

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



Twentieth meeting of the Plants Committee  
Dublin (Ireland), 22-30 March 2012

Non-detriment findings

TIMBER SPECIES, MEDICINAL PLANTS AND AGARWOOD-PRODUCING SPECIES  
(DECISIONS 15.26 AND 15.27)  
REPORT OF THE WORKING GROUP

1. This document has been jointly prepared by Dr ZHOU Zhihua (Representative of Asia) and Ms Shereefa Al-Salem (Alternate representative of Asia) as co-chairs of the working group on timber species, medicinal plants and agarwood-producing species.
2. The 15th meeting of the Conference of Parties adopted following Decisions:

**Non-detriment findings for timber, medicinal plants and agarwood**

***Directed to Parties***

15.26 *Parties are invited to conduct workshops with the participation of appropriate experts on the use of timber species and Prunus africana, medicinal plants and agarwood-producing species non-detriment finding guidance in range States concerned with the cooperation of the importing Parties.*

***Directed to the Secretariat***

15.27 The Secretariat shall:

- a) *include practical elements for making non-detriment findings for these plant groups in its capacity-building workshops, in order to generate feedback from Scientific Authorities to refine the guidelines on making non-detriment findings included in document CoP15 Doc. 16.3;*
- b) *use the external funds offered from interested Parties, intergovernmental and non-governmental organizations, and other funding sources to translate the guidelines into Arabic, Chinese and Russian and to support capacity-building workshops regionally on the use of timber species and Prunus africana, medicinal plants and agarwood-producing species non-detriment finding guidance in the range States concerned; and*
- c) *maintain the information up to date and accessible to Parties.*

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3. In the 19th meeting of the Plants Committee (Geneva, Switzerland, 18-21 April 2011), under agenda item 10.4 on *Timber species, medicinal plants and agarwood-producing species (Decisions 15.26 and 15.27)*, the Secretariat presented a progress report and noted that the Committee should decide whether further work was required. After some discussion on whether it was practical or appropriate to standardize techniques for such a diverse set of species and to produce a handbook for making non-detriment findings, the Committee established an intersessional working group comprising:
  4. Co-Chairs: Representative and acting representative of Asia (Dr. ZHOU Zhihua and Ms Al-Salem). Members of the working group include: Representative of Oceania (Mr Leach), Brazil, Cameroon, Canada, Guatemala, India, Mexico, and the United Kingdom.
  5. First round letter was sent out to members of the WG by co-chairs in May 2011, which invited general comments on this issue and examples of using the current guidelines. Until September, 2011, responses from India and Canada were received. The chairs would like to express their appreciation to their important and helpful input.
  6. Based on the responses received and a few comments from the co-chairs, the second round letter was sent out to all members of the WG in September. No response was received. The comments included in that letter are as follows:
    - a) Countries with expertise or experience on NDF should be identified and regional and national workshops on NDF are encouraged.
    - b) The guidelines are very important and relevant. Inventory should be made on which countries have used these guidelines and what their feedback is.
    - c) The guidance is not presented as a finished product, but rather as a starting point for generating constructive criticism, suggestions regarding improvement and first-hand observations regarding the operational limitations or advantages the guidance presents.
    - d) Since it is in doubt on the possibility of getting more comments from parties through a notification to parties, also considering the timeframe, I suggest we try to share the feedback received by the Secretariat regarding the notification issued in accordance with another WG on NDF.
    - e) India is preparing the NDF on Red Sanders and is expected to share its experience before the end of this year.
    - f) It would be useful to separate the timber and *Prunus africana* NDF guidance in Doc. 16.3 from that for medicinal and agarwood guidance, and to present these guidelines alone in a technical brochure or handbook.
    - g) It is important that the timber and *Prunus africana* guidance in Doc. 16.3 should be formatted to resemble a technical manual. In this way it will provide immediate context to those evaluating the guidance.
    - h) Suggestions on how to make such a technical manual were given, *inter alia*,
      - i) In addition to text-based guidance as presented in Doc. 16.3, it would be helpful to include a condensed key that presents the NDF guidance for timber and *Prunus africana* as a step-by-step process.
      - ii) It will be important to include a clear narrative that explains the purpose of the document, the source of its content, its development history, and the objective of expert testing and evaluation of the guidance the document contains.
      - iii) Including pages where users can easily record their evaluation of the guidance and where suggestions for improvement can be captured will help to make the handbook user-friendly, emphasize the purpose of the guidance and facilitate comparable responses from evaluators.
  7. The Workshop on Implementation of CITES for agarwood-producing species was held in Kuwait, 3-6 October 2011. After national reports presented by parties and some general discussion, two working groups were established during the workshop, one on administrative issues, while another on scientific

issues. The workshop had very fruitful discussion and a lot of outcomes. The scientific WG co-chaired by Dr. Leach (Oceania) and Ms. Milena Sosa Schmidt (the Secretariat) discussed the Non-detrimental Finding Guideline on Agarwood Producing Species and relevant issues. The workshop agreed that, the outcome related to NDF on agarwood may be reported to the Plant Committee through the WG on timber species, medicinal plants and agarwood-producing species. See Annex to this document for details.

8. The Kuwait Workshop provided an overview on current use of any guidelines. Then they refined the guideline (CoP15 Doc. 16.3 Annex 1c) to be very specific on agarwood-producing species. Two recommendations of the workshop are:
  - a) The agarwood NDF guidance is assessed at the workshop to be held in Indonesia for further refinement and consideration for submission to the 20th Plants Committee as a contribution to the fulfilment of Decision 15.26.
  - b) That the agarwood NDF guidance is used by Parties and the Secretariat in capacity building workshops and training materials relating to agarwood-producing species.
9. The Plants Committee is invited to consider the recommendations included in paragraph 6 and 8, and if appropriate, take any further actions regarding the NDF on Timber species, medicinal plants and agarwood-producing species.

WORKSHOP ON IMPLEMENTATION OF CITES FOR AGARWOOD-PRODUCING SPECIES  
3- 6 OCTOBER 2011- KUWAIT

Scientific working group

Chair: Dr Greg Leach. (Plant Committee representative of Oceania-Australia)  
Co-Chair: Ms. Milena Sosa Schmidt. (Scientific Support Officer-CITES Secretariat)

The Chair provided a summary of the work that had led to the agarwood NDF guidance document presented as CoP15 Doc. 16.3 Annex 1c. The working group accepted this as the starting point for the work on this item.

Range states provided an overview on current use of any guidelines, in particular:

- Whether non detriment findings are being made for agarwood-producing taxa.
- What guidelines do they use?
- Problems and challenges they are facing
- Recommendations to improve the guidelines.

1. **Bhutan:** Preliminary assessment of *Aquilaria malaccensis* in the natural habitat has been carried out including identification of mother trees. The Government is continuing to work on an inventory that will be finalized by the end of 2012. No specific guidelines on NDF have been used until now.
2. **Cambodia:** The agarwood trees found in the natural forests are prohibited by law to be harvested. There is nothing much left except the plantation trees. No guidelines are used right now, but there is a National strategy for endangered species. Some studies already done that could identify the endangered species as a top priority for a genetic conservation.
3. **China:** Harvest of wild populations has been banned since 1997. Now the industry mainly relies on imported agarwood and material from plantations. Primary national survey was carried out in 2011. There has been large scale development of plantations in China. Agarwood producing technology has made great progress.
4. **India:** There are a limited agarwood trees left in the wild, the remaining population needs to be protected. One species of agarwood is identified; *Aquilaria malaccensis*.

Enumeration of the agar population will be done during the revision of forest working plans of the concerned states, which will form a base for NDF. India has completely banned the harvest from the wild. There are extensive agarwood plantations and harvest is allowed subject to local provisions.

5. **Indonesia:** NDF is done every year to establish the annually set export quota for agarwood products. The Local Authority submits its information on the production capacity and stock held by traders to the Scientific Authority to review it. There is a working group from the university and research institutes that study and evaluate the information that will serve as basis to set the harvest and export quotas. Some of the challenges facing Indonesia are that it has large areas which need to be covered in order to get the exact population data for the whole area. Recently satellite images were used to get good information about the standing stock in the country. Not all agarwood-producing trees contain resin. These tree species are not used for timber. Plantations of agarwood-producing trees have been developed.
6. **Malaysia:** There is a national forest inventory covering all the species found including the endangered species. There are classifications for the forests according to their importance (protected forests, highly protected, production forests, etc). Five agarwood genera have been found and documented, including the number of the trees and their locations. *A. malaccensis* is the most studied species. There is an increasing trend to plantation production. The main challenge is to control the illegal activities done by the foreigners.

7. **Lao:** Lao is not using NDF yet, but it issued some license to export agarwood which need to follow government quotas. The production includes essential oil, wood chips and powder.
8. **Myanmar:** In process of following CITES guidelines, and the agarwood species are preserved by law since 1979. The harvesting from the wild is strictly prohibited. Large scale plantations are being developed and the products of agarwood to be exported are from the plantation source.
9. **Thailand:** Thailand has totally banned harvesting agarwood from the wild. Not using the NDF yet, but early this year a meeting took place with the stake holders to share the information about plantation methods, and the ways of preserving the trees by cutting only part of it so it can grow again.
10. **Vietnam:** No using the NDF for agarwood but is using it for other traded species. There are four species were identified, not all species belongs to *Aquilaria* species. There is a control by the government that prohibits the harvest of agarwood trees from the wild.
11. **Papa New Guinea:** In the year 2000 the Government of Papa New Guinea commenced an Inventory on agarwood species which are naturally occurring, three species were identified: *Aquilaria filaria*, *Gyrinops ledermanii* and *Gyrinops caudata*. Accordingly the government allowed the trade from those three species to recommence. After the species were listed in Appendix II in 2004, the trade was suspended. CITES Scientific Authority was asked to develop Species Management Plan for Natural Agarwood Resources. A management program was approved by the National Forest Department in March 2011.

Some of the main challenges to Papa New Guinea are to monitor both the harvest and the trade. In addition to that more studies are needed to be done related to agarwood species since it is a new trade.

Only Indonesia, Malaysia and Papua New Guinea were identified as currently exporting from the wild and hence requiring an NDF for wild harvested agarwood.

## **Non-Detriment Finding Guidance – Addressing Decision 15.26**

### *Directed to Parties*

Parties are invited to conduct workshops with the participation of appropriate experts on the use of timber species and *Prunus africana*, medicinal plants and agarwood-producing species non-detriment finding guidance in range States concerned with the cooperation of the importing Parties.

The Working Group identified that document CoP15 Doc. 16.3 Annex 1c had language in some places that was not specific to agarwood. The document was refined to be very specific for agarwood. The Working Group agreed that it would be helpful to include some guidance for dealing with plantation grown agarwood.

## **GUIDANCE FOR NON-DETRIMENT FINDINGS: AGARWOOD-PRODUCING TAXA**

**(Kuwait Version 3 October 2011)**

### **Principles**

- The non-detriment finding (NDF) for agarwood verifies that traded volumes within the range state are not detrimental to the survival of that species.
- The NDF considers whether the species is maintained throughout its range at a level consistent with its role in the ecosystems in which it occurs.
- The data requirements for an NDF are tailored to appropriate precision according to the resilience or vulnerability of the target species.
- The implementation of an adaptive management scheme based on regular monitoring is an important consideration in the NDF evaluation process.
- The NDF is based on resource assessment methodologies.
- The NDF employs appropriate broad-scale assessment, such as total harvest assessments.

## Sources and references used

1. This guidance has been developed from a number of earlier sources. Particularly valuable is the TRAFFIC document: Essential elements for the formulation of non-detriment findings (NDF's) on agarwood-producing taxa (*Aquilaria / Gyrinops* spp.) presented as PC17 Inf. 4. Section 1 of this document provides a detailed introduction including background, approaches and context to the Convention.
2. Also of significant value is the "Guidance for CITES Scientific Authorities" (hereafter called IUCN checklist). Therefore, the factors within Tables 1 and 2 of the IUCN checklist were fully adopted into the tables of the present document.
3. It is also recommended that there should be an assessment of the possible relevance and contribution of the document: International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP document, PC 16 Inf. 9) for the development of an agarwood NDF methodology. The Perennial Plant working group in Cancun considered ISSC-MAP and adopted relevant elements. ISSC-MAP especially provides additional guidance for evaluating the factors "Management Plan" and "Monitoring Methods" by specifying detailed criteria and indicators.
4. Additional elements were incorporated from the following sources:
  - Cancun Workshop Case Studies
  - EU-SRG Guidance Paper
  - Susceptibility matrices published by Cunningham (2001) and Peters (1994).

## Process for making non detriment findings

5. The process for making non-detriment findings for agarwood-producing taxa builds upon the Cancun Perennial Plants WG report which in itself is explicitly built upon the IUCN Checklist and other references. It incorporates the sources of information and methods that can be used to evaluate certain factors as well as identifying when a more rigorous approach is needed (i.e., when more information or more rigorous field methods are needed).
6. **Taxonomy:** According to Resolution Conf. 12.11 (Rev. CoP15), species that are listed in the Appendices of CITES should have a valid CITES-recognized name, as reported in CITES-approved checklists. The first step is therefore to assess whether the taxonomic circumscription, including authorities and synonyms, is stable or is dynamic. If the status of the taxon is dynamic, then the taxonomy is usually uncertain (e.g., the taxon may consist of several entities which have to be assessed separately). Sources of information include published floras, CITES checklist, identification guides, and taxonomic experts.
7. **Harvest limits:** Confirm if proposed trade is within existing harvest limits e.g. minimum cutting diameter/age, harvest and export quotas. Determine whether these harvest limits are current and valid for the particular population of the species, taking into consideration any new information regarding the species.
8. **Source of material:** Consider whether the source of the specimen proposed for trade is from the wild or artificially propagated. If the specimen was artificially propagated according to Resolution Conf. 10.13 (Rev. CoP15) and Resolution Conf. 11.11 (Rev. CoP15), it may nonetheless be preferable to conduct an NDF for purposes of management of the national population. In this case, the NDF should address the criteria as established under these Resolutions. This should complete the NDF process. If the specimen does not meet the criteria of these Resolutions, continue with the process below.
9. **Resilience of a species to collection:** This step involves evaluating the capacity of species to withstand collection by considering the elements in Table 1, which outlines factors for high, medium, and low resilience to collection. This table is not an exhaustive list but includes factors that may be most indicative of resilience or vulnerability, based on examples taken from Cunningham (2001) and Peters (1994). There are also links to the agarwood specific detail provided in PC17 Inf. 4. It is expected that judgement will be cautionary, for example, if a species has only a few factors of lower resilience and several deemed higher resilience, the species may still be considered as having a lower resilience to collection. Species are evaluated as having higher resilience i.e. less at risk from collection, if most of the resilience factors are in the higher category.

10. **Assessing the management of wild-collection activities:** Table 2 outlines factors affecting the management of the collection or harvest, along with references that provide examples of how each factor may be applied. For species that are less resilient to collection, greater rigour should be used, for example, multiple data sources, intensive field study, etc. In general, it is expected that Scientific Authorities will work with the information that is available and seek more extensive information for species with very low resilience. Sources of data will vary, depending on the species and collection situation. In some cases, reliable information may not be part of an academic study or published in a peer-reviewed journal, but could still be considered to be reliable by the SA. For example, population abundance may be known from only information gathered from local harvesters.
11. If information gleaned from the previous steps indicates a predominantly negative trend, this may lead to management interventions (see Section 2.7 in PC17 Inf. 4). A comprehensive list of management criteria, including sustainable management indicators is outlined in Section 3 of PC17 Inf. 4, which aims to present a list of options for CITES Authorities of range States to consider towards improving the sustainable management of wild agarwood populations. This includes a consideration of the monitoring and verification systems that could be set up or strengthened in parallel to the NDF assessment process.

**Table 1 Assessment of the resilience of the species to collection**

References: (1) IUCN Checklist; (2) Cancun Workshop Case Study Format; (5) Cunningham (2001) and Peters (1994)

Note: Where specific information is lacking with regard to these factors, the reviewer should consider gathering that information or explaining in the NDF why this lack of information does or does not affect your ability to a make non-detriment finding.

In the Indicators column some of the known characteristics of agarwood-producing species are shown in square brackets. However, there are many information gaps with lesser known species of *Aquilaria* and *Gyrinops*.

Factors of Resilience	Indicators	Higher Resilience	Lower Resilience	Ref
<b>Biological characteristics</b>				
<ul style="list-style-type: none"> <li>Life form vs. harvested plant part</li> </ul>	<ul style="list-style-type: none"> <li>[Small to large trees].</li> </ul>	Non-lethal harvest of resin, leaves, fruits/seeds. Large adults	Lethal harvest of stem or whole plant. Large or small adults	1, 5
<ul style="list-style-type: none"> <li>Distribution</li> </ul>	<ul style="list-style-type: none"> <li>Currently known global range of the species</li> </ul>	wide, cosmopolitan	restricted, endemic	2, 5
<ul style="list-style-type: none"> <li>Habitat</li> </ul>	<ul style="list-style-type: none"> <li>Preference: Types of habitats occupied by the species</li> <li>Specificity</li> <li>Habitat threat</li> </ul>	highly adaptable to various habitat types habitat well conserved and stable	narrowly specific to one habitat type habitat threatened	1, 2, 5
<ul style="list-style-type: none"> <li>National abundance</li> </ul>	<ul style="list-style-type: none"> <li>Local population sizes: Everywhere small &lt;&gt; Large to medium &lt;&gt; Often large</li> <li>Spatial distribution: Scattered &lt;&gt; Clumped &lt;&gt; Homogeneous</li> </ul>	Populations often large and spread homogenously across the landscape	All known populations everywhere small Scattered thinly across the landscape	1, 5
<ul style="list-style-type: none"> <li>National population trend</li> </ul>	<ul style="list-style-type: none"> <li>Population increasing or decreasing?</li> </ul>	increasing or stable	Decreasing	1
<ul style="list-style-type: none"> <li>Other threats</li> </ul>	<ul style="list-style-type: none"> <li>Habitat loss/degradation; invasive alien species (directly affecting the species);</li> </ul>	none or low	multiple, severe	1, 2

Factors of Resilience	Indicators	Higher Resilience	Lower Resilience	Ref
	harvesting; persecution (e.g. pest control); pollution (affecting habitat a/o species)			
• Reproduction	<ul style="list-style-type: none"> <li>• Regeneration or reproductive strategy [monoecious]</li> <li>• Pollination [not specialised, insects, wind]</li> <li>• Seed production [High]</li> <li>• Flower/Fruit phenology [annual]</li> </ul>	wind pollinated annually fruiting pollinators common	specialised pollinator fruiting variable pollinators rare	2, 5
• Regeneration	<ul style="list-style-type: none"> <li>• Capacity of the species to reproduce</li> <li>• Growth rate</li> <li>• Sprouting capability [coppicing]</li> <li>• Regeneration Guild: Early Pioneer &lt;&gt; Late Secondary &lt;&gt; Primary</li> </ul>	fast growing easily resprouting or coppicing secondary species	Slow growing not resprouting or coppicing primary climax species	1, 5
• Dispersal	<ul style="list-style-type: none"> <li>• Seed germination: viability, dormancy [Readily germinates]</li> <li>• Seed dispersal strategy [bird/animal]</li> <li>• Disperser abundance</li> <li>• Dispersal efficiency</li> </ul>	high viability wind or non-specialised vectors e.g. elaiosomes attracting ants	Low viability Biotic, with specialized vector	1, 5
Harvest characteristics				
• Harvest specificity	<ul style="list-style-type: none"> <li>• Indiscriminate collection of trees; ability to identify infected trees</li> </ul>	target trees easy to identify	Target trees hard to identify by inexperienced collectors and therefore harvest accompanied by indiscriminate felling of non-infected trees	5
• Yield per plant	<ul style="list-style-type: none"> <li>• With high yield less individuals are affected by collection</li> </ul>	High	Low	
• Scale of trade	<ul style="list-style-type: none"> <li>• Quantitative information on numbers or quantity, if available; otherwise, a qualitative assessment;</li> <li>• Trade level: High – medium – low</li> <li>• Local, national, international</li> </ul>	Low	High	1, 5
• Utilization trend	<ul style="list-style-type: none"> <li>• Increasing fast &lt;&gt; Slowly increasing &lt;&gt; Stable or decreasing</li> </ul>	Stable or decreasing	Increasing fast	5



**Table 2 Assessment of factors affecting management of the collection (draft)**

References: (1) IUCN Checklist; (2) Cancun Workshop Case Study Format; (3) EU-SRG Guidance; (4) ISSC-MAP; (5) Cunningham (2001) and Peters (1994)

Factors of sustainability	Information Sources	Ref	Plantations
<b>Biological characteristics</b>			
<ul style="list-style-type: none"> <li>Role of the species in its ecosystem</li> </ul>	<p>Consider the role of the species in the ecosystem and whether ecosystem processes are interrupted or changed by the collection of the species. Is the species a keystone or guild species, do other species depend on it for survival (e.g., food source)?</p> <ul style="list-style-type: none"> <li>Scientific literature</li> <li>Expert (including collector) knowledge</li> <li>Field observations</li> </ul>	2	N.A
<b>Population status</b>			
<ul style="list-style-type: none"> <li>National distribution</li> </ul>	<p>Range and distribution of the species in the country (whether or not the distribution of the species is continuous, or to what degree it is fragmented):</p> <ul style="list-style-type: none"> <li>National distribution map,</li> <li>Herbarium records, surveys or other vegetation inventories</li> <li>Expert knowledge (all stakeholders)</li> <li>Field studies</li> <li>GIS vegetation coverages, including satellite imagery</li> <li>Modelling</li> </ul>	1, 5	N.A
<ul style="list-style-type: none"> <li>National conservation status</li> </ul>	<p>Conservation status of the species in the country determined through consultation of :</p> <ul style="list-style-type: none"> <li>Species Risk Lists</li> <li>Conservation Data Centres</li> <li>Experts (all stakeholders)</li> <li>Scientific literature</li> <li>Herbarium records</li> <li>Field surveys (locations, population size, etc.)</li> </ul>	2	✓
<ul style="list-style-type: none"> <li>National population trend</li> </ul>	<p>Population increasing or decreasing? To be measured over a time period independent of the harvest</p> <ul style="list-style-type: none"> <li>Refer to conservation status</li> <li>Reported harvests</li> <li>Experts (all stakeholders)</li> <li>Field surveys over a period of time</li> <li>Demographic studies (population viability analyses)</li> </ul>	1	✓
<ul style="list-style-type: none"> <li>Global conservation status</li> </ul>	<p>Refer to global assessment to compare national situation to global range</p> <ul style="list-style-type: none"> <li>Published global assessments (e.g., IUCN Red List, Conservation Data Centres , e.g., Nature Serve)</li> <li>Consult other range states</li> <li>Undertake global assessment with other range states</li> <li>CITES reports/processes e.g. Significant Trade Review</li> </ul>	2	N.A
<ul style="list-style-type: none"> <li>Global Distribution</li> </ul>	<p>Refer to global distribution for national context</p> <ul style="list-style-type: none"> <li>Published global distribution map</li> <li>Consult other range states</li> </ul>	2, 5	N.A

Factors of sustainability	Information Sources	Ref	Plantations
<ul style="list-style-type: none"> <li>Global population size and trend</li> </ul>	Refer to global population size and trend for national context <ul style="list-style-type: none"> <li>Published global assessment</li> <li>Consult other range states</li> </ul>	2	N.A
<b>Harvest management</b>			Plantation management
<ul style="list-style-type: none"> <li>Regulated / unregulated</li> </ul>	“Regulated” refers to a sanctioned (government approved or otherwise official) harvest that is under the full control of the manager. Legal status determined through: <ul style="list-style-type: none"> <li>Analysis of market reports on trade volumes</li> <li>Experts (all stakeholders)</li> <li>Trade volume records (e.g. WCMC CITES trade database; statistics from Customs; National or state permit databases)</li> <li>Enforcement reports</li> <li>Field and market surveys</li> </ul>	1, 2	✓
<ul style="list-style-type: none"> <li>Management history</li> </ul>	What is the history of harvest? Is the harvest on-going or new? <ul style="list-style-type: none"> <li>Literature</li> <li>Experts (all stakeholders, including trade networks)</li> </ul>	1, 2	✓
<ul style="list-style-type: none"> <li>Illegal or unreported harvest or trade e.g. personal effects, reservations</li> </ul>	How significant is the national problem of illegal or unmanaged harvest or trade? Assess the levels of both unmanaged and illegal harvest by: <ul style="list-style-type: none"> <li>Collecting market information</li> <li>Collecting information from traders, collectors, wildlife managers</li> <li>Comparing exports and imports with other Parties</li> <li>Comparing CITES permit data to other export data sources (national trade statistics)</li> <li>Analysing enforcement reports</li> <li>Conducting field and market surveys</li> </ul>	1	✓
<ul style="list-style-type: none"> <li>Management/ Silviculture plan</li> </ul>	Is there an adaptive management plan related to the harvest of the species with the aim of sustainable use? <ul style="list-style-type: none"> <li>National and international legislation relating to the conservation of the species</li> <li>Management plan in place</li> <li>Plan specifies plant and habitat conservation strategies (may include protected areas)</li> <li>Harvest practices in place</li> <li>Harvest practices specify restoration measures (e.g., planting seed when whole plant is removed)</li> <li>Requirement to keep records of harvest</li> <li>Harvest records are reviewed and collection monitored</li> <li>Management plan is reviewed at regular intervals specified in the plan</li> <li>Limitations on collection (examples include collection seasons, minimum and maximum age / size class allowed for collection based on proportion of mature, reproducing individuals to be retained, maximum collection quantities, maximum allowed collection frequency, maximum allowed number of collectors)</li> <li>Periods allowed for collection are determined using reliable and practical indicators (e.g., seasonality,</li> </ul>	1, 2, 4	✓

Factors of sustainability	Information Sources	Ref	Plantations
	<p>precipitation cycles, flowering and fruiting times) and are based on information about the reproductive cycles of target species.</p> <ul style="list-style-type: none"> <li>The age / size-classes are defined using reliable and practical characters (e.g., plant diameter / DBH, height, fruiting and flowering, local collectors' knowledge).</li> </ul>		
<b>Control of harvest</b>			
<ul style="list-style-type: none"> <li>Percentage of harvest in state Protected Areas</li> </ul>	<p>What percentage of the legal national harvest occurs in state-controlled Protected Areas?</p> <ul style="list-style-type: none"> <li>Harvester information or interviews</li> <li>Enforcement information or interviews</li> <li>Park manager information or interviews</li> <li>Compare location information from permit with maps of protected areas</li> <li>GIS layers of harvesting and land tenure</li> </ul>	1	N.A
<ul style="list-style-type: none"> <li>Percentage of harvest in areas of strong tenure</li> </ul>	<p>What percentage of the legal national harvest occurs in areas with strong local control over resource use? e.g.: a local community or a private landowner is responsible for managing and regulating the harvest</p> <ul style="list-style-type: none"> <li>Harvester information or interviews</li> <li>Enforcement information or interviews</li> <li>Landowner information or interviews</li> <li>Compare location information from permit with maps of protected areas</li> <li>GIS layers of harvesting and land tenure</li> </ul>	1	✓
<ul style="list-style-type: none"> <li>Proportion of range or population protected from harvest</li> </ul>	<p>What percentage of the species' natural range or population is legally excluded from harvest?</p> <ul style="list-style-type: none"> <li>Compare distribution map with maps of areas excluding harvest</li> <li>Information or interviews with wildlife managers</li> </ul>	1	N.A
<ul style="list-style-type: none"> <li>Confidence in effectiveness of strict protection measures</li> </ul>	<p>Are there measures taken to enforce strict protection?</p> <ul style="list-style-type: none"> <li>Information or interviews with protected areas managers</li> </ul>	1	N.A
<ul style="list-style-type: none"> <li>Effectiveness of regulation of harvest effort</li> </ul>	<p>How effective are any restrictions on harvesting (such as age or size, season or equipment) for preventing overuse?</p> <ul style="list-style-type: none"> <li>Information or interviews with resource managers</li> </ul>	1	✓
<ul style="list-style-type: none"> <li>Confidence in harvest management</li> </ul>	<p>Is there effective implementation of management plans and harvest controls?</p> <ul style="list-style-type: none"> <li>Information or interviews with resource managers</li> </ul>	1	✓
<b>Monitoring of harvest</b>			
<ul style="list-style-type: none"> <li>Monitoring of harvest impact and management practices</li> </ul>	<p>Is management of wild collection supported by adequate identification, inventory, assessment, and monitoring of the target species and collection impacts? Does the rate (intensity and frequency) of collection enable the target species to regenerate over the long term?</p> <ul style="list-style-type: none"> <li>Baseline information on population size, distribution, and structure (age/diameter classes)</li> <li>Records on harvested quantities (species/area/year)</li> <li>Qualitative indices, e.g., discussions with collectors</li> <li>Identification of target species with voucher specimens from the collection site</li> <li>Direct population estimates through field surveys, including surveys of populations before and after</li> </ul>	4	✓

Factors of sustainability	Information Sources	Ref	Plantations
	harvest (field surveys / data collection program is critical when collected quantities are above potential production)		
<ul style="list-style-type: none"> <li>Confidence in monitoring</li> </ul>	Is there effective implementation of monitoring and harvest impact controls? <ul style="list-style-type: none"> <li>Monitoring confirms that abundance, viability and quality of the target resource / part of plant is stable or increasing</li> </ul>	1	✓
<ul style="list-style-type: none"> <li>Other factors that may affect whether or not to allow trade</li> </ul>	<ul style="list-style-type: none"> <li>What is the effect of the harvest when taken together with the major threat that has been identified for this species?</li> <li>At the national level, how much conservation benefit to this species accrues from harvesting?</li> <li>At the national level, how much habitat conservation benefit is derived from harvesting?</li> </ul>	1, 3	✓

N.A = non applicable

✓ = applicable

Only Applicable to Forest Plantations:

- Forest Plantation design & layout.
- Information and documentation of origin of parental stock.
- Information on the area planted.
- Justification of spp. Present & / or used in the plantations.
- Treatments: fertilization, etc., control of pests.

## References

PC 17 Inf. 4: TRAFFIC (2008) Developing a Non-Detriment Finding Methodology for Agarwood-Producing Taxa <http://www.cites.org/common/com/PC/17/X-PC17-Inf-04.pdf>

Rosser, A. & M. Haywood. 2002. Guidance for CITES Scientific Authorities. Checklist to assist in making non-detriment findings for Appendix II exports. - xi+146 pp., IUCN, Gland and Cambridge

ISSC-MAP: [http://www.floraweb.de/proxy/floraweb/map-pro/Standard\\_Version1\\_0.pdf](http://www.floraweb.de/proxy/floraweb/map-pro/Standard_Version1_0.pdf)

[http://www.conabio.gob.mx/institucion/cooperacion\\_internacional/TallerNDF/Links-Documentos/WebPage%20-%20Format%20-%2023%20May%2008.doc](http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/Links-Documentos/WebPage%20-%20Format%20-%2023%20May%2008.doc)

Duties of the CITES Scientific Authorities and Scientific Review Group under Regulations 338/97 and 865/2006. <http://ec.europa.eu/environment/cites/pdf/srg/guidelines.pdf>

Cunningham (2001): Applied ethnobotany. Earthscan

Peters (1994): Sustainable harvest of non-timber forest plant resources in tropical moist forest. An ecological primer. - WWF Biodiversity Support Program, Washington.

Conf. 10.13 (Rev. CoP15) Implementation of the Convention for timber species for timber species (<http://www.cites.org/eng/res/10/10-13R14.shtml>)

Conf. 11.11 (Rev. CoP15). Regulation of Trade in Plants. (<http://www.cites.org/eng/res/11/11-11R14.shtml>)

## **RECOMMENDATION 1**

The agarwood NDF guidance is assessed at the workshop to be held in Indonesia for further refinement and consideration for submission to the 20th Plants Committee as a contribution to the fulfilment of Decision 15.26.

## **RECOMMENDATION 2**

That the agarwood NDF guidance is used by Parties and the Secretariat in capacity building workshops and training materials relating to agarwood-producing species.

### **Definition of ‘artificially propagated’ and agarwood plantations – Addressing Decision 15.94**

*Directed to the Plants Committee*

The Plants Committee shall consider current definitions of artificially propagated plants and how they apply to trees in mixed species plantations and report at the 16th meeting of the Conference of the parties.

The Chair provided a summary of the complexities of defining artificially propagated in the CITES context. Range state Parties identified that both monospecific and multi species plantations existed. The working group discussed the situations that Parties considered should be classed as producing artificially propagated agarwood. This included:

1. Gardens (home and community)
2. Production plantation forests (State, private and community) established on previously cleared land.
3. All plantings originating from seed.

It was recognised by the working group that plantation sourced agarwood assists in reducing the pressure on wild harvests. The working group concluded that the major problem in application of the definition of artificially propagated to agarwood was in the definition of ‘under controlled conditions’. A rewording of this definition that recognised the characteristics of propagation of agarwood trees could resolve the issue.

In response to Decision 15.94 the Working group concluded that the current definitions of artificial propagation do not apply to mixed species plantations containing agarwood.

## **RECOMMENDATION 3**

The definition of ‘under controlled conditions’ should be amended to explicitly encompass the external environmental conditions as found in tree plantations for the purpose of plant production including their parts and derivatives. This working group recommends this amendment proposal is put forward for consideration for adoption at the next Conference of the parties (CoP16) in March 2013.

## **RECOMMENDATION 4**

Include ‘inducement’ in the list of controlled condition examples in Resolution Conf. 11.11 (Rev. CoP15).

## **RECOMMENDATION 5**

The title of Resolution Conf. 10.13 (Rev. CoP15) should be amended to read ‘Tree Species’ instead of ‘Timber species’.