports were reported by Mali in 2016 or 2017.

Table 4.12.1: Direct exports of *Pterocarpus erinaceus* from Mali, 2016-2018. Quantities have been rounded to whole numbers, where appropriate. All trade was reported for commercial purposes. '-' denotes that a CITES annual report for Mali has not been received.

Term	Unit	Source	Reported by	2016	2017	2018	Total
logs	m^3	W	Exporter			-	
			Importer		50083	45120	95203
sawn wood	m^3	W	Exporter			-	
			Importer		2029		2029

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.

Low levels of indirect trade in *P. erinaceus* originating in Mali were reported 2016-2018, consisting of 68 m^3 of wild-sourced logs imported in 2016 via Senegal (reported by China only).

The MA of Mali (*in litt.* to UNEP-WCMC, 2020) provided additional trade data in their response to the consultation to the RST. A total of 52 112.1 m^3 of *P. erinaceus* was reported to have been exported from 2000 to 2017 (without specifying volumes per year); 84 700 m^3 was reported to have been exported in 2018, and 70 300 m^3 of the species was reported to have been exported in 2019 (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020).

Chinese customs data: According to Chinese customs data extracted from the Global Trade Atlas, 175 585 m^3 of rosewood[43] logs worth over USD 80 million were imported by China from Mali between 2009-2018 (**Figure 4.12.2**). Imports increased sharply in 2017 and 2018, accounting for close to 85% of rosewood logs imported from Mali since 2008 (the volume of timber exported in this latter year (~80 000) was estimated to represent around half a million trees (UNODC, 2020)). Overall, trade from Mali accounted for approximately 3% of China's imports from range States.

A comparison between Chinese customs data and trade volumes reported by the CITES MA of Mali (*in litt.* to UNEP-WCMC, 2020) suggests that the majority of the 52 112.1 m^3 exported between 2000 and 2017 may have taken place in 2017. However, no exports were reported in Mali's annual report to CITES for that year.

[43] Presumed to be *P. erinaceus* as it is the only species to occur in Mali considered to be rosewood under the Chinese national standard.

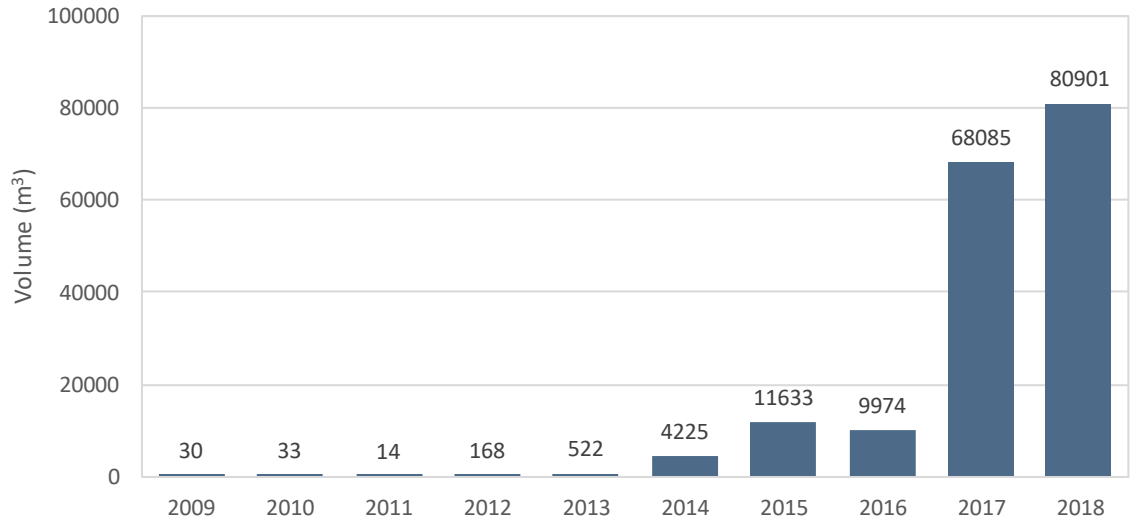

Figure 4.12.2: Volume of rosewood[37] logs from Mali imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: Historically the main threat to *P. erinaceus* in Mali was its use as livestock fodder, which was reported to have caused the local extinction of the species in the late 1990s around the capital of Bamako (Bonkoungou *et al*., 1998 in CoP17 Prop. 57). The three most important current threats to the species were considered by the CITES MA of Mali (*in litt.* to UNEP-WCMC, 2020) to be overexploitation, bushfires, and climate change. Use as animal feed was also noted to be an issue, as was land clearance in general and mining in the regions of Kayes, Sikasso and Koulikoro (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020).

Mali was reported to have been targeted by rosewood traffickers since at least 2003 (CoP18 Doc. 34, Annex 4), with the border between Senegal and Mali highlighted in a 2019 UNODC assessment as a key area needing reinforcement in the context of rosewood trade (CoP18 Doc. 34, Annex 4). Rosewood logs appear to have been illegally exported from 2015 onwards despite an Interministerial Decree issued in June 2015 that prohibited the export of unprocessed wood products (see *Management* section). Recent media reports have additionally detailed allegations that CITES permits for squared, sawn and processed wood were issued for *P. erinaceus*, in contravention of legislation which stipulates that only transformed wood can be legally exported (France 24, 2020a, France 24, 2020b). The reports highlighted confusion between the definition of squared, sawn and transformed wood, terms which do not have detailed definitions in Mali's Forest Code and other pieces of relevant legislation (France 24, 2020a). In addition, a former executive of the Department of Water and Forests highlighted that two CITES permits issued in 2017 and 2019 for *P. erinaceus* were not accompanied by a certificate of origin issued by forestry services, which was required to ensure adequate traceability (France 24, 2020b).

Management: Mali became a Party to CITES on 18th July 1994, with entry into force on 16th October 1994.

Domestic forestry legislation: Felling of *P. erinaceus* was made illegal in Mali in 1995 (Loi No. 95-004); however, this law was repealed by Law No. 10/028 of 12th July 2010 (Article 153) which sets out different provisions for species management (see below). Decision No. 0016/MEADD-SG DU, issued on 27th May 2020, suspended the exploitation of timber or sawn timber in all forms throughout Mali's national territory until further notice.

Information provided by the CITES MA of Mali (*in litt.* to UNEP-WCMC, 2020) indicated that exploitation of *P. erinaceus* prior to the May 2020 Decision to suspend exploitation had taken place through "Public-Private partnerships". In Mali the right to manage all forest estates belongs to the State (FAO 2020), however from 1995, forest policy began to favour private initiates and partnership contracts between the government and private operators (Thomas and Samessekou, 2003). In the Kayes region, for example, 81 management plans were reported to have been implemented, with an estimated harvesting quota of 50 659 *P. erinaceus* trees per year. The legislative framework for management of *P. erinaceus* as indicated by the CITES MA of Mali (*in litt.* to UNEP-WCMC, 2020) during this time was as follows:

Interministerial Decree No. 2015-1535/CI/MEF-SG of 05 June 2015: Prohibited the export of unprocessed wood products and charcoal.

Decree No. 10-387/P-RM of 26 July 2010: Designated *P. erinaceus* as a partially protected species, which made it subject, *inter alia*, to the following articles in **Law No. 10/028 of 12 July 2010** (this law sets out the principles of national forest management):

- Article 22: The cutting of a partially protected tree species is subject to the prior procurement of an exploitation title, delivered after payment of a royalty per tree for which minimum diameters are fixed by legislation.

- Article 23: The state and territorial administrations should carry out inventories of plant species, which must include data on both distribution and abundance, and these should be regularly reviewed.

- Article 24: The production, transport, sale and export of wood of a protected tree species for the purpose of fuel is prohibited, except in areas where the species constitutes one of the main wood resources for local communities. In these cases, species may be exploited within the conditions set out by the relevant competent authority

- Article 32: All classified forests should have a management plan prior to any exploitation taking place. These management plans should be approved by the relevant authority corresponding to the level of 'ownership' (e.g. State classified and State protected forests, community forests) as defined by Articles 4 to 6 (Article 33).

Decree No. 2018-0662/P-RM of 8 August 2018: Regulates the exploitation of forest products in the national forest estate. Key points include:

- Article 3: The national forest estate should be subject to surveys and inventories in order to have a good understanding of the forest resources to be managed.

- Article 9: Management plans are required for the exploitation of any forest whose area exceeds 500 hectares. When the area is between 25 and 500 hectares, the owner or manager can use a simplified management plan.

- Articles 11 and 12: Management plans must include, *inter alia*: the plot layout, the location of protected areas and measures for protecting fauna, flora, water and soil; and the silvicultural program for the plot, including the annual allowable cut based on the

regeneration capacity of stands. The period of application of a forest management plan should be between five and ten years (Article 22)[44].

- Article 16: The removal of forest products should not exceed 50% of the annual allowable cut within each management unit.

- Article 18: Management plan templates are fixed by Decree from the Minister responsible for forests.

- Article 39: The export of unprocessed wood products, firewood and charcoal is prohibited throughout the national territory.

- Article 40: The procedures for the export and re-export of processed wood shall be determined by a joint order of the Minister responsible for standardisation, the Minister responsible for trade and the Minister responsible for forests. The CITES MA noted that no joint order had yet been adopted, but explained that the relevant ministries were endeavouring to adopt one while **Decision No. 0016/MEADD-SG of 27 May 2020** (which suspended the exploitation of timber or sawn timber), was in place.

Law No. 02-017 of 03 June 2002: Sets out regulations regarding the detention, trade, export, re-export, import, transport and transit of specimens of CITES listed species.

Decree No. 10-388/P-RM of 26 July 2010: Sets the rates of royalties collected in connection with the exploitation of *P. erinaceus* in the State forest sector.

Decree No. 2011-637/P-RM of 20 September 2011: Sets out the conditions for exercising the rights conferred by forest product exploitation and transport permits.

Other management measures and challenges: The CITES MA of Mali (*in litt*. to UNEP-WCMC, 2020) provided details of further measures that applied to the management of *P. erinaceus* prior to the imposition of the May 2020 exploitation suspension. The MA reported that management of the species was based on an annual programme involving the evaluation of the previous year's activities and an inventory of the annual concession plot (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020). The minimum exploitable diameter for the species in Mali was 50 cm (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020). Exports of *P. erinaceus* were reported to account for around 20% of the annual exploitation quota set by a quota-fixing committee (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020). The export quota was reported to be "precautionary" and established on the basis of harvesting quotas set in each region (CITES MA of Mali *in litt.* to UNEP-WCMC, 2020). However, it is unclear if the harvesting quotas were based on the species-specific inventory of 2013-2014, or if they have any scientific basis.

Aside from the measures outlined above, the CITES MA of Mali (*in litt.* to UNEP-WCMC, 2020) also highlighted the following actions to reduce threats to *P. erinaceus*:

- Information and awareness-raising campaigns
- The establishment, organisation and promotion of fire brigades and surveillance committees

[44] The CITES MA of Mali (*in litt.* to UNEP-WCMC, 2020) further qualified that the duration of the management plan was dependent on the agro-ecological zone of the concession, and the density and maturity of stems.

The MA additionally highlighted that, going forward, (1) it will be important to carry out an inventory specifically for *P. erinaceus* stands, since forest inventories currently carried out generally cover all species, and (2) technical and financial support within the framework of capacity building will be required for carrying out scientific studies, species identification, and forest inventories.

National Legislation Project: Through its national legislation project, the CITES Secretariat categorised the national legislation in Mali as legislation that is believed generally to meet one to three of the four requirements for effective implementation of CITES (Category 2). The CITES Secretariat's legislative status table published in November 2019[45] noted that legislation had been provided to the Secretariat, with a draft analysis indicating that there were some gaps in legislation to be addressed. Next steps were reported to include agreement between Mali and the Secretariat on a revised legislative analysis, including possible Category 1 status.

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Niger

NIGER:		RECOMMENDATION:
	Occurs in Niger at the northern edge of the species range. Recorded from three areas in southwestern Niger: Tamou Wildlife Reserve, W National Park, and a forest in the department of Gaya. No further information on the species distribution in Niger could be found. No national forestry inventory has been conducted, but the species was classified as endangered nationally in 2005, and critically endangered in W National Park and Tamou Wildlife Reserve by authors of a study published in 2019.A lack of recruitment is implied based on low densities in small diameter size classes across sites surveyed. The main threats to *P. erinaceus* were reported to be pollarding for use as livestock fodder outside of protected areas (i.e. W National Park) and climate change. No evidence of illegal trade could be located. CITES annual reports have been received from Niger submitted annual reports for 2016 and 2017, but not yet for 2018. No trade in *P. erinaceus* from Niger were reported 2016-2018. Niger did not respond to the consultation relating to the RST. On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**.	Less concern

Distribution: Niger represents the northern limit of the species' natural range (Adjonou *et al.*, 2019), with records of the species restricted to extreme southwest of the country (Segla *et al.*, 2016; Rabiou *et al.*, 2019). Inoussa *et al.* (2017) noted that *P. erinaceus* was at the edge of its distributional range in W National Park (Inoussa *et al.*, 2017).

Population status and trends: No national forest inventory has been conducted in Niger (Ministère de l'Hydraulique et de L'Environnement and FAO, 2012) and therefore national population data is lacking. However, in response to a request for information to inform the FAO Global Forest Resources Assessment in 2005, Niger commented that *P. erinaceus* was endangered in the country (Garzuglia, 2006). Adjonou *et al.* (2019) considered that *P. erinaceus* was in sharp decline in Niger and considered that the species could be tending toward extinction in in the country due to climate threats. Two studies were located detailing the population structure of *P. erinaceus* in defined areas in Niger: Inoussa *et al.* (2017), who conducted an inventory of *P. erinaceus* in W National Park (fully protected area in southwestern Niger), and Rabiou *et al.* (2015b, 2019) who conducted surveys in two areas: W National Park and Tamou Wildlife Reserve (adjacent to the W National Park and representing a buffer zone; Rouscoua and Ahmed, 2001) (see **Table 4.13.1**). Rabiou *et al.* (2015b) also reported the results of a survey in a forest in the department of Gaya. The years in which these surveys took place could not be located for either study.

Inoussa *et al.* (2017) reported that the population structure of *P. erinaceus* showed a left-skewed distribution characteristic of populations with a scarcity of young individuals; young trees (5-25 cm) were entirely absent from the study area. Rabiou *et al.* (2019) reported that in both areas surveyed the size class distribution of *P. erinaceus* followed a bell-shaped distribution characteristic of aging stands dominated by older individuals (35-65 cm); the largest individuals (90-100 cm) were recorded

in W National Park. Individuals of a smaller size class were reported to be poorly represented in both areas, with class sizes of 5-15 cm absent from W National Park (Rabiou *et al.*, 2019). The largest diameters and heights recorded by Rabiou *et al.* (2019) were in the fully protected area of W National Park, highlighting the importance of such areas for the conservation of the species.

Inoussa *et al.* (2017) and Rabiou *et al.* (2019) suggested that, as W National Park is protected from direct human impacts, other threats such as fires, the pressure from herbivores and/or climate change could be responsible for the lack of regeneration of *P. erinaceus* in this area. In Tamou Wildlife Reserve the species was reported to be threatened by pruning (see *Threats* section), with impacts on the production of seeds and regeneration of young individuals. Rabiou *et al.* (2019) considered the species to be critically endangered in both W National Park and Tamou Wildlife Reserve (Rabiou *et al.*, 2019).

Rabiou *et al.* (2015b) recorded *P. erinaceus* in a classified forest in Gaya (southwestern Niger) with an average diameter of 43 cm and at an average density of 0.6 trees/ha; this is roughly the same density at which the species was recorded in Tamou Wildlife Reserve.

Table 4.13.1: Structural parameters of *P. erinaceus* recorded at two sites in Niger. Source: Rabiou *et al.* (2015b, 2019) and Inoussa *et al.* (2017).

Structural parameter	W National Park (Inoussa *et al.*, 2017)	W National Park (Rabiou *et al.*, 2005b, 2019)	Tamou Wildlife Reserve (Rabiou *et al.*, 2015b, 2019)	Forest in Gaya (Rabiou *et al.*, 2015b)
Diameter (cm)	47	57.7 ± 18.6	36.89 ± 12.6	43.1 ± 11.1
Height (m)	-	10.8 ± 2.02	9.20 ± 2.3	9.28 ± 1.8
Commercial height (m)	-	4.35 ± 1.5	3.65 ± 0.9	3.2 ± 1.1
Basal area (m2/ha)	0.7	0.524	0.089	0.09
Height of Lorey (m)	14.3	11.62	10.24	9.9
Crown (m)	-	10.18 ± 3.05	5.65 ± 2.42	6.0 ± 1.7
Density (tree/ha)	3.3	1.82	0.75	0.6 ± 0.9
Regeneration density (plants/ha)	1143	-	-	-

Based on surveys in these three areas in Niger, Rabiou *et al.* (2015a) estimated the volume of commercial timber available as 446 244 m^3 in W National Park, 24 640 m^3 in Tamou Wildlfe Reserve, and 2892 m^3 in the Gaya forest.

Trade:

CITES trade data: CITES annual reports were submitted by Niger for 2016 and 2017 but the report for 2018 has not yet been received. Niger has never published any export quotas for the species.

According to the CITES Trade Database, no direct or indirect exports of *P. erinaceus* from Niger were reported 2016-2018.

Chinese customs data: No reports of rosewood imports from Niger were recorded within the Chinese customs data extracted from the Global Trade Atlas 2009-2018.

Threats: *P. erinaceus* was reported to be an important source of livestock fodder in Niger representing "the only green fodder" during the dry season (April-June; Adjonou *et al.*, 2019). Use as livestock fodder is an important threat to the species in the country; Rabiou *et al.* (2019) observed that 85% of individuals surveyed in Tamou Wildlife Reserve had been totally or partially pruned to provide forage, and the authors noted that, according to the forestry service, upwards of 90% of the fines issued during the dry season related to the mutilation of *P. erinaceus* by shepherds. Rabiou *et*

al. (2015b) reported that in the forest in Gaya, more than 97% of *P. erinaceus* trees had lost over 50% of their crown growth due to pruning; numbers of debarked individuals were also high. Other types of threats have also been noted to be issues in protected areas. According to Inoussa *et al.* (2017) and Rabiou *et al.* (2019), for example, uncontrolled fires threatened the species in W National Park. The Tamou Wildlife Reserve was noted to be under pressure from unregulated settlements, uncontrolled land clearance and grazing (Rouscoua and Ahmed, 2001).

Inoussa *et al*. (2017) and Rabiou *et al.* (2019) suggested that climate change may affect population structures in the W National Park. Niche modelling by Adjonou *et al.* (2020) showed that the threat to *P. erinaceus* posed by climate change may be especially severe in Niger as the country marks the northern limit of the species' natural range (Adjonou *et al.*, 2019). The authors found that a changing climate could potentially result in the loss of large portion of the species' ecological niche in the country (Adjonou *et al.*, 2020). No evidence of illegal trade could be located.

Management: Niger became a Party to CITES on 8th September 1975, with entry into force on 7th December 1975. The CITES Authorities of Niger were contacted by UNEP-WCMC, but no response had been received at the time of writing. Through its national legislation project, the CITES Secretariat categorised the national legislation in Niger as legislation that is believed generally not to meet any of the four requirements for effective implementation of CITES (Category 3). However, a legislative status table prepared by the CITES Secretariat and published in November 2019[46] noted that comprehensive legislation had been adopted by Parliament. Next steps were reported to include promulgation (i.e., formal declaration that the law has been enacted) and submission to the Secretariat for revised legislative analysis, including possible Category 1 status.

Domestic forestry legislation: The forest regime law (Law No. 2004-040) outlines forest resource management in the country (Government of Niger, 2004). Article 34 states that forest species requiring special protection shall be declared "protected species", and those cannot be cut or damaged. However, their utilization can be authorised, and this is subject to the payment of a fee. No list of protected species could be located.

Other management measures and challenges: In 2018, the Ministère de l'Environnement et du Développement (the CITES Management Authority of Niger) noted that no management plan was in place for W National Park (Abagana, 2018).

Conducting a general national forest inventory was identified as a priority action in the National Forestry Plan (2012-2021) (Ministère de l'Hydraulique et de L'Environnement and FAO, 2012).

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Nigeria

NIGERIA:

Found throughout central and eastern states. Nigeria is considered to have the largest remaining stocks of the three major exporting countries (Nigeria, Gambia and Ghana); however, population declines in the country were estimated to have been as high as 80% between 2009 and 2015 and are believed to be on-going. A recent inventory conducted in the States of Taraba, Adamawa and Kogi (the current principal centres of exploitation) showed an absence of trees in small size classes, indicating an unstable population structure. *P. erinaceus* in Nigeria mainly occurs outside of gazetted forest reserves where the species may be harvested without any plan for management or replacement. Illegal, unregulated and unstainable harvest were considered the main threats, together with weak national enforcement, poor cooperation between relevant agencies and challenges posed by the intricacies of the federal and state legal framework relating to the harvest and trade of timber.

In October 2018, the SC decided to suspend trade in *P. erinaceus* from Nigeria until the Party makes a scientifically based non-detriment finding to the satisfaction of the Secretariat and PC Chair; this was communicated to CITES Parties in November 2018 (Notif. 2018/084). The export of rough or sawn timber as well as round and roughly squared wood are prohibited. CITES annual reports have been received from Nigeria for 2016 and 2018, but not yet for 2017. Trade 2016-2018 predominantly comprised 840 672 m^3 of wild-sourced logs and 11 065 950 kg of wild-sourced logs and sawn wood imported by China for commercial purposes, as reported by China. Nigeria reported less exports, with 233 744m^3 of wild-sourced sawn wood and 251 249m^3 of sawn wood reported without a source; Nigeria did not report any trade by weight.

Nigeria did not respond to the consultation relating to the RST. However, since 2018, Nigeria has been sharing drafts of a NDF with the CITES Secretariat, with a view to compliance with SC recommendations, and lifting of the trade suspension. In line with the Secretariat's recommendation, the latest draft of Nigeria's NDF (submitted to the Secretariat in December 2019) proposed to publish a zero export quota for the species for the next three years, until necessary research has been conducted and adaptive management measures have been installed.

Given that future exports are clearly intended, Nigeria's progress towards making a scientifically based NDF for the species could be considered by the Plants Committee under the RST in addition to the current requirement for NDF review by the Secretariat and PC Chair. Accordingly, categorized as **Action is needed.**

RECOMMENDATION:

Action is needed

[The Standing Committee to continue to monitor progress under the ongoing Article XIII process]

Note: The Forestry Research Institute of Nigeria (FRIN) submitted a draft non-detriment finding (NDF) report for *P. erinaceus* to the CITES Secretariat (FRIN, 2019) which is referred to extensively in this review.

Distribution: *P. erinaceus* was reported to be found in the central and eastern states of Benue (EIA, 2017), Ogun, Oyo, Kwara, Kogi, Nasarawa, Plateau, Gombe, Taraba, Adamawa and Borno (SC70 Doc. 27.3.5). A recent map (**Figure 4.14.1**) produced by the Forestry Research Institute of Nigeria (FRIN, 2019) – the CITES Scientific Authority – differs slightly from the information provided above; it excludes the states of Ogun, Plateau and Gombe, and adds Ekiti and Cross River as states in which the species occurs. It also notes that the species has a fringe presence in fourteen other states (FRIN, 2019).

Within Taraba State (one of the three principal centres of exploitation), *P. erinaceus* was reported to be found mostly in the central senatorial district, with high densities reported in the Local Government Authorities of Ardo Kola, Mutum Biyu, Gassol, Bali, Gashaka, Donga, Kurimi, Ussa and Takum (FRIN, 2019); the vegetation in these areas was described as "fairly undisturbed Guinea savannah ecosystem, dominated by open savannah woodland".

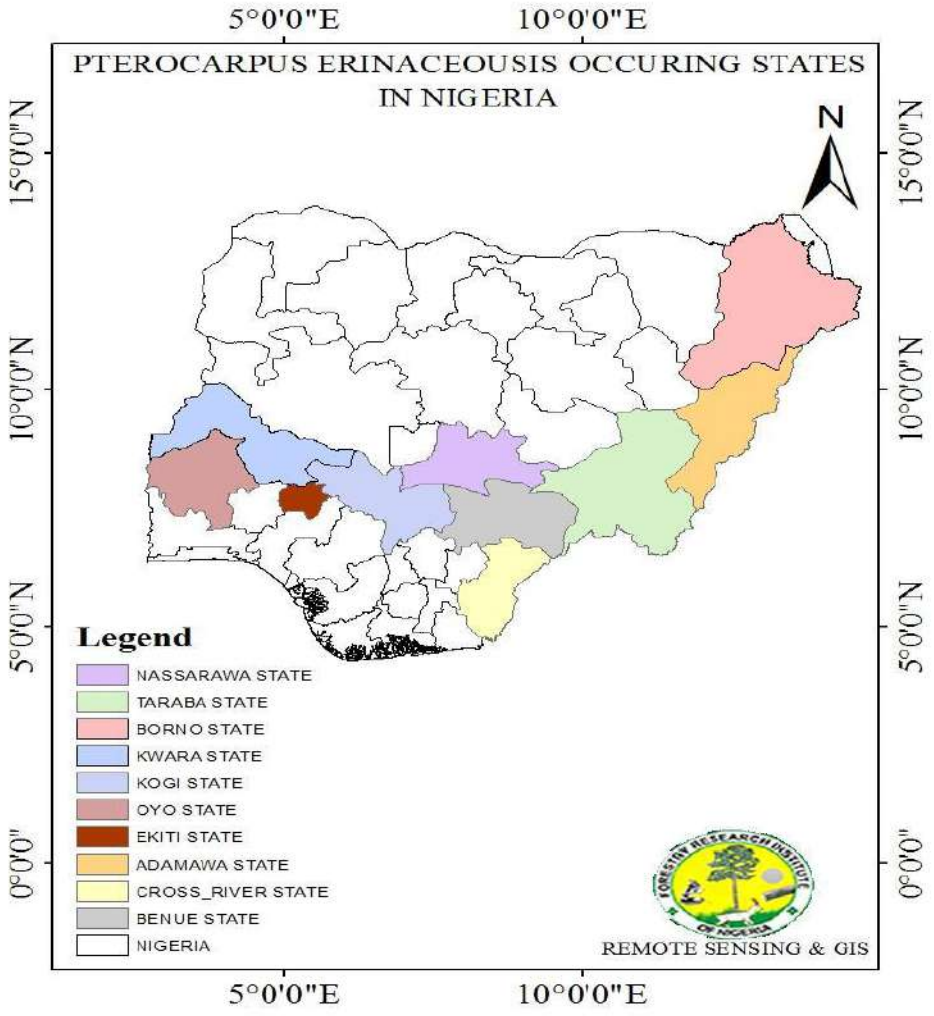

Figure 4.14.1: Distribution of *P. erinaceus* in Nigeria according to the Forest Research Institute of Nigeria. Source: FRIN, 2019.

Population status and trends: Nigeria is considered likely to have the largest remaining stocks of *P. erinaceus* of the three major exporting countries (Nigeria, Gambia and Ghana) (CoP18 Doc. 34, Annex 4); however, population declines of *P. erinaceus* in the country were estimated to have been as high as 80% between 2009 and 2015 (Anonymous and D. Brown pers. comm. 2017 in Barstow 2018) (the data underlying this projected decline are unclear). More recent declines rates were reported as unknown (D. Brown pers. comm. 2017 in Barstow 2018).

The first populations of *P. erinaceus* exploited were reported to be those close to the export hub (Lagos) and neighbouring states (EIA, 2017; FRIN, 2019). These resources were since considered to have become exhausted, with logging activity subsequently moving east across Nigeria's central provinces and into northeast Nigeria (EIA, 2017). Taraba, Adamawa and Kogi States continue to be major sources of rosewood timber (CoP18 Doc. 34, Annex 4; FRIN, 2019). Most harvesting was reported to take place in community forests, outside of forest reserves (FRIN, 2019). The CITES Secretariat's report from its technical mission to Nigeria in 2018 noted that healthy populations remained in Taraba and Adamawa (in agreement with information from traders in CoP18 Doc. 34), as well as the State of Borno (SC70 Doc. 27.3.5), but not Kogi (SC70 Doc. 27.3.5; FRIN, 2019). Stocks in past source states such as Odun, Oyo, Kogi and Ekiti were considered to be exhausted (CoP18 Doc. 34, Annex 4).

An inventory has recently been completed for Taraba, Adamawa and Kogi States, although FRIN (2019) noted the need for an inventory to cover the full species range. These three initial states were selected as areas of highest abundance and as they represented the main centres of *P. erinaceus* exploitation (FRIN, 2019). The inventory included 200 sample plots allocated to areas either within forest reserves, or outside of forest reserves, in areas where *P. erinaceus* occurs and where no or minimal exploitation has taken place, as well as an unspecified number of plots in three exploited areas (FRIN, 2019). Taraba State was found to hold the highest densities of rosewood, but the highest mean DBH was observed in Adamawa (**Table 4.14.1**) (FRIN, 2019).

Table 4.14.1: Population structure of *P. erinaceus* in Kogi, Taraba and Adamawa States. Source: FRIN, 2019.

Location	Growth variables	Mean	Standard Error	Minimum	Maximum
Kogi State	*Diameter (cm)*	20.82	0.5694	7.00	45.00
	Height (m)	15.30	0.3341	6.50	28.00
	Density/ha	66			
	Basal Area (m^2/ha)	0.6064	0.0021	0.0038	0.1591
	Volume (m^3/ha)	6.6752	0.0269	0.0374	1.6587
Taraba State	*Diameter (cm)*	17.57	0.6039	5.00	39.50
	Height (m)	14.59	0.4366	3.50	29.00
	Density/ha	77			
	Basal Area (m^2/ha)	0.4464	0.0019	0.0020	0.1226
	Volume (m^3/ha)	4.1760	0.0229	0.0222	1.6870
Adamawa State	*Diameter (cm)*	25.41	1.0406	14.50	42.00
	Height (m)	11.42	0.6080	2.50	21.00
	Density/ha	37			
	Basal Area (m^2/ha)	0.8576	0.0045	0.0165	0.1386
	Volume (m^3/ha)	6.6704	0.0383	0.0726	1.0112

The results of the inventory were also used to generate size class distribution curves for the three states (**Figure 4.14.2**); none of the distributions followed a typified 'reverse J-shaped' curve (there was a notable absence of small trees, DBH <10 cm), implying that the species had not been sustainably managed or harvested (FRIN, 2019). Felling of trees was reported to be "limited to those

with diameter at breast height of the range 28-40 cm as provided for in the state forestry laws", but this contradicted a statement made earlier in the NDF report, which noted that the guidelines stipulating the minimum felling girth for the species were not being followed (FRIN, 2019).

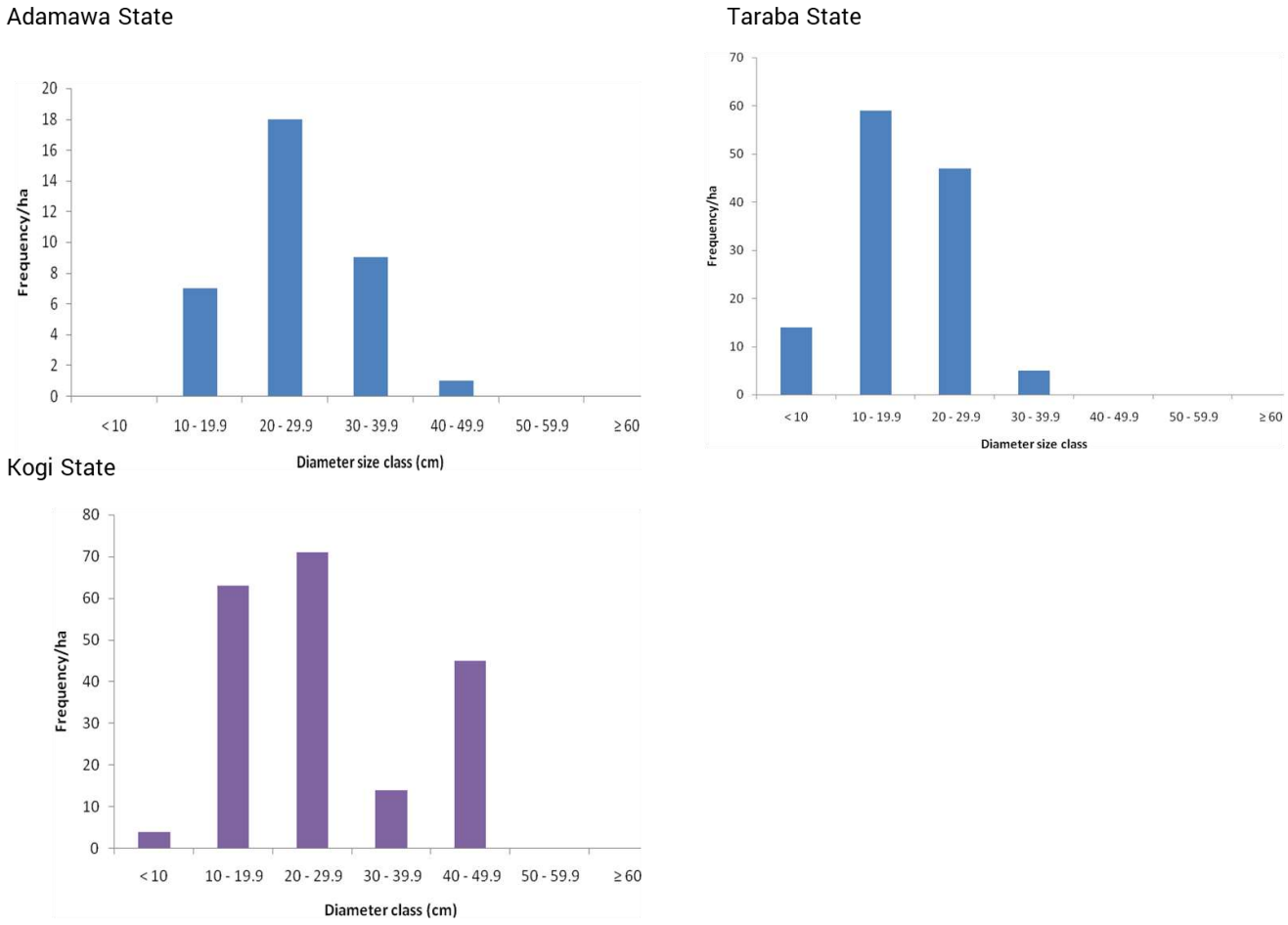

Figure 4.14.2: Size class distributions for *P. erinaceus* in Adamawa, Taraba and Kogi States. Source: draft NDF document (FRIN, 2019) [Note: unclear if there is any reason for colour differences].

Lastly, the inventory was used to estimate the natural regeneration potential[47] for each state, with the results shown in **Table 4.14.2**. The number of wildlings per hectare was considered by the FRIN (2019) to indicate that "the harvesting and export of logs does not pose any ecological consequences" in states sampled; however, it is not clear how this view can be reconciled with the lack of smaller diameter individuals observed in size class distribution curves or the overall conclusion that exports should not be permitted for three years (*see Management* section).

[47] Calculated using the following formula: $NR_p = \frac{N_i}{N}$, where NR_p = Natural regeneration potential, N_i = number of saplings/small diameter stems/ha (termed 'wildlings' in the report) and N = total number of woody stems/ha.

Table 4.14.2: Natural regeneration potential for *P. erinaceus* in the states of Kogi, Taraba and Adamawa.

Location	Saplings/ha	Natural Regeneration Potential (%)
Kogi State	89	45.18
Taraba State	99	61.60
Adamawa State	11	25.71

While there is a general lack of data on harvested tree volumes, levels of exploitation have been estimated (**Table 4.14.3**) by converting export volumes of the species into round wood equivalent (RWE) using conversion efficiency achieved using Wood-Mizer milling technology, based on the methods outlined in Dumenu and Bando (2016)[48] (FRIN, 2019). The rate of exploitation (volume of rosewood extracted per annum) was calculated to be 764.66 m^3 (FRIN, 2019) [although this differs to the data in the CITES Trade Database, where hundreds of thousands of cubic metres are reported annually – *see Trade* section below].

Table 4.14.3: Estimated total harvested volume of *P. erinaceus* in Nigeria from 2016-2018.

Year	Total Export Volume (m^3)	Estimated Total Harvested Volume (m^3)
2016	470.5	672.14
2017	541.17	773.10
2018	594.11	848.73
Total	**1605.78**	**2293.97**

Source: FRIN, 2019.

Trade:

CITES trade data: CITES annual reports were submitted by Nigeria in 2016 and 2018, but the report from 2017 has not yet been received. Nigeria has never published any CITES export quotas for the species. A decision was made at SC70 on 5 October 2018[49] to suspend all commercial trade in *P. erinaceus* specimens from Nigeria until the Party makes a scientifically based non-detriment finding to the satisfaction of the Secretariat and the Chair of the Plants Committee (SC70 Summary Record); this decision was communicated to the Parties on 1 November 2018 (Notification No. 2018/084).

According to the CITES Trade Database, direct trade in *P. erinaceus* from Nigeria 2016-2018 predominantly comprised 840 672 m^3 of wild-sourced logs, all of which were imported by China for commercial purposes and reported by China only (Table 4.14.3). China also reported additional imports by weight totalling 11 065 950 kg of wild-sourced logs and sawn wood imported for commercial purposes; roughly half of this trade by weight was reported in 2018. Trade reported by Nigeria comprised 233 744 m^3 of wild-sourced sawn wood exported to China in 2016 and 251 249 m^3 of sawn wood from an unspecified source exported to China (82%) and Viet Nam (18%) in 2018. When a rough conversion factor of weight in kg/600 = volume in m^3 (Groves and Rutherford, 2016) is applied to all trade reported by weight and the subsequent calculated volume added to trade initially

[48] Equations used to estimate the total harvested volume and rate of exploitation:
$T_v = \frac{E_v}{CE}$ where, T_v is total harvested volume (m^3), E_v is total export volume (m^3), and CE is the conversion efficiency of Wood-Mizer milling technology.
$R_e = \frac{T_v}{3\ years}$ where, R_e is rate of exploitation, T_v is total harvested volume (m^3), and 3 years is the number of years covering the period 2016-2018.

[49] https://www.cites.org/eng/resources/ref/suspend.php

reported by volume, importers reported nearly double the volume than Nigeria, however it should be noted that Nigeria's annual report for 2017 has not been received.

Table 4.14.3: Direct exports of *Pterocarpus erinaceus* from Nigeria, 2016-2018. Quantities have been rounded to whole numbers, where appropriate.'-' denotes years where an annual report for Nigeria has not been submitted. All trade was for commercial purposes.

Term	Unit	Source	Reported by	2016	2017	2018	Total
derivatives	m^3	W	Exporter		-		
			Importer			272	272
logs	kg	W	Exporter		-		
			Importer	2267850	2427750	4486850	9182450
	m^2	W	Exporter		-		
			Importer		252		252
	m^3	A	Exporter		-		
			Importer		204		204
		O	Exporter		-		
			Importer	16	183		199
		W	Exporter		-		
			Importer	50798	472286	317589	840672
	-	W	Exporter		-		
			Importer		17		17
sawn wood	kg	W	Exporter		-		
			Importer	434000	228000	1221500	1883500
	m^3	W	Exporter	233744	-		233744
			Importer	3216	30529	55152	88897
		-	Exporter		-	251249	251249
			Importer				
timber	m^3	W	Exporter		-		
			Importer		316		316
wood products	m^3	W	Exporter		-		
			Importer		15415	15766	31180

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.

Indirect trade in *P. erinaceus* originating in Nigeria 2016-2018 comprised 67 m^3 of wild-sourced logs imported by China via Gambia (50%) and Ghana (50%) in 2016, and 550 kg of wild-sourced wood products imported by Nigeria via China in 2017 (**Table 4.14.4**).

Table 4.14.4: Indirect exports of *Pterocarpus erinaceus* originating in Nigeria, 2016-2018. Quantities have been rounded to whole numbers where appropriate. All trade was wild-sourced for commercial purposes.

Term	Unit	Reported by	2016	2017	2018	Total
logs	m^3	Exporter				
		Importer	67			67
wood product	kg	Exporter		550		550
		Importer				

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.

Estimates from the Department of Forestry, Federal Ministry of Environment: The total annual trade in *P. erinaceus* in Nigeria as reported in the draft NDF for the period of January to August 2018 was 8560 m^3 exported to Viet Nam and 172 632 m^3 to China (FRIN, 2019).

Chinese customs data: Figures from the Global Trade Atlas show Nigeria to be the dominant exporter of rosewood logs (considered to be *Pterocarpus erinaceus* and/or *Diospyros crassiflora*) to China over the period 2009-2018, accounting for over 41% of all rosewood logs imported by China from range States. The total amount of rosewood logs imported by China from Nigeria over the period 2009-2018 was 2 226 681 m^3, worth approximately USD 1037 million. Rosewood log imports

from Nigeria were low 2009-2012, and showed an increase in 2013, followed by a ten-fold increase to 336 905 m^3 in 2014; similar levels of trade were reported in the subsequent two years (**Figure 4.13.3**). Imports in 2017 doubled compared to 2016 to a peak of 688 885 m^3, before decreasing to 502 761 m^3 in 2018 (**Figure 4.13.3**).

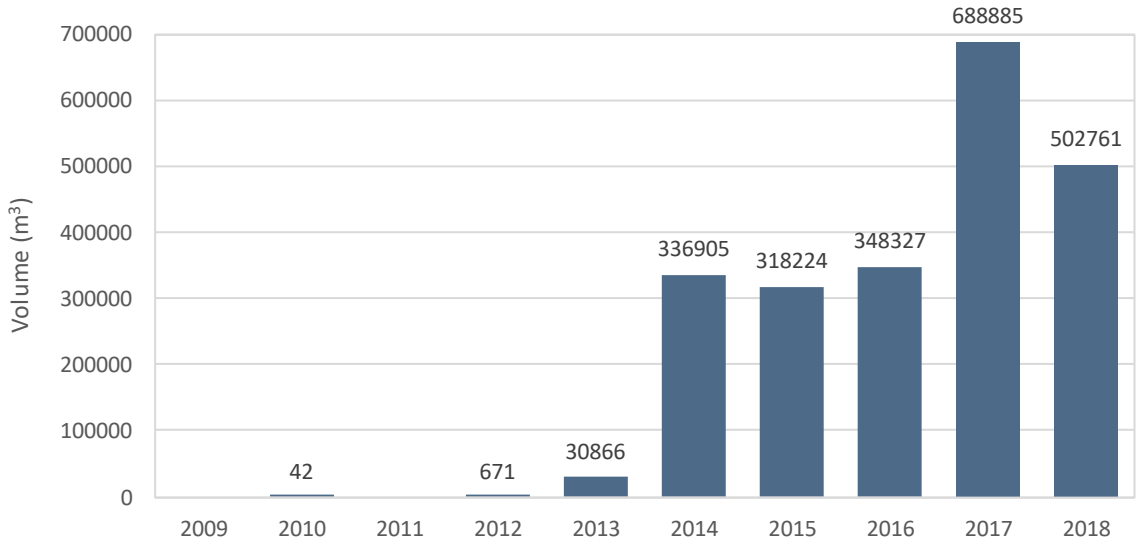

Figure 4.14.3: Volume of rosewood logs (considered to be *Pterocarpus erinaceus* and/or *Diospyros crassiflora*) from Nigeria reported as imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: Illegal, unregulated and unsustainable harvesting were reported to be the main threats to the species in Nigeria (Ahmed *et al.*, 2016, FRIN, 2019). The draft NDF document (FRIN, 2019) noted that evidence of unregulated harvesting is highly visible in many communities across the key states of Kogi, Taraba and Adamawa; this includes the Yagba East, Yagba West and Mopa-Muro Local Government Areas (LGAs) of Kogi State; the Ardo Kola, Bali, Gashaka, Takum, Ussa and Donga LGAs of Taraba State and the Gombi, Fufore, Hong and Song LGAs of Adamawa State. Between January 2014 and June 2017, the EIA (2017) reported that an average of more than 40 shipping containers of rosewood logs were exported to China every day, equivalent to approximately 5600 logs and 2800 trees. High levels of illegal logging were noted to have resulted in serious forest degradation across Taraba state in particular (Ahmed *et al.*, 2016). Interviews carried out by Ahmed *et al. (*2016) reported that 30 trailer loads of logs were being transported weekly from the single site of Mayo Kam, which the authors estimated to be the equivalent of c. 2250 stands of *P. erinaceus* per week. It was reported that logging activities had 'subsided drastically in most of the early sites of production as a result of depletion', and that logging activities had since moved to other sites within the state (Ahmed *et al.*, 2016).

Allegations of illegal activity include export of squared logs larger than the dimensions specified as legal by Nigerian law (EIA, 2017), falsification of documents including certificates of origin and bills of lading (EIA, 2017), misdeclaration *P. erinaceus* shipments as a wide range of other species (EIA *in litt.* to UNEP-WCMC, 2020) and the retrospective issuance of CITES permits (EIA, 2017, see SC69 Doc. 29.1 and SC 69 Summary Record). EIA (2017) reported that evidence collected from March 2015 to September 2017 indicated that "networks of Sino-Nigerian smugglers placed at least 1.4 million illegal logs of kosso [*P. erinaceus*] onto the Chinese market".

Harvesting has been reported to be taking place in national parks (EIA, 2017; FRIN, 2019). Between July 2017 and July 2018, for example, the Conservator General of Gashaka Dumti National Park (Taraba State) reported 146 arrests related to illegal logging of *P. erinaceus* within the park's boundaries (CoP18 Doc. 34, Annex 4), and EIA (2017) reported that several trucks loaded with rosewood had been seized inside the park in 2016 and 2017. The park was reported to be one of only two forest reserves in which the species occurs within the three principal states where the species is exploited (alongside Ebba forest reserve in Kogi State) (FRIN, 2019).

Nigeria has also been reported to serve as a transit area for timber illegally sourced in other countries (CoP18 Doc. 34, Annex 4), particularly Cameroon, with the market for smuggled timber from this country reported to have emerged in late 2016 (EIA, 2017). The border between Nigeria and Cameroon was highlighted in a 2019 UNODC threat assessment as a key border area needing reinforcement in the context of rosewood trade (CoP18 Doc. 34, Annex 4).

No information could be found regarding whether there were any threats posed to the species by activities other than logging.

Management: Nigeria became a Party to CITES on 9th May 1974, with entry into force on 1st July 1975.

Domestic forestry legislation: Nigerian authorities were reported to have placed two suspensions on the export of *P. erinaceus*: from 30 April to 16 June 2016 and from 30 December 2016 to June 2017 (SC70 Doc. 27.3.5). This was to allow time to put new guidelines and procedures in place for the export of processed and semi-processed wood of the species (SC70 Doc. 27.3.5).

Overview of current regulations

Timber harvesting in Nigeria is regulated at the state level (SC70 Doc. 27.3.5; CoP18 Doc. 34 Annex 4, FRIN, 2019), with levels of control reported to be highly variable from state to state (CoP18 Doc. 34, Annex 4). There are, however, some aspects of *P. erinaceus* management that are controlled at the Federal level.

The intricacies of the federal and state legal framework relating to the harvest and trade of timber means that there is often a need for coordination and cooperation between federal and state agencies. For example, in accordance with new guidelines adopted in 2017, companies are required to show evidence that wood products for export were sustainably harvested, by producing a logging permit or concessionaire certificate issued by the Ministry responsible for forestry matters at the state level, where the exploitation or processing took place (SC70 Doc. 27.3.5). Once the applicant has produced this documentation, officers from the Federal Forestry Department inspect the factories and determine whether the applicants are complying with forestry regulations, before granting a 'letter of support', which is the pre-requisite for the issuance of the CITES permit (SC70 Doc. 27.3.5).

The Federal Government was reported to face technical and jurisdictional challenges in managing exports without consulting and involving authorities at state level, with no annual export quota for the species being established at the Federal level (SC70 Doc. 27.3.5). All exports were additionally reported to be subject to a tax that must be paid to the Central Bank of Nigeria under the Nigeria Export Service Scheme (NESS); however, a comparison of exports authorised by the CITES Management Authority with NESS-compliant exports between July 2017 and April 2018, carried out by UNODC, found that 90% of trade reported by importers appeared to be illegal as it was not authorised under Nigerian law (CoP18 Doc. 34, Annex 4).

The export of rough or sawn timber (Nigeria Customs Service, 2020), as well as round and roughly squared wood, is prohibited nationwide (although the dimensions that define "squared logs" was reported to be disputed (confirmed in interviews with senior forestry officials, CoP18 Doc. 43, Annex 4)). According to SC70 Doc. 27.3.5, CITES permits can only be issued for processed or semi-processed wood not exceeding allowable dimensions (Length 280 mm – 3600 mm / Width 35 mm – 350 mm / Thickness 6 mm – 350 mm), although UNODC's 2019 threat assessment report on illegal wildlife trade in West and Central Africa noted that both logs and non-compliant squared logs continued to be exported from the country (CoP18 Doc. 34).

State level regulations

The draft NDF (FRIN, 2019) highlighted a number of key provisions from forestry laws within Taraba, Kogi and Adamawa States, which provided the legal instruments that give backing to the State Forestry Department in its management and control of forest resources in the state. *Inter alia*, the following are highlighted:

> (1) The General Prohibitions and Exemptions states that it is prohibited to take, uproot, destroy or injure any protected trees.
>
> (2) The provisions relating to government protected forests prohibit uprooting, felling or damaging trees over 30 cm in girth (circumference) in these areas without notifying the authority in writing of the prescribed officer.
>
> (3) Felling of trees was reported to be limited to those with DBH 28-40 cm.

Taraba State was reported to have banned the felling, trading and export of trees in August 2014 (EIA, 2017). Despite the arrest of more than 100 offenders and confiscation of their equipment soon after the law was passed, however, the ban was thought to have made little difference to levels of *P. erinaceus* exploitation within the state (EIA, 2017). High prices and growing demand incentivised loggers, with the Taraba State government unable to effectively police the vast forest areas (EIA, 2017). A switch from seizing illegal logs to fining trailers at checkpoints was also argued to have legitimised illegal trade (EIA, 2017).

Variation in harvesting regulations across different states was additionally reported to have resulted in loopholes that made it difficult to harmonize controls between Federal and State level authorities, to ensure sustainability, and to verify the legality of the origin of timber (SC70 Doc. 27.3.5).

Nigeria has been criticised for having a lax regulatory and enforcement environment, weak forest governance and high levels of corruption (EIA, 2017), as well as poor national enforcement cooperation and coordination (SC70 Doc. Doc. 27.3.5). The draft NDF acknowledged that the State Departments of Forestry no longer feel in control of timber harvesting or sustainable management in their respective states, due to various duties traditionally performed by forestry officers no longer being under their control (FRIN, 2019). For example, revenue consultants appointed by state governments were reported to be directly responsible for issuance of permits and revenue collection, whereas forestry officers traditionally issued permits (FRIN, 2019). It was reported that no monitoring or verification of harvest by forestry departmental staff was allowed, with other roles being handled by non-forestry professionals (FRIN, 2019).

The draft NDF (FRIN, 2019) also noted that the removal of timber outside of government-owned reserves occurred in an uncontrolled manner without strict adherence to the laws of payment of appropriate fees and levies, and raised concerns about the ability of forestry officers to perform their duties to ensure sustainable management. It was additionally reported that the guidelines which stipulate the minimum felling girth (circumference) for the species were not being followed (FRIN,

2019). A revenue generation drive by state governments was considered by stakeholders as one of the major causes of forest legislation violation (FRIN, 2019).

Management plans: The draft NDF report noted that forest reserves in Nigeria all have management plans; however *P. erinaceus* in the country was reported to be mainly found in free forest areas (i.e. outside of gazetted forest reserves), where management is the sole responsibility of individuals, families or communities and the species may be harvested without any plan for management or replacement (FRIN, 2019). No management plans were reported to be in place for the areas of Taraba, Kogi and Adamawa States where *P. erinaceus* is harvested (FRIN, 2019).

Generation of previous annual export quotas: The draft NDF (FRIN, 2019) noted that a lack of previous inventory data was hindering the establishment of an Annual Allowable Cut and annual export quota, with annual quotas issued in past years appearing to have been arbitrarily set. Monitoring of compliance with allocated quotas was also noted to be difficult in view of the prevailing forest ownership regime in Nigeria (FRIN, 2019); monitoring of harvest is strictly the responsibility of the State Departments of Forestry (FRIN, 2019), but these were reported to be unaware of allocated quotas to exporting companies for *P. erinaceus* (FRIN, 2019).

Ongoing Article XIII process

Concerns about the issuance of retrospective permits for *P. erinaceus,* exported to China in the first quarter of 2017 first led to the issue being discussed by the Standing Committee in the context of Article XIII of the Convention at SC69 (SC69 Doc. 29.1). China provided detailed responses at this meeting and drew the attention of the Committee to a communication exchange mechanism that it had put in place to check permits immediately with their trading partners (SC69 Summary Record). However, some Parties expressed doubts about the legality of these transactions and serious concerns about the significant volumes traded (SC69 Summary Record).

The Secretariat subsequently conducted a technical visit to Nigeria 29 May – 2 June 2018 (SC70 Doc. 27.3.5). Its report noted that the way in which competences, autonomy, power and governance responsibilities were distributed in Nigeria appeared to inadvertently create loopholes that made it difficult to harmonize controls between Federal and State level authorities, ensure sustainability and verify the legality of the origin of the timber specimens (SC70 Doc. 27.3.5). It considered that these loopholes, in addition to lax provincial regulations and a lack sustainable forestry policies at the State level, were being exploited by national and foreign actors involved in the timber trade to export timber that is obtained in accordance with national laws, but not in accordance with the Convention (SC70 Doc. 27.3.5). There was an absence of recent scientific studies to estimate the level of sustainable harvest that can be authorised. National enforcement cooperation and coordination between the CITES Management Authority, the Customs Service, NESREA, the police, prosecutors and other relevant authorities were noted to appear weak, and the respective mandates of the different authorities related to CITES were noted to appear unclear (SC70 Doc. 27.3.5).

The Secretariat recommended that a more effective chain-of-custody scheme to track timber should be established to ensure its legal origin, and that the legality of the trade should be closely connected to the making of the non-detriment findings (NDFs) (SC70 Doc. 27.3.5). It additionally noted an urgent need to modernise the management of the CITES permit system and support and build the capacity of the Scientific Authorities to make non-detriment findings (SC70 Doc. 27.3.5).

Based on these findings, the Standing Committee adopted a recommendation to suspend trade in *P. erinaceus* from Nigeria until the Party makes scientifically based non-detriment findings to the satisfaction of the Secretariat and the Chair of the Plants Committee (Notif. 2018/084, issued 1 November 2018). Since 2018, Nigeria has shared draft NDF reports with the CITES Secretariat, with a view to comply with this recommendation, and explore the possibility of lifting this trade suspension

(CITES Secretariat *in litt.* to UNEP-WCMC, 2020). The latest draft of Nigeria's NDF (FRIN, 2019) proposed to publish a zero export quota for the species for the next three years, until the necessary research has been conducted and adaptive management measures can be installed. Nigeria was noted to be seeking clarification on how to proceed to ensure that already-felled logs were not wasted due to continuous exposure, but a lack of data regarding the source or size of this stockpile was noted to be an issue (CITES Secretariat *in litt.* to UNEP-WCMC, 2020).

Other management measures: No plantations were reported to have been established due to the species' slow growth rate (FRIN, 2019).

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Senegal

SENEGAL:	Occurs in southern Senegal, with the regions of Kolda, Tambacounda and Ziguinchor identified as holding important populations. Inventories conducted from 2002-2016 show that the species has experienced ecological disturbance, with few individuals in large size classes. The population is considered to be declining. Senegal responded to the consultation relating to the RST. *P. erinaceus* is partially protected, meaning that felling, cutting and uprooting of the species is prohibited without prior authorization from the Directorate of Water, Forestry, Hunting and Soil Conservation. Ministerial Orders setting the terms and conditions for forestry harvesting campaigns issued after the inclusion of the species in Appendix II have all prohibited its export. A CITES annual report has been received from Senegal for 2016, but not yet for 2017. The annual report for 2018 has been received by the CITES Secretariat; however, as it was received after the trade data were downloaded for this report, it was not included in the analysis. Trade 2016-2018 consisted entirely of 3500 wild-sourced carvings for commercial purposes in 2017, reported by the importer (Italy) only. Chinese customs data extracted from the Global Trade Atlas additionally indicated that >800 m^3 rosewood logs were imported from Senegal in 2017 and 2018 (although it is unclear if Senegal was the origin country of these exports). Illegal trade is an issue, with large volumes of *P. erinaceus* being illegally felled in the Casamance region and subsequently trafficked across the Gambian border for export. Forestry officials interviewed by UNODC indicated that 85% to 95% of rosewood exported from Gambia originated in Senegal (equating to possibly over a million trees between June 2012 and April 2020). A joint enforcement initiative between Senegal and Gambia to combat illegal logging and the associated timber trade in Casamance was announced in August 2018, with security forces stationed at timber landing sites and joint border patrols to stop traffickers. On the basis that no legal trade is currently occurring due to a ban on harvest and export (which appears to include artisanal wood), the provisions of Article IV are not applicable, therefore categorised as **Less concern**. Illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, **therefore referral to the Standing Committee** is recommended.	**RECOMMENDATION:** **Less concern** ***[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]***

Distribution: Camara (1997) noted that the only areas of Senegal where important populations of *Pterocarpus erinaceus* could be found were the southern regions of Kolda, Tambacounda and Ziguinchor, but suggested that the species may also have been important in Sine-Saloum (west central Senegal) in the recent past. More recent sources appear to agree with this assessment; Senegal's fourth national report to the CBD noted *P. erinaceus* to be a characteristic species of the

country's wooded savannas found in the south of the country and of open forests in upper and middle Casamance[50] (Ministry of the Environment and the Protection of Nature, 2010), and a species distribution model based on GBIF[51] records, climate variables and soil suitability predicted the presence of the species throughout most of the south of the country (van Andel *et al.*, 2015; **Figure 3.1**).

Population status and trends: The CITES Management Authority (MA) of Senegal (*in litt.* to UNEP-WCMC, 2020) noted that the species was experiencing disturbance and degradation as a result of illegal exploitation and was declining in the country. Inventories of the species were reported to have been conducted in 2002, 2004, 2012 and 2016 (CITES MA of Senegal *in litt.* to UNEP-WCMC, 2020); the number of plots each inventory is based upon and their locations are shown in **Figure 4.15.1** and **4.15.2**. The size-class distributions from these inventories (**Figure 4.15.1**) were noted to show that the species' population showed an 'L' shaped structure indicative of ecological disturbance (i.e. there are more individuals of smaller diameters than individuals of larger diameters, the latter of which are targeted for logging) (CITES MA of Senegal *in litt.* to UNEP-WCMC, 2020). A new national inventory is planned as part of a PhD thesis on the structure, dynamics and anatomy of the wood of *P. erinaceus* (CITES MA of Senegal *in litt.* to UNEP-WCMC, 2020).

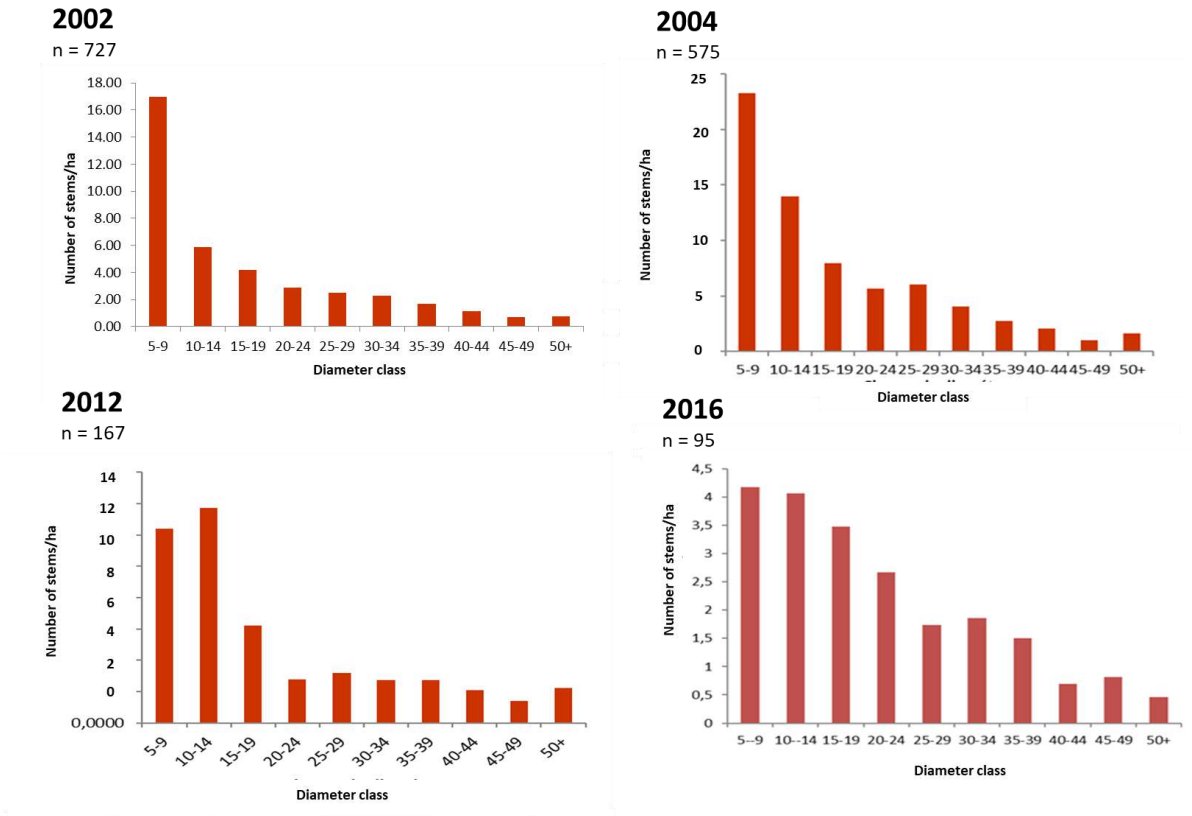
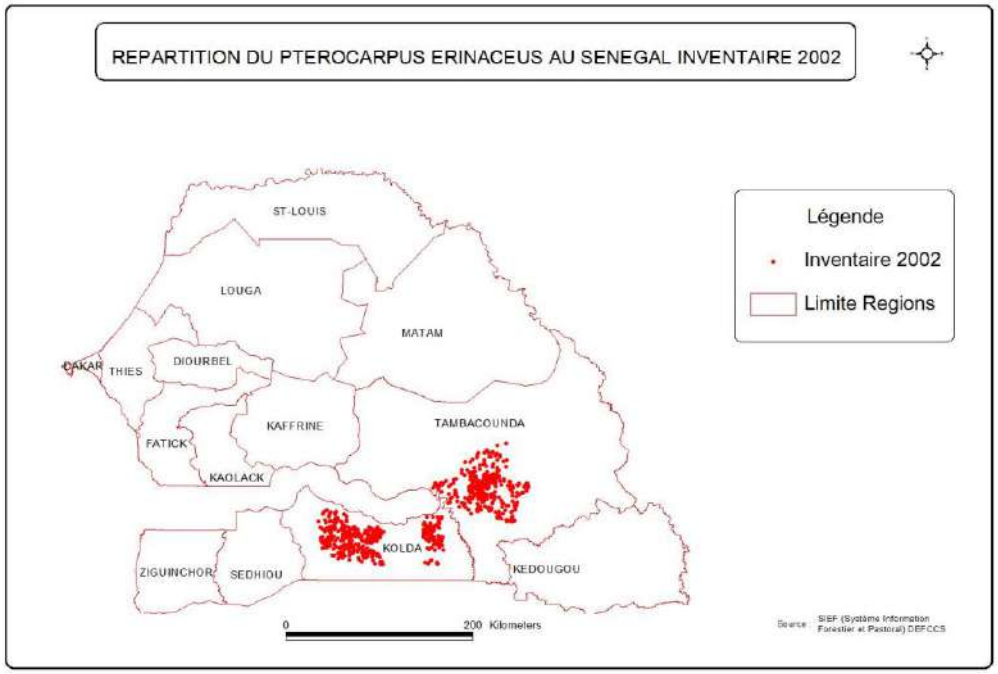
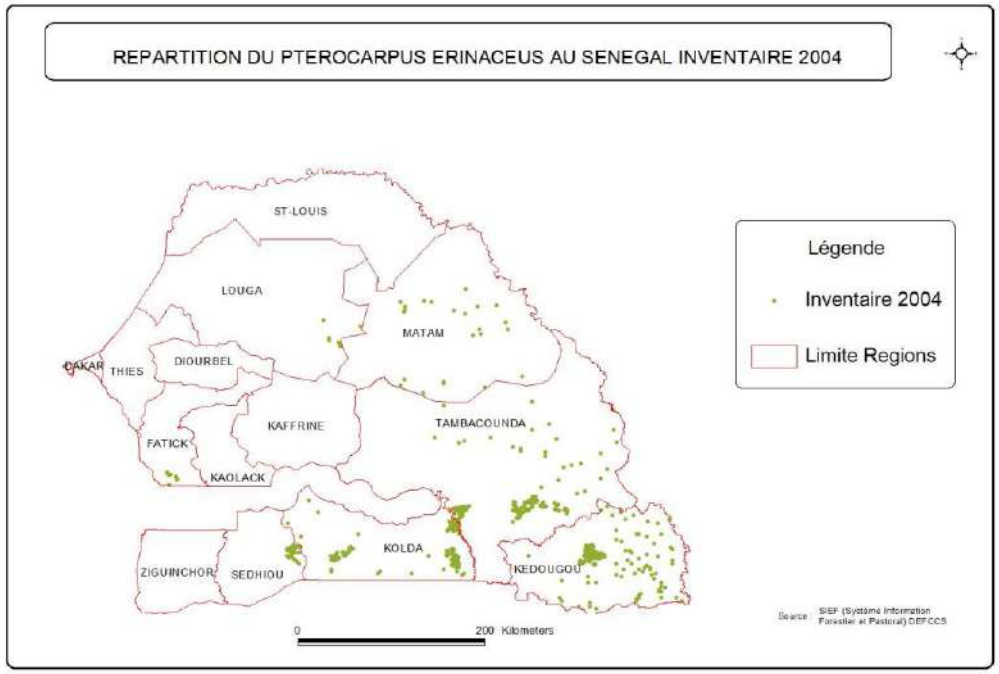


Figure 4.15.1: Size class distributions of *Pterocarpus erinaceus* in Senegal recorded in 2002, 2004, 2012 and 2016. Note that the scale of the y-axis differs between years (2002 = 0-18 stems/ha; 2004 = 0-25 stems/ha; 2012 = 0-14 stems/ha; 2016 = 0-4.5 stems/ha). *n* denotes the number of plots surveyed. Reproduced with permission from CITES MA of Senegal *in litt.* to UNEP-WCMC, 2020.

[50] Casamance is an area of Senegal south of Gambia. It can be subdivided into lower Casamance, which corresponds to the region of Ziguinchor, and upper and middle Casamance, which correspond to the Kolda and Sédhiou regions.

[51] Global Biodiversity Information Facility





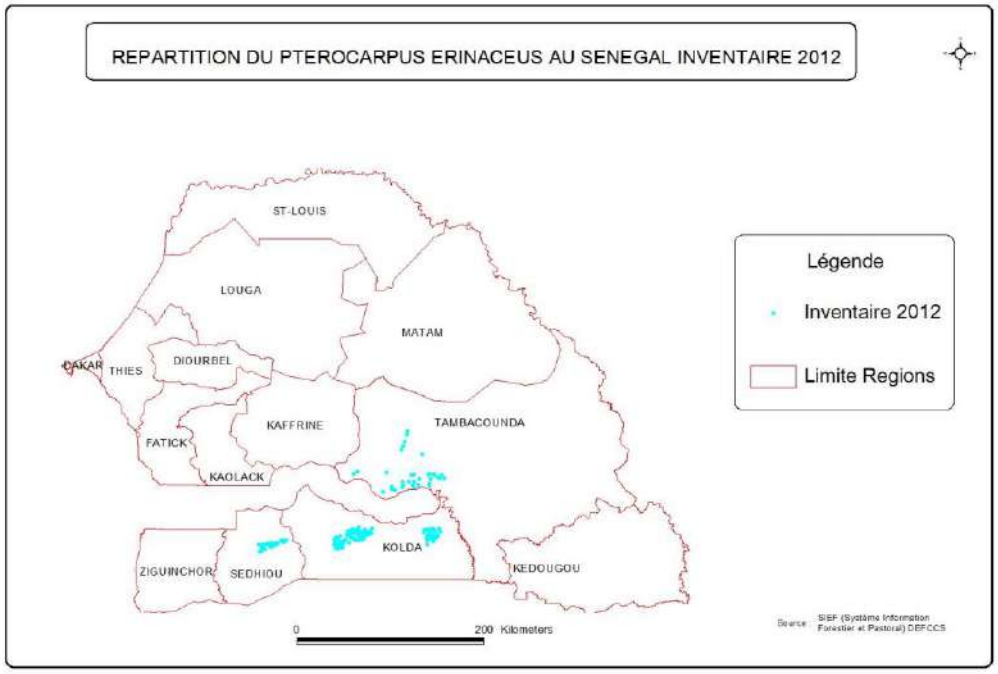


Figure 4.15.2: Location of plots surveyed during Senegal's 2002, 2004 and 2012 inventories of *P. erinaceus*. The 2016 inventory was based on a sample of 95 of the 545 plots surveyed in 2004. Reproduced with permission from CITES SA of Senegal *in litt.* to UNEP-WCMC, 2020

Prior to 2002, a study by Lykke (1998) collected data on the size-class distribution of the species in the Fathala Forest (a protected area where certain local uses, such as collection of deadwood and parts for medicine, were still permitted). Size class distributions for the species generated using two different methods showed that the distribution of *P. erinaceus* did not follow a reverse-J shape distribution that would be expected if the species had good regeneration (**Figure 4.15.3**); 14 of 57 people interviewed additionally mentioned that the species was declining (Lykke, 1998). However, with species density estimates of 3 individuals >20 cm diameter at breast height (DBH) per ha and 4.9 individuals >1 cm DBH per ha, *P. erinaceus* was considered to be part of a group of species that had relatively good regeneration and remained relatively common (Lykke, 1998). At the time, *P. erinaceus* was noted to be a highly favoured species for use in construction by local people (which was postulated to possibly explain why there were few individuals between 10 cm and 20 cm DBH), but fire was considered to be the most important stress factor (Lykke, 1998).

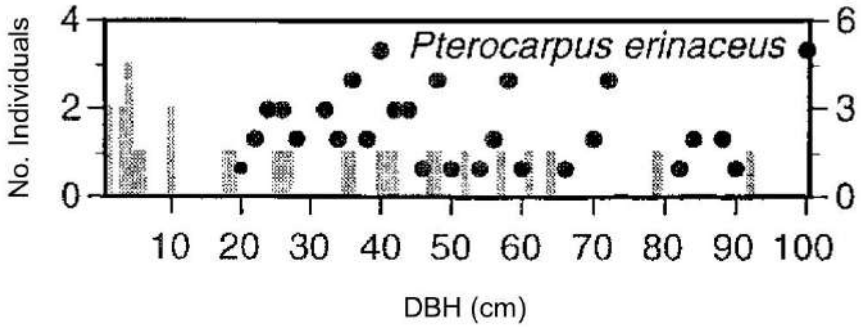


Figure 4.15.3: Size class distributions of *Pterocarpus erinaceus* in the Fathala Forest in south-west Senegal. The left y-axis shows the number of individuals recorded in stratified random plots covering an area of 7.04 ha (bars), the right y-axis shows the number of individuals recorded using a point-quarter sampling method where the nearest tree to each quarter was measured for 190 sampling points (dots). Reproduced with permission from Lykke (1998).

Trade:

CITES trade data: Senegal submitted a CITES annual report for 2016, but the reports for 2017-2018[52] had not yet been received. Senegal has never published a CITES export quota for *P. erinaceus*.

According to the CITES Trade Database, direct trade in *P. erinaceus* from Senegal 2016-2018 consisted entirely of 3500 wild-sourced carvings exported for commercial purposes in 2017, as reported by the importing country (Italy) only. No indirect trade in *P. erinaceus* was reported 2016-2018.

Chinese customs data: According to Chinese customs data extracted from the Global Trade Atlas, 1030 m^3 of rosewood[53] logs were imported by China from Senegal between 2009-2018, worth an estimated USD 473 338 (**Figure 4.15.4**). This represents <1% of Chinese imports by volume when compared across the 17 range States. Imports of rosewood logs from Senegal to China started in 2014, with low levels of trade in the first two years and no trade in 2016. Imports in 2017 and 2018 accounted for close to 86% of trade from Senegal over this period, with imports in 2017 twice those in 2018.

[52] Senegal's report has now been received by the CITES Secretariat; however, as it was received after the data were downloaded for this report, it was not included in the analysis.
[53] Presumed to be *P. erinaceus* as it is the only species to occur in Senegal considered to be rosewood under the Chinese national standard.

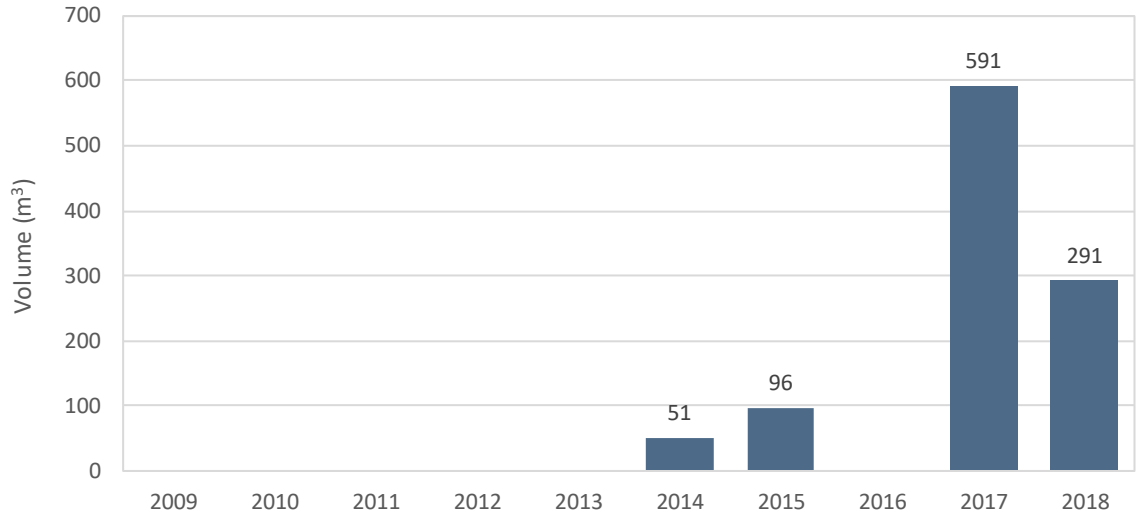


Figure 4.15.4: Volume of rosewood[47] logs from Senegal imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes are rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Threats: Senegal considered *P. erinaceus* to be threatened by climate change and exploitation, highlighting illegal and unsustainable felling as a cause of population decline (Ministry of the Environment and the Protection of Nature, 2010; CITES MA of Senegal *in litt.* to UNEP-WCMC, 2020). Forestry officials interviewed as part of a 2019 UNODC threat assessment report indicated that 80-99% of rosewood exported from Gambia was originally sourced in Senegal, despite the felling restrictions in place in the country (CoP18 Doc. 34, Annex 4, see *Management* section). Illegally sourced timber is specifically thought to come from the southern Senegalese region of Casamance, which is close to the highly porous Gambian border (Treanor, 2015; CoP18 Doc. 34, Annex 4; CITES MA of Senegal *in litt.* to UNEP-WCMC, 2020; EIA 2020). The rosewood trade is considered to have become an important financial resource for Senegalese rebel groups operating in the region (Treanor, 2015; Institute for Security Studies, 2019; EIA, 2020); export timber from Casamance is therefore considered to be 'conflict timber' by the Senegalese state (Gueye, 2014).

Illegal harvesting areas were reported to have moved considerably between 2010 and 2020 following the progressive depletion of timber resources (EIA, 2020). According to traffickers interviewed during a recent Environmental Investigation Agency (EIA) investigation, current logging sites were reported to be c. 60 km from the Gambian border near Kolda; some traffickers explained that they now had to purchase rosewood trees from over 200 km away (EIA, 2020). The Institute for Security Studies (2019) estimated that by January 2019 Casamance has lost over 10 000 ha of its forests to illegal logging, calculated to be the equivalent of an estimated 1 million trees. Chinese customs data were reported to have shown that 978 968 tons of rosewood had been exported from Gambia between June 2012 and April 2020; this was estimated by the EIA (2020) to be the equivalent of 1.6 million trees. If 85-95% is assumed to have originated in Senegal, this is the equivalent of 1.36 to 1.52 million trees exported over an 8-year period.

Senegal's fourth national report to the CBD also highlighted bush fires as well as local use for fuelwood and livestock fodder as additional potential threats to the species (Ministry of the Environment and the Protection of Nature, 2010).

Management: Senegal became a Party to CITES on 5th August 1977, with entry into force on 3rd November 1977. On 9th May 2016, Senegal listed all populations of *P. erinaceus* in Appendix III of

CITES (Notif. 2016/008). Through its national legislation project, the CITES Secretariat categorised the national legislation in Senegal as legislation that is believed generally to meet all four requirements for effective implementation of CITES (Category 1).

Domestic forestry legislation: The Forest Code currently in force in Senegal (Law 2018-25 of November 2018 and its implementation Decree No. 2019-110 of 16 January 2019) prohibits the felling, cutting and uprooting of partially protected species, including *P. erinaceus,* without prior authorization from the Directorate of Water, Forestry, Hunting and Soil Conservation (Articles 50 and 51 of Decree No. 2019-110 of 16 January 2019). A similar protection regime for the species has been in place since at least 1995 (see Senegal's 1993 Forest Code (Law 93-06) and its 1995 implementing Decree (No. 95-357), as well as Senegal's 1998 Forest Code (Law 98-03) and its 1998 implementing Decree (No. 98-164)). Senegal cited Article 63 of Decree No 98-164 of 20 February 1998 in conjunction with the Forest Code (Law No 98-03 Act of 8 January 1998) as the legislation under which the export of *P. erinaceus* was prohibited in documents published in 2015 and 2017 (PC22 Inf. 13; CoP17 Prop. 57, respectively). However, the exact provisions stipulating this within these pieces of legislation, or within the new 2018 Forest Code and implementing Decree, could not be located.

Further rules detailing Senegal's forest exploitation regime are set by Ministerial Orders that outline policies for each logging season; they are thus valid for set periods of time, usually around nine months. Orders issued since the listing of *P. erinaceus* in Appendix II (i.e. for the 2017-2019 logging seasons) all prohibit the export of all wood products that are produced under a quota; quotas themselves can be set for timber to be used as charcoal, lumber, service wood and wood for handicrafts, and the species covered by them are set by Decree No. 96-572 of 9 July 1996 outlining taxes and fees for forestry exploitation. *P. erinaceus* is included in this Decree as a partially protected species, and the minimum exploitable diameter for the species is set at 60 cm. The Orders also restrict the types of exploitation that can be carried out in particular regions, with additional restrictions imposed on the use of *P. erinaceus*; **Table 4.15.1** shows the restrictions in place since 2017. A Ministerial Order for the 2020 logging season could not be located.

Table 4.15.1: Regional use restrictions and restrictions relating specifically to *P. erinaceus* in the 2017-2019 Ministerial Orders setting the terms and conditions for forestry harvesting campaigns.

Ministerial Order	Validity	Regional use restrictions	Restrictions relating to *P. erinaceus*
Order No. 01408 laying down the terms and conditions for the organisation of the 2016-2017 Forestry Harvesting Campaign	30 December 2016 to 30 September 2017	*Article 9:* Exploitation for use as any product under quota is permitted in Kolda, Sedhiou and Tambacounda. In Kedougo, only exploitation for use as service and artisanal wood is permitted. In Ziguinchor, exploitation is permitted for the latter use only.	*Article 45:* With the exception of products from managed forests, the exploitation of *P.erinaceus* is suspended within the framework of the quota of craft wood and lumber reserved for artisans/carpenters affiliated to the Chamber of Crafts and Trades in the regions of Kolda, Sedhiou, Tambacounda, Kedougou and Ziguinchor.
Order No. 01083 laying down the terms and conditions for the organisation of the 2017-2018 Forestry Harvesting Campaign	22 January 2018 to 1 October 2018	*Article 9:* With the exception of products under quota from individual or collective reforestation plots, forests under concession, forest formations or reforestation/restoration perimeters under management plans, the exploitation of quota products is authorised only in the following regions (Article 8 notes that exploitation is suspended until further notice in Zinguichor, Kolda and Sedhiou): Tambacounda: lumber, service timber. Kedougou region: service wood, handicraft wood.	*Article 42:* The exploitation of *P. erinaceus* is suspended within the framework of the quota for lumber reserved for craftsmen/carpenters affiliated to the Chamber of Crafts and Trades in the regions of Tambacounda and Kedougou.
Order No. 027149 laying down the terms and conditions for the organisation of the 2017-2019 Forestry Harvesting Campaign	1 January 2019 to 1 September 2019	*Articles 8 and 9:* Exploitation for products under quota is suspended until further notice in the Ziguinchor region and, with the exception of charcoal, in the Kolda and Sedhiou regions. In Tambacounda, exploitation is permitted for use as charcoal and printing boards. Dead specimens of lumber species are also permitted to be used for artisanal/carpentry purposes.	*Article 41:*The exploitation of *P. erinaceus* is suspended within the framework of the quota from dead lumber specimens reserved for craftsmen/joiners affiliated to the Chamber of Crafts and Trades of the regions of Tambacounda and Kedougou.

Other management measures: Since 2015, Senegal's export ban was reported to have been enforced through a series of military operations and seizures (EIA, 2020). In August 2018, Senegal and Gambia announced a joint enforcement initiative to combat illegal logging and the associated timber trade in Casamance, with security forces stationed at timber landing sites and joint border patrols to stop traffickers (EIA, 2020).

CABI (2013) noted that plantations of *P. erinaceus* had been established in Senegal, however no further information could be found regarding their scale, success and management. The IUCN Red List assessment for *P. erinaceus* recommended that small scale planting should be expanded in the country (Barstow, 2018).

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Sierra Leone

SIERRA LEONE:

Occurs in the north, northwest and east of Sierra Leone, in eight of the country's 16 administrative districts. The population size was reported to be unknown. In one study area near the Guinean border, the species was considered abundant overall, but with fewer than expected trees in large size classes, and anecdotal evidence indicated that a decline in the country overall may be as high as 80%. The country's National Biodiversity Strategy and Action Plan for 2017-2026 referred to the "devastating" effect of logging for *P. erinaceus* timber in woodlands in the north.

A CITES annual report has been received from Sierra Leone for 2016, but not yet for 2017 or 2018. The country has never published export quotas for *P. erinaceus*. Trade 2016-2018 predominantly consisted of 203 148 m^3 and 2 877 500 kg of wild-sourced logs imported by China. Sierra Leone reported 3906 m^3 of sawn wood exported to China (CITES data only available for 2016). According to Chinese customs data from the Global Trade Atlas, rosewood logs imported by China from Sierra Leone over the period 2009-2018 totalled 403 463 m^3. Sierra Leone was noted by UNODC to have become the largest exporter of rosewood in recent years.

Sierra Leone responded to the consultation relating to the RST. A log export ban has been in place in Sierra Leone for over a decade but has been lifted intermittently to allow the export of pre-ban stockpiles. In addition, illegal log exports have been reported, including alleged smuggling of logs from Sierra Leone to neighbouring Guinea. Some illegal logging of *P. erinaceus* has been reported from protected forests, and the Forest Division was noted to have limited capacity for forest management and law enforcement. A request for funding to establish an NDF was noted to have been submitted.

Although a national ban on the harvest, transport and export of logs is in place, this ban does not appear to include processed wood and has also been lifted intermittently to allow export of stockpiled logs. Despite high volumes of log exports, the CITES Management Authority of Sierra Leone has stated that a robust scientifically based non-detriment finding (NDF) has not yet been conducted for *P. erinaceus.* On this basis, *P. erinaceus* from Sierra Leone is categorised as **Action is needed**. The illegal trade and export of timber without CITES documentation is a concern not related to the implementation of Article IV, therefore it may be relevant to consider **referral to the Standing Committee**.

RECOMMENDATION:

Action is needed

[Referral to the Standing Committee on the basis of on-going concerns of illegal trade]

Distribution: The CITES Management Authority (MA) of Sierra Leone (*in litt*. to UNEP-WCMC, 2020) stated that *Pterocarpus erinaceus* occurred in savanna woodland spanning eight of the country's 16 administrative districts as follows: Kambia, Karina and Port Loko in the North-Western Region; Bombali, Falaba, Koinadugu and Tonkolili in the Northern Region; and part of Kono in the Eastern Region.

Population status and trends: Information on the total population size of *P. erinaceus* within Sierra Leone was noted to be lacking (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020). Sierra Leone's 2017-2026 Biodiversity Strategy and Action Plan made reference to a "vast area of unprotected woodland (mainly *Pterocarpus erinaceus*) on the Sula Mountain range and environs" (Republic of Sierra Leone, 2017).

Fieldwork by Amara *et al.* (2019) in April-May 2014 found that *P. erinaceus* was one of the four most common and abundant tree species of a total 90 recorded within a 100 km^2 study area around and extending into the Kuru Hills Forest Reserve, close to Sierra Leone's northern border with Guinea. The study stated that, at the landscape level (that is, encompassing all observed tree species including *P. erinaceus*), trees showed an inverse J-shaped pattern by size class with the number of individuals decreasing with increased diameter at breast height (Amara *et al.*, 2019). The authors concluded that this size class structure indicated a high regeneration potential, but suggested that the lower numbers of trees in large size classes could be the result of illegal logging and slash-and-burn agriculture, as well as fires and unsustainable harvest of non-timber forest products (Amara *et al.*, 2019).

According to Barstow (2018), anecdotal accounts suggest that unsustainable levels of exploitation had caused a population decline similar to a suspected subpopulation decline of 80% in Gambia, Benin and Côte d'Ivoire.

Trade:

CITES trade data: Sierra Leone has submitted a CITES annual report for 2016, but the reports for 2017 and 2018 have not yet been received. Sierra Leone has never published any export quotas for the species.

According to the CITES Trade Database, direct trade in *P. erinaceus* from Sierra Leone 2016-2018 predominantly consisted of wild-sourced logs for commercial purposes imported by China, who reported 203 148 m^3 logs 2016-2018 and a further 2 877 500 kg of logs in 2018 (Table 4.16.1). Export data reported by Sierra Leone is only available for 2016 and comprised 3906 m^3 wild-sourced sawn wood exported to China for commercial purposes, much lower than total quantities of *P. erinaceus* reported as imported by China in 2016. A permit analysis did not provide further insights into this discrepancy.

Table 4.16.1: Direct exports of *Pterocarpus erinaceus* from Sierra Leone, 2016-2018. Quantities were rounded to the nearest whole number, where appropriate. Sierra Leone has not submitted annual reports for 2017-2018. All trade was wild-sourced for commercial purposes.

Term	Unit	Reported by	2016	2017	2018	Total
logs	kg	Exporter		-	-	
		Importer			2877500	2877500
	m^3	Exporter		-	-	
		Importer	17557	55119	130472	203148
sawn wood	m^3	Exporter	3906	-	-	3906
		Importer	527	2666	17	3210
timber	m^3	Exporter		-	-	
		Importer		51		51
wood product	m^3	Exporter			-	
		Importer			1847	1847

Source: CITES Trade Database, UNEP-WCMC, Cambridge, UK, downloaded on 12/05/2020.

Chinese customs data: According to World Trade Atlas data, the total amount of rosewood logs imported by China from Sierra Leone over the period 2009-2018 was 403 463 m^3, worth over USD 191 million. Imports of rosewood[54] logs from Sierra Leone have shown an increasing trend year on year since 2009, with the exception of 2010 and 2015 when no imports were reported (Figure 4.16.1). Imports were highest in 2018 at 225 560 m^3, reaching levels more than three times higher than in the previous year and accounting for over half of imports from Sierra Leone over the period.

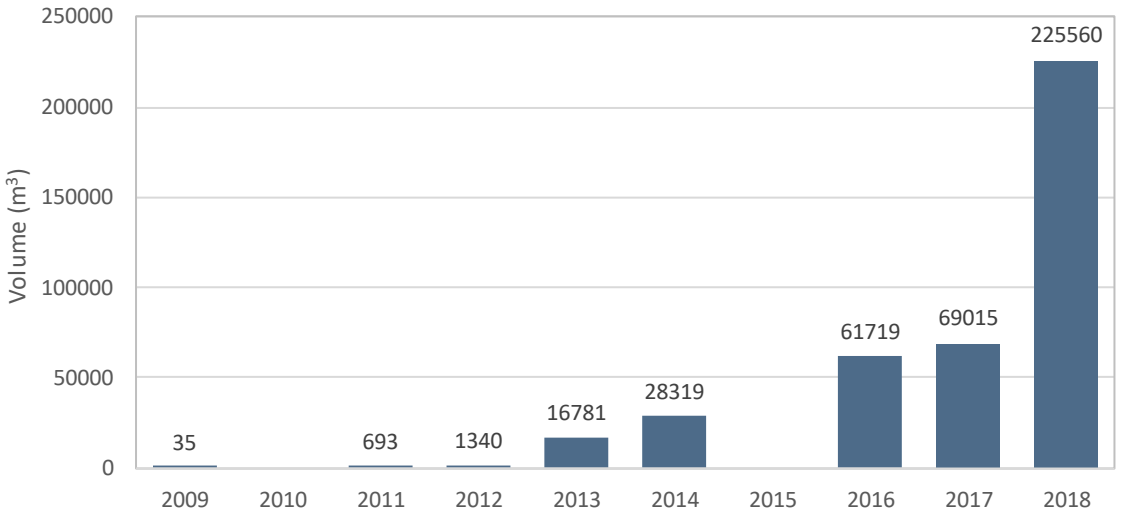

Figure 4.16.1: Volume of rosewood[48] logs (m^3) from Sierra Leone imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [(HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

A 2019 UNODC threat assessment of wildlife crime concluded that, in the case of Sierra Leone, *P. erinaceus* exports were "likely to have been harvested in Sierra Leone" rather than the result of cross-border trade, and these volumes have surged in the last two years, despite a national log export ban (CoP18 Doc. 34). Although the 2019 UNODC assessment did not consider Sierra Leone to be amongst the "primary exporting states" for *P. erinaceus* (CoP18 Doc. 34), the organisation's 2020 World Wildlife Crime Report reflected that Sierra Leone had increased exports of *P. erinaceus* since the species' CITES listing in 2017, and had "emerged as a top exporter" of *P. erinaceus* in 2018 (UNODC, 2020).

Threats: The CITES MA of Sierra Leone (*in litt*. to UNEP-WCMC, 2020) considered "high demand for export" and wildfires to be the main threats currently facing the species in Sierra Leone, and reported that an intermittent timber export ban (see *Management* section) and bylaws for control and reduction of wildfires developed and enforced by local authorities were used to tackle these threats. Large-scale logging, especially in the savanna zone (Aiah, 2017 in Barstow, 2018), was considered a particular threat to *P. erinaceus* stocks (van der Burgt, 2017 in Barstow, 2018). The species was stated to be a "highly prized export timber" in Sierra Leone (Munro and van der Horst, 2013). Wadsworth and Lebbie (2019) stated that the country's woody savanna ecosystem was threatened by unregulated harvest of *P. erinaceus* for export, compounded by the risk of fires, and Sierra Leone's National Biodiversity Strategy and Action Plan 2017-2026 noted that logging of *P. erinaceus* was "devastating" woodland in the north of the country, including areas around Lake Sonfon and Outamba-Kilimi National Park (Republic of Sierra Leone, 2017).

[54] Presumed to be *P. erinaceus* as it is the only species to occur in Sierra Leone considered to be rosewood under the Chinese national standard.

In June-July 2008 Hiemstra-van der Horst (2011) conducted interviews with state officials, community chiefs and others in the Koinadugu and Bombali districts of Sierra Leone; these districts were considered to be "where the majority of illegal logging took place" in the country. The interviews suggested that corruption was a "major factor" in the acquisition of permits for the transport and export of *P. erinaceus* (Hiemstra-van der Horst, 2011). In northern districts, forest monitoring was reported to be almost impossible, and the implementation and enforcement of regulations was noted as a major challenge (Hiemstra-van der Horst, 2011).

The CITES MA of Sierra Leone (*in litt*. to UNEP-WCMC, 2020) noted several illegal border crossing points where timber was believed to be exported into Guinea, and referenced a January 2020 Facebook article [link unavailable] that claimed seven Guinean-registered trailers containing timber bound for Guinea had been intercepted at the Barmoi border crossing and were under investigation by the police. Sewa News Stream (2018) reported on illegal export of logs from Sierra Leone in July of that year, and a June 2018 Facebook post [link unavailable] reportedly provided video footage of a log stockpile at Hastings airport, Freetown (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020). A 2011 documentary released by Al Jazeera linked government officials to a log smuggling ring (Al Jazeera, 2011); on 24th November 2011, the Office of the President of Sierra Leone released a statement in response to the documentary, stating that the government intended to investigate what appeared to be a "serious breach of the ongoing moratorium on the logging industry" adding that "the moratorium on the felling, processing and export of timber remains in full force" in the country (Government of Sierra Leone, 2011). In 2014, a senior government official was fired for rosewood-related alleged corruption (Office of the President, 2014 in PC22 Inf. Doc. 13). An earlier investigation conducted by Mongabay in 2010 announced that government officials had reported the illegal export of "tens of millions of dollars' worth of logs" from Sierra Leone (Mongabay, 2010).

In addition to harvest for export, *P. erinaceus* was noted to be a target species for Sierra Leone's domestic trade in red boards (boards made from hardwood species and used exclusively for furniture making), charcoal, and fuelwood in Northern Sierra Leone (Munro and van der Horst, 2013). The authors noted that the country's domestic forestry sector was "extremely difficult to govern" (Munro and van der Horst, 2013). Following surveys conducted by Arevalo *et al.* (2016) in Bombali district in 2013, the authors stated that villagers emphasised the "abundance and importance" of *P. erinaceus* for local firewood stocking during the dry season and reported "increasing competition with Chinese timber companies also targeting the same tree species".

Management: Sierra Leone became a Party to CITES on 28th October 1994, with entry into force on 26th January 1995. Through its national legislation project[55], the CITES Secretariat categorised the national legislation in Sierra Leone as legislation that was believed generally not to meet any of the four requirements for effective implementation of CITES (Category 3). The CITES Secretariat's legislative status table published in November 2019 noted that a Wildlife Policy and Forest Policy had been adopted and that amendments to related laws and regulations were underway and were expected to be adopted by the end of 2017. Next steps were to include finalization and submission of draft legislation to the CITES Secretariat.

Domestic forestry legislation: According to the 2010 Forestry Policy, the Forestry Act of 1988 was still the principal legislation guiding forest management and regulation in the country in 2010 (Government of Sierra Leone, 2010). Under Part III, Section 5 of the 1988 Forestry Act, the government-appointed Chief Conservator of Forests is required to compile a national forest resources inventory (Government of Sierra Leone, 1988). Under Section 8 (1) of the Act, before a forest concession is granted, a forest management plan must be approved by the Chief Conservator (Government of Sierra Leone, 1988). Section 8 (2) of the Act adds that, "as far as practicable", such

[55] https://cites.org/legislation/National_Legislation_Project [Accessed 30th April 2020].

management plans should also be prepared for management areas of national forest not under concession and for community forests (Government of Sierra Leone, 1988). The Act also prohibits tree cutting, damaging and destruction, timber removal, construction, land clearance and agricultural practices in national and community forests without a concession agreement, license or confirmed usage right (Government of Sierra Leone, 1988).

The Forestry Act of 1988 is reportedly implemented by the Forestry Regulation of 1989 (Government of Sierra Leone, 1990). Under Article 6 of the 1989 Forest Regulation, all logging companies/persons must submit an annual report of the total area logged, including a map, to the Chief Conservator (Government of Sierra Leone, 1990). Under Article 8 of the Regulation, concessionaires/licence holders operating in areas outside of Forest Division jurisdiction must submit annual logging plans to the Chief Conservator for approval, specifying *inter alia*: the blocks to be logged during the year, felling system, minimum girth limits for selective felling areas (Government of Sierra Leone, 1990). In addition, logging in unclassified or private forest without a current approved plan is prohibited. Non-species-specific minimum girth limits for both classified and unclassified forests (if not otherwise specified in a management plan, timber license, or concession agreement), are defined under Article 9 of the Regulation as follows: 1.83 m in selective felling areas and 1.22 m in clear-felling areas (Government of Sierra Leone, 1990). Timber harvest and export quotas are designated by the Office of the President (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020).

Sierra Leone's CITES MA reported that *P. erinaceus* was harvested year-round, mostly in community forests, where harvest concessions are designated by local authorities and land-owners and have no set management plans (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020). However, the MA stated that discussions were ongoing with land-owners and local authorities regarding adherence to national timber trade legislation (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020).

There is currently a national ban on the harvest, transport and export of logs in place in Sierra Leone, and this ban has been imposed in the country intermittently over a number of years (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020), often appearing to coincide with changes in government. According to Munro and Hiemstra-van der Horst (2012), a ban on log exports was reportedly implemented in August 2007 in response to the movement of timber companies from Guinea into northern Sierra Leone. The ban was lifted the following year, but was re-imposed in 2010 (Munro and Hiemstra-van der Horst, 2012). The ban was reportedly temporarily lifted in mid-2011 for three months to allow the export of pre-ban stockpiles, before being reinstated (Munro and Hiemstra-van der Horst, 2012). According to news reports, a timber export ban was implemented in 2013 (Xinhua, 2018), then lifted temporarily in early 2017 in the run-up to national government elections in March 2018 (CoP18 Doc. 34; Xinhua, 2018). The CITES MA of Sierra Leone (*in litt.* to UNEP-WCMC, 2020) reported that the export of logs was suspended again in April 2018 but was temporarily lifted shortly after to allow the export of 13 893 containers of stockpiled timber. Referring to the current iteration of the ban, the MA stated that "the existing ban on log export will not be negotiable since it does not promote value addition and provide employment opportunities" (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020). This is assumed to mean that the current ban will remain in place, as the export of raw logs would deny additional value and employment opportunities that would come from processing logs into higher-value products.

The 2019 UNODC wildlife crime assessment stated that Sierra Leone "provides an example of the way that shifting and confusing policy can fuel exports of timber that would otherwise be illegal" (CoP18 Doc. 34). UNODC (2019) noted that the temporarily lifting of Sierra Leone's ban in 2017 until April 2018 might have driven an increase in *P. erinaceus* exports, with >84 000 m^3 of rosewood logs reportedly exported from the country in the first quarter of 2018 (CoP18 Doc. 34).

Sierra Leone's CITES MA noted that *P. erinaceus* was also sometimes harvested illegally in protected forests, as peak harvest coincided with the dry season when remote locations were more accessible by road (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020). It was noted that District Forest

Officers in the eight savanna woodland districts of Sierra Leone had been assigned to report on activities at harvest locations (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020). Sierra Leone's 2010 Forestry Policy acknowledged that illegal logging was known to take place within the country's forest reserves and considered that the Forestry and Wildlife Sector policy had been "inadequate in addressing contemporary issues" in forest governance and management (Government of Sierra Leone, 2010). Key issues highlighted by the 2010 Forestry Policy included poor coordination between government agencies at national and local levels, contributing to unsustainable forest management practices, land tenure ambiguity, land use conflict, and inefficient funding allocation, as well as an increase in illegal logging (Government of Sierra Leone, 2010).

Other management measures and capacity needs: In Sierra Leone's 2010 Forestry Policy, the Government of Sierra Leone (2010) noted that the Forest Division had inadequate personnel, logistics and financial capacity, resulting in limited forest management, monitoring and law enforcement, which affected the country's ability to meet international obligations under a range of biodiversity conventions.

Additionally, the Forestry Policy report noted "a serious deficit of information" on national forest resources, with a lack of information on timber inventories and harvest activities (Government of Sierra Leone, 2010). Existing timber inventory data were stated to be minimal and focussed only on small sample plots inventoried by investors "in anticipation of extraction"; harvest volumes were stated to be under-reported to avoid fees (Government of Sierra Leone, 2010).

P. erinaceus was reported to occur in Lake Sonfon National Park (van der Burgt, 2016 in CoP17 Doc. 88.3 Annex 9) and Kuru Hills Forest Reserve (Amara *et al.*, 2019), both in the north of Sierra Leone. However, illegal harvest was reported to have taken place within the country's national parks (PC22 Inf. Doc. 13). The CITES MA stated that Sierra Leone's National Protected Area Authority was working to prevent harvest in protected areas but was "constrained by capacity and logistics" (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020). With the exception of the species' occurrence in protected areas, *P. erinaceus* does not appear to be the focus of any species-specific national conservation projects.

Sierra Leone's CITES Scientific Authority was noted to be awaiting approval of a funding request to conduct a non-detriment finding for *P. erinaceus* in order to set national quotas for trade in the species (CITES MA of Sierra Leone *in litt*. to UNEP-WCMC, 2020).

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Togo

TOGO:

Reported to be widespread throughout Togo and found in all five of the country's ecological zones. Togo was reportedly one of the first range States to experience large-scale exploitation of *P. erinaceus* timber. According to a 2017 IUCN Red List assessment, Togo's population suffered an inferred population decline of >80% 2011-2014 and stocks were considered depleted. However, based on data from a national forest inventory 2015-2016, FAO estimated the species' total volume for 2015 to be 2.67 million m^3; a different study estimated a significantly higher total volume for 2016 at >10 million m^3 at the national level. A lack of trees in small size classes was recorded in two ecological zones, indicating that population stuctures had been affected.

A CITES annual report has been received from Togo for 2016, but not yet for 2017 or 2018. The country has never published export quotas for *P. erinaceus*. No direct exports of *P. erinaceus* from Togo, indirect trade originating in Togo, or imports from Togo were reported 2016-2018. However, according to Chinese customs data from the Global Trade Atlas, rosewood logs imported by China from Togo over the period 2009-2018 totalled 210 233 m^3, with imports decreasing steadily from 2014 to zero in 2017, and 56 m^3 reported in 2018. Previously, a very high level of illegal trade from the country had been identified; although it remains unclear if this is a current threat given the country's stocks. In a 2019 report on the use of *P. erinaceus* in Togo, it was noted that there is insufficient reliable information on illegal exploitation of *P. erinaceus* in the country.

Togo is included in a current CITES Tree Species Programme project. No response to the consultation relating to the RST was received. In 2016, a 10-year moratorium was imposed on the issuance of permits for the harvest and transport (thus including export), as well as import and re-export of *P. erinaceus* logs. Information on the moratorium's impact on illegal harvest and trade in the species since 2016 was lacking, though the moratorium has reportedly halted the legal trade in *P. erinaceus* logs. The moratorium appears to cover logs only; however, the absence of processed *P. erinaceus* timber from Togo reported by Togo (2016) or by importers (2016-2018) in CITES annual reports suggests that such trade is not currently taking place.

On the basis of no legal trade, the provisions of Article IV are not currently applicable, therefore categorised as **Less concern**. However, although the current scale is unknown due to a lack of reliable data, illegal trade and export may be a concern not related to the implementation of Article IV. **Referral to the Standing Committee is therefore recommended**.

RECOMMENDATION:

Less concern

[Referral to the Standing Committee on the basis of concerns of illegal trade]

Distribution: *Pterocarpus erinaceus* was reported to be widely distributed throughout Togo, demonstrating a high tolerance to different climates and habitat types (Segla *et al.*, 2015a).

Population status and trends: The species' 2017 global IUCN Red List assessment noted that *P. erinaceus* timber stocks in Togo were suspected to have been fully depleted, with an inferred population decline of >80% in 2011-2014 (Barstow, 2018).

According to the FAO's 2020 Forest Resources Assessment (FRA) report for Togo, the country's Ministry of Environment and Forest Resources (MERF), which is also the CITES Management Authority (MA), conducted a national forest inventory between 2015 and 2016 (FAO, 2020); however, at the time of writing this inventory could not be accessed. Based on the MERF inventory data, the FRA report calculated growing stock of *P. erinaceus* for the year 2015 to be 2.67 million m^3 (FAO, 2020). Yawo (2019) used data from the MERF inventory to estimate the volume for *P. erinaceus* for 2016 as 1.77 m^3/ha, representing a total estimated volume of >10 million m^3 (10 018 200 m^3) at the national level (MERF/IFN, 2016 in Yawo, 2019); this is significantly higher than the FAO estimate for the previous year. As reported by Yawo (2019), the inventory results indicated greatest relative density (the density of *P. erinaceus* as a percentage of total tree density), relative frequency (the number of sampling points occupied by at least one *P. erinaceus* tree as a percentage of total frequency) and relative dominance (the basal area of *P. erinaceus* trees per unit area as a percentage of total dominance) of *P. erinaceus* in the Kara Region of northern Togo (see summary in **Table 4.17.1**) (MERF/IFN, 2016 in Yawo, 2019).

Table 4.17.1: Indices of structural importance of *Pterocarpus erinaceus* (trees of >10 cm diameter at breast height) by region in Togo. Source: (MERF/IFN, 2016 in Yawo, 2019). Location of regions within Togo from northernmost to southernmost: Savannah, Kara, Central, Plateau, Maritime.

Structural parameter (%)	Region				
	Savannah	Kara	Central	Plateau	Maritime
Relative frequency	25.4	50.9	28.7	29.6	12.1
Relative density	5.1	5.6	2.4	4.5	2.7
Relative dominance	6.3	6.3	2.6	3.3	2.1

Segla *et al.* (2015a) conducted a forest inventory of *P. erinaceus* across Togo's five ecological zones in 2013. The authors recorded *P. erinaceus* mean population density for the country ranging from 57 to 76.5 stems/ha (see **Table 4.17.2**), with seedlings and coppices being the main regeneration strategies (Segla *et al.*, 2015a). The species' population structure was found to be a reverse "J" shape in zones 2, 4 and 5 (northern and southern mountains and southern coastal region), with regular dynamics dominated by individuals in small size classes (Segla *et al.*, 2015a). Stands in zones 1 and 3 (northern and central plains) were reported to have unimodal population structures, exhibiting a "demographic deficit of young trees" (Segla *et al.*, 2015a).

Table 4.17.2: Structural parameters of *Pterocarpus erinaceus* stands in the five ecological zones of Togo. Key: zone 1: northern plains, zone 2: northern mountains, zone 3: central plains, zone 4: southern mountains, zone 5: southern coastal region. Source: (Segla *et al.*, 2015a).

Structural parameter	Ecological zone				
	1	2	3	4	5
Density (stems/ha)	71.50 ± 42.46	57.00 ± 22.55	74.50 ± 38.18	76.50 ± 42.21	73.50 ± 44.51
Average diameter (cm)	29.93 ± 9.60	25.32 ± 10.92	25.86 ± 9.50	21.71 ± 8.60	16.06 ± 5.25
Average total height (m)	11.24 ± 3.46	12.40 ± 3.52	11.14 ± 2.74	10.11 ± 2.82	8.16 ± 2.17
Average merchantable height (m)	3.10 ± 1.58	2.80 ± 1.52	2.38 ± 0.83	2.52 ± 1.21	2.50 ± 2.30
Basal area (m^2/ha)	5.62 ± 1.70	3.40 ± 0.78	4.41 ± 0.40	3.23 ± 0.30	1.81 ± 0.10
Biovolume (m^3/ha)	20.62 ± 0.14	10.19 ± 0.10	11.69 ± 0.07	9.29 ± 0.06	4.68 ± 0.03

In a wider study of *P. erinaceus* in West Africa, Segla *et al.* (2016) collected information on the population structure of *P. erinaceus* in the Sahelian, Sudanian and Guinean climatic zones across Burkina Faso, Niger and Togo (see *Overview* section). In Togo, surveys were conducted at three sites

within the country's two climatic zones: Oti-Keran National Park in the Sudanian climatic zone, northern Togo, and Abdoulaye and Togodo wildlife reserves in the Guinean climatic zone, southern Togo (Segla *et al.*, 2016). Data from Oti-Keran National Park were combined with population data collected from other sites in the Sudanian zone in Burkina Faso and Niger (see **Table 4.17.3**). *P. erinaceus* population structure was found to vary between climate zones, with trees of 15-40 cm diameter at breast height (DBH) predominating in the Sudanian zone and trees of 10-25 cm DBH most prevalent in the Guinean zone (Segla *et al.*, 2016). The species was also found to occur at higher densities in the Guinean zone (see **Table 4.17.3**).

Table 4.17.3: Structural parameters of *Pterocarpus erinaceus* recorded across two climatic zones in Burkina Faso, Niger and Togo. Source: Segla *et al.* (2016)

Structural parameter	Sudanian zone (Burkina Faso, Niger and Togo)	Guinean zone (Togo)
Density (trees/ha)	49.20 ± 63.2	110.9 ± 1.15
Average diameter (cm)	29.02 ± 15.44	26.63 ± 7.89
Average height (m)	9.51 ± 2.75	14.16 ± 2.88
Average merchantable height (m)	3.43 ± 1.49	3.63 ± 2.63
Basal area (m^2/ha)	2.46 ± 2.88	13.57 ± 1.10
Lorey's mean height (m)	10.91	12.83

Surveys conducted by Banla *et al.* (2018) [study date unspecified] within and around the Oti-Keran-Mandouri protected area complex, northern Togo, found mean densities of *P. erinaceus* individuals (trees of ≥10 cm DBH) to be higher at totally protected sites (22.73 trees/ha) compared to moderately protected (19.2 trees/ha) and non-protected (12.54 trees/ha) sites. Density of juveniles (individuals of <10 cm DBH) was also higher at totally protected sites compared to moderately protected sites; juveniles were absent from non-protected sites (Banla *et al.*, 2018).

An earlier study by Wala *et al.* (2012 in CoP17 Inf. Doc. 48) in Aledjo Protected Area in the Atakora Mountains, northern Togo, noted that *Pterocarpus* was the dominant genus within the area, making up >30% of the recorded species and occurring at a density of 5.5 trees/ha.

Trade:

CITES trade data: CITES annual reports were submitted by Togo in 2016 but reports for 2017 and 2018 have not yet been received. Togo has never published any export quotas for the species. According to the CITES Trade Database, no direct exports of *P. erinaceus* from Togo, or indirect trade originating in Togo, were reported 2016-2018.

Chinese customs data: According to Global Trade Atlas data, 210 233 m^3 of rosewood logs were imported by China from Togo over the period 2009-2018, worth over USD 98 million. Imports of rosewood[56] logs from Togo to China showed an increasing trend from 2009 to 2014, with the exception of a decrease in 2013 (**Figure 4.17.1**). Following a peak at 58 151 m^3 in 2014, imports from Togo decreased year on year to zero in 2017 and low levels in 2018 (**Figure 4.17.1**). Although no imports of *P. erinaceus* from Togo were reported by China in their annual reports to CITES for 2016[57]-2018, data included in Global Trade Atlas show decreasing imports 2016-2018.

[56] Presumed to be *P. erinaceus* as it is the only species to occur in Togo considered to be rosewood under the Chinese national standard.

[57] Annual reports for 2016 may not include trade that took place in 2016 prior to the Appendix III listing (9th May 2016).

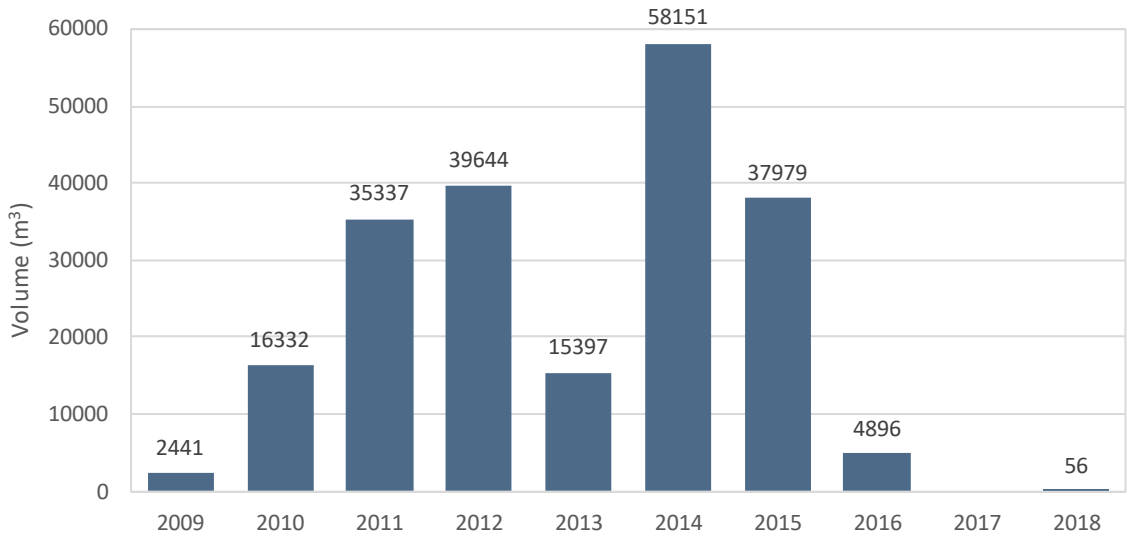

Figure 4.17.1: Volume of rosewood[50] logs from Togo reported as imported by China, 2009-2018. Data corresponds to HS codes for 'rosewood, in the rough' [HS 4403.99.30 (2009-2016); HS 4403.49.80 (2017-2018)]. Volumes rounded to the nearest whole number. Source: Chinese customs data extracted from the Global Trade Atlas.

Other data sources: Yawo (2019) estimated the annual production of *P. erinaceus* intended for export over the period 2009-2015 to be 5521 m^3, and Segla *et al.* (2015b) reported exports of 9590 m^3 of *P. erinaceus*, the majority (9440 m^3) in the form of planks, over the period 2011-2012. Exports over the period 2014-2016 were estimated to total 68 980 m^3 (MERF/REDD+, 2018 in Yawo, 2019). The authors additionally noted that exports of *P. erinaceus* products from Togo decreased from 37 350 m^3 in 2014 to 2060 m^3 in 2016 (MERF/REDD+, 2018 in Yawo, 2019).

Threats: Togo was stated to be one of the first countries in the region targeted, in 2012, for large-scale exploitation of *P. erinaceus* timber stocks, with loggers moving on to stands in neighbouring countries once Togo's forests had been depleted (EIA, 2017). Logging and farming practices were reported to have "accelerate[d] the extinction" of large *P. erinaceus* trees in both the Sudanian and Guinean climatic zones of the country (Segla *et al.*, 2016).

In addition to its use as a "first-class timber wood" in Togo (Adjonou *et al.*, 2019), *P. erinaceus* was listed amongst the six main species targeted by charcoal producers in the country, with harvesters reported to preferentially target individuals in size classes of 25-45 cm diameter in savanna, and 45-65 cm diameter in forest ecosystems (Kokou *et al.*, 2009). The authors stated that this selective exploitation had led to depletion of target species including *P. erinaceus* (Kokou *et al.*, 2009).

Yawo (2019) estimated the impact of domestic use and timber exports on the national *P. erinaceus* population[58]. The study estimated that the annual usable potential (or average annual growth) of the species in Togo was 490 892 m^3 (Yawo, 2019). Togo's annual production of *P. erinaceus* intended for domestic consumption was estimated to be 487 984 m^3 (of which 329 858 m^3 was estimated to be charcoal, 157 131 m^3 firewood and 995 m^3 sawnwood) over the period 2009-2018 (Yawo, 2019). Yawo (2019) estimated the annual production of *P. erinaceus* intended for export to be 5521 m^3 over the period 2009-2015 and concluded that, when combined, the legal domestic and export use of *P. erinaceus* in Togo was unsustainable and negatively impacted the species' conservation status.

[58] Utilising data from logging, transport, import and export permits issued by Togo's Forest Resources Directorate over the period 2009-2018, as well as planning documents from Togo's Ministry of Environment, Sustainable Development and Nature Protection, the published scientific literature, and user-group questionnaires conducted by the author.

The study did not consider illegal exploitation of *P. erinaceus* due to a lack of reliable data (Yawo, 2019).

In a 2016 survey, rangers at Fazao-Malfakassa National Park in central Togo noted that *P. erinaceus* exploitation had increased considerably since 2007, in line with the species' increased international market value (Honam *et al.*, 2018). In the same survey, villagers and rangers stated that charcoal production and timber extraction were major drivers of vegetation change in the park, with *P. erinaceus* noted as one of four tree species targeted for firewood (Honam *et al.*, 2018). Unpublished data from park managers indicated that 4725 m^3 of mostly *P. erinaceus* timber had been illegally harvested in the park between 2012 and 2015 (Honam *et al.*, 2018).

Illegal harvest has previously been reported as a risk to *P. erinaceus* in Togo; approximately 3000 m^3 of illegally logged timber, primarily comprised of *P. erinaceus,* was exported in 2007 by foreign companies in the form of "barely debarked logs or poorly shaped planks" (Adjonou *et al.*, 2010). Additionally, Barstow (2018) reported that an estimated 86% of timber exported from Togo in 2007 was illegally harvested (it's unclear on what basis this was calculated). In 2008, seizures of illegally harvested *P. erinaceus* logs and planks totalled 6000 units (though the equivalent in cubic metres was not provided) (Adjonou *et al.*, 2010). Blackett and Gardette (2008 in Adjonou *et al.*, 2010) stated that analysis of customs data appeared to suggest that only 25% of Togo's trade in wood and wood products was legal. Over an eight-month study period [dates unspecified], the authors reported the "unofficial" daily export of 20 containers, equivalent to 12 000 m^3 of *P. erinaceus* timber per month, from Togo's central region (Blackett and Gardette 2008 in Adjonou *et al.*, 2010). Concerns had also been raised that *P. erinaceus* logs, illegally harvested in Togo, were being laundered and passed off as imports from neighbouring countries (ITTO, 2008 in Adjonou *et al.*, 2010). In 2015, seizures of illegally harvested rosewood, largely *P. erinaceus*, worth equivalent to USD 216 million were made in nine West African countries, including Togo (Interpol, 2015). In June 2016 the Togolese Government imposed a 10-year moratorium on the harvest, import and re-export of *P. erinaceus* logs in response to illegal exploitation of the species (MERF, 2016). Recently, Yawo (2019) stated that there was "insufficient" reliable information on illegal exploitation of *P. erinaceus* in Togo.

Management: Togo became a Party to CITES on 23rd October 1978, with entry into force on 21st January 1979. Through its national legislation project, the CITES Secretariat categorised the national legislation in Togo as legislation that is believed generally to meet one to three of the four requirements for effective implementation of CITES (Category 2). The CITES Secretariat's legislative status table published in November 2019[59] noted that Togo had a small-scale funding agreement in place with the CITES Secretariat and that observations on a draft bill had been provided by the Secretariat. Proposed next steps include finalization and submission of draft legislation to the CITES Secretariat.

Current domestic forestry legislation: On 22nd June 2016, according the MERF website, the Government imposed a 10-year moratorium on the issuance of permits authorising the exploitation, transport (and thus assumed export), import and re-export of *P. erinaceus* logs in order to tackle over-exploitation of the species (MERF, 2016) (the legislation itself could not be located at the time of writing). The moratorium was reported to have resulted in cessation of *P. erinaceus* log imports and an "almost total cancellation of logging" in Togo[60] (assumed to result from the fact that *P. erinaceus* was estimated to constitute 85% of the country's domestic timber production prior to the moratorium) (Yawo, 2019). It appears that the moratorium only covers logs, thus legal trade in processed *P. erinaceus* timber may still be permitted.

[59] https://cites.org/legislation/National_Legislation_Project [Accessed 30th April 2020].
[60] It should be noted that Yawo (2019) focussed solely on legal harvest.

Previously, *P. erinaceus* had been reportedly listed as a protected species in Decision No. 233/AE of the 18th April 1947, according to Togo's National Forest Action Plan 2011-2019 (MERF, 2011a). Although the original Decision could not be located, MERF (2011b) stated that species listed in Decision No. 233/AE were those "whose felling, uprooting and mutilation are prohibited". Decision No. 233/AE was an implementing text of Togo's 1938 Forest Code (MERF, 2011a). On 19th June 2008, the 1938 Forest Code was repealed and replaced with a new Forest Code, Loi No. 2008-09 Portant Code Forestier (Government of Togo, 2008). Although the 2008 Forest Code designates certain species as fully protected unless harvest is for scientific purposes, as of 2016 no implementing decree for plant species had been adopted (CoP17 Inf. Doc. 79) and it appears that this is still the case.

Other management measures and capacity needs: Yawo (2019) identified three key challenges pertaining to the management of *P. erinaceus* in Togo: a lack of defined harvest standards and effective monitoring of logging operations; challenges of timber traceability from place of harvest due to a lack of marking, as well as a need for species identification guides for CITES field officers; and the informal nature of the timber sector in Togo due to a "multiplication of timber depots and wild sawmills" hindering control of trade.

Adjonou *et al.* (2010) stated that Togo lacked the necessary information on the status of wild *P. erinaceus* populations to establish management strategies. However, the national forest inventory reportedly conducted by MERF between 2015 and 2016 (FAO, 2020) would appear to address this gap at least partially. Research by Segla *et al.* (2015a) on the species' mean population density and population structure across Togo has contributed to filling this knowledge gap [see *Population status and trends* section]. Additionally, Segla *et al.* (2016) calculated minimum diameters of exploitation for sustainable use of *P. erinaceus* in the Guinean and Sudanian zones of Togo, and a 20-year rotation period for the 35 cm size class was recommended for optimal restoration of *P. erinaceus* populations.

Togo is one of three countries in which the CITES Trees Species Programme funded a project on capacity-building for sustainable management of *P. erinaceus*[61].

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Report on *Pterocarpus erinaceus* in all range States. Range State responses

Contents

ETAT DES LIEUX SUR LA BIOLOGIE, L'EXPLOITATION ET LE COMMERCE DE *Pterocarpus erinaceus* Poir (Fabaceae) AU CAMEROUN

Par

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Executive summary

The forest represents one of the main resources of Cameroon, characterized by a particularly diversed flora and fauna and covers more than 60% of the national territory. It offers to the multitude of peoples who live there many products and services. *Pterocarpus erinaceus* Poir (Fabaceae) or African rosewood, is a valuable wood species native to the natural dry forests and semi-arid savannas of the Sudano-Guinean region of Africa. *P. erinaceus* is found in tropical Africa, in the following countries: Ghana, Ivory Coast, Gambia, Guinea, Guinea Bissau, Sierra Leone, Benin, Burkina Faso, Cameroon, Liberia, Mali, Niger, Nigeria, Central African Republic, Senegal, Chad, Togo. This species is an important source of fodder for livestock from pastoral communities in its range. The last few years have been characterized by a spectacular increase in trade in African rosewood, especially to Asia.

The widespread illegal and unsustainable exploitation in its range has led many states to declare a total ban on the harvest and trade of this species in recent years, in order to prevent its extinction . Following several investigations carried out and in accordance with the recommendation issued by the plants committee at its 22nd meeting in Tbilisi (Georgia) from October 19-23, 2015, *P. erinaceus* has been classified in Appendix II of the Convention on International Trade of Endangered Species of Wild Fauna and Flora (CITES) in 2016 at CoP 17 held in Johannesburg, South Africa. This listing is a strong signal from the international community about the threats to this species and the need for urgent action.

Cameroon became a member of CITES in 1981. On 09th April, 2020, a letter was issued by the Secretariat General of CITES (SG-CITES), letter by which SG-CITES asks the range countries to make the state of the art of exploitation and trade of *P. erinaceus*. Cameroon being one of the countries teeming with populations of *P. erinaceus*, has made it its mission to respond to this request with scientific and technical information on various aspects. This report proposes to update the information on distribution, biology, ecology, management, exploitation; control and trade of *P. erinaceus*-based products with a view to enabling the Ministry of Forests and Fauna, Cameroon's CITES management body, to have complete data on this question before the Plants Committee session planned for July 2020. Data were collected at the National Herbarium of Cmeroun (HBC), on the internet and from gray (reports, ...) and scientific (publications) literature dealing with various subjects related to *P. erinaceus* at Cameroon. Interviews were also conducted with forestry personnel active in the field and the central administration, and in particular on subjects dealing with monitoring and follow-up.

The classification of *P. erinaceus* is as follows: class (Magnoliopsida), order (Fabale), Family (Fabaceae), species (*Pterocapus erinaceus* Poir*). P. erinaceus* is a small deciduous tree up to 15 (–25) m tall; bole straight, cylindrical and devoid of branches over a height of 10 m in good conditions, but often twisted, grooved and with low branching in less good conditions, reaching 75 (–100) cm in diameter, with slight buttresses. In the Sudano-Sahelian zone of Cameroon, *P. erinaceus* is one of the so-called flowering and leafing species shifted in time. The data compiled from the collections kept in the National Herbarium of Cameroon (HNC) in Yaoundé and those obtained from interviews with certain resource persons allow us to note that *P. erinaceus* would be present in at least six administrative regions of Cameroon, namely : North West, South West, East, Adamaoua, North, and Far North.

Cameroon, with the help of development partners, has already conducted two national forest inventory campaigns. The first national forest inventory carried out in the 1980s led to the development of main standards and technical tools necessary for the management of the forest domain. Unfortunately, this inventory did not cover the phases planned in the far North of the country including Adamawa, North and Far North regions. It was limited to the forest area, in the South. The second national forest inventory carried out by the FAO in 2004, on the other hand, could cover a good part of the far North. As a reconnaissance inventory, the sampling rate used was fairly low, of the order of 0.01 per 1000. The Cameroonian territory was divided into two large strata: the southern stratum consisting of forests and the northern stratum consisting of large part of the savannahs. A total of 200 sampling units (SU) were inventoried out of the 235 planned, ie 85.1% of the SU planned. Forty six (46) SU were effectively inventoried in stratum 2, which is composed of Adamawa, North and Far North regions recognized as the most occupancy areas of *P. erinaceus* in Cameroon. The total area sampled is 400 ha for the whole country and 92 ha for stratum 2. A total of 66 stems (individuals) of *P. erinaceus* was counted, representing an overall density of 0.16 stems / ha for the whole country (national triangle) and 0.71 stems / ha for its main occupancy area (far north). The abundance expressed as a percentage ratio of the number of stems of *P. erinaceus* to the total number of stems of all species (Frequency according to FAO document 2005) is 0.43%. This frequency is far above the 0.01% threshold considered by the authors of this inventory as the critical threshold for declaring a species as rare and of possibly threatened (FAO opcit.). Likewise, the densities obtained whatever be the level of estimate, namely national (0.16 stems / ha) or regional (0.71 stems / ha) all remain very high, since it is much higher than the critical threshold of 0, 05 stems / ha, authorized for exploitation in Cameroon. It was not possible to

identify from the data obtained the diametric structure of the stems of *P. erinaceus* in order to detect any problems of forest regeneration and renewal of the resource. While it is recognized that the habitats of *P. erinaceus* have declined drastically as a result of agricultural expansion, deforestation and overgrazing, which have in turn been fueled by rapid human population growth and poverty, for the moment, it is quite difficult to comment on trends in the populations of this species in Cameroon for various reasons.

In Cameroon, the current exploitation and processing of *P. erinaceus* does not follow any established management standard. There appears to be little international trade in *P. erinaceus* lumber, but there is increasing demand for it in wild sawing. According to information obtained from certain services of the forest administration, the timber obtained illegally from Cameroon is exported to China via Nigeria. In the past, the main threat to the species was over-exploitation of branches for animal fodder. With Chinese demand in recent years, illegal and uncontrolled harvesting may become the main threat to this species. The elements presented in the previous sections make it possible to consider the species *P. erinaceus* as a resource producing both timber forest products (lumber or sawnwood) and non-timber products (leaves for livestock feed and medicinal bark). The management of these two types of products is well provided in the Cameroon's forest policy, through various titles including: forest management units (UFA), communal forests (Fc), sales of standing volumes, cutting permits for wood products, and allocation units (UA) and special permits for non-timber forest products, including special products. Community forests cover the two types of products.

Many problems still undermine the development of the forestry sector, timber and non-timber products combined, in Cameroon. The basic problem remains the ignorance of the resource. To overcome these problems, a strategic action plan for *P. erinaceus* has been proposed. It is divided into three objectives and several activities. The analyzes made allow us to make two recommendations:

1. revise decree 0222 / A / MINEF of 25 May 2001 on the basis of new “Planning and pre-investment inventory guidelines” of 2019. These guidelines will themselves have to be revised taking into account the observations made in the current version ;
2. develop a project document on a non-detriment finding to ensure that the exploitation of *P. erinaceus* is not detrimental for the maintenance of this species in its natural environment in Cameroon. This project, developed using the "POPP" (Partnership International organization-Public-Private) approach, would be the

beginning of the implementation of the proposed action plan and could be presented to potential donors / donors present at the Plants Committee session scheduled for July 2020.

Résumé exécutif

La forêt représente l'une des principales ressources du Cameroun, caractérisée par une faune et une flore particulièrement variées et couvre plus de 60 % du territoire national. Elle offre à la multitude des peuples qui y vivent de nombreux produits et services.

Pterocarpus erinaceus Poir (Fabaceae) ou bois de vène, est une espèce de bois de valeur originaire des forêts sèches naturelles et savanes semi-arides de la zone soudano-guinéenne d'Afrique. *P. erinaceus* se trouve notamment en Afrique tropicale, dans les pays suivants: Ghana, Côte d'Ivoire, Gambie, Guinée, Guinée Bissau, Sierra Leone, Bénin, Burkina Faso, Cameroun, Libéria, Mali, Niger, Nigeria, République Centrafricaine, Sénégal, Tchad, Togo. L'espèce représente une source importante de fourrage pour le bétail des communautés pastorales de son aire de répartition. Ces dernières années ont été caractérisées par une augmentation spectaculaire des échanges commerciaux de bois de vène notamment en direction de l'Asie. L'exploitation illégale et non durable généralisée de cette espèce dans son aire de répartition a conduit de nombreux Etats à décréter l'interdiction totale de la récolte et du commerce de cette espèce, dans le but d'empêcher son extinction. Suite à plusieurs investigations réalisées et conformément à la recommandation émise par le comité des plantes lors de sa 22ème réunion à Tbilissi (Géorgie) du 19-23 Octobre 2015, *P. erinaceus* a été classée à l'Annexe II de la Convention sur le Commerce international d'espèces de faune et flore sauvages menacées d'extinction (CITES) en 2016 à la CoP 17 tenue à Johannesburg en Afrique du Sud. Ce classement est un signal fort de la communauté internationale sur les menaces qui pèsent sur cette espèce et sur la nécessité d'une action urgente.

Le Cameroun est devenu membre de la CITES en 1981. En date du 09 Avril 2020, une lettre a été publiée par le Secrétariat Général de la CITES (SG-CITES), lettre par laquelle le SG-CITES demande aux pays de l'aire de distribution de faire la situation de l'exploitation et du commerce de *P. erinaceus*. Le Cameroun faisant partie des pays qui regorgent les populations de *P. erinaceus,* s'est donné pour mission de répondre à cette demande par des informations scientifiques et techniques sur différents aspects. Le présent rapport se propose d'actualiser les informations sur la distribution, biologie, écologie, aménagement, exploitation ; contrôle et commerce des produits à base de *P. erinaceus* en vue de permettre au Ministère des Forêts et Faune, organe de gestion CITES du Cameroun, de disposer des données complètes sur cette question en prélude à la session du Comité pour les plantes projetée en Juillet 2020.

Les données ont été collectées à l'Herbier national du Cmeroun (HBC), sur internet et à partir de la littérature grise (rapports, ...) et scientifique (publications) traitant des divers sujets en rapport avec *P. erinaceus* au Cameroun. Des entretiens ont également été conduits avec le personnel forestier actif sur le terrain et l'administration centrale, et notamment sur des sujets traitant du contrôe et suivi.

La classification de *P. erinaceus* se présente comme suit: classe (Magnoliopsida), ordre (Fabale), Famille (Fabaceae), espèce (*Pterocapus erinaceus* Poir). *P. erinaceus* est un petit arbre caducifolié atteignant 15(–25) m de haut ; fût droit, cylindrique et dépourvu de branches sur une hauteur atteignant 10 m dans de bonnes conditions, mais souvent tors, cannelé et à ramification basse dans de moins bonnes conditions, atteignant 75(–100) cm de diamètre, à légers contreforts. En zone soudano-sahélienne du Cameroun, *P. erinaceus* fait partie des espèces dites à floraison et feuillaison décalées dans le temps. Les données compilées à partir des collections conservées dans l'Herbier National du Cameroun (HNC) à Yaoundé et celles obtenues à partir des entretiens menés avec certaines personnes ressources permettent de relever que *P. erinaceus* serait présente dans au moins six régions administratives du Cameroun à savoir: Nord Ouest, Sud Ouest, Est, Adamaoua, Nord, et Extrême Nord.

Le Cameroun avec le concours des partenaires au développement a déjà conduit deux campagnes d'inventaires forestiers nationaux. Le premier inventaire forestier national réalisé au cours des années 1980 a conduit à l'élaboration de normes principales et des outils techniques nécessaires à la gestion du domaine forestier. Cet inventaire n'a malheureusement pas couvert les phases prévues dans le grand Nord (régions de l'Adamaoua, Nord et Extrême Nord); il s'est limité au grand Sud forestier. Le second inventaire forestier national réalisé par la FAO en 2004 par contre a pu couvrir une bonne partie du grand Nord. Comme inventaire de reconnaissance, le taux de sondage utilisé a été assez faible, de l'ordre de 0,01 pour 1000. Le territoire camerounais a été divisé en deux grandes strates : la strate Sud constituée des forêts et la strate Nord constituée en grande partie des savanes. Un total de 200 UE a été inventorié sur les 235 prévus, soit 85,1% des UE balayées. Quarante six (46) UE ont été effectivement inventoriées dans la strate 2, soit dans les régions de l'Adamaoua, Nord et Extrême Nord reconnues comme zones de prédilection de *P. erinaceus*. La surface totale échantillonnée est de 400 ha pour tout le pays et 92 ha pour la strate 2. Un total de 66 tiges de *P. erinaceus* a été compté, représentant une densité globale de 0,16 tige/ha pour l'ensemble du triangle national et 0,71 tiges/ha pour sa principale zone d'occupation (grand nord). L'abondance exprimée par le rapport en pourcent du nombre de tige de P. erinaceus sur le nombre total des tiges de toutes les espèces (Fréquence

selon le document FAO 2005) est de 0,43%. Cette fréquence est de loin supérieure au seuil de 0,01% considéré par les auteurs de cet inventaire comme seuil critique pour déclarer une espèce comme rare et ou éventuallement menacée (FAO opcit.). De même, les densités obtenues quelque soit le niveau d'estimation, à savoir nationale (0,16 tiges/ha) ou alors régionale (0,71 tiges/ha) restent toutes très élevées, car largement supérieur au seuil critique de 0,05 tige/ha, autorisé pour l'exploitation au Cameroun. Il n'a pas été possible de ressortir à partir des données obtenues, la structure diamétrique des tiges de *P. erinaceus* en vue de déceler les éventuels problèmes de régénération forestière et de renouvellement de la ressource. S'il est admis que les habitats de P. erinaceus ont drastiquement diminué du fait de l'expansion agricole, de la déforestation et du surpâturage, qui ont été alimentés à leur tour par la rapide croissance de la population humaine et la pauvreté, Il est pour le moment assez difficile de se prononcer sur les tendances des populations de cette espèce au Cameroun pour diverses raisons.

L'exploitation et transformation actuelle de *P. erinaceus* ne suit aucune norme établie de gestion au Cameroun. Il semble qu'il n'y ait pas vraiment de commerce international pour le bois d'œuvre de *P. erinaceus*, mais il est de plus en plus sollicité dans le sciage sauvage. Selon les informations obtenues de certains services de l'administration en charge des forêts, le bois obtenu de manière illégale à partir du Cameroun est exporté vers la Chine via le Nigéria. Autrefois, la principale menace pour l'espèce était la surexploitation des branches pour le fourrage des animaux. Avec la demande chinoise des dernières années, la récolte illégale et non contrôlée, risque devenir la principale menace pour cette espèce.

Les éléments présentés dans les sections précédentes permettent de considérer l'espèce Pterocarpus erinaceus comme une ressource productrice à la fois de produits forestiers ligneux (bois d'œuvre ou de sciage) et non ligneux (feuilles pour alimentation du bétail et écorces médicinales). La gestion de ces deux types de produits est bien prévue dans la politique forestière du Cameroun, à travers différents titres dont : les unité forestières d'aménagement (UFA), forêts communales (Fc), les ventes de coupe (VC), les permis de coupe (PC) pour les produits ligneux, et les unités d'allocation (UA) et les permis spéciaux (PS) pour les produits forestiers non ligneux, et notamment les produits spéciaux. Les forêts cmmunautaires couvrent les deux types de roduits (ligneux et non ligneux).

De nombreux problèmes minent encore le développement du secteur forestier, produits ligneux et non ligneux confondus, au Cameroun. Le problème de fond reste la méconnaissance de la ressource. Pour juguler ces problèmes un plan d'action stratégique pour *P. erinaceus* a été

proposé. Il est décliné en trois objectifs et plusieurs activités. Les analyses faites nous permettent de faire deux recommandations:

3. réviser l'arrêté 0222/A/MINEF du 25 Mai 2001 sur la base de nouvelles « Directives d'inventaires d'aménagement et de préinvestissement » de 2019. Ces directives devront elles-mêmes être révisées compte tenu des réserves relevées dans la version actuelle ;
4. élaborer un projet de rédaction d'un avis de commerce non préjudiciable pour s'assurer que l'exploitation de *P. erinaceus* ne soit pas préjudiciable pour le maintien de cette espèce dans son milieu naturel au Cameroun. Ce projet élaboré suivant l'approche « POPP », serait le début de la mise en œuvre du plan d'action proposé et pourrait être présenté aux éventuels bailleurs/donateurs présents à la session du Comité pour les plantes projetée en Juillet 2020.

1. Introduction

La forêt représente l'une des principales ressources du Cameroun, caractérisée par une faune et une flore particulièrement variées et couvre plus de 60 % du territoire national (MINEF, 1998). Elle offre à la multitude des peuples qui y vivent de nombreux produits et services. Les services qu'offre la forêt sont divers : loisirs, tourisme, régulation du climat,…Les produits forestiers sont distingués en deux grands groupes à savoir les produits forestiers ligneux constitués essentiellement du bois lorsqu'il est utilisé comme bois d'œuvre (bois d'œuvre industriel, bois de pâte et sciage artisanal), et les produits forestiers non ligneux (PFNL) qui sont selon la FAO (1995) des produits biologiques autres que le bois d'œuvre fournit par les forêts et par des arbres hors forêt. Ces PFNL peuvent être aussi bien d'origine animale que d'origine végétale et destinés à l'alimentation, à l'usage médicinal et au service.

Pterocarpus erinaceus Poir (Fabaceae) ou bois de vène, est une espèce de bois de valeur originaire des forêts naturelles semi-arides de la région soudano-guinéenne d'Afrique de l'Ouest. Ces dernières années ont été caractérisées par une augmentation spectaculaire des échanges commerciaux de bois de vène, et notamment en direction de l'Asie. *P. erinaceus*, est l'une des trente-trois essences de bois de rose répertoriées par la Chine pour la fabrication du mobilier de luxe (Goba et al. 2019). En 2015, le bois de vène a été l'espèce de « bois rouge » la plus commercialisée, en terme de volume, au niveau international. Cette hausse répond d'une part à la demande croissante en meubles de bois de rose en Asie, et d'autre part à la raréfaction des autres espèces officiellement reconnues comme «bois de rose» (plusieurs sont inscrites aux Annexes de la CITES). Il est estimé que les exportations de Pterocarpus erinaceus en grumes vers la Chine ont été multipliées par un facteur 2000, entre le troisième trimestre 2009 et le troisième trimestre 2015, de 70 m3 à plus de 149 000 m 3 (Section 6.2). L'exploitation illégale et non durable généralisée de cette espèce dans son aire de répartition a conduit de nombreux Etats à décréter l'interdiction totale de la récolte et du commerce de cette espèce au cours des dernières années, dans le but d'empêcher son extinction. Malgré ces mesures, le commerce n'a cessé de croitre (CITES/ CoP17 Prop. 57.)

L'exploitation non durable de l'espèce pour le commerce international est susceptible d'avoir des répercussions négatives graves sur l'espèce en elle-même, l'écologie des forêts sèches et les populations humaines qui en dépendent. Suite à plusieurs investigations réalisées et conformément à la recommandation émise par le comité des plantes lors de sa 22ème réunion à Tbilissi (Géorgie) du 19-23 Octobre 2015, *P. erinaceus* a été classée à l'Annexe II de la

Convention sur le Commerce international d'espèces de faune et flore sauvages menacées d'extinction (CITES) en 2016 à la CoP 17 tenue à Johannesburg en Afrique du Sud. Ce classement est un signal fort de la communauté internationale sur les menaces qui pèsent sur cette espèce et sur la nécessité d'une action urgente. Sauf action d'envergure rapide à l'échelle sous régionale et internationale, l'exploitation non durable de *P. erinaceus* est susceptible d'avoir des conséquences négatives graves pour les populations humaines et l'environnement (CTSP 2019).

Le Cameroun est devenu membre de la CITES en 1981. En date du 09 Avril 2020, une lettre a été publiée par le Secrétariat Général de la CITES (SG-CITES), lettre par laquelle le SG-CITES demande aux pays de l'aire de distribution de faire la situation de l'exploitation et du commerce de *P. erinaceus*. Le Cameroun faisant partie des pays qui regorgent les populations de *P. erinaceus,* s'est donné pour mission de répondre à cette demande par des informations scientifiques et techniques sur différents aspects. Le présent rapport se propose d'actualiser les informations sur la distribution, biologie, écologie, aménagement, exploitation ; contrôle et commerce des produits à base de *P. erinaceus* en vue de permettre au Ministère des Forêts et Faune, organe de gestion CITES du Cameroun, de disposer des données complètes sur cette question en prélude à la session du Comité pour les plantes projetée en Juillet 2020. Les données ont été collectées à l'Herbier national du Cmeroun (HBC), sur internet et à partir de la littérature grise (rapports, ...) et scientifique (publications) traitant des divers sujets en rapport avec *P. erinaceus* au Cameroun. Des entretiens ont également été conduits avec le personnel forestier actif sur le terrain et l'administration centrale, et notamment sur des sujets traitant du contrôe et suivi.

Le rapport est structuré en six parties: (1) état des lieux sur l'identification, la biologie et l'écologie de *P. erinaceus* au Cameroun, (2) état des lieux sur l'exploitation, de *P. erinaceus,* (3) état des lieux sur la régénération et les menaces sur ces espèces ainsi que sur les causes de ces menaces, (4) état des lieux sur les initiatives de domestication, (5) état des lieux sur l'arsenal juridico-administrative en rapport avec la gestion de *Pterocarpus erinaceus* et (6) un plan d'action susceptible de garantir que le commerce des produits à base de *Pterocarpus erinaceus* n'est pas préjudiciable à la conservtion des ces espèces dans le grand Nord du Cameroun..

2. Etat des lieux sur l'identification, la biologie, l'écologie, la taille et structure des populations de *Pterocarpus erinaceus* au Cameroun

2.1. Identification, Distribution, biologie et écologie

2.1.1. Identifiation

Taxonomie

1 Classe: Magnoliopsida;

2 Ordre: Fabales;

3 Famille: Fabaceae

4 Espèce: *Pterocarpus erinaceus*

5 Synonymes scientifiques: *Pterocarpus erinaceus* Poir. (GBIF 2013) ;

6 Noms communs: Français: bois de vène, palissandre du Sénégal, Anglais: African rosewood, Portugais: pau de sangue, Fulfuldé: bani / banuhi

Bois semblables.

Les caractères structurelles de *Pterocarpus erinaceus* (Vène) sont en grande partie identiques à celles d'autres espèces de *Pterocarpus* et aussi à certains du genre Dalbergia; le bois, cependant, peut être distingué de ceux avec une structure similaire en raison de la couleur base clair du bois de cœur avec des veines régulières de couleur brun (Richter et al. 2014).

2.1.2. Répartition géographique en Afrique.

Afrique tropicale (forêts sèches et savannes). Ghana, La Côte d'Ivoire, La Gambie, La Guinée, La Guinée Bissau, La Sierra Leone, Le Bénin, Le Burkina Faso, Le Cameroun, Libéria, Mali, Niger, Nigeria, République Centrafricaine, Sénégal, Tchad, Togo (Richter et al. 2014).

L'espèce est originaire de l'écorégion « mosaïque de forêt-savane guinéenne d'Afrique de l'Ouest », qui se situe entre la forêt tropicale guinéenne et la savane soudanienne. Elle a été répertoriée dans toute la région, notamment le Sénégal, la Gambie, la Guinée-Bissau, la Guinée, le Mali, la Côte d'Ivoire, le Burkina Faso, le Ghana, le Niger, le Bénin, le Togo, le Nigeria et le Cameroun. Elle est présente jusqu'à la latitude de 14ºN, mais à cette latitude les individus sont de petite taille et rabougri. A partir de cette latitude, l'espèce Pterocarpus lucens domine et est plus abondante (https://www.cites.org/sites/default/files/fra/cop/17/prop/F-CoP17-Prop-57.pdf).

Pour Duval (2008), Pterocarpus erinaceus est répandu dans la zone des savanes qui s'étend du Sénégal et de la Gambie jusqu'au Tchad et en Centrafrique

2.1.3. Biologie.

2.1.3.1. Description

Petit arbre caducifolié atteignant 15(–25) m de haut ; fût droit, cylindrique et dépourvu de branches sur une hauteur atteignant 10 m dans de bonnes conditions, mais souvent tors, cannelé et à ramification basse dans de moins bonnes conditions, atteignant 75(–100) cm de diamètre, à légers contreforts ; surface de l'écorce brun grisâtre à noirâtre, fissurée et écailleuse, écorce interne brun jaunâtre, à veines rougeâtres, sécrétant une gomme translucide rougeâtre lorsqu'on l'entaille ; cime arrondie, ouverte ; rameaux densément couverts de poils courts à l'état jeune.

Feuilles alternes, composées imparipennées à (5–)7–11(–15) folioles ; stipules linéaires, jusqu'à 9 mm de long, poilues, tombant précocement ; pétiole de 3–7 cm de long, rachis de (7–)10–17(–22) cm de long, poilu ; pétiolules de 3–8 mm de long ; folioles habituellement alternes, ovales à elliptiques, de (4–)6–11 cm × (2–)3–6 cm, base arrondie à obtuse, apex obtus à légèrement acuminé, habituellement à extrémité faiblement émarginée, papyracées et épaisses, à poils brunâtres à l'état jeune mais glabrescentes par la suite, à 12–20 paires de nervures latérales.

Inflorescence : panicule axillaire ou terminale de 7–20 cm de long, densément couverte de poils bruns ; bractées jusqu'à 6 mm de long, tombant précocement.

Fleurs bisexuées, papilionacées ; pédicelle de 4–8 mm de long, poilu ; calice campanulé, d'environ 7 mm de long, densément poilu, à 5 dents triangulaires de 1–2,5 mm de long, les 2 supérieures plus ou moins connées ; corolle à pétales pourvus d'onglet, jaune doré, étendard presque circulaire atteignant 15 mm × 13 mm, ailes atteignant 13 mm de long, carène atteignant 10 mm de long ; étamines 10, soudées en une gaine atteignant 8,5 mm de long, l'étamine supérieure parfois libre ; ovaire supère, stipité, poilu, style atteignant 5 mm de long, presque glabre.

Fruit : gousse circulaire, aplatie, indéhiscente, de 4–7 cm de diamètre, sur un stipe atteignant 1 cm de long et pourvu d'une aile papyracée, finement nervurée à bord ondulé ou plissé, garnie d'aiguillons sur la partie qui porte les graines, de couleur paille, à 1(–2) graines.

Graines réniformes, plates à légèrement épaissies, d'environ 10 mm × 5 mm, lisses, rouges à brun foncé.

Plantule à germination épigée ; cotylédons foliacés (Duval opcit.).

2.1.3.2. Phénologie

En zone soudano-sahélienne du Cameroun, *Pterocarpus erinaceus* fait partie des espèces dites à floraison et feuillaison décalées dans le temps. la chute des feuilles a lieu précocement dès les premiers mois de la saison sèche. La succession des stades est généralement très synchronisée à l'intérieur d'une population et marque souvent profondément le paysage. Les individus d'une population peuvent être dénombrés à certaines périodes de l'année au milieu de la végétation sur des bases purement physionomiques : fleurs jaunes chez Pterocarpus erinaceus (Onana 1995).

L'intervalle de temps séparant les phases de floraison et de fructification est de deux à trois semaines. Les individus passent une bonne partie de la saison sèche défeuillées, portant uniquement des fleurs ou des fruits. Bien qu'appréciées par les animaux, ils n'ont pour la plupart qu'un rôle très limité dans I'alimentation du cheptel à cause de la faible quantité de feuilles disponibles au cours de la période de soudure. En zone soudano sahélienne, le comportement phénologique de P. erinaceus est différent de P. laxiflora, une autre espèce de la même famille (Onana opcit.). Les fleurs sont très visitées par les abeilles, qui sont probablement responsables de la pollinisation. L'arbre peut produire beaucoup de fruits de telle sorte que lorsqu'ils sont verts, on a l'impression que l'arbre est couvert de feuilles. Les jeunes feuilles se développent normalement après que les fruits ont mûri et sont devenus bruns. La régénération naturelle est souvent abondante et l'espèce peut être très envahissante si elle est protégée du pâturage pendant quelques années (Duvall 2008).

La floraison débute fin Août et se termine en Février, tandisque la fructification démarre fin Septembre et s'achève en Mars (Gautier et al. 2002).

2.1.3.3. Valeurs et anatomie

P. erinaceus fournit un bois jaunâtre ou rose rougeâtre. Il est très dur, lourd (densité 0,9), durable et résistant aux termites. Il se travaille bien mais a tendance à se fendre lorsqu'on le clou. C'est un des meilleurs bois d'Afrique occidentale pour l'ébénisterie (Gautier et al. 2002).

Description anatomique du bois (codes IAWA pour les bois feuillus) (Duvl opcit.):

Cernes de croissance : 2 : limites de cernes indistinctes ou absentes.

Vaisseaux : 5 : bois à pores disséminés ; 13 : perforations simples ; 22 : ponctuations intervasculaires en quinconce ; 23 : ponctuations alternes (en quinconce) de forme polygonale ; 26 : ponctuations intervasculaires moyennes (7–10 μm) ; 29 : ponctuations ornées ; 30 :

ponctuations radiovasculaires avec des aréoles distinctes ; semblables aux ponctuations intervasculaires en forme et en taille dans toute la cellule du rayon ; 41 : diamètre tangentiel moyen du lumen des vaisseaux 50–100 μm ; 42 : diamètre tangentiel moyen du lumen des vaisseaux 100–200 μm ; 46 : ≤ 5 vaisseaux par millimètre carré ; 58 : gomme ou autres dépôts dans les vaisseaux du bois de cœur.

Trachéides et fibres : 61 : fibres avec des ponctuations simples ou finement (étroitement) aréolées ; 66 : présence de fibres non cloisonnées ; 69 : fibres à parois fines à épaisses.

Parenchyme axial : 76 : parenchyme axial en cellules isolées ; 77 : parenchyme axial en chaînettes ; 80 : parenchyme axial circumvasculaire étiré ; 82 : parenchyme axial aliforme ; 83 : parenchyme axial anastomosé ; 86 : parenchyme axial en lignes minces, au maximum larges de trois cellules ; 91 : deux cellules par file verticale.

Rayons : (96 : rayons exclusivement unisériés) ; (97 : rayons 1–3-sériés (larges de 1–3 cellules)) ; 104 : rayons composés uniquement de cellules couchées ; 116 : ≥ 12 rayons par mm.

Structure étagées : 118 : tous les rayons étagés ; 120 : parenchyme axial et/ou éléments de vaisseaux étagés ; 121 : fibres étagées.

Inclusions minérales : 136 : présence de cristaux prismatiques ; 142 : cristaux prismatiques dans les cellules cloisonnées du parenchyme axial (Duval opcit.).

2.1.3.4. Synthèse des caractères physiques et chimiques.

Bois de coeur non fluorescent. Extrait aqueux fluorescent (faiblement vert bleuâtre); teinte dominante de l'extrait aqueux incolore à brun. Extrait alcoolique fluorescent (bleu, violet, rose vif, selon l'origine de l'échantillon); teinte dominante de l'extrait alcoolique incolore à brun, ou rouge (presque incolore à brun rougeâtre, selon l'origine de l'échantillon). Test de mousse négatif. Résidus de combustion d'un éclat cendres uniquement; couleur de la cendre blanc à gris (Richter et al. 2014)

2.1.3.5. Croissance et développement

Les semis développent une longue racine pivotante. Ils poussent lentement. Au Cameroun, la croissance du *Pterocarpus* est d'abord assez lente puis augmente à partir de 4-5 ans. C'est une espèce très envahissante (Gautier et al. 2002). Au Mali, des semis n'ont atteint que 15 cm de haut après un an et 42 cm après deux ans. Cependant, dans de meilleures conditions, une hauteur atteignant 25 cm 21 semaines après la germination a été signalée et jusqu'à 100 cm au bout de 2 ans. Au nord de la Côte d'Ivoire, des plants repiqués avaient atteint une hauteur moyenne de 9 cm après 3 mois, de 50 cm après 18 mois, de 2,8 m après 2,5 années,

de 4,4 m après 4,5 années et de 5,5 m après 5,5 années. L'arbre dont la croissance a été la plus rapide faisait 10 m de haut au bout de cinq ans et demi. Les arbres recépés peuvent croître de plus de 1 m par an. La régénération naturelle est souvent abondante et l'espèce peut être assez envahissante si on la préserve quelques années du broutage. Les racines forment des nodules qui contiennent des bactéries fixatrices d'azote. Cependant, Pterocarpus erinaceus n'a qu'un faible potentiel fixateur d'azote en comparaison avec d'autres arbres de la famille des légumineuses (Duval opcit.).

2.1.4. Ecologie et occurence (distribution) au Cameroun

Ecologie

Pterocarpus erinaceus est présent dans les savanes arborées et forêts sèches ouvertes des terres semi-arides à sub-humides jusqu'à 600(–1200) m d'altitude, dans des régions où la pluviométrie annuelle atteint 600–1200(–1600) mm, ayant une saison sèche modérée ou très longue qui peut durer de 8 à 9 mois. La température moyenne annuelle dans son aire de répartition est de 15-32°C, mais l'espèce tolère des températures élevées dépassant les 40°C. On le trouve sur tous types de sols, mais il préfère les sols acides à neutres, légers à moyens, drainant librement. Il peut survivre aux incendies de brousse annuels. Les individus tolèrent la sécheresse et, une fois enracinés, résistent aux différentes saisons sèches annuelles. Les individus résistent aussi aux feux de brousse et colonisent facilement les terres en jachère. Au Cameroun, *P. erinceus* apprécie les savanes soudaniennes et soudano-guinéennes. Elle colonise les jachères abandonnées et les savanes déboisées. Elle se développe sur tous les types de sols, avec une préférence pour les sols peu profonds, sur fond gravillonaire, ainsi que les bas de pente et les talus (Gautier et al. 2002, Duval 2008, https://www.cites.org/sites/default/files/fra/cop/17/prop/F-CoP17-Prop-57.pdf).

P. erinaceus fait partie des rares espèces ligneuses rencontrées sur sol sableux épuisé, dans les jachères de l'Extrême Nord Cameroun. Elle se trouve aussi en faible densité dans la végétation ripicole. P0 erinaceus se retrouve de manière dispersée dans des prairies inondables ou yayrés (Seignobos et Iyébi-Mandjeck 2005).

Occurence

Les données compilées à partir des collections conservées dans l'Herbier National du Cameroun (HNC) à Yaoundé et celles obtenues à partir des entretiens menés avec certaines personnes ressources permettent de relever que *P. erinaceus* serait présente dans au moins six régions du Cameroun à savoir: Nord Ouest, Sud Ouest, Est, Adamaoua, Nord, et Extrême Nord. Le tableau 1 présente les lieux de présence signalée de l'espèce et la source. La principale zone

de prédilection, regorgeant encore des vastes peuplements naturels reste le grand Nord (Adamaoua, Nord et Extrême Nord).

Tableau 1: Présence (occurence) de *Pterocarpus erinaceus* au Cameroun

Numéro collecteur	jour	moi	année	collecteur	Région	station	Lieu précis de collecteur	Source
3565	31	12	1975	Geerling C.	Nord	Demsa	Damsa	HNC
4615	12	4	1974	Geerling C.	Nord	Ecole de Faune Garoua	Ecole de faune	HNC
	13	2	1953	inconnu	Extrême Nord	Mokolo	Route Mokolo - Maroua.	HNC
3589	6	3	1991	Letouzey R.	Est	Babio	A 5 Km au SE de Babio, près du "lac Bafou". IGN Betare Oya	HNC
13989	9	7	1975	Letouzey R.	Nord Ouest et Sud Ouest	Akwaya	Piste Munka (=Munkep sur feuille IGN. 1/200.000 - Akwaya) à Akum (rive droite Katsina Ala, en face Munka Ngondje, village disparu, de la feuille IGN- 1/200.000 - Nkambé); 45 km NNW. Wum.	HNC
4		3	1949	Malzy		Garoua	Garoua	
15496	10	4	1981	Meijer W.		Garoua	10 Km au Sud de Garoua	HNC
12587	17	12	1964	Raynal J.		Sanguere	10 Km au Se de Garoua	HNC
	22	4	2020	Ben		Meiganga	Village Ngalbidjé	Sous Direction/Forêts communautaires
	22	4	2020	Kowé		Meiganga	Village Soulewa	Sous Direction/Forêts communautaires

2.2. Rôle de l'espèce dans son écosystème

Pterocarpus erinaceus est une espèce légumineuse importante dans son habitat: l'espèce fixe l'azote atmosphérique grâce à une relation symbiotique avec les Rhizobium, les bactéries du sol. L'espèce est l'une des principales composantes de l'habitat de la savane boisée et peut survivre aux feux de brousse au cours de l'année. En contribuant à réduire l'exploitation illégale et non durable actuelle de l'espèce pour le commerce international, une inscription à l'Annexe II aidera à protéger les habitats uniques du *P. erinaceus* en protégeant cette importante espèce clé (https://www.cites.org/sites/default/files/fra/cop/17/prop/F-CoP17-Prop-57.pdf).

2.3. Taille, structure des populations et tendances

2.3.1. Taille et structure des populations

Le Cameroun avec le concours des partenaires au développement a déjà conduit deux campagnes d'inventaires forestiers nationaux. Le premier inventaire forestier national réalisé au cours des années 1980 (CENADEFOR - CTFT 1983, 1985) a conduit à l'élaboration de normes principales et des outils techniques nécessaires à la gestion du domaine forestier. Cet inventaire n'a malheureusement pas couvert les phases prévues dans le grand Nord (régions de l'Adamaoua, Nord et Extrême Nord); il s'est limité au grand Sud forestier. Le second inventaire forestier national réalisé par la FAO en 2004 par contre a pu couvrir une bonne partie du grand Nord (FAO 2005). C'est ce dernier inventaire qui nous intéresse dans ce travail.

Comme inventaire de reconnaissance, le taux de sondage a été assez faible, de l'ordre de 0,01 pour 1000. Le territoire camerounais a été divisé en deux grandes strates : la strate Sud constituée des forêts et la strate Nord constituée en grande partie des savanes. Le maillage (distance entre les unités d'échantillonnage) était différent suivant la strate considérée. Dans la strate Sud, il était de 30' (latitude) X 15' (longitude) alors que dans la strate Nord il était de 30' (latitude) X 30' (longitude). Ce plan de sondage a permis de définir 235 unités d'échantillonnage (UE) qui sont présentées sur la Figure 1. Les informations étaient collectées exclusivement à l'emplacement des unités d'échantillonnage. Les données étaientt relevées à différents niveaux: l'unité d'échantillonnage qui constitue le niveau le plus élevé et des sous-unités de taille plus petite délimitées à l'intérieur de l'unité d'échantillonnage. Les unités d'échantillonnage sont des carrés de 1 Km de côté. Les coordonnées de coin sud-ouest de ces unités correspondent à celles des points du plan systématique initial. Chaque unité d'échantillonnage contient un groupe de 4 placettes d'observation de terrain. Les lignes de base de ce groupe de placettes forment un carré de 500 m de côté dont le centre coïncide avec le

centre de l'unité d'échantillonnage. Les placettes sont des rectangles de 20 m de large et 250 m de long. Elles partent de chacun des angles du carré. Les placettes sont numérotées de 1 à 4, dans le sens des aiguilles d'une montre. La surface effectivement échantillonnée par UE est de 4 placettes x 250 m de long x 4 m de large = 20 000 m², soit 2 ha. Pour une superficie totale de 475 000 km^2 (47 500 000 ha) et 235 x 2 ha sondées, le taux de sondage serait de l'ordre de 0,0099 pour mille. Ce taux est conforme pour ce type d'inventaire, inventaire de reconnaissance.

Un total de 200 UE a été inventorié sur les 235 prévus, soit 85,1% des UE balayées. Quarante six (46) UE ont été effectivement inventoriées dans la strate 2, soit dans les régions de l'Adamaoua, Nord et Extrême Nord reconnues comme zones de prédilection de *P. erinaceus*. La surface totale échantillonnée est de 400 ha pour tout le pays et 92 ha pour la strate 2. Un total de 15299 tiges distribuées dans 592 espèces (essences) ligneuses a été inventorié sur les 400 ha de forêts balayés par les équipes d'inventaire. Soixante six (66) tiges de *P. erinaceus* a été compté, représentant une densité globale de 0,16 tige/ha pour l'ensemble du triangle national et 0,71 tiges/ha pour sa principale zone d'occupation (grand nord). L'abondance exprimée par le rapport en pourcent du nombre de tige de *P. erinaceus* sur le nombre total des tiges de toutes les espèces (Fréquence selon le document FAO 2005) est de 0,43%. Cette fréquence est de loin supérieure au seuil de 0,01% considéré par les auteurs de cet inventaire comme seuil critique pour déclarer une espèce comme rare et ou éventuallement menacée (FAO opcit.). De même, les densités obtenues quelque soit le niveau d'estimation, à savoir nationale (0,16 tiges/ha) ou alors régionale (0,71 tiges/ha) restent toutes très élevées, car largement supérieur au seuil critique de 0,05 tige/ha, autorisé pour l'exploitation au Cameroun (Forni 1997). Il n'a pas été possible de ressortir à partir des données obtenues, la structure diamétrique des tiges de *P. erinaceus* en vue de déceler les éventuels problèmes de régénération forestière et de renouvellement de la ressource.

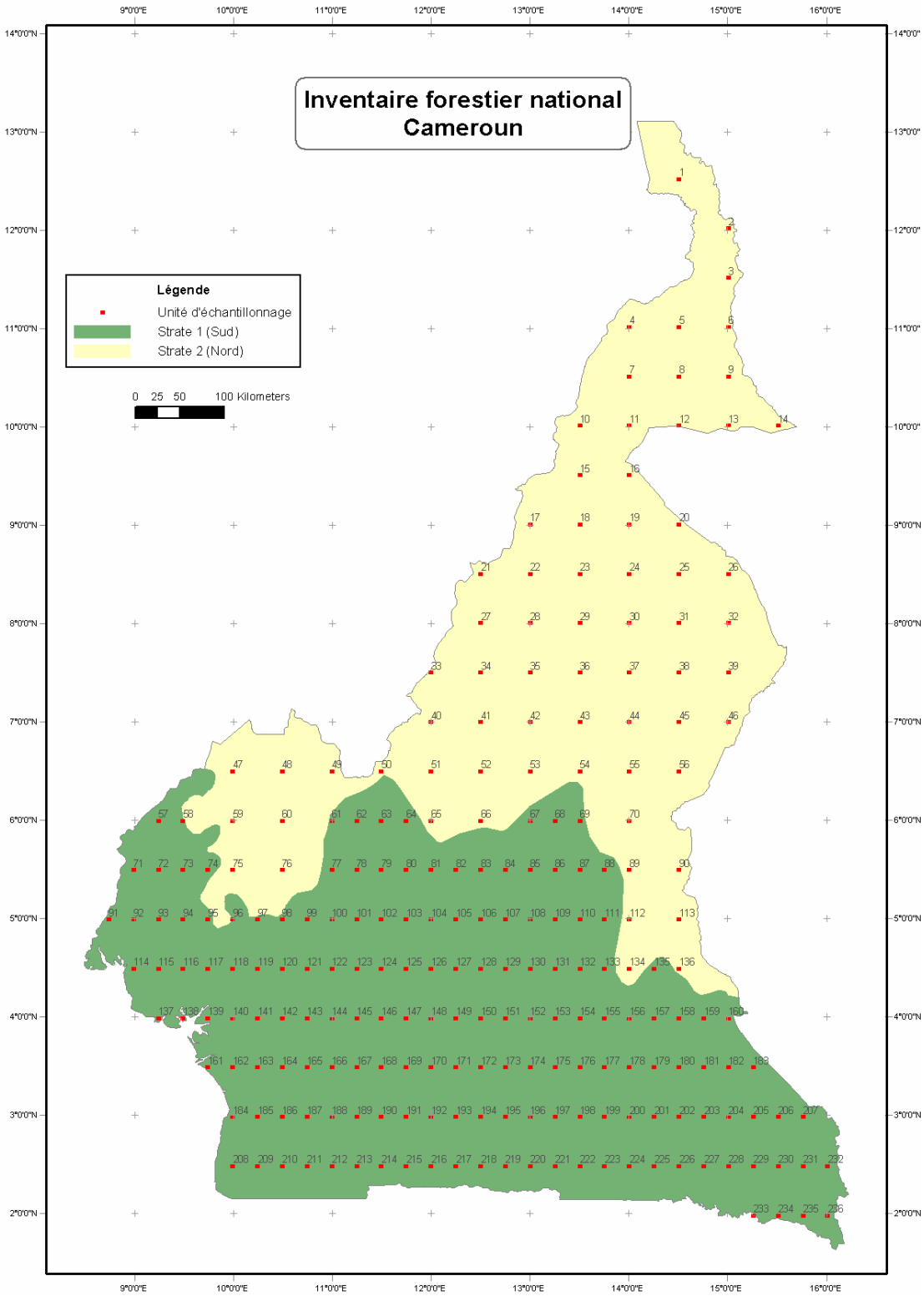

Figure 1. Illustration des unités d'échantillonnage balayées lors de l'inventaire national réalisé en 2004 au Cameroun (FAO 2005).

2.3.2. Tendances

Les informations disponibles indiquent que plus de 65% des habitats naturels de forêts sèches d'Afrique ont été détruits à la suite de l'expansion agricole, la déforestation et le surpâturage, qui ont été alimentés par la rapide croissance de la population humaine et la pauvreté. L'écorégion mosaïque de forêt-savane guinéenne dont Pterocarpus erinaceus est une espèce clé et a été classé comme ayant un statut critique/menacée d'extinction. Durant la période de 1990- 2000, il a été estimé que les forêts sèches et les pays forestiers en Afrique sub-saharienne ont perdu près de 5 millions d'hectares de couvert forestier chaque année soit près de 1% du couvert forestier en 2000 (CITES/ CoP17 Prop. 57.).

Il est pour le moment assez difficile d'examiner les tendances des populations de *P. erinaceus* au Cameroun. Plusieurs raisons permettent de supporter cela et notamment (1) le faible taux de couverture des inventaires forestiers nationaux conduits dans les années 80 et (2) l'absence des données brutes de l'inventaire forestier national de 2004.

3. Etat des lieux sur l'exploitation, les menaces et la régénération de *P. erinaceus*

P. erinaceus est utilisé comme bois de service et d'artisanat. Il fournit également un excellent bois de chauffe. Les feuilles sont fortement appétées par le bétail. C'est également un excellent fourrage qui contient un taux élevé de protéines, de l'ordre de 19% (Gautier et al. 2002).

Au Cameroun, l'exploitation et transformation actuelle de *P. erinaceus* ne suit aucune norme établie de gestion au Cameroun. Il semble qu'il n'y ait pas vraiment de commerce international pour le bois d'œuvre de P. erinaceus, mais il est de plus en plus sollicité dans le sciage sauvage. Selon les informations obtenues de certains services de l'administration en charge des forêts, le bois obtenu de manière illégale à partir du Cameroun est exporté vers la Chine via le Nigéria. Autrefois, la principale menace pour l'espèce était la surexploitation des branches pour le fourrage des animaux. Avec la demande chinoise des dernières années, la récolte illégale et non contrôlée, risque devenir la principale menace. D'où l'urgence d'anticiper et prendre des mesures visant à régulariser cette nouvelle forme d'exploitation.

La régénération naturelle est souvent abondante et l'espèce peut être très envahissante si elle est protégée du pâturage pendant quelques années (Duvall 2008).

4. Etat des lieux sur la multiplication, domestication et conservation des habitats

Le poids de 1000 graines est d'environ 50 g. Le taux de germination des graines non traitées est d'environ 50%. Un trempage dans l'eau pendant 12–24 heures et un traitement à l'acide sulfurique pendant 30–60 minutes améliorent la germination, qui débute 6–10 jours après le

semis, avec un taux de plus de 70%. Un taux de germination de 100% a été atteint à l'aide d'une scarification mécanique, avec un semis dans 1% d'agar, une incubation à 21°C et une photopériode de 12 heures. La température de germination optimale est de 25–35°C. Les graines peuvent être semées en pots ou en planches à un espacement d'environ 20 cm × 30 cm. Les plants peuvent se repiquer à partir de pots ou en racines nues, soit comme stumps, soit comme plants entiers. Le taux de survie est généralement élevé lorsque les plants sont protégés du bétail et des herbivores sauvages. L'espèce se régénère par semis naturels, rejets de souche et drageons Des drageons se développent régulièrement et peuvent servir à une multiplication végétative. Une multiplication par bouturage a également réussi. L'espacement recommandé est de 3–5 m × 3–5 m pour les plantations de bois d'œuvre et de 1 m × 2 m pour les plantations destinées à une production de fourrage (Duval. 2008, Goba et al. 2019).

Le Cameroun s'est lancé depuis longtemps dans la conservation de la biodiversité par la créaion de nombreuses aires protégées. Faute de données précises sur l'aire d'occupation (le rapport de l'inventaire forestier national de la FAO ne nous permet de disposer de ces informations), il est très difficile de fournir des informations spécifiques supplémentaires sur le nombre, la taille et le type d'aires protégées nécessaires pour l'habitat de l'espèce, ou sur les programmes spécifiques de conservation des habitats en dehors des aires protégées.

5. Etat des lieux sur l'arsenal juridique et institutionnel

5.1. Présentation de la législation forestière camerounaise

Les éléments présentés dans les sections précédentes permettent de considérer l'espèce *Pterocarpus erinaceus* comme une ressource productrice à la fois de produits forestiers ligneux (bois d'œuvre ou de sciage) et non ligneux (feuilles pour alimentation du bétail et écorces médicinales). La gestion de ces deux types de produits est bien prévue dans la politique forestière du Cameroun, à travers différents titres dont : les unité forestières d'aménagement (UFA), forêts communales (Fc), les ventes de coupe (VC), les permis de coupe (PC) pour les produits ligneux, et les unités d'allocation (UA) et les permis spéciaux (PS) pour les produits forestiers non ligneux, et notamment les produits spéciaux. Les forêts communautaires sont indifféremment des titres sollicités pour l'exploitation de l'un ou l'autre de ces deux types de produits (ligneux et non ligneux). Jusqu'ici, les quelques UA octroyées n'ont concerné que l'exploitation de *Prunus africana*, une espèce listée dans l'annexe II de la CITES.

Le Cameroun est considéré comme l'un des pays lese plus avancés en matière de politique forestière dans le bassin du Congo (Carret, 2000 ; Karsenty 2006). Cela signifie que le Cameroun est le premier pays à avoir produit et mis en œuvre un bon et cohérent code forestier

dans la sous-région, après le sommet du monde (Rio de Janeiro en 1992). Le point important à relever est que toutes les architectures techniques et juridiques en matière de gestion durable des forêts tropicales naturelles du Cameroun ont été conçues:

- Un code forestier moderne, mettant en place un système de gestion durable des forêts naturelles est en vigueur depuis 1994;
- Des normes techniques des opérations forestières sont en vigueur, tous les concessionnaires privés sont tenus de les appliquer;
- Des lignes directrices nationales sur la gestion des forêts sont disponibles et l'arrêté N° 0222 /A/MINEF du 25 Mai 2001 les mettent en vigueur dans le secteur forestier;
- Le Cameroun vient de rédiger en 2019, de nouvelles « Directives d'inventaires d'aménagement et de préinvestissement » ;
- Le Cameroun a conçu ses propres principes, critères et indicateurs de gestion durable des forêts de production tropicales naturelles (comme une adaptation de l'OAB/OIBT/PCI);
- Le Cameroun a conçu un manuel de suivi et d'évaluation pour la gestion durable des forêts de production;
- Le Cameroun exécute un programme sectoriel forestier, comme un outil pour financer les activités nécessaires pour soutenir l'exécution de sa politique forestière et de son plan d'action;
- Le Cameroun a signé de nombreux accords avec des partenaires multilatéraux basés sur une bonne gestion de son secteur forestier (accord de partenariat volontaire avec l'Union européenne, etc.);

Comme on peut le constater, tous les instruments juridiques et techniques de gestion durable des forêts de production naturelles sont disponibles et sont de bonne qualité. Le seul problème du Cameroun est l'exécution; amener les gens à appliquer les textes en vigueur. Le Gouvernement Camerounais à travers son administration forestière intervient à différentes étapes afin de s'assurer de la conservation des ressources forestières: la connaissance de la ressource, le zonage du pays et l'affectation des différentes utilisations des terres, l'amélioration des contrôles forestier et le suivi des revenus.

Il y a plus de 25 ans, le Gouvernement Camerounais a décidé avec l'aide de la Communauté internationale, de faire face à la problématique générale du développement durable des forêts.

Par conséquent, le Gouvernement a d'abord concentré ses efforts sur la connaissance de la ressource en bois de la zone méridionale ou forestière du pays.

Un premier inventaire forestier national a donc été planifié en 7 phases. Quatre (4) de ces phases ont été réalisés dans les années 80, pour un bloc forestier total de 14 000 000 hectares, à la limite Nord située à environ 4° parallèle. En fait, le travail de base entrepris dans l'inventaire national réalisé au cours des années 1980 (CENADEFOR - CTFT 1983, 1985) a conduit à l'élaboration de normes principales et des outils techniques nécessaires à la gestion du domaine forestier. Ces outils comprennent: (1) Le plan de zonage (phases 1-4 de l'inventaire national) qui a conduit à la division de la zone forestière en deux types de domaines principaux notamment : le Domaine Forestier Permanent (DFP) et le Domaine Forestier Non Permanent (DFnP), et (2) toutes les normes relatives aux interventions en milieu forestier (Forêts de production à préciser).

Le domaine forestier non permanent comprend les forêts communautaires, les ventes de coupe (les concessions forestières ne pouvant pas excéder 2 500 ha), et les zones minières. Il est également composé de terres affectées à des activités agricoles et agroforestière (République du Cameroun 1994, 1995). Le domaine forestier permanent est divisé en forêts domaniales qui appartiennent à l'État, et en forêts communales qui appartiennent au domaine privé des communes. Les forêts domaniales comprennent les forêts de production, les aires protégées et les réserves forestières (Figure 2).

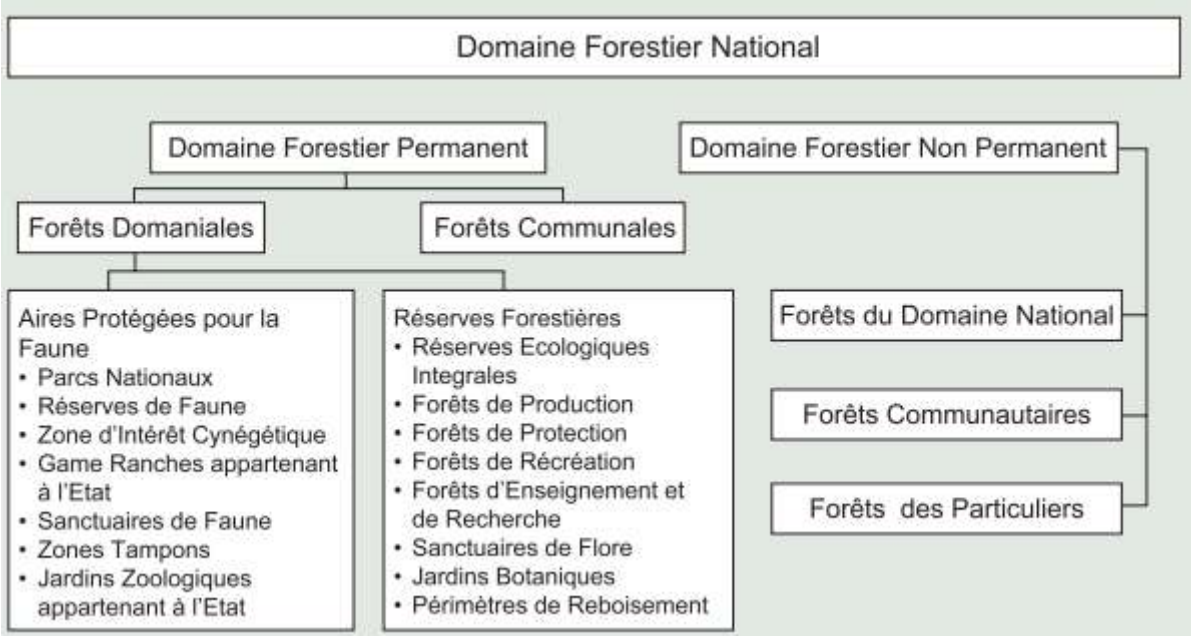

Figure 2: Schéma du zonage et de la classification des terres au Cameroun

La politique gouvernementale en matière forestière a été adoptée en 1993. Son objectif général était de « **pérenniser et développer les fonctions économiques, écologiques et sociales des forêts du Cameroun, dans le cadre d'une gestion intégrée qui assure, de façon soutenue et durable, la conservation et l'utilisation des ressources et des écosystèmes forestiers** ». Fondée sur les réalités nationales ainsi que sur les valeurs partagées avec la communauté internationale en matière environnementale (Sommet de la Terre, Rio 1992), elle est articulée autour de 4 grandes orientations : (1) assurer la protection de patrimoine forestier national et participer à la sauvegarde de l'environnement et à la préservation de la biodiversité ; (2) améliorer l'intégration des ressources forestières et fauniques dans le développement rural, afin de contribuer à élever le niveau de vie des populations et de les faire participer à la conservation des ressources ; (3) mettre en valeur les ressources forestières en vue d'augmenter la part de la production forestière dans le PIB, tout en conservant le potentiel productif ; (4) dynamiser le secteur forestier en mettant en place un système institutionnel efficace et en faisant participer tous les intervenants dans la gestion du secteur (République du Cameroun 1994, 1995).

Le Cameroun s'est donc engagé, suite à l'objectif fixé, avec l'appui de la communauté internationale, dans un programme de réformes visant la promotion et l'amélioration de la gouvernance forestière. Dans les années 2000 ces réformes se sont poursuivies dans le cadre du 3ème crédit d'ajustement structurel (CAS III) focalisé sur 3 objectifs essentiels de la politique forestière à savoir : (1) la gestion durable de la ressource ; (2) la génération de la croissance économique ; (3) la contribution à la lutte contre la pauvreté et le développement d'un secteur privé dynamique et efficace.

Les forêts de production sont principalement composées de grandes concessions forestières. Chaque concession forestière est composée d'une ou de plusieurs forêts de plus de 5.000 ha, appelé les Unités Forestière d'Aménagement (UFA). Le processus de classement d'une UFA comprend trois étapes principales: (1) la collecte de données et les consultations locales, (2) la confection du fichier et la signature du décret de classement, et (3) le bornage.

L'exploitation forestière est menée dans le pays sur la base de la convention d'exploitation forestière pour ce qui est du domaine permanent, et par la convention de gestion pour ce qui est fait dans le domaine non-permanent. L'attribution de ces différentes conventions est subordonnée par la validation du plan d'aménagement (concessions forestières) ou des plans simples de gestion (forêts communautaires) par un Comité Interministériel présidé par l'administration forestière.

Les Unités Forestière d'Aménagement (UFA) sont affectées à la production durable du bois et d'autres ressources (ressources forestières non ligneuses, par exemple) dans le respect des conditions permettant la préservation des fonctions écologiques de la forêt. Plus de 83 unités forestières d'aménagement ont été attribuées pour une superficie totale de 1 835 367 ha au Cameroun.

Lors de l'attribution de l'UFA à une société donnée, une convention provisoire de trois (3) ans est signée entre l'administration forestière et la société forestière. Les termes de cette convention provisoire précise que la société forestière doit produire au cours des trois années de la convention et avant la signature de la convention définitive, trois types de documents en ce qui concerne les normes et les règles indiquées dans la loi forestière notamment :

- un plan d'aménagement pour l'ensemble de la concession (UFA) ;
- un plan de gestion de gestion quinquennal (pour l'Unité forestière d'exploitation) ;
- le plan opérationnel de la première année d'activité ;

A la fin de la convention provisoire, une convention définitive est alors signée entre la Société forestière et le gouvernement du Cameroun pour une période de 15 ans renouvelable. A chaque étape de l'élaboration du plan d'aménagement, l'administration forestière vérifie ce qui a été réalisé à l'étape précédente avant de donner son quitus pour l'étape suivante.

La loi forestière cherche à promouvoir une exploitation durable du bois (par l'augmentation du volume de récolte par hectare) et les produits forestiers non ligneux, et aussi à diversifier et à assurer une grande transformation des ressources forestières. Cela n'implique pas seulement l'établissement des unités de traitement appropriées et performantes (scieries), mais exige également l'adéquation entre les capacités des scieries et la disponibilité des ressources.

Les mesures entreprises avec l'application de la nouvelle loi forestière ont eu un impact significatif dans le développement du secteur forestier. Ces mesures et règles inclues: l'interdiction de l'exportation de grumes pour de nombreuses espèces végétales, l'instauration de la taxe supplémentaire pour l'exportation de grumes des espèces végétales restantes, l'obligation pour les entreprises forestières de mettre sur pied une scierie passable/moyenne.

Suite à ces mesures, le nombre des industries forestières a augmenté dans le pays, mais le volume de la récolte par hectare n'a pas augmenté. Afin d'assurer la contribution du secteur forestier dans l'économie nationale, le gouvernement Camerounais a pris deux mesures importantes:

- L'attribution de l'UFA à travers un processus d'appel d'offres à savoir l'arbitrage ;
- La création du Programme de Sécurisation des Recettes Forestières (PSRF).

L'allocation concurrentielle de l'UFA assure des revenus élevés, tandis que la création du PSRF en 1999 vise à sécuriser les recettes et à lutter contre la fraude fiscale. Ces mesures sont connues comme des conditions principales, requises pour améliorer la fiscalité forestière ou environnementale.

5.2. Evolution du cadre institutionnel en charge des produits forestiers au Cameroun

Durant les années 1980, la forêt était placée sous la responsabilité de l'ex-Ministère de l'Agriculture, (MINAGRI) tandis que la faune relevait du Secrétariat au Tourisme. Quant à la recherche forestière, elle incombait à l'Institut de Recherche Agricole pour le Développement (IRAD). En 1993, les autorités politiques ont opté pour le regroupement de ces centres de décision en créant le Ministère de l'Environnement et des Forêts (MINEF). Celui-ci va éclater par la suite en deux Ministères le 8 décembre 2004, à savoir le Ministère des Forêts et de la Faune (MINFOF), d'une part, et le Ministère de l'Environnement et de la Protection de la Nature (MINEP), d'autre part.

Les principaux organismes mis en place pour accompagner l'action de l'Etat ont également connu des mutations, tant au plan structurel qu'au niveau de la compétence. Il s'agit notamment au fil du temps:

- du Fonds Forestier (sous la tutelle de l'ex-MINAGRI jusqu'en 1974), dont l'activité portait principalement sur les plantations forestières domaniales ;
- du Fonds National Forestier et Piscicole (sous la tutelle de l'ex-MINAGRI de 1974 à 1982), consacré au développement des plantations forestières domaniales et à la promotion de la pisciculture ;
- de l'Office National de Régénération des Forêts (sous la tutelle de l'ex-MINAGRI de 1982 à 1990), chargé des plantations forestières domaniales et de la vulgarisation sylvicole ;
- du Centre National de Développement Forestier (sous la tutelle de l'ex-MINAGRI de 1982 à 1990), dont la mission consistait à réaliser les inventaires et aménagements forestiers, intéresser les nationaux à l'activité forestière et à suivre l'économie forestière ;
- de l'Office National de Développement des Forêts (sous la tutelle de l'ex-MINAGRI /MINEF de 1990 à la création de l'ANAFOR) dont les missions étaient identiques à celles du Centre National de Développement Forestier ; puis désormais de l'Agence Nationale d'appui au Développement du Secteur Forestier (sous la tutelle de l'ex-MINEF/MINFOF de 2002 à nos jours), ANAFOR, avec pour rôle

d'appuyer le développement des plantations forestières, des communautés et des privés.

De ce qui précède, on observe une grande instabilité des institutions en charge de la gestion des ressources forestières avec une attention principalement portée sur les ressources ligneuses. Quoiqu'il en soit, les actions du sous-secteur des forêts et de la faune sont exécutées dans le cadre des missions dévolues au MINFOF par le décret n° 2005/099 du 06 avril 2005. Celui-ci exerce ces missions conformément aux orientations de la politique forestière, dont les activités sont réalisées dans le cadre du Programme Sectoriel Forêt-Environnement, en tenant compte des prescriptions de la loi n°2007/006 du 26 décembre 2007 portant régime financier de l'Etat. En outre, le sous-secteur forêt-faune assure la liaison entre le Gouvernement et l'Organisation Internationale des Bois Tropicaux (OIBT) et la Commission des Forêts d'Afrique Centrale (COMIFAC) en relation avec le Ministère des Relations Extérieures. Il assure également le suivi des conventions, accords et engagement internationaux concernant les forêts, les zones à écologie fragile, la faune et les espèces en danger. Il exerce la tutelle sur l'Agence Nationale de Développement des Forêts (ANAFOR), sur l'Ecole Nationale des Eaux et Forêts (ENEF) et sur l'Ecole de Faune de Garoua (EFG).

5.3. Des bases légales favorables au développement local

Le cadre juridique des ressources forestières est fortement influencé par la logique internationale qui repose sur toute exploitation des ressources forestières sur une gestion écologique propice au bien être socio-économique des communautés qui en sont principalement dépendantes. On retrouve cette logique dans les dispositions légales relatives aux produits forestiers non ligneux, dispersées dans l'ensemble des textes forestiers camerounais.

L'engagement du législateur camerounais en faveur de la promotion durable des produits forestiers non ligneux se justifie par l'adhésion de l'Etat camerounais à un ensemble de textes internationaux relatifs à la gestion de la biodiversité. Au niveau sous régional, des directives relatives à la gestion des forêts de production et des produits forestiers ont été adoptées par les Etats regroupés au sein de la Commission des forêts d'Afrique centrale (COMIFAC). Dans le droit positif camerounais, les dispositions relatives aux produits forestiers se retrouvent dans l'ensemble des textes portant régime des forêts et gestion de l'environnement. Les textes les plus pertinents qui recoupent le cadre juridique des produits forestiers non ligneux sont : la loi n°94-01 du 20 janvier 1994, portant régime des forêts de la faune et de la pêche ;le décret N°95/531/PM du 23 août 1995 fixant les modalités d'application

du régime des forêts ;la décision n°0336/D/MINFOF du 06 juillet 2006 fixant les produits forestiers ayant un intérêt particulier au Cameroun ; l'arrêté n°222/A/MINEF du 25 mai 2001 fixant les procédures d'élaboration, d'approbation, de suivi et de contrôle de la mise en œuvre des plans d'aménagement des forêts de production du domaine permanent ; la lettre-circulaire n°0253/LC/MINFOF/SG/DF/SDAFF du 31 mai 2006, relative aux documents exigés dans les check points et postes de contrôle fixes ou mobiles ;la décision n° 0003/D/MINEF/SG/DF du 09 janvier 2004 portant octroi des quotas des produits forestiers spéciaux ; et le décret n° 2005/099/PR du 06 avril 2005 portant organisation du Ministère des Forêts et de la Faune (MINFOF).

L'objectif utilitariste est perceptible dans l'esprit de ces textes juridiques. On y décèle une vision du développement durable du territoire tout entier à travers la ressource exploitée. En même temps, le développement des localités où l'exploitation menée reste un objectif spécifique capital. L'analyse juridique de l'encadrement normatif de l'exploitation des produits forestiers au Cameroun, laisse penser que la réglementation nationale reste favorable à un développement socio-économique des localités riveraines des forêts et à une conservation des produits forestiers.

5.4. Evolution observée dans les procédures actuelles d'exploitation, de transformation et d'aménagement des prduits spéciaux

La législation camerounaise utilise le vocable « produits spéciaux » pour désigner les Produits forestiers non ligneux de nature végétale. La politique forestière du Cameroun sur les PFNL de nature végétale a connu plusieurs phases dans son processus d'évolution (Betti 2007).

La politique forestière sur les produits « produits spéciaux », a évolué progressivement au Cameroun car le pays est parti d'une situation d'exploitation quasi-gratuite vers une exploitation génératrice des recettes fiscales pour le bénéfice de l'Etat. Le taux de recouvrement de la taxe de régénération a augmenté traduisant une évolution de la contribution du secteur « produits spéciaux » dans l'élargissement de l'assiette fiscale. Les changements importants ont été apportés au niveau de la sécurisation des recettes avec notamment la création du PSRF dans les années 2000. Dés lors, les bénéficiaires des titres d'exploitation se soumettent depuis 2008 au respect des quotas attribués avec notamment l'instauration de deux outils à savoir le carnet de suivi des prélèvements et le carnet de lettres de voitures. Le système des carnets de lettres de voiture et de suivi des produits spéciaux proposé en 2007 est intéressant en ce sens qu'il permet non seulement de mieux renforcer le contrôle et le suivi de l'exploitation des produits

spéciaux, mais aussi et surtout il met les exploitants, transporteurs, commerçants, industriels ou exportateurs à l'abri de l'arnaque et des tracasseries routières (police). A terme, le système est conçu pour mettre fin à la contrainte de péage à priori (avant récolte) de la taxe de régénération. La traçabilité documentaire, faite au travers des informations enregistrées dans ces outils permet de mieux sécuriser les recettes fiscales et donc de ne plus soumettre les opérateurs économiques au péage à priori des taxes sur les quantités de produits qu'ils n'arrivent parfois pas à récolter et écouler. Ceci constitue une avancée importante dans la politique sur les produits spéciaux au Cameroun ; et positionne ce pays parmi les plus avancés en matière de développement des outils de gestion durable des PFNL dans le bassin du Congo. Cette évolution positive ne doit tout de même pas nous faire oublier certains problèmes clés qui minent encore le développement de la politique et du secteur PFNL au Cameroun. Ces problèmes concernent essentiellement la méconnaissance de la ressource, les nombreux conflits entre les différents acteurs au sein de la filière PFNL ou encore avec d'autres filières.

Le premier problème et le plus important réside tout d'abord au niveau de la méconnaissance quasi-totale de la ressource, tant sur le plan qualitatif que quantitatif. Les quotas ou potentiel même à titre indicatif de ces produits ne sont pas connus. Faute de données d'inventaires, on ne saurait projeter la durabilité de l'exploitation de ces ressources à l'heure actuelle au Cameroun. Les quotas attribués présentement le sont essentiellement sur base des données informelles (Betti, 2007). Des attributions faites de cette manière ne sont pas indiquées. Elles peuvent avoir des conséquences énormes sur le plan écologique (épuisement de la ressource) ou alors sur le plan économique (perte de la clientèle qui parfois veut s'assurer de la régularité de la production, exploitation en dessous de sa capacité en raison des faibles tonnages octroyés, avec risque du mauvais amortissement des investissements consentis par l'opérateur).

6. Plan d'action stratégique sur la gestion durable de *Pterocarpus erinaceus* au Cameroun.

6.1. Objectifs

L'objectif global de ce plan d'action est de promouvoir la gestion durable et plus rentable de P. erinaceus au Cameroun

Les objectifs spécifiques sont:

- connaître la ressource et les produits dérivés ;
- proposer des schémas de gestion et mettre en oeuvre ces schémas;
- élaboration des normes de gestion et mise en place d'un système de contrôle.

6.2. Activités

Les activités identifiées et à mener sont listées ci-après pour chaque objectif spécifique.

6.2.1. Objectif spécifique 1 : Connaissance de la ressource

La connaissance de la ressource est une étape primordiale dans l'objectif global de production et valorisation de *Pterocarpus erinaceus*. La connaissance de la ressource va s'opérer en trois étapes principales dans la suite logique suivante : état des lieux, enquêtes ethnobotaniques, inventaires et zonage .

6.2.1.1. Etat des lieux sur Pterocarpus erinaceus

L'état des lieux sera basé essentiellement sur les données disponibles dans la littérature. Afin de limiter les opérations de confirmation des identifications, il faudra limiter cette littérature essentiellement au niveau des publications scientifiques de qualité établie. Les rapports, mémoires, et thèses non publiées sont à proscrire;

6.2.1.2. Enquêtes ethnobotaniques

Après avoir fait l'état des lieux sur *P. erinaceus* au Cameroun sur la base de la littérature disponible, l'étape suivante consistera à aller sur le terrain pour collecter des informations sur les usages traditionnels ou la commercialisation de ces produits. Les données collectées dans les différentes publications et enregistrées plus haut ont probablement été collectées avec différentes approches méthodologiques, ce qui a rendu difficile les comparaisons et leur valorisation. Les informations devront être collectées selon une méthodologie standardisée dans l'ensemble du territoire et selon le protocole proposé dans Betti (2007).

6.2.1.3. Inventaires de reconnaissance et zonage

L'inventaire de reconnaissance permettra de rassembler les données en vue de ressortir les zones d'occupation de *Pterocarpus*, pour leur éventuelle érection en trois types de titres forestiers à savoir les forêts communales (Fc), les forêts communautaires (Fco) et les Unités d'Allocation à *Pterocarpus* (UAPt). Les forêts communales et les forêts communauataires seront attribuées par l'Etat respectivement aux Communes et aux communautés locales des zones de prédilection de *P. erinaceus*, tandis que les UAPt seront octroyées suivant la procédure régulière d'appels d'offre concurentielle (par adjudication) aux opérateurs économiques intéressés par le commerce des produits à base de *P. erinaceus*.

Comme signalé, le Cameroun avec le concours des partenaires au développement a déjà conduit deux campagnes d'inventaires forestiers nationaux. Le premier inventaire forestier national réalisé au cours des années 1980 (CENADEFOR - CTFT 1983, 1985) a conduit à l'élaboration de normes principales et des outils techniques nécessaires à la gestion du domaine forestier. Cet inventaire n'a malheureusement pas couvert les phases prévues dans le grand

Nord (régions de l'Adamaoua, Nord et Extrême Nord); il s'est limité au grand Sud forestier. Le second inventaire forestier national réalisé par la FAO en 2004 par contre a pu couvrir une bonne partie du grand Nord. Un total de 46 unités d'échantillonnage sur les 63 planifiées a pu être balayé par les équipes d'inventaire, représentant ainsi 73% de la superfici totale. C'est ce second inventaire qui nous intéresse, car en plus du simple comptage des tiges des essences forestières, il a permis de mener des études d'arbre sur des espèces clés à l'instar de *P. erinaceus*, et donc d'établir son tarif de cubage. Ce travail de la FAO sera pour nous, la base de départ pour la suite du travail à faire sur *P. erinaceus*.

Et pour la suite du travail à faire justement, il s'agira dans un premier temps de compléter cet inventaire, c'est-à-dire couvrir les 17 unités déchantilonnage qui n'avaient pas été balayées lors de cet inventaire en 2004. Dans un second temps, il sera question de rentrer en possession des données de terrain obtenues lors de cet inventaire et notamment pour les régions de l'Est, Adamaoua, Nord et Extrême Nord.

Sur base des activités sus relevées, il sera possible d'établir pour cette espèce et dans un premier temps son statut de vulnérabilité. Ce statut serait encore plus robuste si l'on avait la possibilité de ressortir clairement les tendances, en confrontant les données de l'année 2004 avec celles des années 80. Le principal résultat attendu sera la délimitation claire des différents types d'occupation des sols (titres) dans l'aire d'occupation de *P. erinaceus*.

6.2.2. Objectif spécifique 2 : Elaboration et mise en oeuvre des mesures de gestion

Si l'objectif 1 nous a permis d'avoir une connaissance grossière de la ressource, ici *P. erinaceus*, il ne nous a pas encore donner des arguments solides pour décider de la récolte. C'est l'objet essentiel des activités à dérouler dans ce second objectif. L'objectif 2 sera réalisé en trois étapes logiques suivantes: inventaires d'aménagement dans les FC, Fco ou UAPt, élaboration des plans d'aménagement (PA) pour les Fc ou des plans simples de gestion (PSG) pour les Fco et UAPt, et mise en oeuvre de ces plans.

6.2.2.1. Inventaires forestiers d'aménagement

Les inventaires d'aménagement seront conduits dans chacun des deux types de titres forestiers sus-définis selon les indications mentionnées dans *l'arrêté n°0222/A/MINEF du 25 mai 2001* fixant les procédures d'élaboration, d'approbation, de suivi et de contrôle de la mise en œuvre des plans d'aménagement des forêts de production du domaine permanent. Cet arrêté a été élaboré sur la base des lignes directrices nationales sur la gestion des forêts développées par l'Office National de Développement es Forêts (ONADEF 1991). Les premiers plans d'aménagement ont été élaborés suivant les Directives de l'arrêté 0222/A/MINEF dans les

années 2003-2004. Vingt années après la mise en oeuvre des directives portées dans cet arrêté et après que de nombreux plans d'aménagement aient été révisés, il semble impératif de révisiter cet arrêté pour une éventuelle actualisation. Les nouvelles "Directives d'inventaires d'aménagement et de preinvestissement" développées en 2019 par l'administration en charge des forêts avec l'appui de la coopération française et notamment dans le cadre du projet "C2D-PSFE2", constituent une interface idoine pour réviser cet arrêté. Mais avant cela, il conviendra de revoir de fond en comble ces directives pour qu'elles reflètent effectivement la mouvance et l'actualité de la gestion forestière au Cameroun et dans l'esnsembe des pays du Bassin du Congo. En effet, une lecture rapide des Directives proposées nous a permis de relever de nombreuses incohérences (beaucoup de redites parfois dans les mêmes sections, beaucoup de noms scientifiques des mal identifiés et mal écrits, absence de certaines informations clés, ...) qui peuvent remettre en cause leur insertion et prise en compte effective dans le cercle forestier (communauté forestière) du Cameroun. Ces Directives doivent être revues.

6.2.2.2. Elaboration des plans d'aménagement (PA) ou des plans simples de gestion (E-PSG)

Les résultats obtenus permettront de proposer des mesures d'aménagement qui seront consignées dans le document de plan d'aménagement (pour les Fc) ou de plan simple de gestion (Fco et UAPt). Ces mesures concerneront essentiellement le diamètre minimum d'exploitation (DME), le diamètre minimum de fructification régulière (DFR), le diamètre d'aménagement (DMA), la rotation, la délimitation des blocs quinquenaux et des assiettes annuelles de coupe (AAC), les techniques d'exploitation (bois, écorces ou feuilles selon la spéculation indiquée), le quota annuel d'exploitation, les éléments de contrôle, de suivi, et de traçabilité....

6.2.2.3. Mise en oeuvre des plans d'aménagement (ME-PA) ou des plans simples de gestion (ME-PSG)

Une fois le plan d'aménagement ou le plan simple de gestion élaboré pour chaque Fc, UAPt ou Fco, il faudra passer à sa mise en oeuvre à travers l'exploitation et la recherche. La recherche visera essentiellement à affiner au maximum les paramètres d'aménagement et la définition plus claire des quotas.

Il convient de relever ici que la forêt communautaire reste pour les communautés locales, et pour l'administration forestière, le moyen le plus efficace pour anticiper la lutte contre le sciage sauvage et l'exploitation illégale de *P. erinaceus*. Les résultats obtenus sur la gestion de *Prunus africana* au Cameroun et notamment dans le Mont Cameroun, sont à

capitaliser pour garantir le commerce des produits à base de *P. erinaceus* ne soit pas préjudiciable à la conservation de cette espèce dans son milieu naturel (Betti et al. 2016, 2019).

Le problème à résoudre pourrait être au niveau des fonds initiaux nécessaires pour la conduite des inventaires et l'élaboration des plans simples de gestion. Un minimum de 6 USD/ha de forêt est requis, soit 30 000 USD pour une forêt de 5000 ha. Toutefois, des opportunités et possibilités de financement existent, notamment avec la forte demande du bois de vène dans le marché international, la coopération des communes locales, des organisations internationales, et des compagnies demanderesses des produits. Le Cameroun vient de rendre exécutoire la politique de décentralisation, et qui peut plus que par le passé, permettre à chaque commune de monter et exécuter des projets visant à valoriser au mieux les ressources naturelles. Ces communes peuvent avec l'accompagnement de l'administration en charge des forêts, monter des projets et proposer aux organisations internationales telles la CITES dans le cadre du Programme sur les arbres (CTSP), l'Organisation Internationale des Bois Tropicaux (OIBT) dans le cadre de certains de ses programmes spécifiques comme le programme TFLET, le Bureau des Nations Unies pour les drogues (stupéfiants) et crimes dans le cadre de son Programme global de lutte contre les crimes sur les forêts et la vie sauvage (GPWLFC),....les mêmes projets peuvent être proposés aux financements des compagnies internationales qui sollicitent les produits à base de *P. erinaceus*. Précisons enfin que ces projets peuvent être montés à l'échelle nationale, régionale, communale, ou même locale (communauté). Le Cameroun peut compter pour ces approches sur les expériences capialisées sur le Programme OIBT-CITES, et notamment les projets *Prunus africana* au Cameroun et en République Démocratique du Congo. Dans ces projets en effet, l'approche de Partenariat Organisation internationale Public Privé (POPP) a permis à l'Etat (ici l'administration en charge des forêts) d'obtenir via une organisation internationale, des financements à partir des opérateurs privés (INDENA, EUROMED, ...) qui en retour bénéficiaient des approviosionnements sécurisés des produits indiqués. Nous pensons que cette approche POPP peut bien fonctionner avec *P. erinaceus*, compte tenu de sa forte demande sur le marché international.

6.2.3. Objectif spécifique 3 : Développement des normes et d'une stratégie nationale de contrôle

Les résultats présentés dans les sections précédentes permettent de constater que l'exploitation de *P. erinaceus* n'est pas suffisamment réglementée et planifiée au Cameroun.

De nombreux produits échappent au contrôle des agents forestiers tant au niveau de l'administration centrale qu'au niveau des postes sur le terrain. Dans le but de sécuriser à la fois les ressources et les recettes issues de l'exploitation de ces ressources, nous avons identifié dans l'ordre les trois activités suivantes : développer des normes d'exploitabilité rationnelle, élaborer une stratégie nationale de contrôle et organiser des réunions sous-régionales avec les autres pays de l'aire de distribution.

6.2.3.1. Développement et vulgarisation des normes d'exploitabilité rationnelle

L'un des problèmes de fonds présentés par les agents forestiers rencontrés aussi bien dans l'administration centrale que sur le terrain pour le contrôle des produits forestiers, ligneux et non ligneux confondus, réside sur l'inexistence des standards ou normes de contrôle des produits. Comment reconnaître qu'un opérateur économique, permissionnaire, a mal récolté le bois, l'écorce, ou alors les feuilles de *P. erinaceus* ? L'élaboration des normes d'exploitabilité constitue donc une urgence dans le développement d'une stratégie de contrôle dans le secteur de *P. erinaceus* en particulier et des produits forestiers en général. Pour cela, il faudra : (1) faire tout d'abord un état des lieux sur les normes d'exploitabilité qui ont été développées dans la littérature existante en rapport ce type de produit (*Prunus africana* pour l'écorce et *Pericopsis elata* pour le bois d'oeuvre par exemple) ; (2) réaliser des études en vue d'élaborer de nouvelles normes et les vulgariser; (3) développer une synergie à l'échelle sous-régionale.

6.2.3.2. Elaboration d'une stratégie nationale de contrôle

La fonction de suivi/contrôle forestier est la première fonction régalienne de l'administration forestière ; mais elle est défaillante avec des impacts directs dans la gestion durable de la ressource. Une stratégie de contrôle forestier pour le bois d'œuvre et de lutte anti-braconnage a été élaborée en 1999 avec des résultats plus ou moins mitigés dans un contexte où quasiment tout le monde fait du contrôle (ou plutôt de la recherche d'infractions). Cette stratégie doit être revue et actualisée. Il faudra alors pour cela et comme relevé dans la composante n° 3 du Programme sectoriel forêt – environnement (PSFE 2003) : recentrer et clarifier le rôle de chaque niveau, et évoluer vers un système planifié.

A/ recentrer et clarifier le rôle de chaque niveau/service en fonction de son positionnement : il ne sert à rien de multiplier les acteurs du contrôle, ce qu'il faut faire c'est faciliter la responsabilisation et le suivi de chaque acteur sur une tâche précise, il faut adopter une approche fonctionnelle en groupes cohérents d'activités affectés à l'acteur le mieux placé, l'organisation interne doit être simple et adaptée aux priorités et aux évolutions stratégiques. Sur ces bases, le rôle de chaque niveau/service doit être clarifié et recentré comme suit : (1)

recentrer les Postes forestiers de contrôle vers la surveillance et la répression de l'exploitation illégale (au sens d'opérateurs sans titre valide), car ils sont les mieux placés pour assurer un quadrillage permanent du territoire, en s'appuyant sur les remontées d'information des concessionnaires privés ou des villageois ; (2) sortir la fonction « check-point » des postes forestiers de contrôle et développer un réseau spécifique, sur la base de celui déjà en place au Programme de sécurisation des recettes forestières (PSRF), pour assurer un filet de sécurité aux points stratégiques avec l'appui des nouvelles technologies de contrôle ; (3) confirmer le Délégué régional comme ordonnateur principal du contrôle, chargé d'organiser, planifier et suivre (notamment approuver et suyivre les plans de travail des Délégués départementaux) ; (4) recentrer et renforcer sur les services centraux sur : la coordination et le suivi du système. Ces fonctions devraient être centralisées à la Direction des forêts.

B/ Evoluer vers un système planifié qui s'appuie sur un système d'information : si le système actuel est défaillant ou peu efficace, c'est aussi parce que plusieurs fonctions complémentaires aux fonctions ci-avant ne sont pas suffisamment assurées. Cela conduit inéluctablement à des activités de contrôle isolées d'un système global de gestion, à une efficacité réduite et une transparence limitée. Pour y remédier il est nécessaire de mettre en place une chaîne de contrôle, sur la base des tâches clarifiées ci-avant, qui permette d'activer les procédures d'acheminement, traitement, suivi et archivage dés qu'un procès verbal de contrôle est dressé, s'appuyant notamment sur : (1) Un système d'information qui permette de suivre les étapes du procès verbal jusqu'au contentieux ; (2) Une inter-action avec le service de recouvrement du PSRF en termes de transmission des amendes et dommages – intérêts à recouvrir puis retour d'information pour clôture du dossier ou mesures judiciaires en cas de non-paiement ; (3) Le développement, notamment au niveau du Délégué provincial, de mécanismes simples de planification/suivi – évaluation/coordination ; (4) Une amélioration de la banque de données SIGIF dans le sens d'intégrer les informations en rapport avec l'exploitation des produits spéciaux ; (5) Une inter-action entre les banques de données SIGIF (exploitation) et COMCAM (commercialisation) (6) L' « institutionnalisation » et la déconcentration des outils SIGIF ou COMCAM sous forme d'unités centrales et provinciales, compte tenu des liens étroits contrôle/information forestière/géomatique.

6.2.3.3. Réunions sous régionales

Des réunions régulières de partage d'expérience et d'information des pays de l'aire de distribution (Cameroun, Nigéria, RCA, Tchad) devraient être organisées en vue s'assurer de la gestion durable et plus rentable de *P. erinaceus*.

Conclusion

Pterocarpus erinaceus Poir (Fabaceae) ou bois de vène, est une espèce de bois de valeur originaire des forêts sèches naturelles et savanes semi-arides de la zone soudano-guinéenne d'Afrique. L'exploitation illégale et non durable généralisée de cette espèce dans son aire de répartition a conduit de nombreux Etats à décréter l'interdiction totale de la récolte et du commerce de cette espèce au cours des dernières années, dans le but d'empêcher son extinction. Le but de travail était d'actualiser les informations sur la distribution, biologie, écologie, aménagement, exploitation ; contrôle et commerce des produits à base de *P. erinaceus* en vue de permettre au Ministère des Forêts et Faune, organe de gestion CITES du Cameroun, de disposer des données complètes sur cette question en prélude à la session du Comité pour les plantes projetée en Juillet 2020. Les résultats présentés montrent que P. erinaceus est assez bien représentée au Cameroun. *P. erinaceus* signalée dans au moins six régions du Cameroun à savoir: Nord Ouest, Sud Ouest, Est, Adamaoua, Nord, et Extrême Nord. L'analyse des résultats de l'inventaire forestier national onduit en 2004 montre que l'espèce se trouve avec des densités et une abondance assez élevée dans sa zone de prédilection. Cependant la forte demande sur le marché international et notamment le marché asiatique pousse les villageois à faire des coupes incontrolées et illégales. Les outils de gestion et de contrôle mis en place actuellement au Cameroun ne permettent pas cependant de juguler cette forme d'exploitation. Le plan d'action proposé permettra à coup sûr, s'il est respecté, de s'assurer que l'exportation des produits à base de *P. erinaceus* n'est pas préjudiciable à la conservation de cette espèce dans son milieu naturel au Cameroun. Compte tenu de tout ce qui précède, nous recommendons:

5. de réviser l'arrêté 0222/A/MINEF du 25 Mai 2001 sur la base de nouvelles « Directives d'inventaires d'aménagement et de préinvestissement » de 2019. Ces directives devront elles-mêmes être révisées compte tenu des réserves relevées dans la version actuelle ;
6. d'élaborer un projet de rédaction d'un avis de commerce non préjudiciable pour s'assurer que l'exploitation de *P. erinaceus* ne soit pas préjudiciable pour le maintien de cette espèce dans son milieu naturel au Cameroun. Ce projet élaboré suivant

l'approche « POPP », serait le début de la mise en œuvre du plan d'action proposé et pourrait être présenté aux éventuels bailleurs/donateurs présents à la session du Comité pour les plantes projetée en Juillet 2020.

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Annexe

TERMES DE REFERENCE DU CONSULTANT SUR LA DECISION 18.92 - DE LA CITES SUR

Pterocarpus erinaceus (Fabaceae)

PREAMBULE

En date du 9 avril 2020, une notification a été publiée par le Secrétariat Général de la Convention sur le Commerce international d'espèces de faune et flore sauvages menacées d'extinction (CITES), notification par laquelle le SG demande aux pays de l'aire de distribution de faire la situation de l'exploitation et du commerce de Pterocarpus erinaceus .

Le Cameroun faisant partie des pays qui regorgent les populations de Pterocarpus erinaceus, s'est donné pour mission de répondre à cette demande par des informations scientifiques et techniques sur différents aspects.

Le présent document définit les termes de références d'une étude à mener en vue de permettre au Ministère des Forêts et Faune, organe de gestion CITES du Cameroun, de présenter un rapport complet sur cette question.

ACTIVITES A MENER

De manière plus précise, l'étude devra :

a) rassembler des données biologiques sur l'espèce Pterocarpus erinaceus, y compris la taille des populations, la répartition, l'état de conservation et les tendances des populations, des données d'identification, ainsi que leur rôle dans les écosystèmes dans lesquels elles sont présentes ;

b) rassembler des informations disponibles sur les niveaux de récolte et d'exploitation, les noms commerciaux, les parties prenantes associées à la récolte des espèces et les caractéristiques de la chaîne d'approvisionnement pour la consommation nationale et le commerce international ;

c) rassembler des informations sur les menaces pesant sur ces espèces, en particulier en ce qui concerne les causes sous-jacentes des faibles capacités de régénération et les impacts de l'exploitation de ces espèces :

d) rassembler des informations sur toute initiative visant à reproduire artificiellement ces espèces ou à en produire des plantations ;

e) préciser les réglementations en vigueur et les structures de propriété concernant les espèces, leurs habitats, les facteurs influant sur les habitats, ainsi que les mesures de gestion en place ou en cours d'élaboration, y compris les pratiques d'exploitation durable :

f) faire des suggestions de réunions ou d'autres évènements susceptibles de fournir des possibilités de collaboration ou d'échange d'informations sur l'exploitation et la gestion de ces espèces.

DELAI D'EXECUTION

Le délai de réalisation du marché est de **15 jours étalés sur 3 mois.**

Cote d'Ivoire

MINISTERE DES EAUX ET FORETS

DIRECTION GENERALE
DES FORETS ET DE LA FAUNE

DIRECTION DE LA FAUNE ET DES
RESSOURCES CYNEGETIQUES

N° 000168 **/MINEF/DGFF/DFRC**

REPUBLIQUE DE COTE D'IVOIRE
Union – Discipline – Travail

Abidjan, le 05 MAI 2020

A
Frances Davis
Programme Espèces,
ONU Environnement
UNEP-WCMC

CAMBRIDGE

Objet: Réponse à l'étude du commerce important sur *Pterocarpus erinaceus*

Madame/Monsieur Frances Davis,

J'accuse réception de votre correspondance en date du 15 avril 2020, relative à une demande d'information sur les espèces soumises à l'étude du commerce important CITES, notamment sur *Pterocarpus erinaceus* en Côte d'Ivoire.

En réponse, je vous prie de trouver ci-jointes, les informations que nous avons compilées sur *Pterocarpus erinaceus* en Côte d'Ivoire. Ces informations ont été recueillies au sein de plusieurs services du Ministère des Eaux et Forêts, Organe de gestion de la CITES.

Tout en restant disponible pour besoin d'information complémentaire, veuillez agréer **Madame/Monsieur**, l'expression de ma considération distinguée.

Le Directeur

Ministère des Eaux et Forêts
Direction de la Faune et des Ressources Cynégétiques (DFRC)

Lt/Col. KONE Salimata
Ingénieur Principale des Eaux et Forêts

Ampliation :
- Monsieur Tom De Meulenaer,
  Chef équipe des services scientifiques
  CITES

MINISTERE DES EAUX ET FORÊTS

DIRECTION GENERALE
DES FORÊTS ET DE LA FAUNE

REPUBLIQUE DE CÔTE D'IVOIRE
Union-Discipline-Travail

INFORMATIONS SUR LE *PTEROCARPUS ERINACEUS* EN COTE D'IVOIRE

Le *Pterocarpus erinaceus* ou bois de vêne (appellation en Côte d'Ivoire) ou palissandre ou teck d'Afrique, est un bois de forêt naturelle de diamètre modeste à maturité.

1. DISTRIBUTION, TAILLE, STATUT ET EVOLUTION DE LA POPULATION

L'aire de répartition géographique du *Pterocarpus erinaceus* en Côte d'Ivoire s'étend de la zone pré forestière dans le centre du pays, jusqu'au grand nord savanicole avec une forte densification dans l'extrême nord du pays. La population actuelle de cette espèce est constituée exclusivement d'arbres naturels.

Peu de données existent actuellement sur la taille, le statut et l'évolution de la population de cette espèce en Côte d'Ivoire. Aucun inventaire forestier n'a encore tenté d'estimer la population de l'espèce au niveau national.

Dans le cadre du projet en cours « Sauvegarde de *Pericopsis elata* (assamela) et de *Pterocarpus erinaceus* (bois de vêne) en Côte d'Ivoire », financé par le programme CITES sur les espèces d'arbres, des inventaires des deux espèces sont prévus en vue de combler l'insuffisance de données sur la taille de leurs populations et les statuts. Les résultats de cette étude permettront de formuler un avis de commerce non préjudiciable de *P. erinaceus.*

Par ailleurs, un inventaire forestier national, financé par le programme C2D de l'Agence Française de Développement (AFD) est en cours actuellement et permettra de contribuer à la production de ces informations.

2. MENACES PESANT SUR L'ESPECE ET TOUTE MESURE EN PLACE POUR REDUIRE CES MENACES

La plus grande partie de la zone phytogéographique du bois de vêne en Côte d'Ivoire est située au-dessus du 8ème parallèle de latitude, où toute exploitation forestière des forêts naturelles est interdite depuis 1982.

A l'instar de toutes les essences de forêt naturelle, son exploitation, sa transformation et sa commercialisation étaient soumises aux réglementations forestières en vigueur en Côte d'Ivoire, en dessous du 8ème parallèle de latitude, jusqu'à l'interdiction de son exploitation en 2013.

La zone phytogéographique de *P. erinaceus* est constituée de savanes arborées semi-arides à subhumides où la pluviométrie annuelle varie de 600 à1200 mm, avec une saison sèche longue et une température annuelle moyenne de 15–32°C. À cet effet, en dépit de son caractère pyrophile, la première menace sur l'espèce, est constituée par les feux de brousse.

Par ailleurs, le commerce international de cette essence reste et demeure une menace importante**.** En effet, malgré les dispositions sus-évoquées, les services forestiers ont constaté une exploitation anarchique et illicite du bois de vêne au-dessus du 8ème parallèle de latitude dès 2005. Cette exploitation s'est accentuée avec l'augmentation de sa valeur commerciale à partir de 2007 (car très prisée en Asie) et s'est aggravée avec la crise post-électorale de 2011, du fait de l'absence de l'Administration Forestière dans certaines régions du centre et du nord du pays. A partir de 2011, l'Administration Forestière a pris plusieurs mesures pour règlementer l'exploitation du bois de vêne à travers les textes suivants :

1. l'arrêté n°00038/MINEF du 31 janvier 2012 portant interdiction de l'exploitation et de l'exportation du *Pterocarpus spp* communément appelé « bois de vêne » en Côte d'Ivoire ;
2. l'arrêté n°00521/MINEF/CAB du 24 mai 2012 portant organisation de l'exploitation des essences de forêts naturelles de petits diamètres ;
3. la décision n°00988/MINEF/CAB du 18 octobre 2012 portant renforcement des mesures de lutte contre l'exploitation illicite au-dessus du 8ème parallèle ;
4. l'arrêté n°0058/MINEF/CAB du 06 février 2013 portant interdiction de l'exploitation forestière au-dessus du 8ème parallèle ;
5. l'arrêté n°00402/MINEF/DGEF/DPIF du 26 mars 2013 portant renforcement des mesures d'interdiction d'exploitation des bois d'œuvre et d'ébénisterie au-dessus du 8ème parallèle ;
6. l'arrêté n°00628/MINEF/DGEF/DPIF du 28 juin 2013 portant interdiction d'exportation de *Pterocarpus spp* communément appelé « bois de vêne », essence de forêts naturelles de petits diamètres.

Vu la persistance de son exploitation anarchique et illicite en dépit de toutes ces mesures, le Gouvernement a adopté le **décret n°2013-508 du 25 juillet 2013 portant interdiction de l'exploitation, de la coupe, du transport, de la commercialisation et de l'exportation du *Pterocarpus spp* appelé communément «bois de vêne»**.

Ce décret a permis de réduire quasiment à néant, l'exploitation de cette espèce.

3. PROGRAMME DE RECOLTE ET DE GESTION APPLICABLE A L'ESPECE

Le P. erinaceus représente une source importante de fourrage en saison sèche pour les bétails au nord de la Côte d'Ivoire dont l'élevage est l'une des principales activités génératrices de revenu pour les populations. Le bois de *P. erinaceus* est également utilisé par les populations rurales pour la fabrication d'instruments de musique (le balafon).

En médecine traditionnelle, les usages *P. erinaceus* sont également très nombreux. Les feuilles, l'écorce, la résine et les racines sont utilisées comme remède pour plusieurs pathologies.

Le P. erinaceus est aussi utilisé comme bois d'œuvre ; mais sa consommation au plan local est très faible. Ce bois est en effet, très difficile à travailler à cause de sa forte résistance (technologie du bois).

Aucune plantation forestière de cette espèce n'est à ce jour disponible ; même si des essais sont en cours par la SODEFOR. Selon une étude récemment réalisée dans le cadre d'une thèse, l'espèce se régénère par semis naturels, rejets de souche et drageons. Ainsi, des essais sylvicoles à base de jeunes plants sont envisageables pour restaurer les formations végétales naturelles dégradées ou pour le reboisement. (Alice Estère Goba, 2019). De plus, certaines Directions Régionales des Eaux et Forêts ont réussi à mettre en place quelques pépinières de cette plante. Une enquête est prévue en vue de la collecte des données statistiques.

Depuis juillet 2013, l'exploitation de *P. erinaceus* est interdite en Côte d'Ivoire. Cependant, des autorisations spéciales avaient été accordées en 2012 et 2013 aux exploitants forestiers agréés pour l'exploitation du bois de vêne dans les Périmètres d'Exploitation Forestière (PEF) en dessous du 8ème parallèle. Toutefois, il est bon de noter qu'une grande partie du bois exploité et exporté a pu échapper au contrôle de l'Administration forestière.

Depuis lors, le décret n°2013-508 du 25 juillet 2013 portant interdiction de l'exploitation, de la coupe, du transport, de la commercialisation et de l'exportation du *Pterocarpus spp* appelé communément «bois de vêne» est entré en vigueur dans sa plénitude.

Par ailleurs, le *Pterocarpus spp* a été classé à l'Annexe II de la CITES en 2016. La Côte d'Ivoire a soutenu entièrement cette proposition de sorte à freiner la pression sur cette essence ; surtout qu'elle se trouve en grande partie dans des zones écologiquement fragiles.

Réglementation de la récolte sauvage et du commerce

Avant l'interdiction, l'exploitation du bois de vêne était encadrée par l'arrêté n°00521/MINEF/CAB du 24 mai 2012 portant organisation de l'exploitation des essences de forêts naturelles de petits diamètres. Le *P. erinaceus* fait partie des sept essences ciblées par ledit arrêté et son Diamètre Minimum d'Exploitabilité est de 50 cm. L'exploitation légale se faisait exclusivement dans les PEF autorisés, abritant cette essence. L'exportation de cette essence ne pouvait être possible qu'après une transformation préalable.

Depuis l'entrée en vigueur du décret n°2013-508 du 25 juillet 2013 portant interdiction de l'exploitation, de la coupe, du transport, de la commercialisation et de l'exportation du *Pterocarpus spp* appelé communément «bois de vêne», aucun inventaire n'a été réalisé pour permettre à l'Administration forestière de disposer des informations sur les paramètres dendrométriques de cette espèce dans sa zone phytogéographique.

Toutefois, depuis 2019, un Inventaire Forestier National est en cours, mais ne porte pas spécifiquement sur le *P. erinaceus.*

4. STATISTIQUES SUR LE COMMERCE INTERNATIONAL (LEGAL OU ILLEGAL)

Des informations récurrentes de terrain font état de l'existence d'un important stock de billons de bois de vêne déjà coupés et laissés sur le parterre suite à une coupe d'écrémage. Ces billons n'ont malheureusement pu être évacués avant la fin de la période transitoire de trois mois entre fin 2013 et début 2014, accordée par l'arrêté interministériel n°502/MINEF/MEMIS/MPMEF/MPMB du 05 décembre 2013 qui autorisait l'exportation des stocks déjà détenus ; lesquels stocks devraient être transformés avant d'être exportés Cet important stock, commercialement utilisable et à grande valeur économique, se trouve encore dans les forêts du domaine rural et dans certaines forêts classées du centre et du nord du pays.

Le Cabinet du Ministère des Eaux et Forêts a instruit toutes les Directions Régionales des Eaux et Forêts concernées à l'effet de diligenter des missions de vérification et d'évaluation de ceux-ci. Ces missions qui se sont déroulées entre le mois de novembre 2018 et le mois de mars 2019, ont révélé l'existence d'environ **606 433** billons de bois de vêne coupés depuis 2014; mais non évacués dont **569 785,** représentant environ **300 851 m^3**, sont encore utilisables. A cela, il faut ajouter des conteneurs et billons de bois de vêne, été saisis par les Administrations Forestière et Douanière estimés à environ **28 775** billons représentant près de **8 632,5 m^3**, qui sont également encore disponible

Le MINEF entend collaborer avec le Secrétariat de la CITES en vue de faciliter l'exportation des bois de vêne saisis et voir dans quelle mesure exporter ceux qui sont coupés depuis 2014 ; mais non évacués. A cet effet, l'élaboration d'un avis de commerce non préjudiciable pour le *P. erinaceus* est prévue au cours de l'année 2020.

Les données statistiques de l'exploitation légale du *P. erinaceus* avant le décret d'interdiction sont consignées dans le tableau ci-dessous.

Tableau 1 : Données statistiques sur l'exploitation légale du bois de vêne

	2010	**2011**	**2012**	**2013**
Autorisations d'exploitation de bois de vêne délivrées	04	12	38	62
Volume de bois de vêne exploité et enregistré à la DPIF (m^3)	2 313,255	2 969,460	10 907,085	613 550
Volume de bois de vêne exporté et enregistré à la DPIF (m^3)	ND	ND	1 398,643	1 605,846

NB : De 2007 à 2010, absence de l'Administration forestière dans le grand nord du pays en raison de crise militaire

Le tableau montre un écart important entre la production de bois de vêne et le volume exporté, enregistrés par la DPIF. Ce qui confirme les différentes saisies effectuées ; notamment les 30 conteneurs de bois de vêne saisis dans les ports de San Pedro et d'Abidjan en janvier 2012 (AllAfrica, 2012) et environ 6051 m^3 de bois de vêne saisis entre janvier 2012 et septembre 2013, ainsi que l'arrestation de 74 personnes pour exploitation forestière illégale au-dessus du 8ème parallèle (ONU, 2014). Ainsi, plusieurs milliers de m^3 de bois de vêne ont été exportés en dehors du circuit réglementaire relatif à l'exportation des produits ligneux.

Des fraudes ont été constatées chez certains opérateurs depuis l'interdiction de toutes les activités relatives au bois de vêne ; à en juger par les récentes saisies de 5 conteneurs de bois de vêne opérées sur le parc de la SOGENA à Vridi par la BSSI en collaboration avec la DPIF en 2019.

5. PROTECTION JURIDIQUE DE L'ESPECE

La protection juridique de cette espèce en Côte d'Ivoire est assurée par deux textes :

- le décret n°2013-508 du 25 juillet 2013 portant interdiction de l'exploitation, de la coupe, du transport, de la commercialisation et de l'exportation du *Pterocarpus spp* appelé communément «bois de vêne» ;

- la loi n°2019-675 du 23 juillet 2019 portant Code Forestier qui prend des dispositions spécifiques pour la protection des essences forestières protégées avec des peines lourdes.

Par ailleurs, le classement de *P. erinaceus* à l'annexe II de la CITES vient renforcer l'arsenal juridique de protection de cette essence dans le pays.

Un projet de loi nationale d'application de la CITES, ainsi que son décret d'application ont étés préparés et sont en cours d'analyse par le Gouvernement.

6. ELABORATION DE L'AVIS DE COMMERCE NON PREJUDICIABLE CITES

L'avis de commerce non préjudiciable pour le *P. erinaceus* sera élaboré dans le cadre du projet « Sauvegarde de *Pericopsis elata* (assamela) et de *Pterocarpus erinaceus* (bois de vêne) en Côte d'Ivoire ».

L'élaboration se fera par un comité scientifique regroupant des experts. Ce comité est en cours de constitution et les structures sollicitées pour fournir des experts sont :

- le Ministère des Eaux et Forêts (MINEF) ;
- le Centre de Recherche en Ecologie (CRE) ;
- le Centre National de Recherche Agronomique (CNRA) ;
- le Centre National de Floristique (CNF).

- l'Office Ivoirien des Parcs et Réserves (OIPR) ;
- la Société pour le Développement des Forêts (SODEFOR).

Aussi, ce comité scientifique pourrait-il recourir à toute personne susceptible de l'aider dans sa tâche.

7. PERSONNES RESSOURCES

Tableau 2 : Coordonnées des experts sur le *P. erinaceus*

Nom & prénoms	Fonction	TEL	E-mail
MAILLY née ZOUZOU Elvire Joëlle	Directeur Général des Forêts et de la Faune	20 22 16 29	elvzouz@yahoo.fr
AKE Abroba Jérôme	Directeur Général Adjoint des Forêts et de la Faune	20 24 25 34	akabroj2@yahoo.fr
KONATE Bassimori	Directeur de la Production et de l'Industrie Forestière	20 21 17 25	dpif2012@yahoo.fr
KONETONDOSSAMA Salimata	Directeur de la Faune et des Ressources Cynégétiques	20 21 07 00	kosalikk@yahoo.fr
OKA Raphaël	Directeur de la Police Forestière et de l'Eau	22 42 29 17	okaraphael@gmail.com
COULIBALY Brêhima	Chef du projet « Sauvegarde de *Pericopsis elata* (assamela) et de *Pterocarpus erinaceus* (bois de vêne) en Côte d'Ivoire »	20 22 16 29	coulbrehima@yahoo.fr

Ghana

INFORMATION ON SPECIES SUBJECT TO THE CITES REVIEW OF SIGNIFICANT TRADE *(Pterocarpus erinaceus)* GHANA

1. Distribution, including extent of occurrence and area of occupancy of forests and plantations.

Pterocarpus erinaceus occurs mostly in the transitional and savannah woodland ecological zones of Ghana. They occur mainly in Six regions made up fourteen (14) Forest Districts.

2. P. erinaceus population size status and trends

Mean stem numbers per km^2 (100 ha) of all stems greater than or equal to 2 cm diameter at breast height (dbh) and their corresponding standard errors are presented in the table below;

REGION	No. of Forest Districts	No. of District Assemblies	Mean Stem Numbers/Km^2	SE % Stems	Mean Volume (m^3) /Km^2	SE% Volume
ASHANTI	1	2	882	2.51	278.94	0.58
BRONG AHAFO	4	10	1,373	2.1	424.23	0.76
NORTHERN	3	7	1,305	2.34	768.51	1.63
UPPER EAST	2	4	1,419	2.07	1,471.14	2.7
UPPER WEST	2	4	1,789	5.1	884.74	1.12
VOLTA	2	4	1,440	0.58	958.99	2.69
			8,208	14.7	4,786.55	9.48
TOTAL	14	31				

The table shows Mean stem numbers and mean volume (m^3) per 100 ha estimates of rosewood grouped according to Region. (Please refer to the attached document for detailed explanation- **Static Inventory of Rosewood Resources in Ghana**)

NOTE: Currently, Some of the Regions have been divided into two or more (Eg. Brong Ahafo now consist of 3 regions)

3. Threats to Species (any measures in place to reduce threats)

Threats include; Wildfire incidence, Charcoal production, Traditional farming practices and Illegal harvesting.

Measures

- Effective Law enforcement by Forest and Wildlife Rangers and Guards.
- There is ban on harvesting and Export of rosewood since 2019 (only salvaged and confiscated wood auctioned by government can be exported)
- Conservation education and sensitization on effective wild fire management, charcoal production.
- Sustainable livelihood support programmes undertaken by Government, NGO's and Donor Partners to support conservation in the savannah zones where rosewood occur.

(Please note that the intervention is not only linked to Rosewood but conservation in general.

- Stakeholder collaboration with chiefs, District Assemblies and Opinion leaders to educate and enforce by laws.
- Research Institution such as Resource Management Support Centre (RMSC) and Forest Institute of Ghana (FORIG) and have established plantations of the species to study the growth rate and other variables.
- The Plantation Unit of the Forestry Commission has also established 41ha experimental plantations since 2015 for management and research purposes including, monitoring growth rate, silvicultural activities and possible survival of the species in an artificial stand.

4. **Information on the harvest and management schemes applicable for the species in the country and details of specific regions of concessions in operation and details on usage.**

Harvesting has been carried out in all the six Regions until the last ban in 2019. However, data on harvesting are scanty and are not clearly documented as a result of irregular exploitation and institutional data capture deficiency in the savannah zone of Ghana.

There is no concession in operation currently, harvest and export of rosewood have been banned. However, stocks of salvaged and confiscated rosewood auctioned by the Government (Forestry Commission) can be exported.

5. **Management Plan for the concessions in operation**.

As mentioned earlier, no concession is in operation currently. Conservation Education programs on the species, Law Enforcement to prevent illegal harvesting and a ban on harvesting and export (except stocks of salvaged and confiscated rosewood auctioned by the Government) since 2017 are measures put in place to protect the species within rosewood catchment areas.

6. Regulation of wild harvesting and trade (e.g. Legal harvest quotas, minimum cutting diameters, length of rotation, export quotas)

A ban has been imposed on harvest and export of rosewood since March 2019, only stocks of salvaged and confiscated rosewood auctioned by the Government (Forestry Commission) can be exported.

An assessment has been conducted by the Resource Management Support Centre (RMSC), a research arm of the Forestry Commission and the assessment report (copy attached) recommends legal harvest quotas, minimum cutting diameters etc. that are likely to be implemented by Management when the ban is lifted.

7. **Information of population sizes and structure within the locations (including whether any inventories of the species have taken place, and if so, full details, e.g.: concession, area, numbers of individuals inventoried, results of population structure including numbers of individuals in each diameter size class)**

Data from assessment by Resource Management Support Centre (RMSC) shows the mean stem numbers per kilometre square for various range areas of rosewood in the table above (table in the answer to question two). Please note that the total estimated area of the savannah zone of Ghana where rosewood occur is 156,948km^2 (Source: Ghana Forest and Wildlife Resources Hand Book 2012)

Research by W.K Dumenu and W.N Bandoh provides data on diameter distribution of rosewood in the figure below. (Source: Dumenu et al 2016)

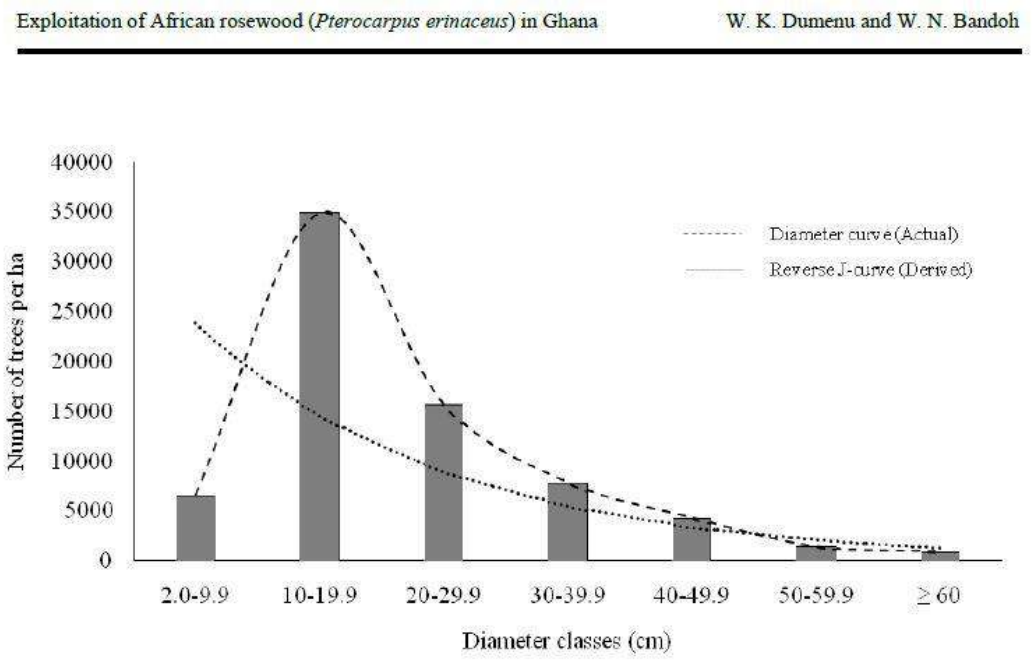

Figure 2: Diameter distribution curve of rosewood (*Pterocarpus erinaceus*)

8. **If inventories have not taken place, are there any plans to do so?**

There have been inventories of species conducted in 2013 and further updated in 2017. (2017 report attached)

It is within the plans of the Forestry Commission to undertake inventories of the species from time to time.

9. **Population monitoring at the harvest locations (in place or proposed)**

The assessment report by RMSC aimed at ensuring better monitoring and regulation of Rosewood harvesting in Ghana by the Forestry Commission. It estimates static volume (m^3) and stem numbers of Rosewood in the endemic areas of Ghana and recommends felling quotas per annum for all the endemic areas (political districts).

10. **Details of how CITES non-detrimental findings are made, including the institutions involved in the process**.

There has not been any Non-detrimental findings (NDF) done on the species however, there is an assessment or inventory of the species conducted by the Resource Management Support Centre (RMSC), a research arm of Forestry Commission of Ghana. (Report attached)

11. **International Legal Trade Statistics**

Year	**Volume(m^3)**	**SOURCE**
2014	20,823.97	Timber Industry Development Division (TIDD)-Forestry Commission
2015	22,770.17	
2016	96,684.51	
2017	77,725.4	CITES database-WCMC (Exporter Reported)
2018	76,171.69	CITES database-WCMC (Exporter Reported)
2019	117,323.40	CITES Report –Wildlife Division-Forestry Commission
Total	**411,499.18**	

13**. Legal protection (currently in place or proposed), including any stricter domestic measures or general bans or restrictions on exports (e.g. of logs, sawn wood, round wood)**

The species like all other timber species in Ghana is protected by legislation governing harvesting and export of timber in the country.

There is also a ban on harvest and Export of rosewood (only salvaged and confiscated wood auctioned by government can be exported).

14. **Contacts of any relevant experts in the country.**

1. *Mr Alex Asare*
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15.**Any additional information that could be relevant for the implementation of Decision 18.92**

Please find attached an assessment report from the Resource Management Support Centre (RMSC) of the Forestry Commission to provide further details to some of the answers provided.

STATIC INVENTORY OF ROSEWOOD (KRAYIE) RESOURCES IN GHANA

AN APPROACH IN REGULATING ITS EXPLOITATION IN GHANA

By

RMSC and FSD

July, 2017

Introduction

Rosewood known scientifically as *Pterocarpus erinaceus* occurs mostly in the forest savannah transitional zone and parts of the northern savannah woodland ecological zone of Ghana. It is known locally as *Krayie*. The species was not among the group of threatened species in the country because traditionally it was mainly used for charcoal production by the local people to generate income. However, the demand has shot up in the last decade leading to massive exploitation and exportation in the form of billets to the Asian countries particularly China.

Currently, data on harvesting levels are scanty and are not clearly documented. This is emanating from high levels of illegal exploitation and lack of proper institutional data capture and archiving associated with tree harvesting in the savannah zone of Ghana. This phenomenon has created the perception that harvesting levels are extremely high and that the regulatory mechanism by Forestry Commission (FC) to control Rosewood exploitation is unsustainable.

The massive exploitation levels of the species in the last decade demand that mechanisms are put in place to regulate its exploitation. A major leap to the effort to protect the species is the placing of it under Appendix 11 by CITES recently. This development brings to bear the urgent need to control exploitation levels of the species sustainably. It is in line with this that a new approach is being instituted to guide management in their regulatory effort.

The Approach

In the mid-nineties, off-reserve annual felling quotas were developed for all forest districts within the Ghana High Forest Zone (GHFZ) after a national inventory as a way of regulating the off-reserve timber resources. The inventory results of 1996 provided the basis for controlled logging in off reserve areas of the GHFZ through the establishment of District Felling Quota System for off reserve timber harvesting. Our aim is that felling quotas should be adopted as a way of regulating harvesting levels in all rosewood endemic areas of Ghana until efforts are made to understand better the ecology and dynamics (increment, mortality and recruitment rates) of the species.

In 2013, an inventory of the species was conducted in areas where the species are commonly found to determine the stocking levels. The results were to be used as a first approach in determining areas where permits for harvesting should be granted. Since increment, regeneration and mortality rates of the species are not known, it was recommended in the report that studies be conducted to establish the growth performance among others so that better regulatory measures could be instituted to sustainably determine the species annual cutting levels. As an interim measure, felling quotas were recommended for all the political districts where the species are found using the static volumes (m^3) estimated from the survey.

However, the recommendation was not implemented. In an effort to pursue sustainability in Rosewood harvesting, an inventory of the species has been carried out with the view of updating the results of the 2013 static inventory.

The Objective

The major objectives of the survey are:

1. To estimate static volume (m^3) and stem numbers of Rosewood in the endemic areas of Ghana
2. To recommend felling quotas per annum for all the endemic areas (political districts)

These two objectives are aimed at ensuring better monitoring and regulation of Rosewood harvesting in Ghana by the Commission

Data Collection Method

In the 2013 assessment of Rosewood, co-ordinates (latitude and longitude) of plots starting points including plot direction were documented. The schedules of the previous assessment were used to re-locate plots for re-assessment. Again, in order to increase the sampling intensity per forest district, three new plots were randomly selected in each forest district to augment the number of plots.

Plot Size And Shape: Rectangular plots of size 40 m by 1000 m (i.e. four ha) and sub-divided into 10 quadrats or subplots of 40 m by 100 m were used. These long plots enabled the team to capture data in all the various land use types associated with off reserve areas.

Sampling Intensity: In the previous assessment, only three plots (12 ha) per forest district was used but this was increased to 24 ha because of the additional plots. Thus, sampling intensity differ from one forest district to another because of varying sizes of the forest districts.

Plot Location And Demarcation: Using 1:50,000 topo-sheets of the targeted area, the coordinates of the plots starting points were located. To enhance plot location on the field by the demarcation teams, the starting point of each plot as well as their direction were first identified, and constructed on a photocopied Topo-Sheet of the site at the office.

With the assistance of GPS for direction and machetes for assess, these starting points were located on the ground. Similarly, plot directions were also identified using compasses and GPS. Machetes were used for cutting plots assess lines. Beacons were placed at each 100 m length along the access line indicating the end of a particular subplot and the beginning of a new subplot (e.g. end of subplot 1, beginning of subplot 2). The demarcation team also determined the major land use type together with terrain condition in each of the 40 by 100 m subplot.

Plot Enumeration: In each plot, all Rosewood trees greater than 10 cm were identified and their diameter at breast height (dbh) measured and recorded. Sapling sampling where trees between 2 to 9.9 cm diameters were also captured in subplot 1 and 10.

Data Entry And Analysis: Data captured were entered using access database and edited to remove errors. Mean stem numbers per ha including their standard errors were generated per Forest District. Existing volume equation for the dry forest and the savannah ecological zones were used to estimate mean volume (m^3) per ha including their standard errors for each Forest District as well.

- Extraction per year per Forest/Political District scenarios (Felling Quotas) were generated for discussion and final adoption by FC and other key stakeholders.

Approach For District Felling Quotas

In proposing the annual felling quota estimates per Political District, the following assumptions were made:

- Only the static estimates of stem numbers/volume (m^3) were used. Thus, the proposal excluded or did not factor in the dynamics (increment, regeneration / recruitment, mortality rates) of the species. This is because they are not known
- In the estimation of net area of vegetation cover for each District Assembly, 40% of the gross area of each Political District is designated as towns, villages and other infrastructural development

1. First static volume/stem estimates per ha were generated for all the Forest Districts in the six Rosewood endemic regions namely, Upper East, Upper West, Northern, Volta, Brong Ahafo and Ashanti. This means that estimates per ha of a Political District is same as the Forest District where that Political District is located.
2. The size of each Political District (ha) was obtained from the GIS/Mapping Department of RMSC. Thus, estimated total stem numbers and corresponding volume (m^3) of each Political District were generated.
3. A retention of 40% of the total stems/volume (m^3) above felling limit (20 cm dbh) per Political District were maintained to cater for conservation, and destructions such as wildfire, clearance for farming and domestic use.
4. 20% of the total stems/volume (m3) above felling limit per Political District were again maintained to cater solely for charcoal production
5. Of the remaining stock (40%) of stems/volume (m^3) above felling limit, an assumed lifespan of 30, 40, and 50, years were used in determining the annual felling quota

Forest District Quotas: The annual total of the felling quotas for Political Districts within the Forest District were added up to generate the Forest District Quota and this is proposed to be administered by the District offices of the Forest Services Division. This will promote better collaboration between the communities, District Assemblies and Forestry Commission and enhance protection and monitoring of the resources

Regional Quotas: The annual total of the felling quota were aggregated to generate the Regional Quota. This will also facilitate monitoring of the cuts by the respective Regional Office of the Forest Services

National Quota: The national quota, which will be monitored by RMSC, will be endorsed by the representative of CITES in Ghana is the sum of all the assigned District Quotas.

The Results

Regional estimates

Six regions made up fourteen (14) Forest Districts were covered. Mean stem numbers per km^2 (100 ha) of all stems greater than or equal to 2 cm dbh and their corresponding standard errors are presented in Table 1. The Table also includes the equivalent volume (m^3/100 ha) and standard errors of the mean. It could be seen that Upper West region has the highest stem numbers of about 14 stems per ha with an equivalent mean volume 8.85 m^3 per ha.

REGION	No. of Forest Districts	No. of District Assemblies	Mean Stem Numbers/Km^2	SE % Stems	Mean Volume (m^3) /Km^2	SE% Volume
ASHANTI	**1**	**2**	882	2.51	278.94	0.58
BRONG AHAFO	**4**	**10**	1,373	2.1	424.23	0.76
NORTHERN	**3**	**7**	1,305	2.34	768.51	1.63
UPPER EAST	**2**	**4**	1,419	2.07	1,471.14	2.7
UPPER WEST	**2**	**4**	1,789	5.1	884.74	1.12
VOLTA	**2**	**4**	1,440	0.58	958.99	2.69

Table 1. Mean stem numbers and mean volume (m^3) per 100 ha estimates of rosewood grouped according to Region.

This volume estimates per ha is far lower compared with some of the regions notably Upper East and Volta regions. This is an indication that stems of rosewood in the Upper West region

are comparatively of lower diameter classes (see Appendix 1) and as such, their contribution to volume is quite small. Similarly, it could be seen that Upper East has the highest volume estimate of 14.71 m^3 per ha with an evenly stem number distribution across the various diameter classes (Appendix 1). Regions such as Ashanti and Brong Ahafo recorded the least Volume estimates per ha (2.79 and 4.24 respectively

Total standing volume of all stems ≥ 20 cm dbh amounted to 29,059,302m^3 with a corresponding stems numbers of 28,852,102 (Appendix 3).

Details of stocking in stem numbers per square kilometer and their corresponding volume (m^3) per square kilometer estimates in all the Districts inventoried are found in Appendixes 1 and 2 respectively.

Felling Quota Estimates

Appendix 3 is the results of analysis conducted with the view to suggest regulatory mechanism for the sustenance of rosewood exploitation in Ghana. The felling quota per annum approach per Political District of the endemic zones of Ghana using three different lifespan of 50, 40 and 30 years gave stem numbers of 230,817, 288,521 and 384,695 annual quota respectively. The equivalent in volume is 232,474m^3, 290,593m^3 and 387,457m^3 for 50, 40 and 30 years respectively Appendix 3).

The results covered twenty-eight (28) Political Districts of Ghana. Table 2 shows the ranking of the first five Political Districts with the highest felling quota among the three scenarios. It could be seen that West Gonja District is the highest followed by Gonja Central, Bole Bamboi, Sisala West and then Nkwanta North in that order. These five districts alone constitute about 56% of the proposed annual felling quota of rosewood

Ranking	Political District	50-Year Scenario Volume (m^3)	40-Year Scenario Volume (m^3)	30-Year Scenario Volume (m^3)
1	West Gonja	35,897	44,871	59,828
2	Gonja Central	33,325	41,656	55,541
3	Bole Bamboi	24,865	31,081	41,442
4	Sisala East	23,452	29,315	39,086
5	Nkwanta North	11,630	14,538	19,383

Table 2: First five Political Districts with the highest proposed felling quota per annum

Observations During the Survey

- Even though rosewood is common in all districts assessed, the highest frequencies were encountered mostly along riverine forests
- Wildfire incidence was identified in almost all sites visited.

- Charcoal production and shifting cultivation mode of farming were identified as a major threat to rosewood conservation
- Massive rosewood harvesting is ongoing in Buipe and Bole Forest Districts and there were pockets of abandoned log yards of rosewood billets across the entire rosewood endemic areas.
- Numerous pollarded Afzelia Africana (Papao) trees were found in almost all the sites. Our investigation revealed that Fulani herdsmen intentionally pollard the species to feed their cattle during the dry season.
- Regeneration (trees between 2-9 cm dbh) of rosewood is very poor in all the areas visited. Annual wildfires seem to be the main contributory factor.

Plate 1&2: Freshly felled rosewood conveyed to one of the loading sites at Sawla district in Bole Forest District

Plate 3: Rosewood trees deliberately burnt to pave way for farming in Sawla Tuna Kalba District

Plate 3: Rosewood that have been conveyed to the loading site at Daboya in the Gonja North of Buipe Forest District

Plate 4: Rosewood trees being felled for charcoal production in Bamboi in Bole Forest District on the left. Senya tree felled for charcoal production in Kumawu Forest District

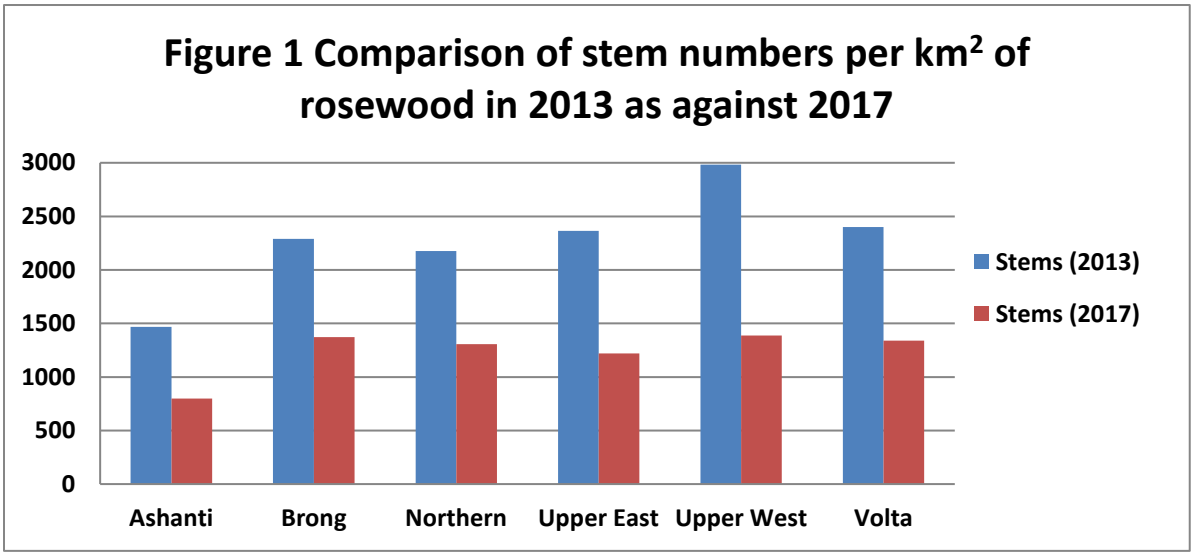
Plate 5: Chacoal production in Kumawu. Stark of rosewood at Samso in the Kumawu Forest District. (Sekyere Afram Plains)

Discussion

1. Comparison of rosewood current status with 2013 rosewood inventory results

There is no doubt that regulatory mechanism initiated to control rosewood exploitation in Ghana was effective simply because harvesting levels was not backed by any research or scientific approach. Again, data on exploitation levels was not adequately managed as is being done for timber exploitation within the high forest zone. Even though illegal harvesting of rosewood has contributed significantly to the placement of the species among Appendix two under CITES, the inadequacies highlighted earlier made it extremely difficult to determine with

certainty the felling levels over the years or justify allowable cuts for the species. A critical analysis of the standing stock in 2013 as against that of 2017 showed a downward trend in all the rosewood endemic regions (Figure 1).



It is therefore prudent that measures are put in place to curb the trend.

2. **District Felling Quota as an interim measure to control cutting of Rosewood**

The felling quota system implemented after the off-reserve inventory of 1995/6 brought about sanity in timber felling within the off-reserve areas of the high forest zone. The success of the quota system was that:

- Managers of the resources at the District level knew the quantity of timber earmarked for exploitation per year and are able to regulate it in such a way that they don't exceed it.
- It also enabled managers to plan their harvesting programs in off-reserve areas in an orderly manner
- Managers were able to keep good records of logging in off-reserve areas were
- All timber merchants working within a particular District are able to follow the quota and compare it with what they have taken within the year.

Thus, they are able to control logging in such a way that they do not exceed the District quota. In 2013 after the rosewood inventory, three different national felling quota per annum of 860,576m^3, (859,932stems) 1,075,720m^3 (1,074,919stems) and 1,434,293m^3 (1,434,293 stems) were proposed for the species using lifespan of 50, 40 and 30 years respectively. It was decided that 40-year life span should be used to coincide with what pertains within the high forest zone.

The difference between the 2013 proposal was that an estimated 30% instead of 40% of each District land mass was deducted from the total area (ha) to cater for towns and villages including degraded areas. Again, only 40% instead of 60% of stems above felling limit was deducted from the total stems above felling limit to cater for conservation, charcoal production, destructions such as wildfire and clearance for farming, and domestic use. Thus, an indicative cut of 1,075,720m^3 with equivalent stems totaling 1,074,919 should be used for Ghana as an interim approach in regulating rosewood resources in Ghana.

The analysis has indicated that rosewood resources in the country have dwindled over the last five years since the inventory was conducted. Similar scenarios used in generating 2013 indicative felling levels options yielded 232,474m^3 (230,817stems), 290,593m^3 (288,521stems) and 387,457m^3 (384,695stems) for 50, 40 and 30 years respectively (Appendix 3).

It could be seen that these figures are lower compared with the 2013 results. It also reflects on the current stocking of the species in the endemic regions.

3. **Recommendations including recommended national quota for Rosewood**

   a. There is lack of information on the dynamics and general ecology of rosewood and many other tree species in the savannah zone of Ghana. This has been a major limitation in determining allowable cut of many savannah species. When this information has been gathered and analysed then we will be in a better position to understand increment, mortality and regeneration behavior of the species. Permanent Sample Plots should be established in these savannah environment in both on and off reserves to monitor the dynamics of the species and other species of economic importance

   b. We recommend that a national felling quota per annum using 50-year life span scenario should be adopted until they are reviewed as more information particularly the dynamics of the species has been fully addressed. Thus, an indicative national felling quota of 232,474m^3 or 230,817

   c. Stem numbers per annum should be adopted and implemented by the Commission. This means that felling of rosewood per annum should not exceed these figures.

   d. Proper documentation and archiving of logging history similar to what pertains in the high forest zone be instituted. Such documentation should include the logger, the

number of times the site has been logged, the number of stems removed at each logging operation among others. This will enable the Commission to establish annual cutting levels as against recommended.

e. The recent assessment captured data on Senya, Papao and Darbergia. The results will be presented on a different report. However, further studies in the form of extending the data capture on these species should be carried out to examine trends in stocking because of presumed unsustainable harvesting threats. Thus, studies should be extended to include most of the other common species in the savannah environment that have shown some level of economic importance of Ghana.

Roles and Responsibilities

Forest Services Division:

References

RMSC (2013). Report on rosewood (*Krayie)* inventory. A technical report submitted by a joint RMSC FSD Team.

Guinea-Bissau

Information

Le Point Focal CITES Guinée-Bissau, basé à la Direction Générale des Forêts et de la Faune du Ministère de l'Agriculture et du Développement Rural. Après avoir effectué quelques missions de fiscalisation / vérification sur le terrain, il a la gentillesse de fournir quelques informations.

1. L'espèce Pterocarpus erinaceus (bâtonnet de sang ; Bois de Rose) a une répartition nationale, couvrant toutes les régions du pays de manière hétérogène. Présente dans toutes les forêts, que ce soit en termes de quantité de population ou non. Sa struture est variable selon les zones, Dans notre législation forestière nationale, espèce est classées comme espèce partiellement protégée. La tendance évolutive est progressive, bien qu'une exploitation agressive se fasse sentir d'année en année.

2. Menaces et mesures mises pour réduire les menaces:

L'espèce est exploitée depuis longtemps sans subir de menace notable au niveau national.

En 2012, année, du coup d'État, une année qui a connu une exploitation sans précédent, avec toute sorte de violation des legislations nationales en vigueur dans le pays. L espece a été attaquée de manière incontrôlée, dépassant la capacité de contrôle des Agents forets.

3. En ce qui concerne le Pterocarpus erinaceus (bâtonnets de sang ,Bois de Rose), elle est très menacée d'un point de vue technique, compte tenu de la déforestation / opérée en 2012,

4. . ainsi que des annees qui ont suivi avant le Moratoire;

Avec l implantation moratoire; la situation est sous contrôle de la Direction générale des forêts et de la faune. Mais il peut y avoir des foyers d'attaque de Pterocarpus erinaceus) par de petits industriels pour la menuiserie.

5. Facteurs menaçants / causes le Pterocarpus erinaceus:

- L'exploitation incontrôlée d'espèces ciblées (rôniers, Kaya senegalensis, Pterocarpus erinaceus (pau de sangue), Afzelia africana, espèces de pharmacopée, etc.) menacées de nos jours ;
- La faible vulgarisation des techniques de coupe et taille ;
- La forte propagation des feux de brousses incontrôlés ;
- L'absence de consultation des Régions avant la délivrance des licences et autorisations diverses ;
- La grande vulnérabilité des ressources forestières liée à la longue durée de la période d'exploitation forestière (9 mois) ;
- Le nombre élevé des entreprises forestières dans les régions ;
- La forte exportation des troncs de bois et la faible transformation sur place ;
- L'absence de liens avec des instituts régionaux et internationaux de recherche forestière ;
- L'importation de bois sans autorisation préalable ;
- Les difficultés d'appréciation du fonctionnement des scieries et du respect des engagements par manque de contrôle périodique ;
- La faible promotion des forets communautaires.

6. Mesures techniques, politiques / administratives et judiciaires adoptées pour réduire la menace:

- Décret du règlement CITES n ° 3/2017 du 30 mai;
- mesure politique Implantation du moratoire interdisant lexploitation forestiere pendant cinq ans (2015 à 2020);
- La loi organique de la CITES sur la Guinée-Bissau est en cours d'élaboration;

- La gestion, la conservation et l'exploitation écologiquement viable des forêts et des terres forestières voir agraire ;
- La décentralisation pour une foresterie communautaire;
- La participation des populations et la prise en compte de leurs savoirs et savoir-faire traditionnels ainsi que leur culture;
- Le développement durable;
- Le changement climatique;
- La conservation de la biodiversité.

7. Il existe un plan de planification pour les concessions opérationnelles, avec une faible applicabilité , faute de moyens financiers;

4. Depuis 2012, aucun quota légal n'a été établi pour l'exploitation au cours des cinq (5) dernières années;

5. Programmes d'exploitation et de gestion applicables:

- Actuellement, aucun programme d'exploitation n'a été mis en place en raison du moratoire en vigueur depuis 2015, aucune coupe n est légalement autorisée.
- La gestion de cette espèce se fait par des actions de repeuplement et de restauration.
- L'utilisation est principalement utilisée pour le bois d oeuvre, le bois de chauffage, le fourrage (alimentation animale), la médecine traditionnelle, le l ecorce est utilisée pour faire du sirop.

6. Existence d'un plan de gestion des concessions d'exploitation, actuellement, aucun depuis 2012.

7. Pas de diamètres de coupe minimaux applicables au cours des cinq (5) dernières années, de 2015 à 2020, pour cause de l'instabilité politique chronique installée dans le pays depuis 2012, est devenu difficile pour la Direction générale des forêts d'effectuer le contrôle dans le respect des lois forestières, mais plusieurs programmes de réorganisation sont prévus pour toutes les concessions d'exploitation forestière;

8. Un quota d'exportation de 1 500 conteneurs correspondants à 24 339 m3 a été établi en 2018 pour l'exportation, seulement Pterocarpus erinaceus (bâton de sang , Bois de Rose) illégalement coupé en 2012.

9. Structure de la population dans les zones d'exploitation:

- La structure de la population dans la zone d'exploitation n'est pas homogène, c'est-à-dire une répartition irrégulière et fragmentée.

10. Les inventaires portant uniquement sur l'espèce, de Pterocarpus erinaceus (bâtonnet de sang; Bois d Rose) n'ont jamais été réalisés, seul l'inventaire forestier général réalisé en 1985, au niveau national, qui a permis d'identifier différents types de forêts et leur composition floristique en termes d'espèces.

11. Il est prévu de réaliser un inventaire forestier, y compris l'espèce Pterocarpus erinaceus , dans un avenir proche (en novembre de l'année en cours);

12. Il y a eu un suivi des populations dans les concessions d'exploitation (sur le site ou dans les zones de coupe), mais très faible., faute de moyens financiers

13. Pour le commerce non nocif, CITES est elabore par une équipe multidisciplinaire associant plusieurs institutions, dont la Direction générale des forêts et de la faune, la Direction générale de l'environnement, actuellement Ministère de l'environnement, Institut de la biodiversité et de l'environnement.

14. Il existe des activités clandistines de commerce illégal de bois d oeuvre ou de produits forestiers, dérogeant aux procédures légales.

15. Il existe une loi pour sanctionner toute infraction à Pterocarpus erinaceus (bâton de sang), sur la base du règlement CITES du décret no 3/2017 de la Guinée-Bissau du 30 mai, en liaison avec la loi forestière de 2011.

16. En Guinée-Bissau depuis l'entrée en vigueur du règlement CITES en 2017, par le décret susmentionné, les espèces de faune et de flore inscrites aux annexes I, II et III de la CITES sont protégées.

17. Le moratoire instauré en 2015, qui interdisait l'exploitation forestière non contrôlée, n'est plus en vigueur depuis le 15 avril 2020.

18. La réorganisation et la redistribution des concessions aux opérateurs économiques (industriels) du bois d oeuvre sont prévues.

Fai DJEDJO

PONTO FOCAL CITES

Information received 28/04/2020. The Management Authority of Guinea later clarified that some of the information provided in this response is historic and does not reflect the current situation

MINISTERE DE L'ENVIRONNEMENT
DES EAUX ET FORÊTS

DIRECTION NATIONALE
DES EAUX ET FORETS

REPUBLIQUE DE GUINEE
Travail – Justice – Solidarité

Information sur les espèces soumises à l'étude du commerce important CITES

Pterocarpus erinaceus

***Distribution en République de Guinée*:**

Sa distribution, y compris la zone d'occurrence et la surface d'occupation des forêts et des plantations

Distribution en République de Guinée par région naturelle

Basse-Guinée

Haute-Guinée

Moyenne -Guinée

Habitat. Savane boisée, forêt sèche, savane côtière humide, terres en jachère. Il n'existe pas de plantation de l'essence. Certains essais sont en cours

Floraison: Aout – septembre, février
Saison de fruits / graines : octobre-novembre
Recommencement de croissance : Avril.

Ces sujets disséminés entre autres n'ont pas connu d'inventaires au niveau national

- ***La taille, le statut et l'évolution de la population de P. erinaceus***
- ***Les menaces sur cette espèce (et toute mesure en place pour réduire ces menaces)***

Identification des menaces à l'espèce:

Taille et menaces:

De 2005-2010: il ya eu une exploitation abusive et effrénée de l'espèce sous l'influence des opérateurs chinois (exploitation et exportation sous forme équarries et de troncs) Ceci à conduit à l'égrenage de tous les sujets adultes.

A cela s'ajoute la consommation locale depuis 2014, tout cela à entrainé une exploitation abusive de l'espèce et à la disparition des sujets adultes. ci-dessous le tableau de recensement des stock de bois.

- ***Des informations sur les programmes de récolte et de gestion applicables à cette espèce dans le pays, y compris des détails sur toute région spécifique et concession en exploitation, ainsi que des détails sur l'utilisation (par exemple, si l'espèce est utilisée principalement pour le bois ou le fourrage des animaux)***

Le bois est utilisé pour la fabrication des meubles, les panneaux décoratifs, les revêtements de sol et les ustensiles ménagers. Depuis 2004, le bois a été la convoitise des opérateurs asiatiques. L'espèce a été considérée depuis lors comme bois d'or.

- Les feuilles sont séchées et utilisées pour nourrir le bétail pendant la saison sèche.

- Cette espèce est utilisée comme bois de feu et de charbon de bois. Il est très inflamable.

- L'écorce est utilisée pour traiter les infections buccales, la résine contrôle la diarrhée et la dysenterie, les feuilles réduisent la fièvre et, en général, l'arbre est considéré comme étant antimicrobien.

Gestion d'espèces et stratégies de conservation:

- ***S'il y a un plan de gestion pour les concessions en exploitation***

En Guinée, l'exploitation illégale du vène a toujours existé. Malheureusement il est impossible de donner un chiffre exact par rapport à l'envergure du problème. Cependant les méthodes et pratiques sont connues, nous pouvons citer entre autres :

1. Falsification des documents. N'importe quel document peut être falsifié (.permis de coupe.
2. permis de transport, changement des volumes après le transport pour rapporter à la baisse les quantités transportées), permis d'exportation, documents Cites, volumes exportés modifiés pendant le transport maritime.
3. Implication des cadres corrompus limitant ainsi les capacités du Gouvernement
4. Immixtion des autorités militaires et administratives dans la coupe et dans le transport du bois illégalement exploité.
5. Manque de plan d'aménagement des forets à exploiter
6. Manque de collaboration entre les structures concernées

Il existe au niveau de Conakry quatre grands dépôts de bois qui sont remplis malgré l'interdiction de la coupe du bois. Ces dépôts de capacité moyenne de 10 000 m^3 sont
1. Dépôt près du marché Tanènè (quartier Gbessia, Commune Matoto)
2. Dépôt de Bonfi (quartier Bonfi, commune Matam)
3. Dépôt au quartier Lambanyi à Yembeya (commune Ratoma)
4, Dépôt au Km 36, où les containers sont remplis pour l'exportation à partir du port
Selon le Poste de contrôle au Km 36, actuellement un volume mensuel de bois d'œuvre qui rentre illégalement à Conakry est estimé à 3000 m^3

Pour le moment il n'existe aucun programme de gestion de cette espèce.
Cependant sa sauvegarde reste une des priorités de l'administration forestière.
Des inventaires sont prévus pour toutes les espèces animales et végétales y compris le bois de vène.
Malheureusement ce programme est confronté à des difficultés de financement.
L'administration forestière est décentralisée jusqu'au niveau des sous-préfectures
Les agents à ce niveau supervisent toutes les coupes d'exploitation.
Des peuplements de vène peuvent être crées par des actions de reboisement surtout pour la production des bois d'œuvre.

- ***Avis de commerce non préjudiciable CITES***

Pour les avis de commerce, il existe une faiblesse à ce niveau ils ne sont pas élaborés plutôt ce sont des permis de coupe et des bordereaux de circulation qui sont délivrés par les services mandatés.
C'est à ce juste titre que l'Autorité Scientifique mis en place auprès de l'organe de gestion de la CITES Guinée implique les parties prenantes pour plus de cohérence. Une demande de renforcement de capacités auprès du Secrétariat de la CITES a été formulée. Un point focal dans le cadre de la base de donnée du cadre d'indicateurs de l'ICCWC pour la lutte contre la criminalité liée aux espèces sauvages et aux forêts a été désigné. Pour le moment les activités n'ont pas été entamées par le point focal qui attend des échanges comme annoncé au départ.
Suite à l'avènement de la troisième République et compte tenu de l'anarchie qui existait au niveau de l'exploitation et du commerce du bois en République de Guinée, un arrêté du Premier Ministre à interdit la coupe, la circulation et l'exportation du bois sur l'ensemble du territoire national (arrêté/A/N°7220/PM/SGG du 30/12/2010). Cet arrêté à été renforcé par la suspension de la Guinée en 2013.

- **La Protection de l'espèce:**

In situ-Protection:

- ✓ Faire l'inventaire de cette espèce en Guinée et recenser les individus présents par site, après comparer les résultats en matière de nombre de plantes par site de la superficie,
- ✓ Identifier et cartographie les zones pour la collecte des semences en vue d'une protection

- ✓ Présenter les données aux autorités locales et au Ministère de l'Environnement, des Eaux et Forêts;
- ✓ Sensibiliser et impliquer la population riveraine pour la création de plantation de vène ;

Ex situ protection :

- ✓ Faire la mise en place d'un protocole de propagation par l'expérimentation des différents organes de la plante (graines, bouture, et plantules).

- ✓ Faire des reboisements de cette espèce dans les zones dégradées. Cette espèce a une lente croissance. Il faut des actions de reboisement d'envergure pour une gestion durable de l'essence.
- ✓ Banque de semences : Collecte des graines dans les différentes régions.

La protection juridique de cette espèce (actuelle ou proposée), y compris toutes mesures internes plus strictes ou interdictions ou restrictions générales sur l'exportation (par exemple rondins, bois de sciage, bois rond)

- Les coordonnées d'experts sur le sujet dans le pays:

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Situation des anciens stocks de bois de 2010 inventoriés en 2016									
N°	Prénoms et Noms Sociétés	Zone de stockage	Désignation des produits	Essences	Dimensions en m			Nombre de pièces	Volume en m³
					L	e	l		
	Ville de Conakry et Environnants								
1	Ibrahima Kalil Keita	Aeroport-/Matoto	madrier double	vène	2,3	0,5	0,25	225	56,25
	Ibrahima Kalil Keita	Km5/Dubréka	clo	tali	2,3	0,5	0,25	654	188,025
									244,275
2	Ets. Jin SHENG	Kountia/Coyah	madrier double	vène	2,05	0,27	0,25	76000	10516,5
			lambourde	acajou	1,13	0,15	0,13	96	2,115
			planchette	acajou	1,08	0,15	0,03	3500	17,01
			frise	acajou	1,07	0,15	0,1	425	6,821
			carrelet	acajou	1,04	0,15	0,15	3131	73,265
			divers	acajou	1,04	0,15	0,07	800	8,736
									14074,336
3	Shunxi socopla	Bentouraya/Coyah	parquet	lingué, vène,	0,94	0,14	0,025	177812	585,001
			planchette	-	0,76	0,14	0,025	138452	368,282
				-	0,64	0,14	0,025	53571	119,999
				-	0,47	0,14	0,025	69909	115
					0,37	0,14	0,025	86486	111,999
			madrier double	lingué, vène,	2,1	0,28	0,2	17820	2095,632
									3395,913
4	Kantra & Frère	Manéah/Coyah	madrier double	vène	2,1	0,28	0,22	2480	320,812
		Yembeyah/Ratoma	madrier double	vène	2,05	0,27	0,22	2399	292,126
									612,938
5	Yafei Int.	Manéah/Coyah	parquet	vène	0,95	0,2	0,15	169350	465,975
			frise	vène	0,65	0,05	0,03	4119	4,016

									469,981
6	Sadjo & Fils	Kobayah/Ratoma	madrier double	vène	1,9	0,27	0,22	7000	**790,02**
7	Atigou Barry	Kobayah/Ratoma	madrier double	vène	1,9	0,27	0,22	4518	**509,901**
	Volume total à Conakry et Environnants								**20 097,364**
	Préfecture de Kindia								
8	Fatoumata B. Barry	CU,Sougueta,Kolenté/Kdia	madrier double	vène, lingué	2,2	0,29	0,25	7200	**1148,400**
	Volume total dans la préfecture de Kindia								**1148,400**
	Préfecture de Faranah								
9	Ansoumane Camara	Faranah/Dépôt central	madrier double	vène	2	0,26	0,23	580	69,368
		Tonkolonko 1	madrier double	vène	2	0,26	0,23	836	99,985
		Takhoudé	madrier double	vène	2	0,26	0,23	482	57,647
		Kombanya	madrier double	vène	2	0,26	0,23	1100	131,56
		Passayah	madrier double	vène	2	0,26	0,23	2485	297,206
10	Matamadi Camara	Passayah	madrier double	vène	2	0,26	0,23	600	71,76
11	Yaya Kouta Diallo	-	-	-	2	0,26	0,23	300	35,88
12	Samba Kourou Diallo	-	-	-	2	0,26	0,23	300	35,88
13	Jin SHENG	-	-	vène, acaju	2	0,26	0,23	1712	419,317
14	Socopla	-	-	vène, lingué	2	0,26	0,23	860	102,856
15	Mouna Camara	Kaliya/Marélah	madrier double	vène	2	0,26	0,23	4102	490,599
16	Jin SHENG	Friguiah/Maréla	madrier double	vène	2	0,26	0,23	1406	168,157
17	Lamine Sylla	Sandeniya-centre	madrier double	vène	2	0,26	0,23	1592	190,403
		Laya	madrier double	vène	2	0,26	0,23	2606	311,677
18	Sayongbè Samoura	Niaya-Forita	madrier double	vène	2	0,26	0,23	2580	308,568
19	Manga Sory/Ets. K&F	Kombonya/Bontala	madrier double	vène	2	0,26	0,23	12024	1438,07
20	Laye Dokota	Yatia/Herèmakono	madrier double	vène	2	0,26	0,23	2814	366,554

	Camara								
21	Ibrahima Mara/Socopla	Kanko Maria/Damania	madrier double	vène	2	0,26	0,23	2912	348,272
		Tiro-centre	madrier double	vène	2	0,26	0,23	2904	347,184
		S/P Nialia	madrier double	vène	2	0,26	0,23	2400	287,04
		S/P Tindo	madrier double	vène	2	0,26	0,23	880	105,248
22	Balasoudou Fodé	Bagna-centre	madrier double	vène	2	0,26	0,23	722	86,351
23	Doussou/Bere vieux	-	madrier double	vène	2	0,26	0,23	402	48,079
24	Laye Freedom/Socopla	-	madrier double	vène	2	0,26	0,23	3288	393,244
25	Sayon Cissé/Socopla	S/préfecture Bendou	madrier double	vène	2	0,26	0,23	8552	1022,819
	Volume total dans la préfecture de Faranah								**7233,724**
	Préfecture de Kouroussa								
26	Mamadi Fadouba Condé	Yarouba/Koumana	madrier double	vène	2,05	0,28	0,22	347	43,819
		Heremakono/Doura	madrier double	vène	2,05	0,28	0,22	12	1,515
27	Amara Bérété	Heremakono/Doura	madrier double	vène	2,05	0,28	0,22	859	108,474
		Farakoba/Doura	madrier double	vène	2,05	0,28	0,22	1986	250,792
		Doumgbè/Doura	madrier double	vène	2,05	0,28	0,22	2383	300,925
28	Mohamed Doumbouya	Komoya/Sanguiana	madrier double	vène	2,05	0,28	0,22	4000	505,12
29	Famou Camara	Moussayah/Sanguiana	madrier double	vène	2,05	0,28	0,22	600	75,768
30	Bandjan Camara	Bokoro/Sanguiana	madrier double	vène	2,05	0,28	0,22	600	75,768
31	Mami Krankama Cde	Djaragbila/CU	madrier double	vène	2,05	0,28	0,22	460	58,088
32	Ansoumane Cra	Komoya/Sanguiana	madrier double	vène	2,05	0,28	0,22	270	34,095
33	Abou Mara	Djènèban/Koumana	madrier double	vène	2,05	0,28	0,22	400	50,512
	Volume total dans la préfecture de Kouroussa								**1504,876**

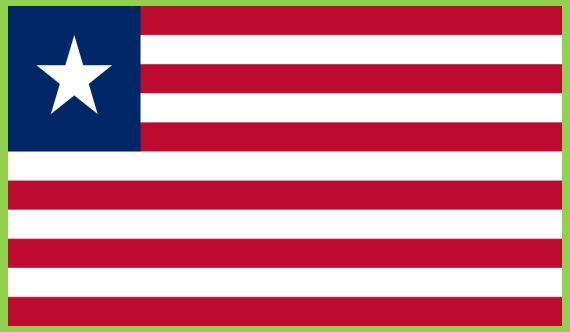
	Préfecture de Dabola								
34	Ibrahima Sory Sylla	S/P CU, N'Dema, Passayah	madrier double	vène	2	0,27	0,2	920	110,032
35	Abdoulaye Baldé	N'Dema,CU,Bissikirima	madrier double	vène	2	0,27	0,2	2244	268,382
36	Karamoko Diallo	Banko	madrier double	vène	2	0,27	0,2	1264	151,174
37	Alpha Sylla	Alpha Moussayah	madrier double	vène	2	0,27	0,2	200	23,92
38	Fabory Doumbouya	N'Dema	madrier double	vène	2	0,27	0,2	80	9,568
39	Aboubacar Diakité	N'Dema	madrier double	vène	2	0,27	0,2	2160	258,336
40	Sékou Condé	Arpha Moussayah	madrier double	vène	2	0,27	0,2	300	35,88
41	Oumar Cissé	N'Dema	madrier double	vène	2	0,27	0,2	280	33,488
42	Hady Cissé	N'Dema	madrier double	vène	2	0,27	0,2	250	29,9
	Volume total dans la préfecture de Dabola								**920,68**
	Totaux des Volumes inventoriés (m^3)								**30 905,044**

Liberia

Please note that Liberia does not have P.eraineus but here is what Liberia has. In fact much study has not been on this species on Liberia as a result there is no statistics on such species in our state.

Forestry Development Authority

HEAD-CITES MANAGEMENT AUTHORITY-LIBERIA



PROTECTION AND CONSERVATION OF PTEROCARPUS SPECIES IN LIBERIA

BLAMAH S. GOLL

TECHNICAL MANAGER

CONSERVATION DEPARTMENT/FDA

HEAD, CITES MANAGEMENT AUTHORITY-LIBERIA

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E-MAIL:blamahg@yahoo.com

DATE: JULY 31, 2019

Introduction

- **Pterocarpus santalinoides is naturally an evergreen tree which belongs to the family Fabaceae-Papilionoideae with synonyms ranging from Lingooum esculentum to Pterocarpus michelii. Growing up to 10-15 metres tall, is around 30-50cm (http://www.prota.org).**

- **The bark is thin and flaking in small patches, exuding yellow-white drops of gum when slashed.**

- **The plant has compound leaves with 5-9 leaflets. Its conspicuous orange-yellow flowers produce light brown glabrous pod/fruits but Liberia do not have Ptercarpus erainaeus but rather have Pterocarpus santalinoides**

Introduction cont`d

- ***P. santalinoides*** **was observed to favor lowland regions of the moist tropics at elevations from 200 - 500 metres with a mean annual temperature of around 26°c and an annual rainfall of about 1,600mm (Adams, 2016)**

- **It is often common locally in the range states, and sometimes even occurs gregariously**

- ***P. santalinoides*** **is also cultivated in many countries in which it is not an indigenous species because it is a multipurpose tree, making it a suitable tree species for agroforestry.**
- **Conservation status –least concern**

- **This presentation is therefore intended to promote efforts in curbing illegal exploitation of the Pterocarpus Species-Rosewood nationally and regionally**

COUNTRY PROFILE

- **Population: 4.5 million**
- **Capital city: Monrovia**
- **Total land area: 111,369 sq. km**
- **Coastline: 579 km**
- **Land boundary: 1,667 km**
- **Liberia's shared borders: Cote d'Ivoire (778 km), Guinea (590 km), Sierra Leone (299 km)**
- **It is estimated that 40 to 50% of the country's surface is still covered with primary tropical rainforest containing over 250 different species. Liberia thus has West Africa's largest tropical rainforest**
- **Liberia considered as one of the 14 centers of global plant endemism and has an extensive and unique biodiversity**
- **Liberia's biodiversity: 2,900 vascular plant species (including 225 tree species), 600 bird species, 150 mammal species, 75 reptile species**
- **House to five (5) proclaimed Protected Areas**

LEGAL FRAMEWORK & POLICY OF CONSERVATION AND PAM OF LIBERIA

- **Liberia`s 1986 Constitution provides that natural resources shall be managed with maximum participation by all citizens for the general welfare of the people and its sustainable national socioeconomic and environmental development.**
- **Penal Law (Liberia Code of Laws) 1978**
- **Amended Revenue Code of Liberia of 2011**
- **New Minerals and Mining Laws of Liberia,2000**
- **Environmental Protection Agency Law of 2003**
- **Freedom of Information Act of 2013**
- **Pro-poor Agenda For Prosperity and Development (PADP) 2018-2023**
- **FDA Action Plan for the implementation of the Strategic Plan (FDA Vision 2030)**
- **Liberia Protected Areas Network Strategic Action Plan 2008-2013**
- **Protected Forest Area Management Act of 2003**
- **National Forestry Reform Law of 2006**
- **National Wildlife Conservation and Protected Area Management Law of 2016**

Distribution of Pterocarpus Species

- **The tree is native to Africa, South America and the Caribbean.**
- **In Africa it is found in Central and West Africa as it occurs in Cameroon, Gabon, Ghana, Liberia, , Cote d`ivore ,Nigeria and Senegal**
- **In South America it grows naturally in Brazil, Venezuela, Paraguay, etc. while in Central America it is found in the Guyanas and Trinidad.**
- **Ecologically, found in Habitats of mixed deciduous forest and flooded savannah on lake and lagoon sides, riverbanks usually on sandy and moist soils, at elevations up to 500 meters**
- **It is mainly found within the southeastern part of Liberia**

USES OF ROSEWOOD

- **A. Edible, medicinal , agroforestry ,and other Uses**
- **Roasted seeds are edible, tasting slightly like groundnuts, but the raw seeds are toxic**

- **Cooked young leaves are eaten as a vegetable; they are also added to soup**
- **The bark, roots and leaves are commonly used in medicinal preparations- taken internally to treat bronchial complaints, amoebic dysentery, stomach-ache and sleeping sickness; to prevent abortion and ease childbirth, and as a tonic**

- **Decoctions are administered externally to wounds to promote healing, and to treat haemorrhoids and fever**

- **Stem extracts showed slight antimalarial activity against Plasmodium falciparum strains**

- **The tree is occasionally planted to provide shade for crops and to improve the soil by fixing nitrogen and providing organic matter**

Uses of Rosewood Cont`d

- **The leaf litter slowly releases nitrogen as it decomposes and significantly increases soil exchangeable Calcium and Magnesium in the soil**
- **Use for charcoal and firewood purposes**

- **The tree also makes a good windbreak, and is an important species for soil conservation in water catchment areas**
- **Use for making musical instruments like xylophone, drums**

- **The bark is locally used for dyeing textiles**

- **The wood is locally used for temporary construction, carpentry, sculpturing, fences and boxboard**

Threats and challenges associated with the Conservation of Pterocarpus Species in Liberia

- **Limited data and information on the species and its trade locally and nationally**
- **Population pressure**
- **Lack of specific area/portion of the Wildlife Conservation and Protected Areas Management Law to Liberia to have the species placed under full protection**
- **Lack of land use plan**
- **Destruction of the plant habitats**
- **Invasive species**
- **Shifting cultivation, mining, human settlement**
- **Ways of Harvesting them for food, medicine and other purposes or uses**
- **Pollution**
- **Climate change**

Constraints and Challenges

- **Unarmed forest rangers to monitor and curtail illegal trade**
- **Slow pace of sustainable livelihood delivery to local forest dwellers**
- **Inadequate awareness on species conservation and importance**
- **Limited private public private partners mechanism**
- **Limited fund from national government to support sustainable forest management**
- **Limited equipment and logistics**
- **Inadequate trained manpower**
- **Illegal wildlife and cross borders trade**
- **Fragile borders**
- **Weak law enforcement and governance**
- **Competing priorities and demanding for resource use**

Status of Pterocarpus santalinoides

- **Conservation status –least concern (IUCN, 2012)**

Strategies instituted in Liberia of Rosewood

- **Formulated policies, strategies and regulations for its protection and conservation**
- **Encouraging local farmers to use it in their agroforestry farming system because it is a multiple purpose use plant spp.**
- **Formulated the species working National Group of Liberia (SWGL)**
- **Developed and validated Transboundary MOUs and Legal Framework Agreements between SL-Liberia, CI-Liberia, Guinea-Liberia**
- **Educating and creating more awareness on it protection**
- **Develop the National REDD+ Strategy**
- **Develop National Biodiversity Strategy Action Plan**
- **Expansion of the PAN to support all plants and animals protection**
- **Develop Ten Code of Harvesting system**
- **Signed the Voluntary Partnership Agreement/Forest Law Enforcement and Governance (VPA-FLEGT)**
- **Develop and implement the Chain of Custody System**
- **Establishing plantations and sample plots**

Strategies instituted in Liberia of Rosewood cont`d

- **Expand the protected area (conservation area) network and estate through the declaration of state-owned terrestrial and marine protected, IBAs, RAMSAR Sites and biodiversity stewardship sites, based on the National Protected Area Network Expansion Strategy**

- **Training number of people working with appropriate facilities sufficient according to national, regional, and global needs in order to achieve the targets of the Pterocarpus Species conservation in Liberia**

- **Ensuring Indigenous and local knowledge innovations and practices associated with the species maintained or increased as appropriate to support customary use, sustainable livelihoods, local food security and health care**

- **Continue to work along with relevant state and local actors to develop a framework and cooperate for compliance and enforcement in biodiversity priority areas where these species are found**

- **Revising Liberia Wildlife Conservation and Protected Area Management Law to meet Category I of CITES**

Conclusion

- **Due to continuous increase of threats to the number of species of fauna and flora and their habitats due to encroachment, and fragmentation, majors steps have been taken by the FDA, other relevant conservation and non-conservation actors, agencies and partners to protect and manage the wildlife and their environment**

WISE WORDS OF CONSERVATION

“Earth provides enough to satisfy every man`s needs, but not every man`s greed” MAHATMA GANDHII

“The worst sin towards our fellow creatures is not to hate them, but to be indifferent to them” by George Bernard Shaw


Thank You

Mali

MINISTÈRE DE L'ENVIRONNEMENT,
DE L'ASSAINISSEMENT ET DU
DEVELOPPEMENT DURABLE
= = = = = = = =
DIRECTION NATIONALE DES
EAUX ET FORETS
= = = = = = =

RÉPUBLIQUE DU MALI
Un Peuple- Un But – Une Foi

04 MAY 2020

LE DIRECTEUR NATIONAL DES EAUX ET FORETS
Organe de gestion CITES-Mali
Email : dnef.dnef@yahoo.fr

A

Monsieur le chef des services scientifiques
Secrétariat-CITES – GENEVE
Email : species@unep-wcmc.org

N° 0330 /MEADD-DNEF

Références : - V/L N° ref. : SST/TDM/2020/UNEP-WCMC/01 du 09 avril 2020
- Lettre de UNEP-WCMC du 15 avril 2020

OBJET : Etude du commerce important de Pterocarcus erinaceus

Monsieur,

Suite à votre lettre citée en référence relative à l'objet, j'ai l'honneur de vous faire parvenir dans le tableau ci-dessous en annexe, les informations sur Pterocarpus erinaceus (Vène) au Mali, en lien avec le processus d'étude du commerce important de spécimens d'espèces inscrites à l'annexe II de la CITES dont est chargé l'ONU Environnement - Centre mondial pour le suivi de la conservation (UNEP-WCMC) par le Secrétariat CITES.

Je vous remercie de votre habituelle franche collaboration.

P.J : Carte de répartition de Pterocarpus erinaceus

Le Directeur National

Insp. Gal Ibrahim AG SINDIBLA
Ingénieur des Eaux et Forêts

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Tableau : Informations sur Pterocarpus erinaceus au Mali

Informations demandées relatives à P. erinaceus	Données/Commentaires
1- la distribution, y compris la zone d'occurrence et la superficie occupée des forêts et des plantations	L'Espèce ***Pterocarpus erinaceus*** possède une aire de distribution qui englobe les cercles de : **Zone à forte potentialité :** Les cercles de *Bafoulabé, de Kita, (**Région de Kayes**), de Kadiolo, de Yanfolila, de Kolondieba et de Bougouni **(Région de Sikasso)*** **Zone à faibles potentialité :** Les cercles de *Koulikoro,* de *Kati,* de *Dioila (**Région de Koulikoro**),* de *Diema (**Région de Kayes**),* de *Yorosso,* de *Koutiala (**Région de Sikasso**)* **zone à très faibles potentialité :** les cercles de Banamba, de Kolokani **(Région de Koulikoro)** et de Baraouéli (**Région de Ségou**). *Cf. : Carte ci-jointe.* Les plantations réalisées dans le cadre de la mise en œuvre des Plans d'Aménagement des trois dernières années sont estimées à de plus de 575 ha
2- La taille, le statut et l'évolution de la population de l'espèce	Essence forestière partiellement protégée, suivant le Décret n°10-387/P-RM du26 juillet 2010 ~~fixant la liste des essences~~ protégées, partiellement protégée et les essences de valeur économique. La densité de l'essence va de 150 tiges à 5 tiges par hectare dans ces aires de distribution (*voir carte*). Cette densité est fonction des bioclimat, et conditions stationnelles. L'espèce a connu une surexploitation conjuguée aux effets des feux de brousses et changement climatiques qui ont affecté sa densité et son évolution
3- Les menaces sur cette espèce (et toute mesure en place pour réduire ces menaces).	l'espèce connait une pression due à l'exploitation et les effets de feux de brousse et des changements climatiques. Son aire de distribution connait des feux de brousses récurrents qui brulent chaque année des grandes superficies, la mutilation pour nourrir les animaux, les défrichements anarchiques, l'exploitation frauduleuse etc. La zone d'occurrence dans les régions de Kayes, Sikasso et Koulikoro sont sérieusement menacées par les activités minières et l'orpaillage. Les mesures pour réduire ces menaces sont entre autres : les campagnes d'information et de sensibilisation, la mise en place, l'organisation et la dynamisation des brigades anti- feu et des comités de surveillance, les missions de contrôle et de surveillance, les suivi de la mise en œuvre des plans d'aménagement et de gestion, les sanctions pécuniaires et pénales etc
4- Des informations sur les programmes de récolte et de gestion applicables à cette espèce	Exploitation à travers les contrats de gestion des forêts et massifs forestiers en partenariat (Partenariat Public Privé) avec des sociétés ou des coopératives pour l'exploitation du bois, la conduite de la

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dans la région y compris des détails sur toute concession en exploitation, ainsi que les détails sur l'utilisation (par exemple, si l'espèce est utilisée principalement pour le bois ou le fourrage des animaux)	régénération naturelle, la surveillance et la protection de l'espèce contre la mutilation pour nourrir les animaux L'espèce donne un excellent bois d'œuvre et ses feuilles sont utilisées comme fourrages pour le bétail.
5- Le plan de gestion pour les concessions en exploitation	La gestion s'articule autour d'un programme annuel : évaluation des activités de l'année antérieure, l'inventaire de la parcelle annuelle d'exploitation. La programmation des activités techniques se fait annuellement on peut citer entres autres: la fixation du quota, le marquage des sujets à couper, le renforcement des capacités des acteurs, l'ouverture et l'entretien des pare- feux et pistes de débardage, le prélèvement du quota, le traitement des souches ,la sélection des rejets, le reboisement, l'enrichissement etc.
6- La réglementation de la récolte sauvage et du commerce de la nature (par exemple, quotas juridiques de récolte, diamètres de sciage minimums, durée de rotation, quotas d'exportation).	La récolte se fait suivant des titres d'exploitation et de transport délivrés à la demande du requérant par les agents de l'autorité chargée de la gestion des forêts. Cela conformément au décret N°10-388/P-RM du 26 juillet 2010 fixant les taux de redevances perçues à l'occasion de l'exploitation des produits du domaine forestier de l'Etat en application de la Loi N°10-028 du 12 juillet 2012 déterminant les principes de gestion des Ressources du Domaine forestier National. Le diamètre minimum d'exploitabilité est de 50 centimètre, Les plans d'aménagements ont une durée de 6 à 10ans selon les zones agro écologiques, la densité et la maturité des sujets. L'exportation représente environ 20% du quota d'exploitation annuel fixé par la commission de fixation de quota. Le quota prudent d'exportation est établit en fonction des quotas de prélèvement fixés dans les régions
7- Des informations sur la taille et la structure des populations dans les zones d'exploitation (y compris si des inventaires de l'espèce ont eu lieu, et le cas échéant, des détails approfondis, par exemple : la concession, la surface, le nombre d'individus recensés, les résultats de l'analyse de la structure de la population, y compris le nombre d'individus dans chaque classe de taille de diamètre)	les formations forestières sont constituées par des mosaïques de forêts claire et savanes boisées, de savanes boisées et savanes arbustives et ou arbores. le bioclimat est de types soudano-guinéen à soudanien. En général des peuplements relativement jeunes (classe de diamètre 25cm) sont abondants dans les zones d'occurrence de l'espèce **En 2006 à Sikasso**, le stock total de bois d'œuvre sur pied était estimé à **46 513 597 m³** pour **3 665 530 m³** de *Pterocarpus erinaceus*, soit **7.9%** du volume total de Bois d'oeuvre (Source : Schémas Directeur d'Approvisionnement en Bois d'œuvre (SDA) de Bougouni et Sikasso **2006)** **Pour la Région de Kayes :** L'espèce se rencontre en formation naturelle et occupe environ 150 000 ha sur 400 500 ha pour la région. Au total 81 Plans d'aménagement approuvés sont mise en œuvre. Le Quota de prélèvement est estimé à 50 639pieds de P.erinaceus/an.

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8- Dans le cas où des inventaires n'ont pas eu lieu, s'il est prévu d'en faire	Au titre des inventaires d'ordre général qui ont eu lieu, on note : l'inventaire forestier par le PIRL en 1986-1990 ; l'inventaire forestier dans les régions de Kayes Koulikoro, Ségou et Sikasso effectué par le SIFOR avec l'appui de AGCC et UE de 2013-2014. Dans zones d'exploitation sont régulièrement effectués des inventaires au cours de l'élaboration des plans d'aménagement et de gestion permettant de fixer le quota théorique, l'inventaire annuel des parcelles d'exploitation pour fixer le quota pratique et l'inventaire après la durée du plan d'aménagement
9- Le suivi des populations sur les lieux d'exploitation (en place ou proposé).	Fortement impliquée dans le processus l'aménagement est fait en partenariat avec les populations riveraines. Titulaires de contrats de gestion avec le service dans tous les cas, elles travaillent étroitement avec le service et/ou les promoteurs dans la gestion, la surveillance et la conduite des activités techniques à travers le cahier des charges.
10- Comment les avis de commerce non préjudiciable CITES sont élaborés, y compris les institutions impliquées dans le processus	Suivant arrêté N°2011-566/P-RM du 23 février 2011, l'organe de gestion (DNEF) requiert l'avis de l'autorité scientifique (IER) en transmettant les informations sur l'espèce proposée au commerce. L'ACNP permet à l'organe de gestion d'approuver un quota prudent.
11- Des statistiques sur le commerce international (que ce soit légal ou illégal) de cette espèce pour les cinq dernières années au moins	Le commerce international a porté sur les quantités de bois de P.erinaceus estimées à : -52 112,1 m3 de **2000 à 2017** -84 700m3 en **2018** -70 300 m3 en **2019**
12- Des détails de toute activité de commerce illégal connue	A Kayes le cas enregistré date de 2016 où un promoteur a acquis frauduleusement des produits et a voulu les exporter par la voie d'une falsification d'un Certificat d'origine d'exportation précédemment délivré par Directeur National.
13- La protection juridique de cette espèce (actuelle ou proposée), y compris toutes mesures internes plus strictes ou interdictions ou restrictions générales sur l'exportation (par exemple rondins, bois de sciage, bois rond)	L'espèce est régie par les dispositions des textes législatifs et réglementaires suivants : **-LOI N°10-028 du 12 juillet 2010** Déterminant les principes de gestion des ressources du domaine forestier National ; -**DECRET N°07-155/PR-M du 10 MAI 2007** fixant la liste des espèces locales de faune et de flore sauvages et les modalités d'obtention d'autorisations de production, de fabrication, de détention et d'utilisation à des fins commerciales d'objets provenant de tout ou partie de ces espèces ; **-DECRET N°2011-637/P-RM du 20 septembre 2011** déterminant les conditions et modalités d'exercice des droits conférés par les titres d'exploitation et de transport des produits forestiers; **-DECRET N°10-387/P-RM du26 juillet 2010** fixant la liste des essences protégées, partiellement protégée et les essences à valeur ;

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	-DECRET N°10-388/P-RM du 26 juillet 2010 fixant les taux de redevances perçues à l'occasion de l'exploitation des produits du domaine forestier de l'Etat ; **-DECRET N°2018-0662/P-RM du 08 Aout 2018,** portant règlementation de l'exploitation des produits forestiers dans le domaine forestier de National ; **-LOI N°02-017du 03 juin 2002** régissant la détention, le commerce, l'exportation, la réexportation, l'importation, le transport et le transit de spécimens d'espèces de faune et de flore sauvages et ses textes d'application ; **-ARRETE N° 2012-0198/MEA-SG du 27 janvier 2012 f**ixant la liste des espèces locales de faune et de flore sauvages et les modalités d'obtention d'autorisations de production, de fabrication, de détention et d'utilisation à des fins commerciales d'objets provenant de tout ou partie de ces espèces ; **-ARRÊTE INTERMINISTÉRIEL N°2015-1535/MCI-MEF-SG du 05 juin 2015**, fixant la liste des produits prohibés à l'importation et à l'exportation. Par ledit arrêté l'exportation du bois brut est interdite.
14- Les coordonnées d'experts sur le sujet dans le pays si possible	La collecte des données et la gestion de l'espèce relèvent de la Direction Nationale des Eaux et Forêts représentant l'organe de gestion CITES-Mali Email : dnef.dnef@gmail.com; Tel : **20 22 02 08 ; BP 275**
15- Toute information supplémentaire qui pourrait être pertinente pour la mise en œuvre de la Décision 18.92	-Il serait important de procéder à l'inventaire des peuplements qui regorgent l'espèce Pterocarpus erinaceus de façon spécifique puisque les résultats des inventaires forestiers menés portent en général sur toutes les espèces ; -L'appui technique et financier dans le cadre du renforcement des capacités pour conduire des études scientifique, l'identification des espèces et des inventaires forestiers.

Sources : Rapports d'activités DNEF et DREF

SDA= Schémas Directeur d'Approvisionnement

AGCC = Agence Globale Changements Climatiques

PIRL = Projet d'Inventaire des Ressources Ligneuses

SIFOR = Système d'information forestier

UE = Union Européenne

DNEF = Direction Nationale des Eaux et forêts

DREF = Direction Régionale des Eaux et Forêts

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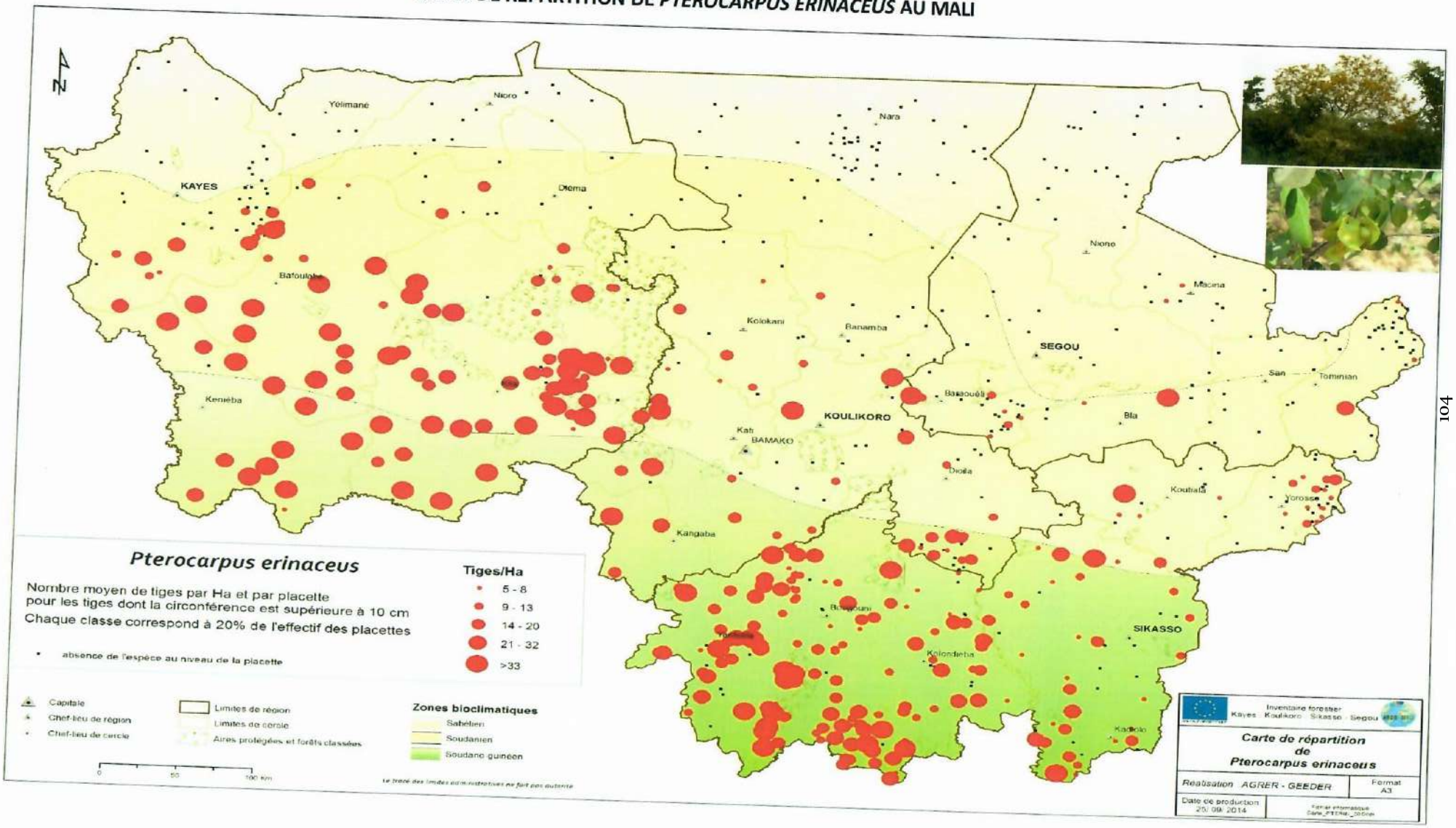
CARTE DE REPARTITION DE *PTEROCARPUS ERINACEUS* AU MALI



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Senegal

Questionnaire Pterocarpus erinaceus/UNEP

Sa distribution, y compris la zone d'occurrence et la surface d'occupation des forêts et des plantations :

L'espèce Pterocarpus erinaceus est présente dans présente dans 14 Etats de l'Afrique occidentale, au Tchad, nord Cameroun et en centre Afrique, soit 17 pays.

La taille, le statut et l'évolution de la population de *P. erinaceus*

Au Sénégal, l'espèce occupe souvent une taille non dominante dans un cortège floristique de nos formations végétales. L'espèce est interdite de toute exploitation. Au plan de l'évolution, la population sauvage connait une perturbation et une dégradation due à une exploitation illégale

Les menaces sur cette espèce (et toute mesure en place pour réduire ces menaces)

Les menaces qui pèsent sur l'espèce sont d'ordre naturel (baisse pluviométrie, changement climatique) et anthropique, action de l'homme.

Des informations sur les programmes de récolte et de gestion applicables à cette espèce dans le pays, y compris des détails sur toute région spécifique et concession en exploitation, ainsi que des détails sur l'utilisation (par exemple, si l'espèce est utilisée principalement pour le bois ou le fourrage des animaux)

La législation sénégalaise interdit l'exploitation de cette espèce, donc pas de concession possible. L'exploitation est basée sur le bois et les feuilles comme fourrages.

S'il y a un plan de gestion pour les concessions en exploitation

Il n'existe de plan de gestion de concessions pour cette espèce

La réglementation de la récolte sauvage et du commerce de la nature (par exemple, quotas juridiques de récolte, diamètres de sciage minimums, durée de rotation, quotas d'exportation)

Pterocarpus erinaceus est espèce intégralement protégée au Sénégal

Des informations sur la taille et la structure des populations dans les zones d'exploitation (y compris si des inventaires de l'espèce ont eu lieu, et le cas échéant, des détails approfondis, par exemple : la concession, la surface, le nombre d'individus recensés, les résultats de l'analyse de la structure de la population, y compris le nombre d'individus dans chaque classe de taille de diamètre).

L'espèce a fait l'objet de travaux de mémoire par moi-même lors d'un Master en 2016 en vue de son inscription en Annexe II de la CITES et j'ai été l'auteur pour le compte du Sénéga.
Présentement je travaille sur une thèse de doctorat qui porte sur les : **« structures, dynamique et anatomie du bois de *Pterocarpus erinaceus* »**

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Les figures 1, 2, 3 et 4 donnent assez d'informations sur l'état de conservation des populations sauvages de *Petrocarpus erinaceus* pour des travaux d'inventaires réalisés sur quatre ans (2002 ; 2004 ; 2012 et 2012). Les populations sont toutes écologiquement perturbées ; ce qui donne des structures de forme de lettre « L ». C'est-à-dire qu'il existe plus d'individus de petit diamètre que des individus de grand diamètre. La coupe de bois sur les individus de grand diamètre.

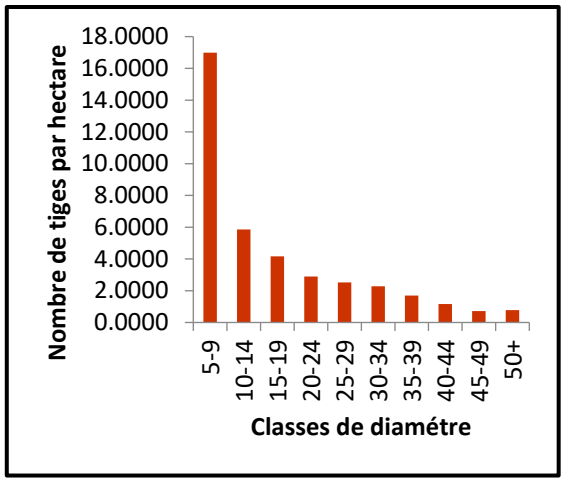

Figure 1 : Structure de la population en 2002

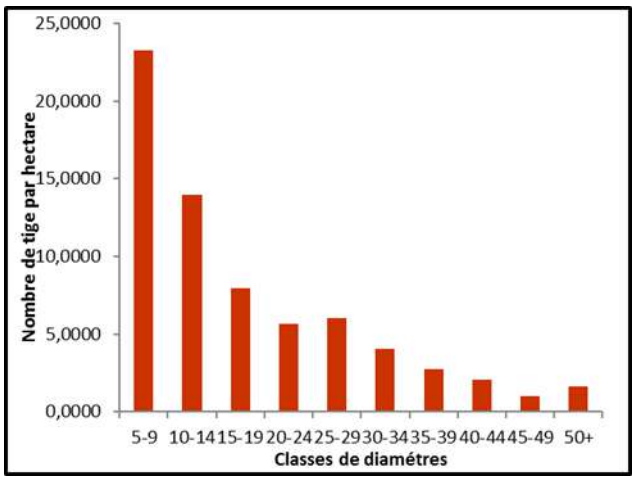

Figure 2 : Structure de la population en 2004

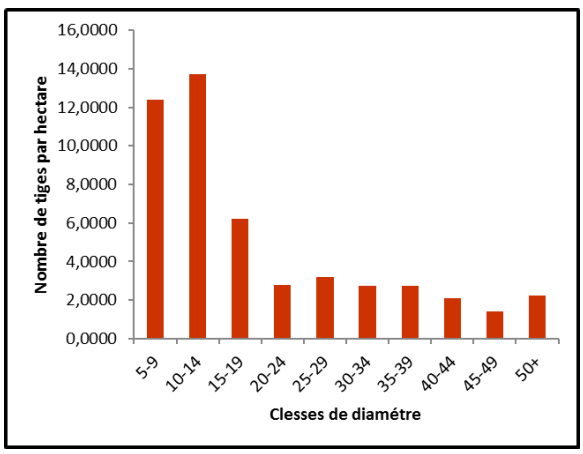

Figure 3 : Structure de la population en 2012

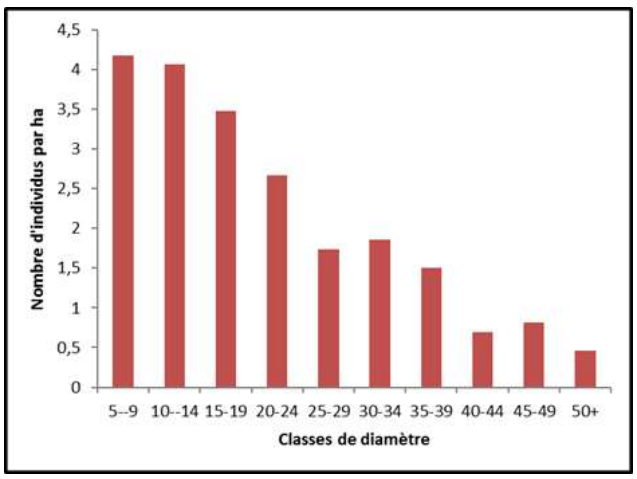

Figure 4 : Structure de la population en 2016

Dans le cas où des inventaires n'ont pas eu lieu, s'il est prévu d'en faire
J'envisage de reprendre les inventaires au niveau national pour les besoins de la thèse en cours

Le suivi des populations sur les lieux d'exploitation (en place ou proposé)
Le suivi est réalisé dans les sites d'exploitation car l'espèce est exclue des espèces exploitables

Comment les avis de commerce non préjudiciable CITES sont élaborés, y compris les institutions impliquées dans le processus
Pour faire un avis de commerce non préjudiciable, une évaluation du stock naturel est réalisée sur l'ensemble du pays

Des statistiques sur le commerce international (que ce soit légal ou illégal) de cette espèce pour les cinq dernières années au moins
Pas de statistiques pour le Sénégal car l'espèce est interdite d'exploitation

Des détails de toute activité de commerce illégal connue
Trafic de bois de Pterocarpus erinaceus noté à la frontière sud du pays où se trouve une rébellion. Le bois est trafiqué par des gambiens et chinois

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La protection juridique de cette espèce (actuelle ou proposée), y compris toutes mesures internes plus strictes ou interdictions ou restrictions générales sur l'exportation (par exemple rondins, bois de sciage, bois rond)
La législation actuelle, code forestier de 2018, interdit l'exploitation de l'espèce (rondins, bois de sciage, bois rond)

- **Les coordonnées d'experts sur le sujet dans le pays si possible**

-Colonel Abba SONKO,
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Toute information supplémentaire qui pourrait être pertinente pour la mise en oeuvre de la Décision 18.92
Je suis en train de mener des travaux de thèse en vue de mieux connaitre l'état des populations naturelles de l'espèce (structure et dynamique) et anatomie du bois de Pterocarpus erinaceus à partir d'analyse ADN et développer en fin un outil d'identification du bois de l'espèce pour mieux faciliter le contrôle du trfic illicite.

NB ! Cependant, je cherche des fonds additionnels pour mener à terme mes travaux de thèse : inventaire et analyse ADN au niveau du laboratoire situé en en Allemagne.

Sierra Leone

REQUEST FOR INFORMATION ON SPECIES SUBJECT TO THE CITES REVIEW OF SIGNIFICANT TRADE

In relation to the CITES Review of Significant Trade process (as detailed in Resolution Conf. 12.8 (Rev. CoP18)), the UN Environment Programme World Conservation Monitoring Centre (UNEPWCMC) has been asked by the CITES Secretariat to compile information on Pterocarpus erinaceus, which was recommended for inclusion in the process at the 70th meeting of the Standing Committee and by the Conference of the Parties in Decision 18.92.

As a range State of this species, we are therefore writing to request information on Pterocarpus erinaceus in Sierra Leone, and in particular, we would be grateful if you could provide the following information (or confirm otherwise that such information does not currently exist and any plans to compile or update such information):

• Distribution, including extent of occurrence and area of occupancy of forests and plantations

Pterocarpus erinaceus, locally called the Gbenie wood is specifically found in the savannah woodland areas of the country, which spans into eight administrative districts in the country, including Port Loko, Kambia and Karina in the North-Western Region; Bombali, Koinadugu, Falaba, and Tonkolili in the Northern Region; and part of Kono in the Eastern Region.

• *P. erinaceus* population size, status and trends

The Scientific Authority (SA) had submitted a request for funding to conduct non-detriment findings (NDF) so as to be able to establish national quotas for trade in *Pterocarpus erinaceus*. The Authority is awaiting approval and the release of funds.

• Threats to the species (and any measures in place to reduce threats)

- High demand for export (Government intermittently impose ban on exportation of timber)

- Wildfire (Local authorities developed and enforced byelaws for the control and reduction of wildfire)

• Information on the harvest and management schemes applicable for the species in the country, including details of any specific regions and concessions in operation, as well as details on usage (e.g. is the species mainly used for timber, livestock fodder)

The harvesting of *Pterocarpus erinaceus* (found in the savannah woodland areas of the country - the North and North-Western Regions and the Eastern Region) is done all year round mostly in community forests but sometimes illegally in protected forests with peak harvest reported in the dry season when road conditions to remote locations are accessible. Individual concessions for harvesting are given in community forests by Local Authorities and land owners with little involvement of government officials.

The leaves of the plant are very good medicines for rural poor communities and is used to cure ailments such as diarrhea related diseases, stomach problems, malaria and skin diseases. It is highly nutritious and palatable for ruminants like cow, goats and sheep that graze widely in the area, especially during the dry season when most other plants and the grass would have been consumed by the wild fires that are prevalent in the areas every year. Due to the hardness of the tree, it is used for construction of houses, as slabs for pit latrines, bridges over small streams crossing trunk roads, construction of ranches for cows, and as wood fuel. It also serves as wind breakers, and shade during hot dry sunny days. The fallen leaves serve as mulch and help to improve the fertility of the soil, and in water retention especially for the catchment areas. *Pterocarpus* woodlands are used as cultural site since most of the traditional societies need some form of forest for societal practices,

• Whether there is a management plan for concessions in operation

There is no management plan as at now for the concessions (However, discussions in progress with Local Authorities and land owners for adherence to the existing Legislations on timber trade.)

• Regulation of wild harvesting and trade (e.g. legal harvest quotas, minimum cutting diameters, length of rotation, export quotas)

Although there are designated Management and Scientific Authorities, harvest and export quotas are not set nor implemented by these authorities but by the Office of the President. Fruitful discussions are ongoing with Office of the President on the importance of non-detriment findings (NDF) and the establishment of national harvest and export quotas for trade in *Pterocarpus erinaceus*. (See bullet 2 above)

• Information on population sizes and structure within the harvest locations (including whether any inventories of the species have taken place, and if so, full details, e.g.: concession, area, number of individuals inventoried, results of population structure including number of individuals in each diameter size class)

As stated earlier, the Scientific Authority (SA) is awaiting approval and the release of funds for a request submitted to conduct non-detriment findings (NDF) and establish national quotas for trade in *Pterocarpus erinaceus.*

• If inventories have not taken place, are there any plans to do so?

Yes and very soon

• Population monitoring at the harvest locations (in place or proposed)

The District Forest Officers and team in each of the eight districts in the savannah woodland areas of the country - the North and North-Western Regions and the Eastern Region have been assigned to monitor and report activities in the harvest locations. The Resident Minister North recently made an on the spot check to assess the level of exploitation of the species.

• Details of how CITES non-detriment findings are made, including the institutions involved in the process

NDF will be done soon with the involvement of all key stakeholders.

• International trade statistics (whether legal or illegal) for at least the last five years

Exportation of *Pterocarpus erinaceus* started in 2016 with an export of 3906 cubic meters sawn wood (semi-processed). Compilations for the other years are in progress and will be submitted soon.

• Details of any known illegal trade activities

In January 2010, Mongabay.com[1] ran a story "Sierra Leone Cracks Down on Illegal Logging by banning transport and export of logs". According to Mongabay, tens of millions of dollars' worth of logs were smuggled out of the country. Not long after in 2011, an Aljazeera documentary[2,] while associating corruption to timber trade, claimed rampant illegal logging that was laying waste to Sierra Leone's endangered forests. The Aljazeera story linked high placed government officials to the log smuggling ring. In June 2018, Issam Elsamad shared video footage[3] of an appalling sprawl of stockpile of logs at the Hastings airport and in July 2018, Sewa News Stream[4] in its "Sierra Leone unregulated Export Timber Trade" asserted that in the past years, credible research revealed that logs were exported from Sierra Leone.

His Excellency the President Julius Maada Bio in April 2018 suspended the exportation of timber using executive order. Shortly however, the suspension was lifted and clearance for the shipment of 13,893 containers was allowed on the note that these were already harvested and stacked piles may lay waste if not exported.

Recently, an article published on January 13th 2020 by Jeezuz Bah on Facebook claimed with evidence that the Resident(ce) minister, North West, Haja Isata Abdulai Kamara intercepted at the border crossing of Barmoi, seven Guinean registered trailers with numbers: RC-9886 M, RC-3588 K, RC-1379 Q, RC1543 Q, RC-3056 Q, RC-9904 L and RC-7524 Q that had timber among other items meant for delivery to Guinea. We await the report of the investigation from the Sierra Leone Police. Sierra Leone has a number of illegal border crossing points (porous border) which it is believed to be used to siphon timber out of Sierra Leone to neighboring Guinea.

• Legal protection (currently in place or proposed), including any stricter domestic measures or general bans or restrictions on exports (e.g. of logs, sawnwood, roundwood)

The existing Ban on log export will not be negotiable since it does not promote value addition and provide employment opportunities.

Government intermittently imposes ban on harvesting, transportation and export of timber.

• Contact details of any relevant experts in the country

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• Any additional information that could be relevant for the implementation of Decision 18.92

The National Protected Area Authority is working assiduously to prevent harvesting in protected areas. However the authority is constrained by capacity and logistics.

[1] https://news.mongabay.com/2010/01/sierra-leone-cracks-down-on-illegal-logging-by-banning-log-exports/

[2] 2011; Al Jazeera Media Network: Sierra Leone: Timber! A story of corruption that is stripping the west African country bare. https://www.aljazeera.com/programmes/africainvestigates/2011/11/20111123134340348960.html

[3]https://www.facebook.com/search/top/?q=issam%20elsamad&ref=eyJzaWQiOiIwLjcwNzIyMDM4OTg0Njc4MDYiLCJxcyI6IkpUVkNKVEl5YVhOellXMGxNakJsYkhOaGJXRmtKVEl5SlRWRSIsImd2IjoiYmVlMDlmOTNmYTczMmNmYTU5YTFjYjZkOWY0NTBkMzg5MjQyNGU0OSIsImVudF9pZHMiOltdLCJic2lkIjoiNDAwOWNhZWQ5MGM4NzdkZDY5MGMzNGJlYzMwNTYxNTciLCJwcmVsb2FkZWRfZW50aXR5X2lkcyI6bnVsbCwicHJlbG9hZGVkX2VudGl0eV90eXBlIjpudWxsLCJyZWYiOiJicl90ZiIsImNzaWQiOm51bGwsImhpZ2hfY29uZmlkZW5jZV9hcmd1bWVudCI6bnVsbCwiY2xpZW50X3RpbWVfbXMiOjE1Nzk3MTExNzE3NDV9&epa=SEARCH_BOX

4 http://www.sewa.news/2018/07/sierra-leones-unregulated-export-timber.html