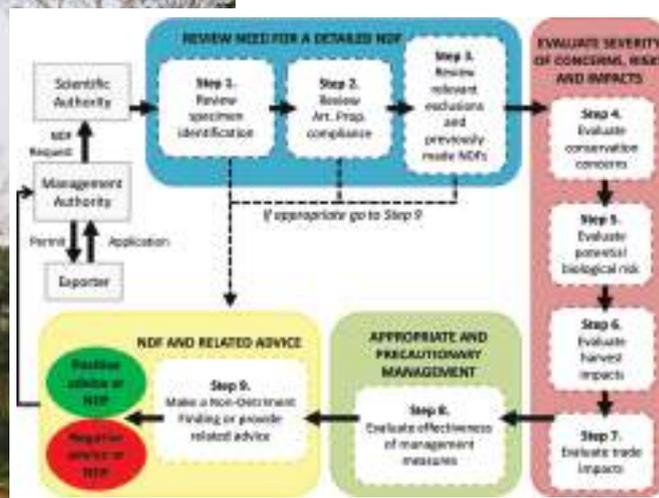
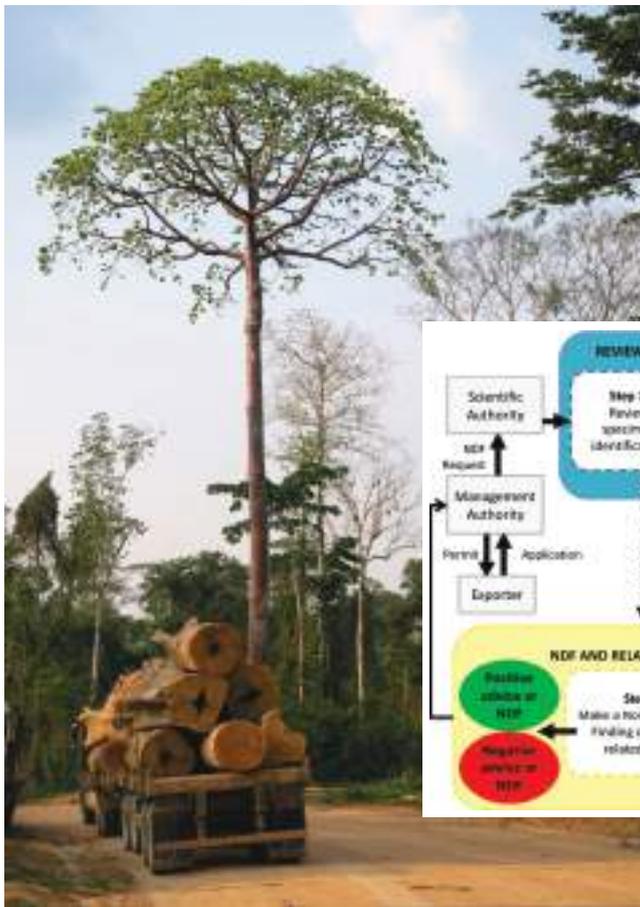


Daniel Wolf, Thomasina E.E. Oldfield  
and Noel McGough

# CITES Non-detriment Findings for Timber

A nine-step process to support CITES Scientific  
Authorities making science-based non-detriment  
findings (NDFs) for timber / tree species  
listed in CITES Appendix II

Version 3.0





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CITES Appendix II**

**Version 3.0**

**May 2018**

**Daniel Wolf  
Thomasina E.E. Oldfield  
Noel McGough**



**TRAFFIC**  
the wildlife trade monitoring network

**Cover illustration:** Left: Timber transport in tropical forest (D. Wolf)  
Right: Nine-Step Pathway for Making Non-Detriment Findings for Timber/  
Tree Species Listed in CITES Appendix II)

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## Introduction

Export permits for CITES Appendix II species, or parts or products derived from these, require that the Scientific Authority of the exporting country carries out a Non-Detriment Finding (NDF). NDFs are a procedure to scientifically evaluate parameters such as species distribution and habitats, population status and trends, harvest practices, as well as volumes and impact of trade in target species. They result in a recommendation to the CITES Management Authority of the exporting state. In general this recommendation is made as a positive NDF (necessary precondition for a CITES permit) or a negative NDF.

The structure, content and methods used to develop NDFs vary considerably. This is partly explained by the fact that there are different analytical requirements for different groups of species. In addition, there is an absence of specific guidance documents on how to develop CITES NDFs for specific taxa. In the case of timber/tree species only principle guidance documents and case studies have been developed until now. These resulted from discussions on and efforts to develop specific guidance for making an NDF for timber in CITES for over a number of years. In preparing this guidance we have benefited from the results of these deliberations and include key elements from the following documents in the current guidance:

- Principles for Non-Detriment Findings (NDF) for Trees ([Working Group 1, 2008](#));
- Big-leaf mahogany (*Swietenia macrophylla*) in Peru, Bolivia and Brazil (Mejía, E., Buitrón, X., Pena-Claros, M. & Grogan, J., 2008);
- Non-detriment findings for timber imports from Central Africa: Stepwise approach of collecting documentation on carrying capacity of *Pericopsis elata* ([PC21 Inf. 4](#)), and
- Guidance on the making of non-detriment findings for tree species ([PC22 Doc 9.2 \[Rev.1\]](#)).

In 2014, the German Federal Agency for Nature Conservation (BfN) facilitated the development and publication of a guidance document on CITES NDFs for perennial plants ([Leaman & Oldfield, 2014](#)). This guidance has undergone various revisions based on user feedback and interaction in training workshops. The latest edition, Version 3.0, was published in 2016 ([Wolf et al., 2016](#)). Version 3.0 is currently available in the [English](#), [Spanish](#), [French](#), [Chinese](#), [Georgian](#), [Italian](#) and [Korean](#) languages. Given the interest shown in the perennial plant guidance, BfN began a process to develop a guidance document on making NDFs for timber imports into the EU. In November 2015, the 'Workshop on Non-detriment Findings for Imports of CITES-listed Timber into the EU' was convened at the International Academy for Nature Conservation on the Isle of Vilm, Germany, aiming to identify methods and elements of an NDF guidance specific to EU imports of CITES-listed timber/tree species. Some 20 specialists participated, comprising timber and trade experts as well as representatives from CITES Scientific and Management Authorities.

Based on the structure of the 9-step Guidance document for perennial plants (Version 2.0, 2015) the "CITES Non-detriment Findings for Timber – Guidance for EU-member States" was generated. This was further developed by BfN from an EU specific tool to a more general one resulting in "CITES Non-detriment Findings for Timber Version 1.0".

In 2016 the Ministry of the Environment of Peru (with the support of the Amazon Cooperation Treaty Organization (ACTO) and the Amazon Regional Program (BMZ/DGIS/GIZ)) organised a regional workshop on NDFs in Lima. BfN and TRAFFIC led this training, using "CITES Non-detriment Findings for Timber Version 1.0". At the workshop this guidance was applied,

with great success, by members of CITES Authorities from eight Latin American countries. Building on the experience gained in Lima, Version 2.0 of the timber guidance was developed.

In November 2017 a second international expert workshop took place on the Isle of Vilm (for participants see Acknowledgements section). The aims of the workshop were: to review the general applicability of the guidance (Version 2.0), assess its potential value to exporting countries and to identify areas that could be improved.

The 2017 Vilm workshop participants took the overall view that the guidance worked well for tree species. However, a significant number of potential amendments were identified and collated during the workshop. This document is the outcome of reviewing those amendments and finalizing the guidance.

Special emphasis was given to the Principles for Non-Detriment Findings (NDF) for Trees (WORKING GROUP 1, 2008) in the preparation of this guidance.

“CITES Non-detriment Findings for Timber Version 3.0” is the product of this extensive review process and we look forward to it being applied by CITES Parties and welcome feedback on its use and applicability.

### **Using this NDF Guidance**

This Guidance suggests **nine steps** that a Scientific Authority can take to make a science-based NDF. The overall process is shown in Figure 1.

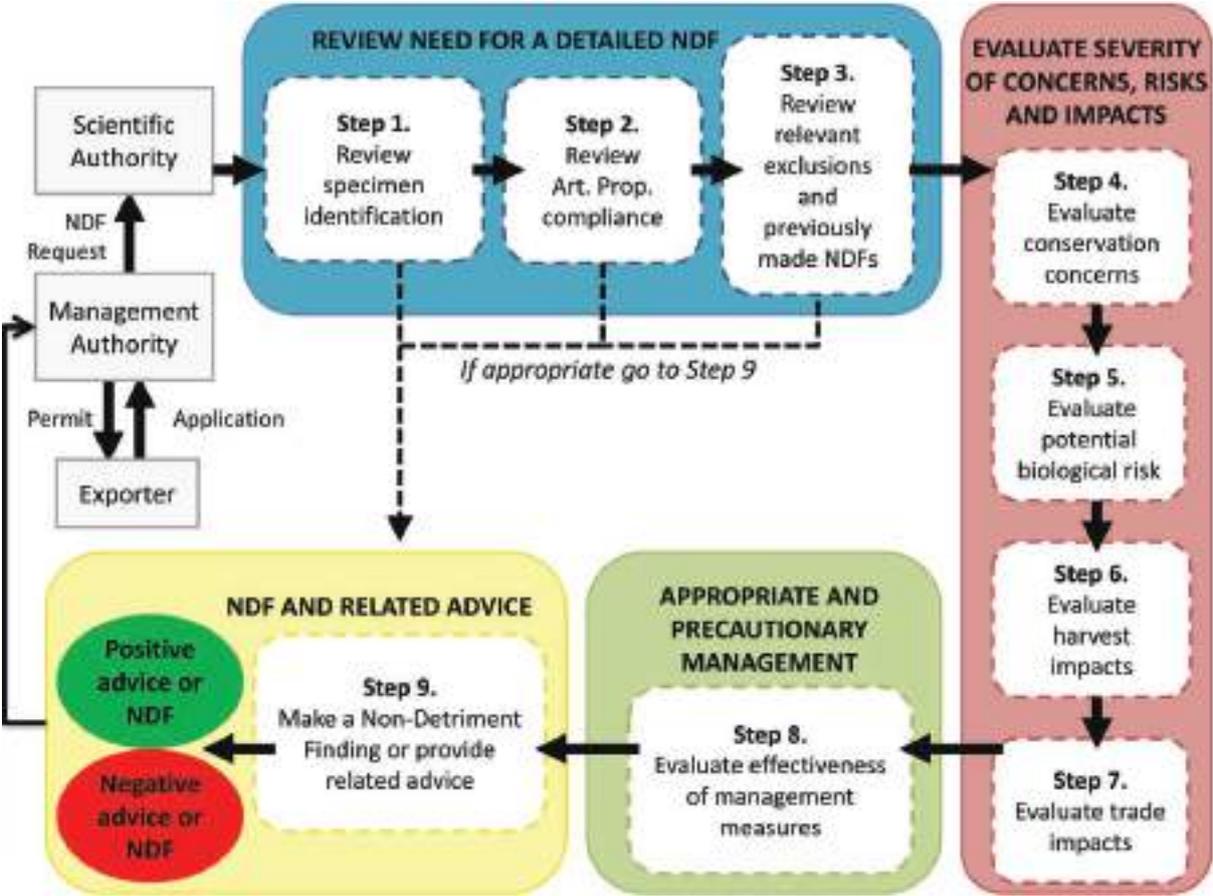
- Steps 1-3 involve the evaluation of whether a detailed, science-based NDF is needed for the species and specimens concerned. Early decision (short cut to Step 9) can be made in some cases.
- Steps 4 and 5 involve the evaluation of conservation concerns and potential biological risks. Assessments at these steps set the context of risk that the harvest, trade and management should be considered against.
- Steps 6 and 7 involve the evaluation of harvest impacts, and trade impacts relevant to the species concerned.
- Step 8 involves the evaluation of whether the management measures in place are sufficiently rigorous to mitigate the concerns, risks, and impacts identified in steps 4-7.
- Step 9 involves the making of an NDF or other advice to the Management Authority based on the outcomes of Steps 1-8.

**This Guidance is not intended to automatically generate the NDF-decision of a Scientific Authority.** It provides a standardised mechanism to record and process the information required and available to a CITES Scientific Authority in order to make an adequate NDF.

**Anyone using this framework guidance should rely on their own experience and judgment;** there will not always be agreement with the level of risk this Guidance indicates and experts may have better insight than a generic tool can provide. Assessing the risks is intended to provide guidance to the level of detail necessary for an informed decision on whether management can ensure that the harvest of and trade in the concerned species is likely to be non-detrimental.

This guidance aims to structure the relevant aspects and information in order to facilitate an individual conclusion on detriment. It should also be noted, that the proposed YES/NO decisions as depicted in the decision path diagrams of each step are only proposals. It may well

be that questions further down in the decision path will help assessing the correct answer; therefore, it is recommended to look, at least briefly, into all key questions before going to Step 9 and propose a decision.



**Figure 1.** Nine-Step Pathway for Making Non-Detriment Findings for Timber / Tree Species Listed in CITES Appendix II.

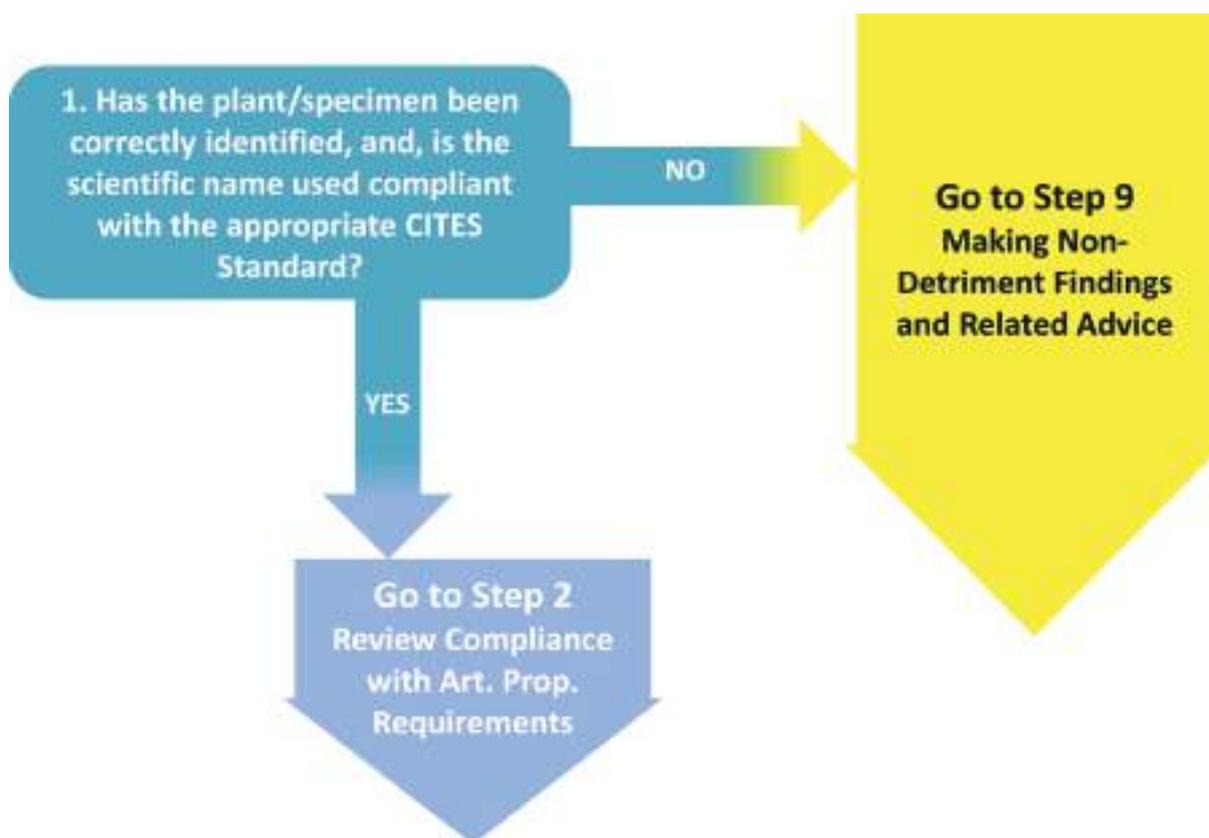
For additional information or enquiries please contact Thomasina Oldfield ([Thomasina.Oldfield@traffic.org](mailto:Thomasina.Oldfield@traffic.org)) or Daniel Wolf ([Daniel.Wolf@bfn.de](mailto:Daniel.Wolf@bfn.de)).

## STEP 1: REVIEW SPECIMEN IDENTIFICATION

### Rationale: why is this step important?

In order to make an adequate non-detriment finding, what species this is being made for should be known. Correct identification of specimens and agreement on scientific names for species in trade are essential to CITES implementation and the making of NDFs. Without correct identification at species level a Scientific Authority may be unable to confidently apply the species-related information required to make an adequate NDF. Timber can be difficult to identify to the species level with wood from different species often looking very similar. It may be the case that multiple species are included in timber shipments or processed products. Frequently, commercial or common names are used for traded timber. They can be misleading and cannot always be clearly assigned to a scientific name. In other cases, one common name may refer to several timber species.

The classification and naming of species is a dynamic process that can lead to uncertainty and lack of consensus about specimen and species taxonomy, and can create confusion between current and previously used names. Uncertainty about the identity and taxonomic status of the specimens entering trade can undermine the ability of Scientific Authorities to make an adequate NDF. Therefore, these issues should be addressed in the process of making an NDF.



**Figure 2.** Key Question and Decision Path for Step 1.

## **Key Question**

Is the Scientific Authority confident, that the timber or timber product concerned has been correctly identified, and that the correct scientific name has been used for the timber?

## **Guidance**

### **Species Identification**

In the first part of the question, the SA is asked what is the likelihood of the specimen being correctly identified. The answer may be quite a straightforward YES – based, for example on previous research or reliable information from the relevant concession or specimen source. It is not suggested by this guidance that it is a Scientific Authorities' task to inspect every specimen before making an NDF.

If there are doubts regarding identification, refer to “Useful Sources and Examples of Recommended Information Quality” below. You can refer the application back to the MA and ask them to request the missing information from the trade or consult an expert.

### **Scientific Names**

In the second part of the question, the SA is asked if the correct scientific name has been used. CITES adopts Standard References for the names of animals and plants in the CITES Appendices in [Resolution Conf. 12.11](#) which is revised at each CoP. The standard scientific names are consolidated in the [Checklist of CITES Species](#) or [Species+](#). The Checklist is an official digest of scientific names. Species+ derives from the same database as the Checklist and is therefore equivalent. These databases are the most accessible source of names to be used on CITES permits. Additionally, other acknowledged taxon specific databases can be used to assess taxonomy of timber species (see Useful Sources below).

If you need additional guidance on the use of names you should contact the [Scientific Service](#) of the CITES Secretariat and / or the [nomenclature specialist of the CITES Plants Committee](#).

### **NDF at Generic Level**

The Convention asks for a NDF at the species level (Article III, 2a). It seems scientifically doubtful that consideration of mixed populations of different species can lead to a robust finding at single species level. Therefore, the 9-step Guidance encourages that NDFs be made at the species level. However, there might be cases where making the decision at the genus level is the only practical option for a Scientific Authority. In such cases the SA should be confident that there are sufficient mitigating measures in place to ensure non-detriment (with particular emphasis on management at Step 8) for any species which might be covered within the mixed population by applying a precautionary approach.

## How to Proceed

Use the worksheet for Step 1 to record your findings.

If the Scientific Authority is confident with the species identification and use of correct scientific name (or has corrected a simple error or outdated name): → go to **Step 2**

If the Scientific Authority is not confident that the specimen concerned has been correctly identified, and that the scientific name used is compliant with the appropriate CITES Standard and concerns over the species' identity are not easily corrected or resolved:

→ go to **Step 9, Decision 9.1**

**REMEMBER: Fully cite the references that you use. Put a reference in the worksheet "Step1\_Identification" and fully cite it in the worksheet "Sources\_used" where you can also include a confidence level for each.**

## Useful Sources and Examples of Recommended Information

### CITES References & Sources

- [Checklist of CITES Species](#)
- [Species+](#)
- CITES [Resolution Conf. 12.11 \(Rev. CoP17\)](#): Standard nomenclature (Annex: List of standard references adopted by the Conference of the Parties / Flora).
- [Nomenclature specialist of the CITES Plants Committee](#)
- [Preliminary Dalbergia checklist for Madagascar for CITES](#) based on the Catalogue of the Vascular Plants of Madagascar
- [The genus Diospyros in Madagascar: a Preliminary Checklist for CITES Parties](#) based on the Catalogue of the Vascular Plants of Madagascar

### Additional Sources – Scientific Names

- [World Checklist of Selected Plant Families](#)
- CITES and Timber: A guide to CITES-listed tree species ([GROVES & RUTHERFORD, 2015](#))
- [The Plant List](#), especially good source of information for plant names and synonyms
- [Germplasm Resources Information Network \(GRIN\)](#)
- [Tropicos](#)
- A Working List of Commercial Timber Tree Species ([MARK et al., 2014](#))
- Plant Resources of Tropical Africa ([PROTA](#))
- Published national, regional, and global floras
- [CITESwoodID](#)
- Identification guides and checklists reviewed by taxonomic experts
- Published papers or monographs reviewed by taxonomic experts
- Voucher specimens from the harvest site(s) specified in the application for export permit

## Timber Identification Guides

- [CITESwoodID](#) Version 2017 - (updated on an ongoing basis)
- <http://www.delta-intkey.com/citeswood/en/index.htm>
- Wood Science for Promoting Legal Timber Harvest (WIEDENHOEFT & BAAS, 2011)
- Development of a timber trade identification directory for CITES-listed species ([PC21 Doc. 15](#))
- Forensic Timber Identification ([PC22 Inf. 7](#))
- [UNODC](#) Best Practice Guide for Forensic Timber Identification (UNODC, 2016)

## STEP 2: REVIEW COMPLIANCE WITH REQUIREMENTS FOR ARTIFICIAL PROPAGATION

### Rationale: why is this step important?

The material applied for in the export application may be declared as artificially propagated, if so then the Scientific Authority should be confident that it conforms to the requirements laid down by CITES in its Resolutions.

If an applicant for an export permit presents sufficient information for the Scientific Authority to determine that the specimens clearly meet all CITES requirements for artificially propagated as defined in the respective resolutions an NDF is not necessary and a simple positive decision may be made to approve export.

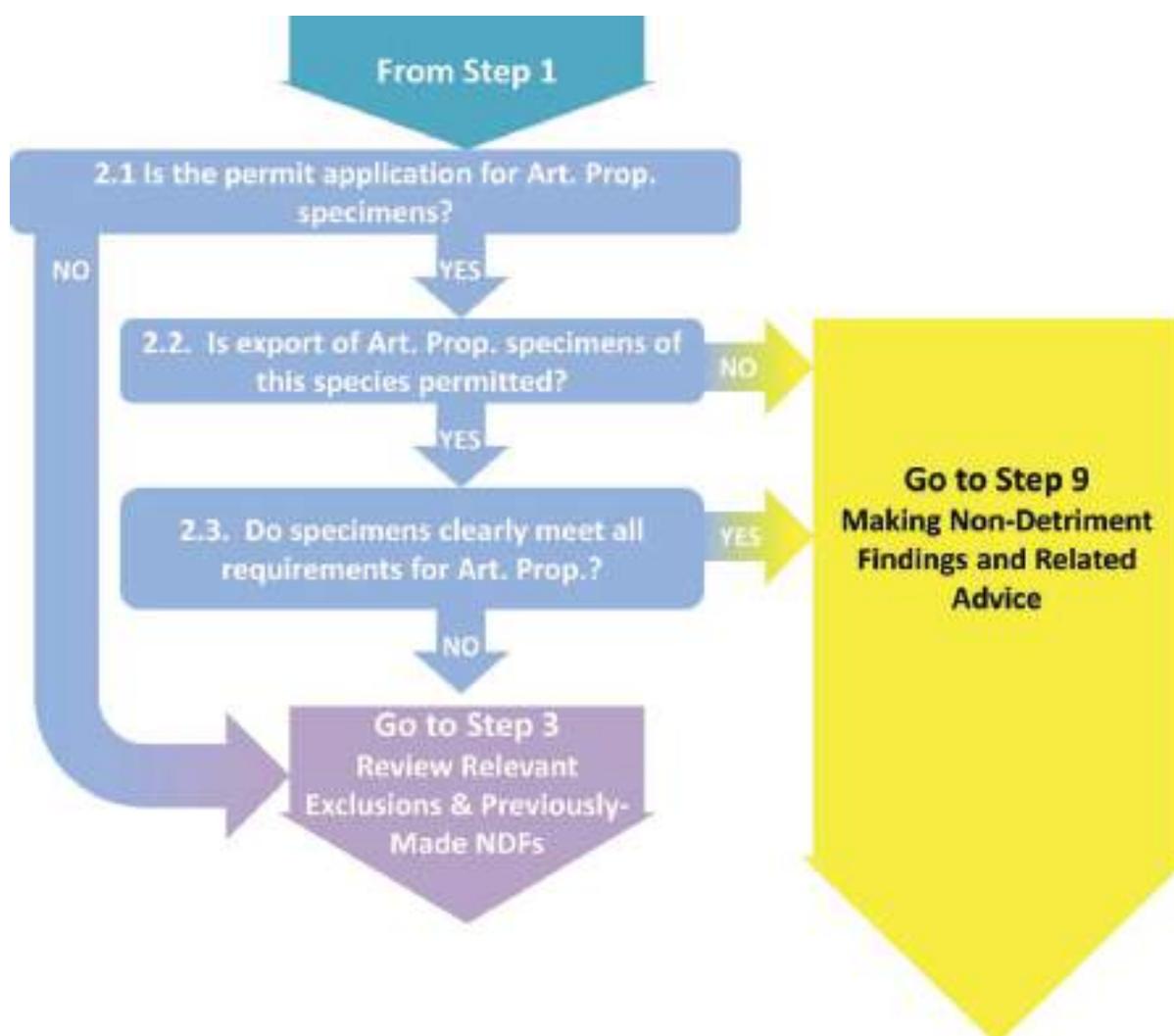


Figure 3. Key Questions and Decision Path for Step 2.

## Step 2.1

### Key Question

Is the permit application for artificially propagated specimens?

### Guidance

The source-code is specified on the permit application.

## Step 2.2

### Key Question

Is export of the artificially propagated specimens of this species permitted by national or relevant sub-national legislation?

### Guidance

Sometimes the export of artificially propagated timber specimens is not allowed by national regulations of the exporting country (for example, when a national export restriction does not differentiate between wild or propagated sources, and therefore applies to all specimens) or the harvest, trade and transport requires national permits, which are not provided.

**Note:** The Convention requires that prior to the grant of an export permit the Management Authority (MA) of the State of export is satisfied that the specimens were not obtained in contravention of the laws of that State for the protection of fauna and flora. Although the legal acquisition finding is a task of the Management Authority, while going through an NDF a Scientific Authority may obtain information to suggest that all laws were not fully complied with. In this case, the issue should be referred to the Management Authority for review.

## Step 2.3

### Key Question

If specified as artificially propagated, do timber specimens meet all requirements for artificial propagation?

### Guidance

Three resolutions define the CITES-term “artificially propagated”. All three resolutions can generally be applied to trees or certain tree species respectively. The core definition of artificial propagation is laid down in [Resolution Conf. 11.11 \(Rev. CoP17\)](#).

In addition, [Resolution Conf. 10.13 \(Rev. CoP15\)](#) states that “*timber, other parts and derivatives of trees from monospecific tree plantations should be considered as artificially propagated*”.

In the case of Agarwood (*Aquilaria* spp. & *Gyrinops* spp.) artificial propagation is defined differently from other CITES-listed tree species in [Resolution Conf. 16.10](#). Refer to this Resolution when making a decision on the propagation status of these genera.

In the case of doubts about the origin of the material for which an export permit is requested, it is recommended to the SA to seek further information, for example, to:

- consult with the national competent authorities to clarify the type of plantation (mixed/pure) or other origin;
- check on possible bans with regard to the species in question;

- verify whether such plantations occur in the region outlined;
- verify if plantation can produce proposed amounts.

**REMEMBER:** For timber and timber products that meet the relevant CITES criteria of artificial propagation, the Scientific Authority does not need to make an NDF.

**REMEMBER:** If the timber/timber products which the CITES export permit application refers to does not meet the CITES definition of artificial propagation, the SA should treat it as sourced from the wild (“W”) and, as required, continue on to make an NDF.

### How to Proceed

Use the **Worksheet for Step 2** to record your findings.

#### 2.1

If the application is not for artificially propagated specimens the specimens should be treated as sourced from the wild and a detailed NDF is required: → **go to Step 3**

#### 2.2

If the export of artificially propagated specimens of this species is not permitted by national or relevant sub-national legislation: → **go to Step 9, Decision 9.2**

If the export of artificially propagated specimens of this species is permitted by national or relevant sub-national legislation: → **go to Step 2.3**

#### 2.3

If the specimens covered by the export permit application clearly meet all CITES-requirements for artificial propagation: → **go to Step 9, Decision 9.3**

If concerns regarding artificial propagation remain, the specimens should be treated as sourced from the wild and a detailed NDF is required: → **go to Step 3**

**REMEMBER: Fully cite the references that you use. Put a reference in the worksheet “Step2\_ArtProp” and fully cite it in the worksheet “Sources\_used” where you can also include a confidence level for each.**

### Useful Sources and Examples of Recommended Information

- Export permit application information concerning source of specimens (wild/artificial propagation/unknown)
- National, supra-national and sub-national legislation relevant to export of this species
- CITES [Resolution Conf. 10.13 \(Rev. CoP15\)](#): Implementation of the Convention for timber species
- CITES [Resolution Conf. 11.11 \(Rev. CoP17\)](#): Regulation of trade in plants
- CITES [Resolution Conf. 16.10](#): Implementation of the Convention for agarwood-producing taxa
- CITES [Resolution Conf. 9.19 \(Rev. CoP15\)](#): Registration of nurseries that artificially propagate specimens of Appendix-I plant species for export purposes

## STEP 3: REVIEW OF RELEVANT EXCLUSIONS AND PREVIOUSLY MADE NDFs

### Rationale: why is this step important?

If the relevant specimens are excluded from regulation by an annotation to the species listing in the CITES Appendices; if harvest or export is prohibited by national legislation; or if the export permit application is consistent with previous science-based findings it may be possible to go directly to Step 9 from this step.

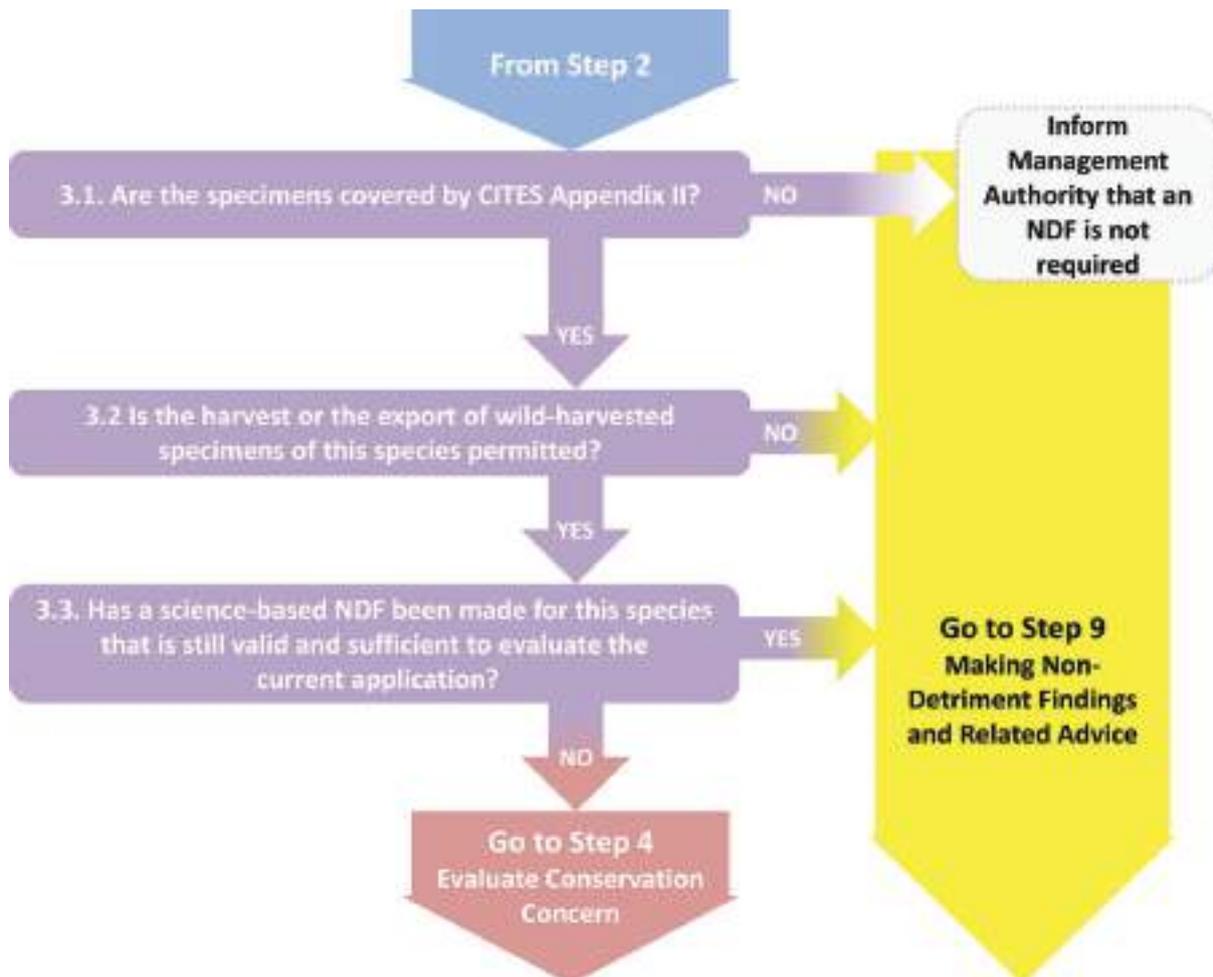


Figure 4. Key Questions and Decision Path for Step 3.

### **Step 3.1**

#### **Key Question**

Are the timber specimens applied for covered by CITES Appendix II?

#### **Guidance**

CITES Appendix II listings can be annotated (or a note may be included in the Interpretation section of the Appendices) to denote what parts and derivatives are exempt from regulation or if specific populations of the species are excluded. Such excluded material or populations are not subject to CITES regulation and would therefore not require an NDF to be made (go to Step 9).

For example, in the case of *Swietenia macrophylla* only specimens originating from “populations of the Neotropics” are subject to the Convention and material regulated is confined to “logs, sawn wood, veneer sheets and plywood” (#6). Such exemption may exclude a substantial amount of material in international trade.

To check any exemptions that apply to the species subject to a CITES export permit application check the [CITES Appendices. Resolution Conf. 10.13 \(Rev. CoP15\)](#) gives definitions used for certain timber parts and derivatives. The [CITES glossary](#), available on the CITES website, summarizes, inter alia, definitions of terms given in the Convention and Resolutions.

### **Step 3.2**

#### **Key Question**

Is the harvest or the export of wild-harvested specimens of this species permitted by national or relevant sub-national legislation or regulation?

#### **Guidance**

As noted in step 2, timber-producing countries often make certain wood exports subject to specific national regulations. This can be, for example, log export bans, restrictions of exports to a certain level of processing, ban of exports from natural forests, or export permissions only for registered concessions.

Although the legal acquisition finding is a task of the Management Authority, while going through an NDF a Scientific Authority may obtain information to suggest that all laws were not fully complied with. For instance, a forest operator often needs one or more national permits to operate legally. Important prerequisites for legal harvest and export are in many cases submission of a valid forest management plan, the approval of an annual logging permit including detailed harvesting maps and information on the timber stand, as well as wood transportation documents.

### **Step 3.3**

#### **Key Question**

Has the Scientific Authority previously made a science-based NDF for this species that is still valid and is sufficient to evaluate the specimens for the current export permit application?

## Guidance

Check for possible previous NDFs. If there is a decision: What was its rationale and is it still valid? Is there now new, or more up to date information available that would make a different decision more appropriate?

The Scientific Authority may have recently determined what levels of export of a national population of a species will be non-detrimental, or whether management and volumes planned to be harvested and exported from specific management units (often called concessions) is sustainable. If the SA has determined that this export volume will be sustainable, then exports within this level (and from specific concessions if this is part of their earlier decision) should not require re-assessing the NDF.

A country may establish this predetermined level of export as an export quota, which should relate to named material and volume (e.g. cubic metres of roundwood equivalents) allowed to be exported over a set period of time. [Resolution Conf. 14.7 \(Rev. CoP15\)](#) gives guidance for the management of national export quotas.

## Export Quotas and NDF

According to Resolution Conf. 14.7 (Rev. CoP15) a national export quota should be set as a result of a non-detriment finding by a Scientific Authority. It should be revised and reviewed annually. A quota may have evolved over a long period of time based on discrete management of harvested populations, with management evolving to reflect impact of harvest. Such a process is termed Adaptive Management and is acceptable in CITES if the quota clearly supports a non-detrimental harvest. The 9-step Guidance may be used to assist in establishing such a quota.

## How to Proceed

Use the **Worksheet for Step 3** to record your findings.

### 3.1

If the specimens are not covered by CITES Appendix II: → **go to Step 9, Decision 9.4**

If the specimens are covered by CITES Appendix II: → **go to Step 3.2**

### 3.2

If the export of harvested specimens of this species is not permitted by national or relevant sub-national legislation or regulation: → **go to Step 9, Decision 9.5**

If the export of harvested specimens of this species is permitted by national or relevant sub-national legislation or regulation: → **go to Step 3.3**

### 3.3

If science used for a previous NDF is still valid and sufficient to evaluate the current export permit application: → **go to Step 9, Decision 9.6**

If no previous NDF has been made or previous NDFs are no longer valid or sufficient to evaluate the current export permit application: → **go to Step 4**

**REMEMBER: Put a reference in the worksheet “Step3\_Exclusions” and fully cite it in the worksheet “Sources\_used” where you can also include a confidence level for each.**

## Useful Sources and Examples of Recommended Information

- The Export permit application
  - Type of material, part or product (whole plant, plant parts, derivatives)
  - Quantity (Number of specimens / volume of material to be exported)
  - Purpose of export
- [Species+](#) which includes data on:
  - Species Appendix listing
  - Relevant annotations
  - Export quotas
  - Reservations on listings
  - EU opinions
  - National or CITES export suspensions

### Annotations

- [Illustrated manual of plant annotations in the CITES Appendices](#) (SCHIPPMANN, 2018)
- [CITES glossary](#) (these definitions are not necessarily agreed upon by all Parties)

### Assessment of Legality

- National, supra-national and sub-national legislation relevant to export of this species
- [ECOLEX \(Information service on environmental law\)](#)
- [Forest Legality Initiative](#)
- [Framework for Assessing Legality of Forestry Operations, Timber Processing and Trade](#) (WWF & TRAFFIC, 2009).
- [CITES Trade Database](#)
  - Records of trade in specimens and species included in Appendices I, II, and III (in accordance with Art. VIII.6)

### Managing Nationally Established Export Quotas

- [Resolution Conf. 14.7 \(Rev. CoP15\)](#) on Management of nationally established export quotas
- [Resolution Conf. 12.3 \(Rev. CoP17\)](#) on Permits and certificates
- Periodic reports of the national CITES Authority to the CITES Secretariat, including updates on national [CITES export quotas](#)

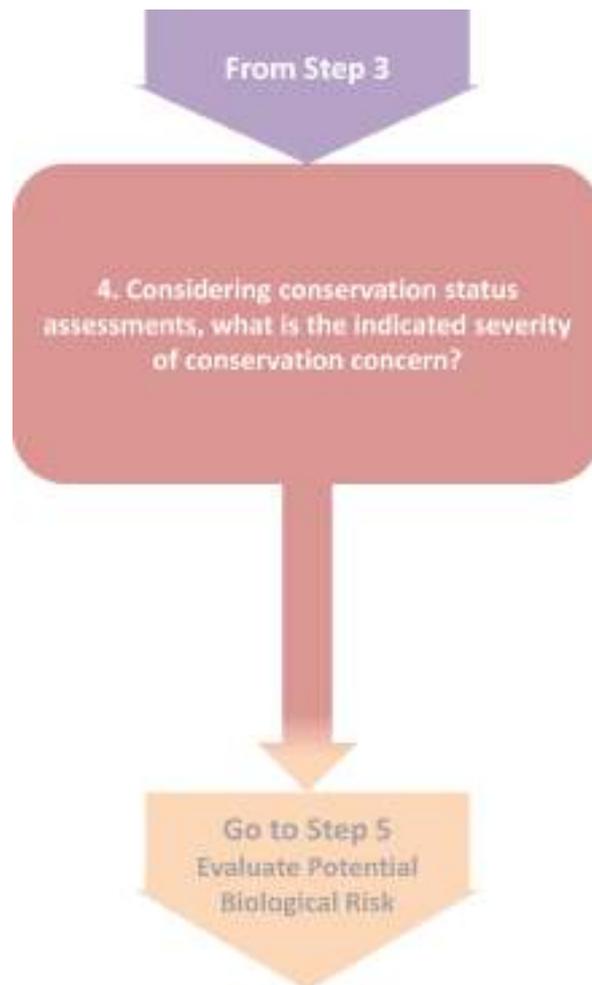
## STEP 4: EVALUATE CONSERVATION CONCERN

### **Rationale: why is this step important?**

This step considers existing conservation status assessments to document relevant threats and to support evaluation of the severity of conservation concern relevant to the harvest area of the species concerned in subsequent steps. It is not intended that the Scientific Authority will undertake conservation status assessments as part of the NDF where these are lacking, out-dated, or incomplete (The assessment of the harvested population will take place in step 6 “Harvest Impacts”).

Conservation status is an assessment of the likelihood that a species (or local population of the species) will become extinct in the near future. Conservation status assessment systems have a variety of forms (e.g., Red Lists, Red Data Books, threatened species listings) and a range of geographic scope (sub-national, national, regional, or global). The conservation assessments act as a risk assessment and will guide the SA in the levels of precaution and the level of detail they would require in making a NDF decision; data requirements should be proportionate to the potential risks. If these risks are unknown – i.e. no assessments are available, the SA should be more precautionary in future steps.

The definition of assessment criteria and categories describing extinction risk also varies among assessment systems. A detailed, well-documented, and up-to-date conservation status assessment may provide information relevant to several of the remaining steps of this Guidance.



**Figure 5.** Key Questions and Decision Path for Step 4.

### Key Question

Considering assessments of the conservation status of the species, what is the indicated severity of conservation concern (i.e. “Low”, “Medium”, “High”, or “Unknown”, see Table 1)?

### Guidance

Here the Scientific Authority is asked to search for existing conservation assessments, record the geographic scope of the assessment, the threat category and major threats mentioned in the assessment, and use them to identify the severity of conservation concern. In addition, the user of this guidance is asked to add the source of the assessment and give a confidence level for the information used from the cited source. A global conservation status assessment is generally less important than a national or sub-national assessment, which includes the harvested population – it is important to take this into account.

Refer to Table 1 “**Factors to Consider: Conservation Concern**” to evaluate the severity of conservation concern indicated by existing relevant conservation status assessments.

The Scientific Authority may find information useful for Step 4 (and Steps 5–8) of this Guidance in any existing assessment. If the national population or sub-population(s) of the species have been included in more than one assessment system or geographic scope of as-

assessment, the Scientific Authority may select an assessment to evaluate the severity of conservation concern that best combines the following qualities:

- most indicative of the threat of extinction of the national population and sub-populations of the species;
- most recent/up to date.

It is not recommended to average the results of several assessments.

A high conservation concern should result in a more precautionary NDF, as should an unknown concern.

### How to Proceed

Use **Worksheet for step 4** to record available information corresponding to the factor in Table 1 and the assessment of conservation concern.

If no adequate assessments are available: answer “Unknown” and consider that **higher rigour in evaluating Steps 5 – 8** will be required for a positive NDF decision.

If conservation assessments (can be multiple and at different scales) are available record these in “Conservation status assessments” of the worksheet. Decide on the most relevant assessment to your harvest area and use Table 1 “**Factors to Consider: Conservation Concern**” to assess the “Severity of conservation concern relevant to harvest area” (“Low”, “Medium”, “High”, or “Unknown”) (in the second table of worksheet 4).

To support the evaluation of appropriate rigour of existing management measures (Step 8), the conservation concern ranked as “Low”, “Medium”, “High”, or “Unknown” should be transferred to the **Worksheet for Step 8.2**, then → **go to Step 5**

**REMEMBER: Fully cite the references that you use in the Information Sources Consulted section of the worksheet and include a confidence level for the information used. You can put a reference in the worksheet “Step4\_Cons\_Concern” and fully cite it in the worksheet “Sources\_used”.**

**Table 1:** Factors to Consider: Conservation Concern

Severity of Conservation Concern	Example Indicators*
Low	The species, population, or sub-population has been assessed and is <b>not considered to be threatened</b> . The assessment or listing is based on defined criteria (e.g. IUCN Red List category Least Concern/LC or equivalent categories used in other systems).
Medium	The species, population, or sub-population has been assessed and is considered to <b>nearly qualify as threatened</b> . The assessment or listing is based on defined criteria (e.g., IUCN Red List categories Near Threatened/NT, Vulnerable/VU, or equivalent categories used in other systems).
High	The species, population, or sub-population has been assessed and <b>qualifies as threatened</b> . The assessment or listing is based on defined criteria (e.g. IUCN Red List Critically Endangered/CR, Endangered/EN, or equivalent categories used in other systems).
Unknown	Conservation status has <b>not been assessed</b> for the species, population, or sub-population (e.g. IUCN Red List category Not Evaluated/NE, equivalent categories used in other systems, or absence of any assessment or listing); or Conservation status has been assessed but the severity of conservation concern cannot be determined (e.g. IUCN Red List Category Data Deficient).

\* The list of example indicators is not exhaustive and other indicators, guidance values or evaluation methods may be more appropriate based on the judgement or experiences of individual Scientific Authorities.

## Useful Sources and Examples of Recommended Information

### National and sub-national conservation status assessment systems:

- State, provincial, and national Red Data books, nature conservation legislation listings
- Online [national Red Lists](#)
- Conservation Data Centres (such as [NatureServe Canada](#) and [NatureServe Explorer](#))

### Global conservation status assessment systems:

- [IUCN Red List of Threatened Species](#)

## STEP 5: EVALUATE POTENTIAL BIOLOGICAL RISKS

### Rationale: why is this step important?

Some plant species are naturally more susceptible to detrimental effects of wild harvest and commercial trade than other species, based on their biological characteristics. In this Guidance, “potential biological risk” is understood to indicate that certain biological characteristics contribute to the risk that wild harvest will be detrimental to species survival. Using these biological characteristics, Scientific Authorities can identify the particular biological factors that contribute to higher or lower severity of risk that wild harvest will be detrimental to species survival. As with the Conservation Status in Step 4, the higher the severity of risk, the greater the requirements for information quality, effective management, and precaution that should be sought for the NDF in Steps 6–9.



**Figure 6.** Key Question and Decision Path for Step 5.

## Key Question

Consider the characteristics of the species distribution, population and habitat that affect the potential risk of harvest to the survival of its wild populations. Is the severity of risk indicated for each of these factors “Low”, “Medium”, “High”, or “Unknown”?

## Guidance

In Step 5, biological risks refer to:

- Geographic distribution
- National/sub-national population size and distribution
- Size structure of national/sub-national populations
- Habitat specificity and vulnerability
- Resilience of tree species

Table 2 “**Factors to Consider: Biological Risks of Harvest**” provides indicators, associated with each of these intrinsic biological characteristics that affect the risk of wild harvest to species survival, explanations and risk severity levels for the four different potential biological risk factors.

The core sources of information to evaluate potential biological risks for target tree species are scientific descriptions of the species, herbarium records (herbarium specimens note collection sites) and resource assessments (basic national, sub-national or regional).

**Remember:** Step 5 is not an assessment of the impact of the harvest. This is done in Step 6. Nevertheless, when evaluating factors 3, 4 and 5 (in Table 2) the more relevant information is to the harvested site the more relevant it is to the evaluation of the potential biological risk in the NDF. The distribution and characteristics of the target species may vary between different ecosystems, which does not always allow extrapolation of data.

## How to Proceed

Use **Worksheet for Step 5** to record available information corresponding to each of the factors in Table 2 and the assessment of biological risk of harvest.

If no adequate assessments are available: answer “Unknown” and consider that higher rigour in evaluating Steps 6 – 8 will be required for a positive NDF decision.

To support the evaluation of appropriate rigour of existing management measures (Step 8), summary lists of “Low”, “Medium”, “High”, and “Unknown” biological risk factors should be transferred to the **Worksheet for Step 8.2**. → **Go to Step 6**

**REMEMBER: Fully cite the references that you use in the Information Sources Consulted section of the worksheet and include a confidence level for information used. Put a reference in the worksheet “Step5\_Biological\_Risk” and fully cite it in the worksheet “Sources\_used”.**

**Table 2:** Factors to Consider: Potential Biological Risk of Harvest

1. Geographic distribution	
Risk severity	Example Indicators*
Low	Distribution is widespread, commonly occurring throughout a large region (often one or more continents)
Medium	Distribution is restricted to a medium sized region (often several countries)
High	Distribution is restricted to a small region (often one country or a few smaller countries)
Unknown	Information about this factor is unavailable
<b>Explanation of this factor:</b> This factor assesses the known global range of the species. Consider whether the distribution is broad, or to what degree it is restricted.	
2. National /sub-national population size and distribution	
Risk severity	Example Indicators*
Low	National population is large. Sub-populations are spread more or less homogeneously across the country
Medium	National population is medium-sized. Sub populations are unevenly distributed across the country.
High	National population is small. Sub-populations are scattered across the country.
Unknown	Information about this factor is unavailable
<b>Explanation of this factor:</b> This factor assesses the current spatial distribution across the species national range. It assesses whether populations are large, abundant and homogeneous or small, clumped and isolated or fragmented. This factor may be assessed differently in different range countries because species with trans-boundary distribution may be more abundant in the center of its natural range and less abundant at the periphery.	

### 3. Size structure of national/ sub-national populations

Risk severity	Example Indicators*
Low	Size classes are distributed in a way that shows a high potential for recruitment and high levels of regeneration, ideally in a reverse J-shaped curve (please also refer to "Explanation of this factor")
Medium	Size classes are not distributed in a reverse J-shaped curve. Nevertheless, several size classes show a considerable capacity for recruitment. Still there are sufficient fruiting trees as well as considerable signs for regeneration
High	Distribution of size classes is discontinuous. Insufficient fruiting trees remain in the population. The lack of small size classes indicate that regeneration is disturbed severely
Unknown	Information about this factor is unavailable

**Explanation of this factor:** This factor assesses the structure of the population. It assesses whether the distribution of size classes allows for recruitment and regeneration to substitute for potentially harvested trees. Often this information is not available on a national scale but only for specific management areas. Please note that the actual effect of harvest on the population will be assessed in step 6.

The reverse J-shaped curve describes a negative exponential distribution of numbers of individuals in size classes with high numbers of small trees and decreasing numbers of trees with increasing size of classes. As many species do not have reversed J-shaped diameter distributions on local level under natural conditions, this specific indicator may not be applicable to all species.

### 4. Habitat specificity and vulnerability

Risk severity	Example Indicators*
Low	Species is highly adaptable to various habitat types across its range and / or ecological zones or is adapted to one or few habitat types which has/have a high proportion of the landscape cover; the available habitats are stable (not declining in size or deteriorating in quality)
Medium	Species is adapted to a few stable habitat types, or ecological zones across its range not having a high proportion of the landscape cover, or it is adapted to a variety of habitat types that are declining in size and / or deteriorating in quality
High	Species is specific to one habitat type or a few threatened habitat types, having a minor proportion of the landscape cover and / or declining in size and / or deteriorating in quality
Unknown	Information about this factor is unavailable

**Explanation of this factor:** This factor assesses habitat preference of the species concerned, the availability and abundance of habitats and ecological zones occupied and the threat to these habitats and zones.

## 5. Resilience of tree species

Risk severity	Example Indicators*
Low	High growth rates and/or simple reproduction patterns (e.g. early maturity, wind pollination, yearly fruiting, shoots rapidly regrow), low natural mortality rates.
Medium	Growth rates, natural mortality rates and/or reproduction patterns are intermediate
High	Slow growth rates and/or complex reproduction patterns. Species is dioecious (male and female flowers on separate plants); adapted to specialised pollinators and/or seed dispersers; late maturity, irregular fruiting patterns, no shooting ability, high natural mortality rates.
Unknown	Information about this factor is unavailable

**Explanation of this factor:** This factor comprises the species specific properties of the trees adding to the performance of the species within the ecological context of the habitat. It very generally addresses the potential recovery capacity of the harvested population: i.e., the ability of the remaining trees to rebuild the population or to repopulate areas where individuals or sub-populations have been removed.

\* The list of example indicators is not exhaustive and other indicators, guidance values or evaluation methods may be more appropriate based on the judgement or experiences of individual Scientific Authorities.

## STEP 6: EVALUATE IMPACTS OF HARVEST

### Rationale: why is this step important?

In this step impacts of wild harvest to the harvested populations (“target population”) need to be considered. These are the most important impacts of the trade and the assessment. Depending on the population dynamics of the national population, harvest may also be detrimental to the national population of the species concerned overall, as well as to the species’ ecosystem and other species that depend on it. Scientific Authorities can identify and evaluate these impacts by considering the best available information about the harvest practice used and harvest intensity.

The greater the severity of wild harvest impact on the species’ target and national population, as well as the ecosystem concerned, the greater are the requirements of information quality, management rigour, and precaution that Scientific Authorities should apply to the NDF.



**Figure 7.** Key Question and Decision Path for Step 6.

## Key Question

Considering the impacts of all ongoing harvest and all other threats (e.g. including illegal logging and clearing of forest for non-trade purposes e.g. land conversion) on species survival, is the severity of harvest impact on target populations, the national population, and on the ecosystem “Low”, “Medium”, “High”, or “Unknown”?

## Guidance

In this guidance the terms “target population” and “harvest population” are equivalently used to describe harvested populations which are the subject of the respective export application; whether already under a harvesting regime or planned to be harvested.

Step 6 looks at the actual impact of the harvest rather than potential impacts. For tree species, harvest impact is usually closely linked to forest management systems (see Step 8) and cannot be considered in isolation. In Step 6 the impact of harvest on the target population, on the national/sub-national population and on other species is evaluated. The impact of harvest on the target population is the best indicator to evaluate the effectiveness of the management system. Nevertheless, the management system will be assessed separately in Step 8, in order to identify possible gaps or define conditions to be met for a positive NDF. The higher the severity of risks identified in Steps 4 and 5 are the stricter requirements for information quality, management rigour, and precaution that should be applied for in this step.

This guidance recommends putting emphasis on the scale of the harvest population (e.g. the management area, sometimes called concession). Although the boundaries of a management area do not necessarily comply with the natural boundaries of populations this is often the scale for which most detailed information is available and similar management measures apply.

**Table 4 "Factors to consider: impact of harvest"** assists evaluating the severity of harvest impact **of harvest on national/sub-national population and on ecosystems**. The factors and indicators defined in Table 4 use information on the harvest practices and population trends in a simple ranking of impact severity: "Low", "Medium", "High", and "Unknown". Reliable data on national/sub-national population as well as on impacts on ecosystems and other species may not be available. In the absence of sound inventory data, arguments need to be strong and convincing to favour a positive evaluation.

## Impact of Harvest on Harvest Population

In forestry, the area covered, the forest resources and the forest operations are usually outlined in a management plan, often complemented by annual operational or harvesting plans. These plans are time-limited and should cover the period relevant to the trees harvested for export. In these plans data on the size, distribution and structure of the population originates from forest inventories. The inventory methodology and timing should be clear. The type of inventory and sampling methods will determine the confidence levels in any extrapolations from these data. Table 3 lists parameters that are most relevant to evaluate impact of harvest. The most reliable information will come from long-term and frequent monitoring of harvested forest.

Any mid to long-term forest operation that constantly reduces the stock, is detrimental to the species survival. In other words, in sustainable forestry the volume of trees planned to be harvested should not exceed the growth rate of the remaining stand. Therefore, the basic condition that should be met when evaluating the harvest impact should be whether harvest-

ed numbers or volumes plus other losses (e.g. mortality) are not exceeding the recruitment. It is advisable to differentiate the evaluation of recruitment by size classes. That includes the evaluation of the regeneration (generative or vegetative) to add to the smallest diameter class in future. Damages during harvesting and losses during transport and stockpiling in the forest should also be taken into account in the assessment.

**Table 3:** Parameters most relevant to evaluate harvest impacts.

Parameter [unit(s)]	Explanation
Area [ha, km <sup>2</sup> ]	The area of forest being managed (e.g. the concession) and the target population to be harvested in a year are important parameters to know. Generally the stocks of species are calculated per ha from inventory data and extrapolated to the entire area. For a more accurate estimation of stock, information on how much of the area does not add to the forest cover (e.g. water bodies, settlements, roads, rocks) or will not be subject to any harvest (reserve) are crucial. In case of different forest types involved in an area a differentiation between these in terms of area covered is advisable as often densities and volumes of species vary between these.
Minimum Cutting Diameter [cm]	Often a minimum cutting diameter is set by national or sub-national law or by the forest management. Cutting trees less than this diameter should not happen. This information is used to calculate the harvestable volume of timber, to evaluate recruitment into size classes and to understand the influence of harvest on the population.
Cutting/logging/rotation cycle [a]	Management of forests often defines periods over which certain volumes of timber are planned to be harvested. Often the annual harvest is dedicated to individual plots (harvesting units) with individual plots then not harvested again until a certain period of time. This is called the cutting or rotation cycle. Understanding the regeneration of a species and its recruitment will help determine whether growth adequately compensates for the offtake over the cycle. This information is crucial when evaluating whether recruitment and regeneration compensates for the losses.
Annual allowable cut [m <sup>3</sup> /ha/a, n per size class/ha/a]	The annual allowable cut describes the volume or number of trees which can be harvested annually. Growing stock above minimum cutting diameter, growth rate and rotation cycle are often used to generate this figure. Often the annual allowable cut is a matter of annual approval by forest administration.
Number of individuals and density of the species [n total and n/ha]	This is the basic figure for any extrapolation of size and volume of a population. In case of uneven distribution (gregarious species) the need for statistically sound inventory data is higher than for even distributed species.
Size distribution [n trees per size class]	Size and age may not be closely correlated. However, the age or size distribution of trees within population provides information about the future development of the population (under a planned harvest regime), e.g. about recruitment and remaining seed trees. Size distribution gives the number (and/or volume) of trees in each size class. Ideally the size class width should not exceed 10 cm and an inventory should include all sizes.

Parameter [unit(s)]	Explanation
Growing stock [m <sup>3</sup> total and m <sup>3</sup> /ha]	<p>This figure is very important because timber is generally not traded in numbers of individuals but in volumes. The estimate of growing stock is based on calculations, which at a minimum require the number of trees and their diameter at breast height and uses the length of the commercial part of the tree.</p> <p>The accuracy of the estimate depends, inter alia, on the choice of an equation appropriate to the species.</p>
Growth rate (increment) (diameter [cm/a] or volume [m <sup>3</sup> /ha/a])	<p>The growth rate is needed to predict the future development of the population (e.g. recruitment – will the regrowth compensate for the harvested volume within one cutting cycle?). Please note that other factors such as size class distribution and regeneration also influence this evaluation. Growth rates in relevant size classes (just below cutting limit) are more relevant than a rate across all sizes.</p> <p>Growth rates are influenced by site conditions. Therefore information from the management unit is preferable.</p> <p>Increment data should be accompanied by the number of trees monitored for growth, the monitoring period over which the increment was calculated and the location of those trees (if different from the forest unit of timber origin), in order to assess how representative it is.</p> <p>If assessment from the management unit is not available, in such cases it may be supplied later, or a proxy from a different site can be used. If a number of estimates are available, for precautionary reasons, the lowest value for the species should be used.</p>
Mortality rate (%/a)	<p>Natural mortality due to age, diseases, disasters, etc. should be considered when calculating the harvestable volume. Often the rate differs between size classes. The management in place may have permanent sample plots to make such measurements.</p>
Size class at maturity for the species.	<p>The minimum cutting diameter should be above the size of maturity (generative reproduction). If the minimum cutting diameter is below or close to the minimum size at maturity, regeneration may be disturbed.</p>

### How to Proceed

Use the **Worksheet for Step 6** to record available information corresponding to each of the factors in Table 4 and the assessment of impact of harvest.

If general information on harvest impact is available but is not fully convincing and/or has important gaps or if no adequate assessments are available: answer “Unknown” and consider that higher rigour in evaluating Steps 7 – 8 will be required for a positive NDF decision.

To support the evaluation of appropriate rigour of existing management measures (Step 8), harvest impacts and their severity of “Low”, “Medium”, “High”, and “Unknown” rigour should be transferred to the **Worksheet for Step 8.2**. → **Go to Step 7**

**REMEMBER:** Fully cite the references that you use in the Information Sources Consulted section of the worksheet and include a confidence level for information used. Put a reference in the worksheet “Step6\_Harvest-Impact” and fully cite it in the worksheet “Sources\_used”.

**Table 4:** Factors to consider: impact of harvest

1. Impact of harvest on harvest population	
Harvest impact severity	Example Indicators*
Low on harvest population	<ul style="list-style-type: none"> <li>• Harvested and damaged volume of the target species is lower than its growth volume in the same area, Reduced Impact Logging (RIL) is applied; areas between felling sites and skid trails are left untouched and contain juveniles of target species.</li> <li>• Seed production of the remnant stand is not influenced significantly either in quantities or in spatial coverage.</li> <li>• Spatial coverage of regeneration, either naturally or artificially (e.g. enrichment planting) is by far higher than spatial coverage of extracted or damaged trees in the same area.</li> <li>• Up-to-date inventory and monitoring data show that the population(s) of the harvested species is/are stable or increasing over the years. The same management currently in place has been applied for more than one cutting cycle.</li> </ul>
Medium on harvest population	<ul style="list-style-type: none"> <li>• Up-to-date inventory and monitoring data show that the amount of timber harvested is close or equal to annual re-growth. Constant regeneration and re-growth into higher diameter classes should be a safe assumption.</li> <li>• Stand structure of accompanying species as potential competitors under altered conditions after harvest operations needs to be observed and possibly managed.</li> <li>• No Reduced Impact Logging (RIL) is applied; either juveniles are present after logging or enrichment planting is carried out. Some seed trees remain.</li> </ul>
High on harvest population	<ul style="list-style-type: none"> <li>• Population decline through harvest regime is likely.</li> <li>• Harvested and damaged volume of the target species is higher than its growth volume in the same area.</li> <li>• Logging system does not appear to take into consideration regeneration; seed trees are being logged and insufficient reserve of seed trees is envisaged. Seed production of the remnant stand is negatively influenced either in quantities or in spatial coverage.</li> <li>• Spatial coverage of regeneration (either naturally or artificially) is lower than spatial coverage of extracted or damaged trees in the same area.</li> <li>• Density of seed-trees is low; no enrichment planting. Many trees within the main reproducing age/size classes are logged (distance between reproducing individuals higher than moving distance of pollination/dispersal vectors).</li> </ul>
Unknown	<ul style="list-style-type: none"> <li>• Information about this factor is unavailable</li> </ul>

**Explanation:** This factor considers the impacts of harvest that affect the long-term viability of the reproducing target populations, such as recruitment (the addition of individuals to a population through reproduction and/or dispersal from other populations). For example, if the harvested volume planned to be harvested would exceed the growth rate (recruitment) and regeneration by far the impact on the target population is high. If the population is very small, logging a substantial portion of the potential seed trees may have a severe impact on population viability and species survival. The actual off-take should be considered which may include a significant proportion of damaged or lost material that is not accounted for in documentation of material in trade. Possible measures such as enrichment planting should also be taken into consideration. Table 3 lists parameters essential for the evaluation of this factor. Impact of harvest on harvest population is the most important factor for this step, however it should also be considered in relation to impact at the national level and on the ecosystem.

## 2. Impact of harvest on national and sub-national populations of target species

Harvest impact severity	Example Indicators*
Low on subnational/national populations	<ul style="list-style-type: none"> <li>Up-to-date monitoring data show that the national or subnational population(s) of the target species is/are stable or increasing over the years. The same management principles currently in place have been applied for more than one cutting cycle.</li> <li>National or sub-national population decline through harvest operations is unlikely; the species is distributed evenly across the region or country in stable populations; harvest operations only affect a minor part of the national population.</li> </ul>
Medium on subnational/national populations	<ul style="list-style-type: none"> <li>Up-to-date monitoring data show that the population(s) of the target species have been stable over the years.</li> <li>Harvest operations may impact the viability of sub-populations e.g. the species' distribution is scattered and uneven in (partly) low numbers and interconnection between sub-populations is questionable.</li> </ul>
High on subnational/national populations	<ul style="list-style-type: none"> <li>Up-to-date monitoring data show that the population(s) of the target species have been decreasing over the years. The same management principles currently in place have been applied for one cutting cycle or more.</li> <li>National or sub-national population decline through harvest operations is likely; the subpopulation of the target species is one of only a few or even the only one in the country.</li> </ul>
Unknown	<ul style="list-style-type: none"> <li>Information about this factor is unavailable.</li> </ul>

**Explanation:** This factor looks beyond the harvest activity for the export in question and considers the characteristics of all harvest operations that affect the long-term viability of populations on a national or sub-national scale. If, for example, repeated national inventories show that the population(s) have been stable or increasing over the past decades, harvest may have a low impact on population viability and species survival on a national scale. The actual off-take should be considered, which may include reasons other than forestry (e.g. land conversion).

**Note:** Monitoring data or national or sub-national inventories may provide data relevant to this factor. Management plans of other harvesting areas might also include relevant information. Often an adequate data source is not available. Information about the population trend (increasing, stable, or decreasing) may be available from existing conservation status assessments (Step 4).

## 3. Harvest impact on the ecosystem

Harvest impact severity	Example Indicators*
Low	<ul style="list-style-type: none"> <li>Target species easy to identify, accidental harvest of other species is unlikely.</li> <li>Harvest practices have a minimal (or even positive) effect on non-target species, species diversity and the environment (e.g., better light regime for new vegetation growth after careful and selective logging).</li> <li>The management system includes measures that conserves the role of the species in the ecosystem (e.g. leaving sufficient habitat trees).</li> </ul>
Medium	<ul style="list-style-type: none"> <li>Target species may be confused with other species leading to their accidental harvest.</li> <li>Harvest practices are occasionally disruptive to non-target species or ecosystem.</li> <li>Harvest has a moderate effect on resources available for other species.</li> </ul>

Harvest impact severity	Example Indicators*
High	<ul style="list-style-type: none"> <li>• Target species is easily confused with other species; indiscriminate harvest of target species with other look-alike species.</li> <li>• Harvest practices have negative effect on non-target species or the ecosystem.</li> <li>• Harvest has a severe effect on resources available for other species.</li> <li>• No RIL (reduced impact logging) measures are applied.</li> </ul>
Unknown	<ul style="list-style-type: none"> <li>• Information about this factor is unavailable.</li> </ul>

**Explanation:** This factor considers the characteristics of wild harvest that may impact other species either accidentally (harvest of look-alike species) or species that depend on the species concerned (e.g. shadow plants and forest animals). Harvest damage to the target species' ecosystem or to other species on which it depends can reduce the viability of the target population.

\* The list of example indicators is not exhaustive and other indicators, guidance values or evaluation methods may be more appropriate based on the judgement or experiences of individual Scientific Authorities.

## STEP 7: EVALUATE IMPACTS OF TRADE

### Rationale: why is this step important?

Impacts of wild harvest to the harvested populations (“target population”) has been considered in Step 6. Here the impact of trade is considered. The impacts of trade can be detrimental to the survival of the species concerned. Trade is the potential threat relevant to CITES. Scientific Authorities can identify and evaluate trade impacts by considering the available information about the scale and trend of legal and illegal trade.

The greater the severity of trade impact on the species concerned, the greater are the requirements of information quality, management rigour, and precaution that Scientific Authorities should apply to making an NDF. In effect, the greater the risk, the more precautionary the decision making should be in the final stages of the NDF process.



**Figure 8.** Key Question and Decision Path for Step 7.

## Key Question

Considering the impacts of trade of this requested export on the target species' survival, is the severity of all legal and illegal trade impact on the harvest area population and the national populations of the species concerned “Low”, “Medium”, “High”, or “Unknown”?

## Guidance

We looked at the impact of all harvest operations on the national population in Step 6. Here, we first look at the impact of trade at the harvest area level considering the trade quantities in relation to actual offtake. Then we consider impact of international trade in relation to that of any domestic trade (including any illegal trade) on the national population of the species. The higher the severity of risks identified in Steps 4, 5 and 6, the stricter requirements for information quality, management rigour, and precaution that should be applied for in this step.

In some cases, existing management measures may mitigate (= reduce the severity of) trade impacts. Therefore, this Step considers actual impact rather than potential impact. Management measures in their own right are considered in Step 8.

Trade data can reveal mismatches between stated harvest and actual traded volumes of a species. Illegal trade is considered in this step as well.

It is important to source and consider available information on local, national, international as well as illegal trade trends in the species concerned (see “Useful Sources and Examples of Recommended Information Quality”). To evaluate trade impact for tree species/timber appropriately, knowledge of the national chain of custody (including recorded quantities) of the traded products, from harvest to export, is necessary. The SA may need to liaise with the MA or other national agencies on this issue. If you have confidence in a robust chain of custody this will greatly facilitate your decision making.

## Trade Data

When evaluating trade data consider:

- that in addition to international trade, domestic trade and use and illegal trade (domestic or international) may also exist, so try to obtain estimates of their volume;
- whether trade in the species may be taking place under the name of a look-alike species or vice versa;
- assessing the range of products of the target species in trade, including derivatives and material sourced from plantations. The level of trade of all commodities, covered or not covered by CITES, of the target species should be analysed, if information is available;
- obtaining and reviewing the conversion factors where processed products are traded (e.g. sawn wood, veneer, plywood, musical instruments), in order to evaluate the volumes of trade (in roundwood equivalents) and to understand the source and robustness of the conversion factors.

## Quotas

When checking export levels against an export quota consider:

- verification of the number of specimens or volume (use conversion factors to convert to standard CITES units such as m<sup>3</sup> roundwood equivalents), for which an export permit has been requested;
- checking past trade levels to compare against levels for the current year.
- Does the export quota explicitly include or exclude certain commodities?
- How much of the annual export quota has been used to date?

## Traceability

When evaluating the robustness of the chain of custody consider:

- the level of documentation and control at each step of the chain of custody from the forest inventory to the exported specimens;
- the durability and protection against forgery of marking techniques.

Unless a new species in trade is being evaluated most of this information should be readily available at national level.

Factors that affect the impact of trade on species survival are elaborated in Table 5 “**Factors to Consider: Impacts of Trade**”.

## How to Proceed

Use the **Worksheet for Step 7** to record available information corresponding to each of the factors in Table 5 and the assessment of trade impact.

If no adequate assessments are available: answer “Unknown” and consider that higher rigour in evaluating Step 8 will be required for a positive NDF decision.

To support the evaluation of appropriate rigour of existing management measures (Step 8), summary lists of “Low”, “Medium”, “High”, and “Unknown” trade impact factors will be transferred to the **Worksheet for Step 8.2**. → **Go to Step 8**

**REMEMBER: Fully cite the references that you use in the Information Sources Consulted section of the worksheet and include a confidence level for information used. Put a reference in the worksheet “Step7\_Trade-Impact” and fully cite it in the worksheet “Sources\_used”.**

**Table 5:** Factors to consider and example indicators to evaluate trade impact

1. Trade level in relation to harvest area production	
Trade impact severity	Example Indicators*
Low	<ul style="list-style-type: none"> <li>• Permit quantity roundwood equivalent is low in comparison to total annual production.</li> <li>• Permit quantity roundwood equivalent and previous exports and production for domestic trade are well within the harvest area's annual production quantities</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• Permit quantity roundwood equivalent is close to, but under the harvest area annual production, no other exports have been applied for in the current year.</li> <li>• Permit quantity roundwood equivalent is low in comparison to total annual production, but permit quantity roundwood equivalent and previous exports and production for domestic trade are under but close to the harvest area's annual production quantities.</li> </ul>
High	<ul style="list-style-type: none"> <li>• Permit quantity roundwood equivalent is above the total annual production.</li> <li>• Permit quantity roundwood equivalent and previous exports and production for domestic trade are over the harvest area's annual production quantities.</li> </ul>
Unknown	<ul style="list-style-type: none"> <li>• No conversion factors are available.</li> <li>• Information on previous trade and domestic trade originating from this harvest area is not available.</li> <li>• Information on the sustainable production capacity of the harvest area is not available.</li> </ul>
<p><b>Explanation:</b> Using conversion rates, what is the amount of timber harvested (as roundwood equivalent) being requested for export? This should be compared with production amounts from the area in question. Products in trade may have gone through various stages of processing before export. There may be a significant proportion of damaged or lost material that is not accounted for in documentation of material in trade.</p> <p>Conversion factors can be used to calculate the raw amount that would have needed to have been harvested to account for the processed products (for which permits are being applied for). By this means you can assess if this is a legitimate amount to come from the harvest area. Although some standard conversion rates are available, in reality, conversion rates will depend on each species, sawmill or industry and its machinery, the product and other processors. If these individual conversion rates are not provided, the SA can request this information (from traders/sawmills/industry) or make use of the most conservative value available from other comparable species and products. Such conversion rates may also be available from other sources or published in the literature.</p>	
2. Magnitude and trend of national legal trade	
Trade impact severity	Example Indicators*
Low	<ul style="list-style-type: none"> <li>• Number or volume of specimens in trade is small in relation to abundance of the species (information from Steps 4 and 5).</li> <li>• Trade volume/market demand is decreasing over time.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• Number or volume of specimens in trade is neither small nor large in relation to abundance of the species (Steps 4 and 5).</li> <li>• Trade volume/market demand is stable or slowly increasing.</li> </ul>

Trade impact severity	Example Indicators*
High	<ul style="list-style-type: none"> <li>• Multiple uses are in commercial trade (i.e. the species supplies several products to different types of markets).</li> <li>• Trade volume/market demand is high in relation to information about abundance of species and part used (Steps 4 and 5).</li> <li>• Trade volume/market demand is increasing quickly, or decreasing in response to limited resource availability.</li> </ul>
Unknown	<ul style="list-style-type: none"> <li>• Information about this factor is unavailable.</li> </ul>

**Explanation:** This factor considers the total trade levels and their trends in relation to national legal trade. Trade might be increasing or decreasing which could indicate changes in supply or demand. Price changes may indicate changes in resource availability (supply) or may indicate changes in demand. Trade trends can change quickly; market analyses may reveal species which are traded under the same name or vice versa. Total trade volumes might exceed the known national harvestable stocks of the species.

### 3. Magnitude of illegal trade

Trade impact severity	Example Indicators*
Low	<ul style="list-style-type: none"> <li>• Good documentation of domestic and international trade</li> <li>• Trade chain transparent and robust (at least for the harvest area)</li> <li>• Little concern about substitution for look-alike species</li> <li>• Estimated harvest corresponds to estimated trade volume</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• Poor documentation of trade (domestic and international)</li> <li>• Trade chain difficult to follow</li> <li>• Some concern about substitution for look-alike species</li> <li>• Some concerns about whether estimated harvest and volume in legal domestic/reported export trade are more or less equal.</li> </ul>
High	<ul style="list-style-type: none"> <li>• Documented or proof of illegal trade</li> <li>• Limited documentation of legal domestic and international trade</li> <li>• Trade chain neither transparent nor robust</li> <li>• Great concern about substitution for look-alike species</li> <li>• Quantities legally exported are significantly smaller than quantities reported by importing countries</li> <li>• Significant concerns regarding whether total estimated volume in legal domestic and export trade are equal to the total estimated harvest volume.</li> </ul>
Unknown	<ul style="list-style-type: none"> <li>• Information about this factor is unavailable.</li> </ul>

**Explanation:** This factor considers whether the volume and trend in legal trade is significant in relation to species abundance, whether there is illegal trade, significant in proportion to the overall trade volume, and whether the substitution for a look-alike species has a significant influence on the survival of the species of concern.

\* The list of example indicators is not exhaustive and other indicators, guidance values or evaluation methods may be more appropriate based on the judgement or experiences of individual Scientific Authorities.

## Useful Sources and Examples of Recommended Information

### National trade data

- National trade data records, quantitative information on number of specimens exported
- Forest certification schemes (which are independently evaluated, e.g. FSC, PEFC)

### International trade data

- [CITES Trade Database](#); also see Guide to using the CITES Trade Database ([UNEP-WCMC, 2013](#))
- [ITTO Annual Review Statistics Database](#)
- Customs trade data (these are usually not species-specific, but some exporting countries have some species-specific customs codes, which can provide relevant data)
- CITES [Review of Significant Trade Management System](#)

### Illegal trade

- [Chatham House](#), Illegal logging portal (including seized material)
- USFWS LEMIS databases (for illegal trade) and [EU TWIX](#) (restricted access)

### Trade names

- [CITESwoodID](#) Version 2017 - (updated on an ongoing basis).
- [Commercial Timbers: Descriptions, Illustrations, Identification, and Information Retrieval](#)
- [Nomenclature Générale des Bois Tropicaux](#)
- [Wood Species Database](#)
- [The Wood Database](#)

### Conversion factors – see examples in the following

- [United States Department of Agriculture, CITES I-II-III Timber Species Manual](#)
- [Volumetric Conversion of Standing Trees to Exportable Mahogany Sawn Wood](#) (PC17 Doc 16.1.3)
- [Methodology for Developing National Volume Conversion Tables \(Standing Volume & Export Grade Sawnwood\)](#) (PC17 Inf. Doc. 3)

## STEP 8: EVALUATE APPROPRIATE RIGOUR OF EXISTING MANAGEMENT MEASURES

### Rationale: why is this step important?

Management planning is a prerequisite for legal and sustainable timber operations world-wide. For wild-harvested tree species included in CITES Appendix II, non-detrimental trade requires the effective implementation of appropriate and proportional management measures. The level of management rigour needs to be appropriate to mitigate (= reduce the severity of) the specific harvest and trade impacts identified for the species concerned and its populations. Therefore, this is the key step in evaluating non-detriment.



**Figure 9.** Key Questions and Decision Path for Step 8.

Steps 4–7 of this Guidance support Scientific Authorities in assessing conservation concern, potential biological risk, harvest impact and trade impact. These steps also assist the SA in the identification of factors that contribute to the concerns, risks, and impacts.

Existing management measures may mitigate the impacts of harvest and trade; therefore, it is not possible to consider these impacts as independent factors in a non-detriment finding process (for example, if existing management measures are appropriate, harvest impacts and trade impacts will not be “High”). Therefore, the rigour of existing management measures is inherent in the evaluation of the impacts of harvest and trade in Steps 6 and 7.

Step 8 supports use of available information to evaluate whether the management measures in place, have the appropriate level of rigour and are effectively implemented to mitigate the identified harvest and trade impacts. Step 8 adds value by:

- Reviewing individual management measures in detail
- Identifying possible major shortcomings in the current management
- Providing an overview of the entire NDF-process to inform the final NDF-decision

## **Step 8.1**

### **Key Question**

What management measures are in place for the target species?

### **Guidance**

In Step 8.1, Scientific Authorities should aim to obtain information on the management systems in place. Many aspects have already been looked at in Steps 6 and 7 and can be collected in the worksheet for 8.1 while dealing with those steps.

In addition, answers to the following questions may help:

- What is the ownership/tenure right of the harvest area (state; communal; private; logging concessions, etc.)?
- Who manages the harvest area (e.g. international corporation; industrial concession, small-scale holder, national or local logging company; communal forest management; state agency, private person, etc.)?
- What management measures are in place and are they documented (e.g. in a management plan), are they comprehensive and adequate to the requirements of the forestry operation?
- Are there State checks and controls of forest operations, transport, sawmills, exports, etc.?
- Is a credible certification system in place?
- Is monitoring conducted to systematically assess the impact of harvesting procedures and also assess whether management objectives have been met?

Scientific Authorities may need to contact the relevant competent authorities or the managing companies to gather information on most of these questions.

## **Step 8.2**

### **Key Question**

Do existing management systems adequately mitigate harvest and trade impacts identified for the populations and sub-populations of the species concerned?

## Guidance

The **Worksheet for Step 8.2** aims to provide a synopsis of the previous steps. To do this:

1. Transfer the results of conservation concern (Step 4) and biological risk (Step 5) from the **Worksheets for Steps 4 and 5** into the upper part of **Worksheet for Step 8.2**.
2. Transfer the harvest impacts (Step 6) and trade impacts (Step 7) from the **Worksheets for Steps 6 and 7** into the lower left part of **Worksheet for Step 8.2**.
3. Place the existing management procedures against those trade and harvest impacts identified in Steps 6 and 7 (now placed in the lower left part of Worksheet 8.2) which they may mitigate. The management measures should be placed opposite the respective trade and harvest impact in the column headed "Management measures".
4. Evaluate whether management measures in place adequately mitigate the severity of concerns, risks, and impacts, based on the following conditions for appropriate management rigour:
  - a) Management measures, to address the type and geographic scope of the identified concerns, risks, or impacts, do not exist or are unknown to exist.
  - b) Management measures in place address the type and geographic scope of identified concerns, risks, and impacts (but don't have the appropriate level of rigour).
  - c) Management measures in place have, at a minimum, the appropriate level of rigour required to reduce the severity of identified concerns, risks, and impacts (but are not implemented effectively or implementation is unknown).
  - d) There is evidence that the existing management measures have the appropriate level of rigour and are effectively implemented to mitigate the identified concerns, risks and impacts.

This Guidance treats "Unknown" concerns, risks or impacts from the previous Steps as equal to a "High" level of severity, thus requiring high levels management rigour.

Often not all factors identified in the NDF-process influence sustainable harvest and trade with the same level of impact and sometimes one or several factors can be identified to be of central importance. Use the red dot on top of the Worksheet to indicate key factors of your evaluation by copying it into the respective cell(s) of the column titled "Key".

## How to Proceed

Use the **Worksheet for Step 8** to record your findings.

### 8.1

Use the **Worksheet for Step 8.1** to record the details of the management measures in place, and **→ go to Step 8.2**

### 8.2

Use the **Worksheet for Step 8.2** to evaluate and record the effectiveness of the management. Identify any gaps between the management measures required and those actually in place.

Taking all aspects of the evaluation into consideration, make an overall judgement of whether rigour of implementation of the management in place is appropriate to the severity of harvest impacts, and trade impacts identified. **→ Go to Step 9, Decision 9.7**

**REMEMBER:** Fully cite the references that you use in the Information Sources Consulted section of the worksheet and include a confidence level for information used. Put a reference in the worksheet “Step8.1\_Management” and fully cite it in the worksheet “Sources\_used”.

## STEP 9: NON-DETRIMENT FINDING AND RELATED ADVICE

### Summary of NDF Process

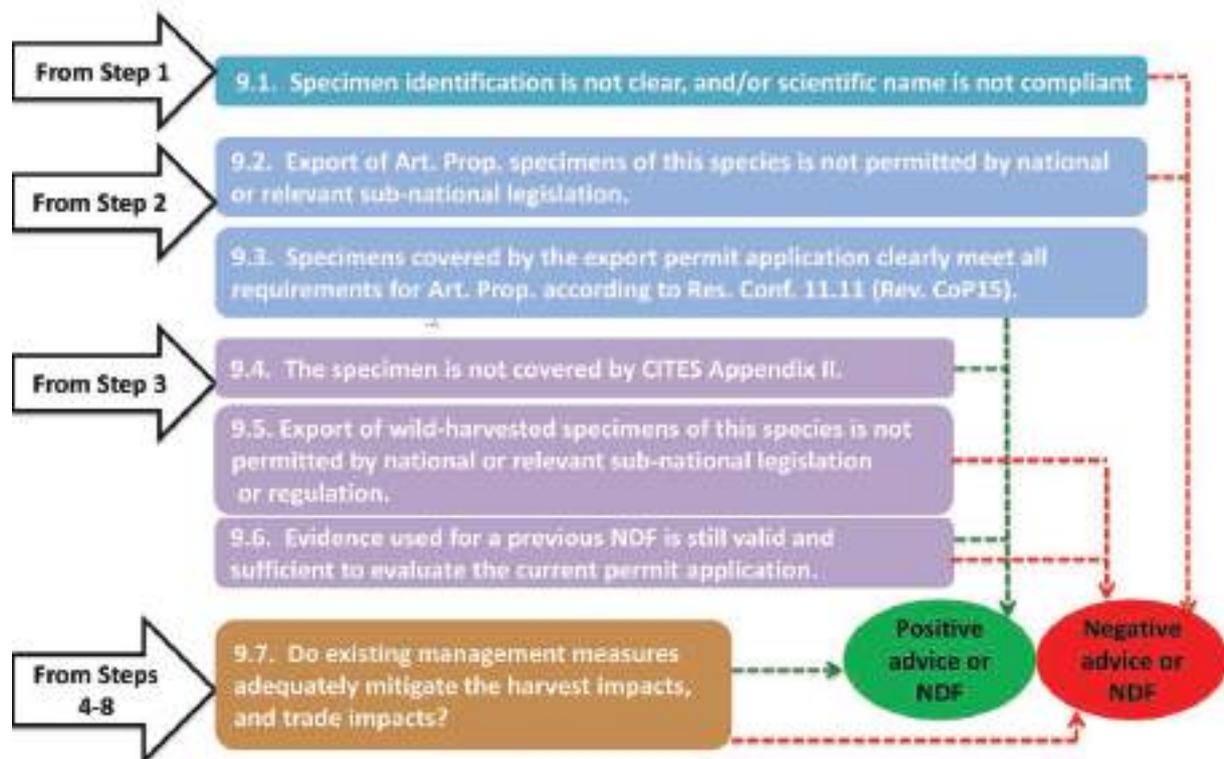
Steps 1 – 8 of this Guidance have been structured to guide Scientific Authorities through a series of Key Questions and Decision Paths to make “a science-based assessment that verifies whether a proposed export is detrimental to the survival of that species” ([Resolution Conf. 16.7 \[Rev. CoP17\] Non-detriment findings](#)). These Steps and the related Guidance support various outcomes, depending on:

- Step 1 – whether there are concerns about specimen identification
- Step 2 – whether the export of artificially propagated specimen is prohibited by law and whether they clearly meet all requirements for artificial propagation
- Step 3 – whether specimens are covered by CITES listing annotations, whether legislation is banning export, or whether the specimens are compliant with a previously made, science-based NDF which is still valid
- Step 8 – whether existing management measures adequately mitigate (= reduce the severity of) harvest and trade impacts identified in Steps 6 – 7.

This Guidance supports Scientific Authorities in their task to gather, evaluate, and document relevant information for which the data quality is “proportionate to the vulnerability of the species concerned” (Resolution Conf. 16.7 [Rev. CoP17] Non-detriment findings). This guidance also helps in identifying information gaps and management deficits for further improvements of the sustainable management of the target species.

The final task for the Scientific Authority is to make a positive or negative NDF or related decision, and to advise the Management Authority whether to allow the proposed export of specimens based on the outcome of the previous steps of this Guidance (= Step 9).

**Remember:** it is possible to exit early from the 9-Step process at a number of different Steps (1 – 3) depending on the answers to the key questions. The Decisions below guide the Scientific Authority through the next stage depending on which Step they exited at. **Only one of these decisions applies to a single application.**



**Figure 10.** Summary of decisions which can be made in Step 9.

### Decision 9.1

The outcome of Step 1 is: The Scientific Authority is not confident that the specimen concerned has been correctly identified, and that the scientific name used is compliant with the appropriate CITES Standard Reference.

### Guidance

In this case concerns over the species' identity were identified by the Scientific Authority and could not be corrected or resolved by consultation with an expert or the Management Authority.

**Record** the justification for this finding in the **Worksheet "Step9\_Decision"**, Outcome 9.1.

The Scientific Authority's advice supported by this Guidance is:

→ **Negative decision: Advise the MA that NDF cannot be made.**

If the Scientific Authority decides to make a **positive NDF**, the basis for the finding should be documented and the remaining steps to come to an NDF should be applied.

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## Decision 9.2

The outcome of Step 2, Key Question 2.2 is: Export of artificially propagated specimens of this species is not permitted by national or relevant sub-national legislation.

### Guidance

Advice of the Scientific Authority must comply with national or relevant sub-national legislation.

The Scientific Authority's advice to the Management Authority, supported by this Guidance, is:

→ **Negative decision: Advise the MA that NDF cannot be made and that the export permit has to be denied.**

Record the basis for the decision in the **Worksheet "Step9\_Decision"**, Outcome 9.2.

---

## Decision 9.3

The outcome of Step 2, Key Question 2.3 is: Specimens covered by the export permit application clearly meet all requirements for artificial propagation.

### Guidance

An NDF is not required. Inform the Management Authority that an NDF is not required.

The Scientific Authority's advice to the Management Authority, supported by this Guidance, is:

→ **Approve export permit.**

Record decision in the Worksheet **"Step9\_Decision"**, Outcome 9.3.

---

## Decision 9.4

The outcome of Step 3, Key Question 3.1 is: The specimens are not covered by CITES Appendix II.

### Guidance

An NDF is not required.

The Scientific Authority's advice to the Management Authority, supported by this Guidance, is:

→ **CITES export permit is not required.**

Record decision in the Worksheet **"Step9\_Decision"**, Outcome 9.4.

---

## Decision 9.5

The outcome of Step 3, Key Question 3.2 is: Export of harvested specimens of this species is not permitted by national or relevant sub-national legislation or regulation.

### Guidance

Advice of the Scientific Authority must comply with national or relevant sub-regional legislation.

The Scientific Authority's advice to the Management Authority, supported by this Guidance, is:

- **Negative decision: Advise the MA that NDF cannot be made and that the export permit has to be denied.**

The Scientific Authority may refer to the Management Authority to investigate potential illegal trade or to the responsible authority for enforcement.

Record decision in the Worksheet "**Step9\_Decision**", Outcome 9.5.

---

## Decision 9.6

The outcome of Step 3, Key Question 3.3 is: Science used for a previous NDF is still valid and sufficient to evaluate the current export permit application.

### Guidance

If there is a standing valid NDF or a national quota that has been established based on an NDF, a new NDF may not be required.

The Scientific Authority's advice to the Management Authority, supported by this Guidance, is:

- **Positive NDF** if the proposed export is within the parameters of the previous NDF;
- **Negative NDF** if the proposed export is not within the parameters of the previous NDF.

Record decision in the Worksheet "**Step9\_Decision**", Outcome 9.6.

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## Decision 9.7

Step 8, Key Question 8.2 is: Do existing management measures adequately mitigate harvest and trade impacts identified for the populations and sub-populations of the target species affected by the proposed trade?

### Guidance

For species requiring a detailed NDF, the Key Questions and Decision Paths in Steps 4–7 have supported evaluation of conservation concerns, potential biological risks, harvest impacts, and trade impacts and their severity, using information with a data quality recommended for the severity of concerns, risks, and impacts. Key Questions and the Decision Path for Step 8 have supported identification of management measures in place that are relevant to the identified concerns, risks, and impacts, and evaluation of whether existing management measures are sufficiently rigorous and effective to mitigate the impacts identified.

The Scientific Authority's decision supported by this Guidance is:

- **Positive NDF** if the evaluation of available information indicates “Yes”, management measures in place are sufficiently rigorous and effective, or “Yes” with advice on key management gaps identified in the Worksheet for Step 8, Key Question 8.2, to be defined in the NDF.
- **Negative NDF** if the evaluation of available information indicates “No or Uncertain”, management measures in place are not sufficiently rigorous and effective.

Record decision in the **Worksheet “Step9\_Decision”, Outcome 9.7.**

### Accumulated data capture over time

In case of substantial information deficits, it may be acceptable to temporarily postpone the incorporation of such information. See the Belgian Scientific Authority concept ([PC21 Inf. 4](#)).

**Note:** Any Conditions relating to this process should be recorded in the worksheets.

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## Units used in this guidance

a	year
cm	centimeter
ha	hectare (10,000 m <sup>2</sup> )
km <sup>2</sup>	square kilometer
m <sup>3</sup>	cubic meter
n	number
%	per cent

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♦: Further reading (not cited in the text)

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## Web Links

♦: Additional web links (not cited in the text)

- Chatham House, Illegal logging portal: <https://www.illegal-logging.info/>
- Checklist of CITES species (UNEP WCMC): <http://checklist.cites.org/#/en>
- CITES export quotas: <https://cites.org/eng/resources/quotas/index.php>
- CITES glossary: <https://cites.org/eng/resources/terms/glossary.php>
- ♦CITES ITTO programme: [http://www.itto.int/country\\_activities/](http://www.itto.int/country_activities/)
- ♦CITES NDF portal: <https://cites.org/eng/prog/ndf/index.php>
- CITES Nursery registrations: [http://www.cites.org/common/reg/e\\_nu.html](http://www.cites.org/common/reg/e_nu.html)
- Nomenclature specialist of the CITES Plants Committee: <http://www.cites.org/eng/com/pc/member.php>
- CITES Review of Significant Trade Management System: <http://sigtrade.unep-wcmc.org/>
- CITES Trade Database: <https://trade.cites.org/>
- ♦CITES Tree Species Programme: [https://cites.org/eng/prog/flora/trees/trees\\_project](https://cites.org/eng/prog/flora/trees/trees_project)
- ♦CITES Virtual College Module on making NDFs: <https://cites.unia.es/cites/mod/resource/view.php?id=58>
- CITESwoodID: <http://www.delta-intkey.com/citeswood/en/index.htm>
- Commercial Timbers: Descriptions, Illustrations, Identification, and Information Retrieval <http://www.delta-intkey.com/wood/en/index.htm>
- <ftp://delta-intkey.com/wood/en/index.htm>

ECOLEX: <https://www.ecolex.org/>  
EU-TWIX: <https://www.eu-twix.org/>  
♦FAO's Global Forest Resources Assessment (FRA): <http://www.fao.org/forest-resources-assessment/en/>  
Forest Legality Initiative. Logging and Export Bans webpage <https://forestlegality.org/content/logging-and-export-bans>  
Germplasm Resources Information Network (GRIN): <https://www.ars-grin.gov/>  
♦Global Timber Tracking Network: <http://www.globaltimbertrackingnetwork.org>  
♦International Expert Workshop on CITES Non-Detriment Findings: [http://www.conabio.gob.mx/institucion/cooperacion\\_internacional/TallerNDF/taller\\_ndf.html](http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/taller_ndf.html)  
ITTO Annual Review Statistics Database: [http://www.itto.int/annual\\_review\\_output/](http://www.itto.int/annual_review_output/)  
IUCN Red List of Threatened Species: <http://www.iucnredlist.org>  
National Red Lists: <http://www.nationalredlist.org/>  
NatureServe Canada: <http://www.natureserve.org/region/canada>  
NatureServe Explorer (US and Canada): <http://www.natureserve.org/explorer/>  
Plant Resources of Tropical Africa (PROTA): <https://prota4u.org/database/>  
Species+: <http://www.speciesplus.net/>  
The genus *Diospyros* in Madagascar: a Preliminary Checklist for CITES Parties: <http://www.tropicos.org/ProjectWebPortal.aspx?pagename=Diospyros&projectid=17>  
The Plant List: <http://www.theplantlist.org/>  
The Wood Database: <http://www.wood-database.com/>  
Tropicos: <http://www.tropicos.org/Home.aspx>  
Wood Species Database: <https://www.trada.co.uk/wood-species/>  
World Checklist of Selected Plant Families: <http://apps.kew.org/wcsp/home.do>



## **Annex**

### **Consolidated Worksheets and Draft Report Format**

A download of this Annex in MS Excel format is available at

[https://depot.bfn.de:443/ssf/s/readFile/share/3682/2397640297250246508/publicLink/NDF\\_EN\\_Timber\\_9Steps\\_Worksheets\\_VS3\\_final.xlsx](https://depot.bfn.de:443/ssf/s/readFile/share/3682/2397640297250246508/publicLink/NDF_EN_Timber_9Steps_Worksheets_VS3_final.xlsx)

## **How to use these worksheets**

The Worksheets for Steps 1-9 are intended to assist Scientific Authorities to document the basis for a non-detriment finding and the information sources used. Each Worksheet is designed to provide a record of responses to the Key Questions for each of the nine Steps outlined in the companion document CITES Non-detriment Findings for Timber. In the absence of a preferred NDF report format, Scientific Authorities may find the consolidated worksheets helpful as a draft report format for the NDF and related advice to the CITES Management Authority.

## NDF Application Data

<b>Species name:</b> (Genus and species, sub-species, as appropriate)
<i>species name filled on Info_Page</i>
<b>Trade name(s) and/or synonyms found on permit application:</b>
<b>Permit application reference number:</b>
<b>Completion date of NDF:</b>
<b>Contact / Author(s) of NDF:</b>

*User note: When filling out the species name in this sheet, this name will be AUTOMATICALLY repeated in the header of all worksheets.*



## Non-Detriment Finding (NDF)

*species name filled on Info\_Page*

### Step 1: Review specimen identification

Key questions for step 1	Responses and outcome (Refer to Guidance for Step 1)				Information sources used
1.1 Is the Scientific Authority confident, that the timber or timber product concerned has been correctly identified, and that the right scientific name has been used for the timber?	The Scientific Authority is confident about the species identification or has corrected a simple error or out-dated name and taxonomic concerns have been resolved	yes	Describe concerns or error(s) resolved below	Go to step 2	
	The species is not correctly identified and/or concerns cannot be resolved by the Scientific Authority or referral to the MA or an expert	no	Describe concerns or unresolved error(s) below	Go to Step 9: Decision 9.1	
Concerns about clear identification : {text}					

## Non-Detriment Finding (NDF)

species name filled on Info\_Page

## Step 2: Review compliance with requirements of artificial propagation

Key questions for step 2	Responses and outcome (Refer to Guidance for Step 2)		Information sources used
2.1 Is the permit application for artificially propagated specimens?	yes	X	Go to Key Question 2.2
	no	X	Go to Step 3
2.2 Is the export of artificially propagated specimens of this species permitted by national or relevant sub-national legislation?	yes	X	Go to Key Question 2.3
	no	X	Go to Step 9: Decision 9.2
Describe relevant legislation: [text]			
2.3 Do timber specimens covered by the export permit application meet all requirements for artificial propagation?	Requirements are met	yes	Go to Step 9: Decision 9.3
	Requirements are not met	no	Go to Step 3
Requirements met or unmet for artificial propagation: [text]			

## Non-Detriment Finding (NDF)

*species name filled on Info\_Page*

### Step 3: Review relevant exclusions and previously-made NDFs

Key questions for Step 3	Responses and outcome (Refer to Guidance for Step 3)			Information sources used
3.1. Are the timber specimens applied for covered by CITES Appendix II?		yes <b>X</b>	Go to Key Question 3.2	
	no <b>X</b>	Describe reason for exclusion of the specimen from CITES Appendix II (e.g. the relevant Annotation)	Go to Step 9: Decision 9.4	
	Reason for exclusion of the specimen from CITES Appendix II (and information for the Management Authority that an NDF and CITES export permit are not required) [text]			
3.2. Is the harvest or the export of wild harvested specimens of this species permitted by national or relevant sub-national legislation or regulation?	yes <b>X</b>	Describe legislation or regulation and its relevance below	Go to Key Question 3.3	
	no <b>X</b>	Describe relevant legislation or regulation below	Go to Step 9: Decision 9.5	
	Relevant national or relevant sub-national legislation or regulation (including concerns to be referred to the Management Authority or to the responsible authority for enforcement): [text]			
3.3. Has the Scientific Authority previously made a science-based NDF for this species that is still valid and sufficient to evaluate the current export permit application?	yes <b>X</b>	Describe previously-made NDFs below	Go to Step 9: Decision 9.6	
	no <b>X</b>	Record reasons that evidence used for a previous NDF is not valid and sufficient to evaluate the current permit application	Go to Step 4	
	Previously made NDF: [text]			

Non-Detriment Finding (NDF)

Step 4: Conservation Concern  
Conservation status assessments

Conservation status	International	Regional	National	Threats noted in assessment	Information sources used	Confidence level

Severity of conservation concern relevant to harvest area

Severity of conservation concern relevant to harvest area	Information sources used
High	
Med	
Low	
Unknown	Information sources used

Refer to the factor table for step 4 in the Guidance document

Copy grey section into spreadsheet  
Step 8.2\_Summary



## Non-Detriment Finding (NDF)

*species name filled on Info\_Page*

### Step 6: Harvest Impacts

Refer to the factor table for step 6 in the Guidance document

Factor	Impacts	High	Med	Low	Unk	Information sources used	Confidence level
Impact of harvest on harvest population							
Impact of harvest on national and sub-national populations of target species							
Harvest impact on the ecosystem							

Copy grey section into spreadsheet Step 8.2\_Summary

You can insert extra lines for each factor if needed.

## Non-Detriment Finding (NDF)

*species name filled on Info\_Page*

### Step 7: Trade Impacts

Refer to the factor table for step 7 in the Guidance document

Factor	Impacts	High	Med	Low	Unk	Information sources used	Confidence level
Trade level in relation to harvest area production							
Magnitude and trend of national legal trade							
Magnitude of illegal trade							

Copy grey section into spreadsheet Step B.2\_Summary

You can insert extra lines for each factor if needed.

## Non-Detriment Finding (NDF)

species name filled on Info\_Page

## Step 8.1: Management measures in place

HARVEST Management measures	Information sources used	Confidence level

TRADE Management measures	Information sources used	Confidence level

Copy grey sections  
into spreadsheet  
Step8.2\_Summary

# Non-Detriment Finding (NDF)

species name filled on Info\_Page



## Step 8.2: Evaluate Effectiveness of Management Measures

Step	Key	Factor	Which concerns, risks and impacts have been identified for the species?				
			Conservation concerns & biological risks	High	Med	Low	Unkn
Step 4 Conservation concern		Severity of Conservation Concern					
Step 5 Intrinsic biological risk		Biogeographic endemism					
		Number of sub-populations and population distribution					
		Size of subset of conserved/ sub-conserved individuals					
		Genetic diversity and reproductive viability					
Step 6 Harvest impacts & trade impacts	Key	Factor	Harvest impacts & trade impacts	High	Med	Low	Unkn
Step 8 Harvest impact	Key	Factor	Harvest impacts & trade impacts	High	Med	Low	Unkn
Step 7 Trade impact	Key	Factor	Harvest impacts & trade impacts	High	Med	Low	Unkn

Management measures	Which management measures are in place for the species?				
	not applicable	partial or common	address the issue	appropriate input	effective/efficient

## Non-Detriment Finding (NDF)

*species name filled on Info\_Page*

### Step 9: Non-Detriment Finding and Related Advice

Possible decisions of the NDF process based on this Guidance are listed in this worksheet. Each export permit application should have just one of the following outcomes/decisions. The Worksheet, together with more detailed information in the relevant Worksheets for previous steps, may be useful as a summary report of the NDF results and related advice to the CITES Management Authority.

Outcome of NDF Process	NDF Results and Related Advice
<p>9.1. The outcome of Step 1 is: <i>The Scientific Authority is not confident that the specimen concerned has been correctly identified, and that the scientific name used is compliant with the appropriate CITES Standard Reference.</i></p>	<p><input checked="" type="checkbox"/> Negative Decision, NDF is not possible (supported by this Guidance)</p> <p><input checked="" type="checkbox"/> Other: e.g., Negative Decision pending referral to the Management Authority or to a timber expert</p> <p><b>Justification for the advice of Scientific Authority:</b>  <i>[Summary, or refer to Worksheet 1, Key Question 1.1]</i></p>
<p>9.2. The outcome of Step 2, Key Question 2.2 is: <i>Export of artificially propagated specimens of this species is not permitted by national or relevant sub-national legislation</i></p>	<p><input checked="" type="checkbox"/> Negative decision (deny export permit) (supported by this Guidance)</p> <p><b>Justification for advice of Scientific Authority:</b>  <i>[Summary, or refer to Worksheet 2, Key Question 2.2]</i></p>
<p>9.3. The outcome of Step 2, Key Question 2.3 is: <i>Specimens covered by the export permit application clearly meet all CITES-requirements for artificial propagation</i></p>	<p><input checked="" type="checkbox"/> Positive decision (approve export permit) (supported by this Guidance)</p> <p><input checked="" type="checkbox"/> Other:</p> <p><b>Justification for advice of Scientific Authority:</b>  <i>[Summary, or refer to Worksheet 2, Key Question 2.3]</i></p>
<p>9.4. The outcome of Step 3, Key Question 3.1 is: <i>The specimens are not covered by CITES Appendix II</i></p>	<p><input checked="" type="checkbox"/> CITES Export permit not required (supported by this Guidance)</p> <p><input checked="" type="checkbox"/> Other:</p> <p><b>Justification for advice of Scientific Authority:</b>  <i>[Summary, or refer to Worksheet 3, Key Question 3.1]</i></p>

Outcome of NDF Process	NDF Results and Related Advice
<p>9.5. The outcome of Step 3, Key Question 3.2 is: Harvest or export of wild-harvested specimens of this species is not permitted by national or relevant sub-national legislation or regulation</p>	<p><input checked="" type="checkbox"/> Negative decision (deny export permit) (supported by this Guidance)</p> <p><input checked="" type="checkbox"/> Other: e.g., Negative NDF pending referral to the Management Authority to investigate</p> <p><b>Justification for advice of Scientific Authority:</b>  <i>(Summary, or refer to Worksheet 3, Key Question 3.2)</i></p>
<p>9.6. The outcome of Step 3, Key Question 3.3 is: Evidence used for a previous NDF is still valid and sufficient to evaluate the current export permit application</p>	<p><input checked="" type="checkbox"/> Negative NDF, proposed export is not within the parameters defined by the previous NDF</p> <p><input checked="" type="checkbox"/> Positive NDF, proposed export is within the parameters defined by the previous NDF</p> <p><input checked="" type="checkbox"/> Other:</p> <p><b>Justification for advice of Scientific Authority:</b>  <i>(Summary, or refer to Worksheet 3, Key Question 3.3)</i></p>
<p>9.7. Step 8, Key Question 8.2 is: Do existing management measures adequately mitigate harvest and trade impacts identified for the populations and sub-populations of the target species affected by the proposed trade?</p>	<p><input checked="" type="checkbox"/> Negative NDF if the evidence indicates "No or Uncertain"</p> <p><input checked="" type="checkbox"/> Positive NDF if the evidence indicates "Yes" or "Yes, with specific conditions"</p> <p><input checked="" type="checkbox"/> Other: e.g., Negative NDF pending additional information required to evaluate harvest impacts or trade impacts or management</p> <p><b>Justification for advice of Scientific Authority:</b>  <i>(Summary, or refer to Worksheet 8, Key Question 8.2)</i></p> <p><b>Specific management procedures, precautions, other actions that need to be undertaken to ensure the survival of the species:</b>  <i>(Please list any such recommended actions below)</i></p>