

CITES Non-detriment Findings Guidance for Perennial Plants

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

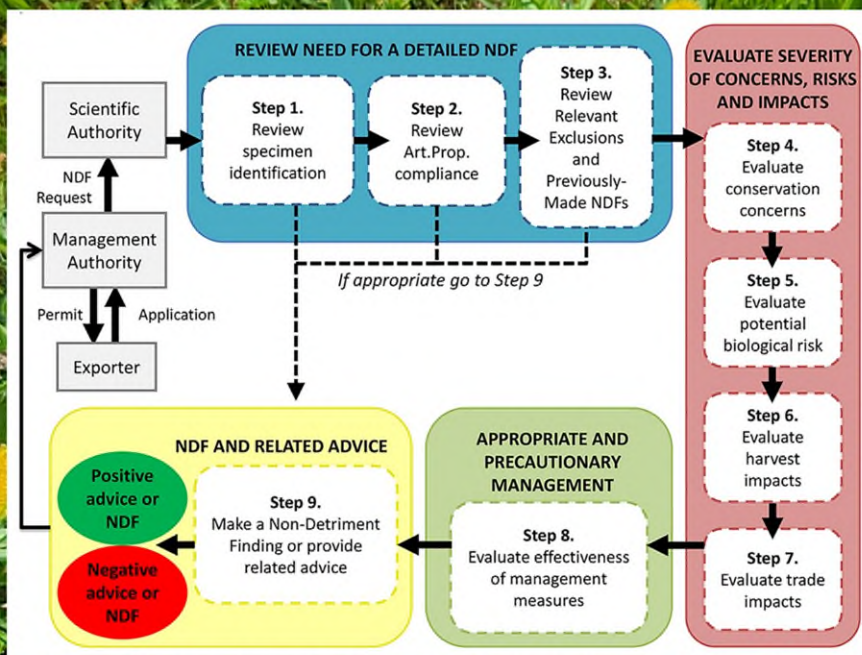
Version 4.0

Daniel Wolf, Thomasina E.E. Oldfield,
Uwe Schippmann, Noel McGough and
Danna J. Leaman

BfN-Schriften

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Federal Agency for
Nature Conservation

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Imprint

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MAKING NDFs FOR PERENNIAL PLANTS: A NINE-STEP PROCESS

Non-Detriment Findings in the CITES Context

Ensuring trade is within sustainable limits is at the core of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). According to the Convention, Parties shall allow trade in specimens of species included in Appendix II only if the Scientific Authority of the State of export has advised that “such export will not be detrimental to the survival of that species” (Article IV).

Further, “a Scientific Authority in each Party shall monitor both the export permits granted by that State for specimens of species included in Appendix II and the actual exports of such specimens. Whenever a Scientific Authority determines that the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I, the Scientific Authority shall advise the appropriate Management Authority of suitable measures to be taken to limit the grant of export permits for specimens of that species” (Article IV).

Collectively these requirements are referred to as ‘non-detriment findings’ (NDFs). How NDFs are made for Appendix II species is the responsibility of the Scientific Authority of each exporting Party. The Conference of the Parties (CoP) has decided not to adopt specific technical criteria for how NDFs are undertaken, instead the CoP adopted non-binding general guidelines on making NDFs, outlined in Resolution Conf. 16.7 (Rev. CoP17) on Non-detriment findings.

Why Is Guidance for Non-Detriment Findings Needed?

Considerable efforts have been made by some Parties, IGOs, and the Secretariat over the years to develop general and taxon-specific guidance for making NDFs; in particular, significant advances have been achieved for plant taxa.

Key milestones include:

- The publication (and supporting workshops) of the IUCN Species Survival Commission’s Guidance for CITES Scientific Authorities: Checklist to assist in making non-detriment findings for Appendix II exports;
- The International Expert Workshop on CITES Non-Detriment Findings (Cancun, Mexico, 17- 22 November 2008¹), notably the development of guidance at the workshop for perennial plants combining the IUCN checklist with elements derived from the International Standard for sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP, now included in the FairWild Standard version 2.0 (FairWild Foundation, 2010));
- The CITES Virtual College module on making NDFs.
- 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. Version 3.0 was published in 2016 (Wolf et al., 2016) and is available in the English, Spanish, French, Chinese, Georgian, Italian and Korean languages.

¹ http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/taller_ndf.html

- International expert workshop on NDF held in Nairobi, Kenya in December 2023, particularly module 2 on generic framework for NDFs and guidance for plant species in module 11 (see <https://cites.org/eng/prog/ndf/index.php>).

Version 4.0 has built on version 3.0 and incorporated feedback from experts and from participants in training workshops and the outcomes from the CITES NDF project and the results of the above-mentioned international expert workshop on NDF in December 2023, particularly module 2 on generic framework for NDFs and guidance for plant species in module 11. We recommend referring to those modules for further detail. The 9-Steps can be seen as a tool to implement the CITES comprehensive generic framework recommended to be applied by Parties at this workshop. The guidance has also been updated with the latest decisions at CoP 19. New features developed include an online training course that can be found on a dedicated 9-Step website (<https://www.9steps-cites-ndf.org/>). The worksheets that accompany the guidance that can be used to record information whilst making your NDF have additionally been developed into an online decision tree (<https://decisiontree.9steps-cites-ndf.org/cites-non-detriment-findings-for-perennial-plants/new/>) which provides an online 9-Step NDF format. We thank all those that have enthusiastically engaged in workshops from whom we have learnt a vast amount and improved the guidance based on lessons from them.

Although this document is intended to guide a Scientific Authority towards a decision using the best available information, ultimately it will be necessary for the Scientific Authority to weigh up the risks and evidence to make its final NDF decision. This will require individual (or group) judgments; this Guidance is designed to draw out the information relevant to informing the process that leads to that final decision. For further guidance on making NDFs in low data situations and how adaptive management can be a means to acquiring extra data see CITES NDF Guidance module 1.

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 (these correspond to initial information gathering of the generic framework in module 2 of CITES NDF Guidance discussed at the international expert workshop in Nairobi).
- Steps 4 – 7 involve the evaluation of conservation concerns, potential biological risks, harvest impacts, and trade impacts relevant to the species concerned.
- Step 8 involves the evaluation of whether the management measures in place adequately mitigate (= reduce the severity of) the concerns, risks, and impacts identified.
- Steps 4 – 8 correspond to the comprehensive assessment of the generic framework in module 2 of the CITES NDF Guidance. Although the 9-Steps does not mirror the simplified assessment from the generic CITES NDF Guidance and the plant guidance in module 11, a simpler route through the 9-Steps is possible when a lower risk scenario indicates that less rigour and information are needed to determine non-detriment, as the level of detail should be proportional to the level of risk.
- Step 9 is the final step in making an NDF or in formulating other advice to the Management Authority based on the outcomes of Steps 1 – 8 (corresponding to “conclusion or decision” of the generic framework in module 2 of the CITES Guidance).

Each of the Guidance steps is comprised of the following components:

- “Rationale: Why is this Step Important?” summarizing the contribution of the guidance step to the overall NDF process
- A graphic presentation of the “Key Questions and Decision Pathway” for each step
- Guidance notes for each Key Question
- A description of the Endpoint for each step
- Useful sources and recommended information quality based on the severity of concerns, risks, and impacts identified in the previous steps
- (Steps 4 – 8 only) Tables of factors to consider in evaluating the severity of conservation concerns, potential biological risks, harvest impacts, and trade impacts, and the level of rigour of management measures in place.

A set of Consolidated Worksheets is also provided in a separate MS Excel file. These worksheets can be used to record the sources consulted, the information relevant to each of the steps, and the outcome of the process. The Consolidated Worksheets may be used as a draft report format for the final NDF. You can also make use of the online decision tree (<https://decisiontree.9steps-cites-ndf.org/cites-non-detriment-findings-for-perennial-plants/new/>).

This Guidance is not intended to automatically generate the NDF-decision of a Scientific Authority, rather is it a tool to assist in making a well-informed decision using the best available information. Anyone using the framework must use their own judgement; they may not agree with the level of risk the Guidance points to and are likely to have better insight than a generic tool or they may have less confidence in the available information. Assessing the risks is intended to guide someone to the level of detail and confidence that they have in the management that ensures the harvest and trade is going to be non-detrimental. The Guidance helps structure the relevant aspects and information to facilitate an individual conclusion on detriment. This guide is not exhaustive, but we hope we have struck the right balance of sufficient guidance, useability and length.

This Guidance and the associated Consolidated Worksheets and online training tools on the dedicated website (<https://www.9steps-cites-ndf.org/>) can be used in various ways, including:

- Self-training for members of Scientific Authorities needing guidance on how to make NDFs and related decisions, as a complement to the NDF Module of the CITES Virtual College
- Support material for training workshops
- Structure for written NDF reports, where appropriate.

We suggest referring to the Guidance from the CITES NDF project particularly to module 11 for plants, as well as modules 1 and 2 for general NDF guidance. While we have integrated most elements of relevance for this guidance we have not incorporated the simplified assessments for trade where it is likely to be simple to determine non-detriment as proposed in Module 2 into the 9-Steps approach. However, a simpler route is possible when a lower risk scenario indicates that less rigour and information are needed to determine non-detriment.

All links to online documents were checked and updated in June 2024, however, links may change over time, particularly after CoP meetings. If you cannot access a CITES document, please use the document section on CITES website. All CITES Resolutions are referred to in the text as Res. or Resolution.

For additional information or enquiries please contact Daniel Wolf (Daniel.Wolf@bfn.de) or Thomasina Oldfield (Thomasina@thomasina-oldfield.co.uk) or Noel McGough (nmcgough@virginmedia.com).

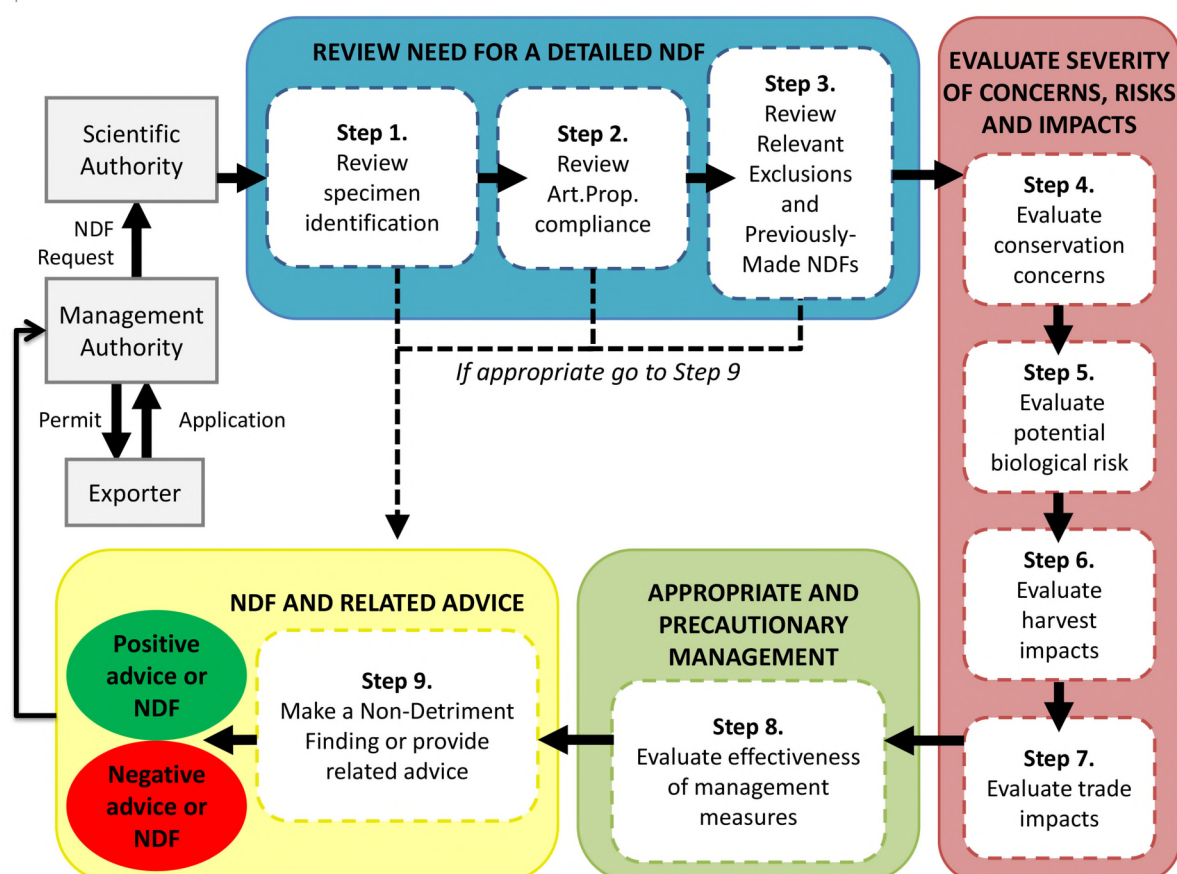


Figure 1: Nine-Step Pathway for Making Non-Detriment Findings for Perennial Plant Species Listed in CITES Appendix II

STEP 1

REVIEW SPECIMEN IDENTIFICATION

Rationale: why is this step important?

In order to make a non-detriment finding what species this is being made for must be known. Correct identification of specimens and agreement on taxonomic 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. Plant species can be difficult to distinguish from others that look alike, whether the specimen is a whole plant, a plant part, or a derivative. Substitution of “look-alike specimens” of CITES-listed species is a challenge for the detection of illegal trade. Furthermore, it may be the case that multiple species are included in processed products or preparations, such as medicines; and it is therefore necessary to conduct a number of different NDFs for export of one product.

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, a sound taxonomic basis is required to make an adequate NDF.

Key Questions and Decision Path for Step 1: Review Specimen Identification and Taxonomic Status

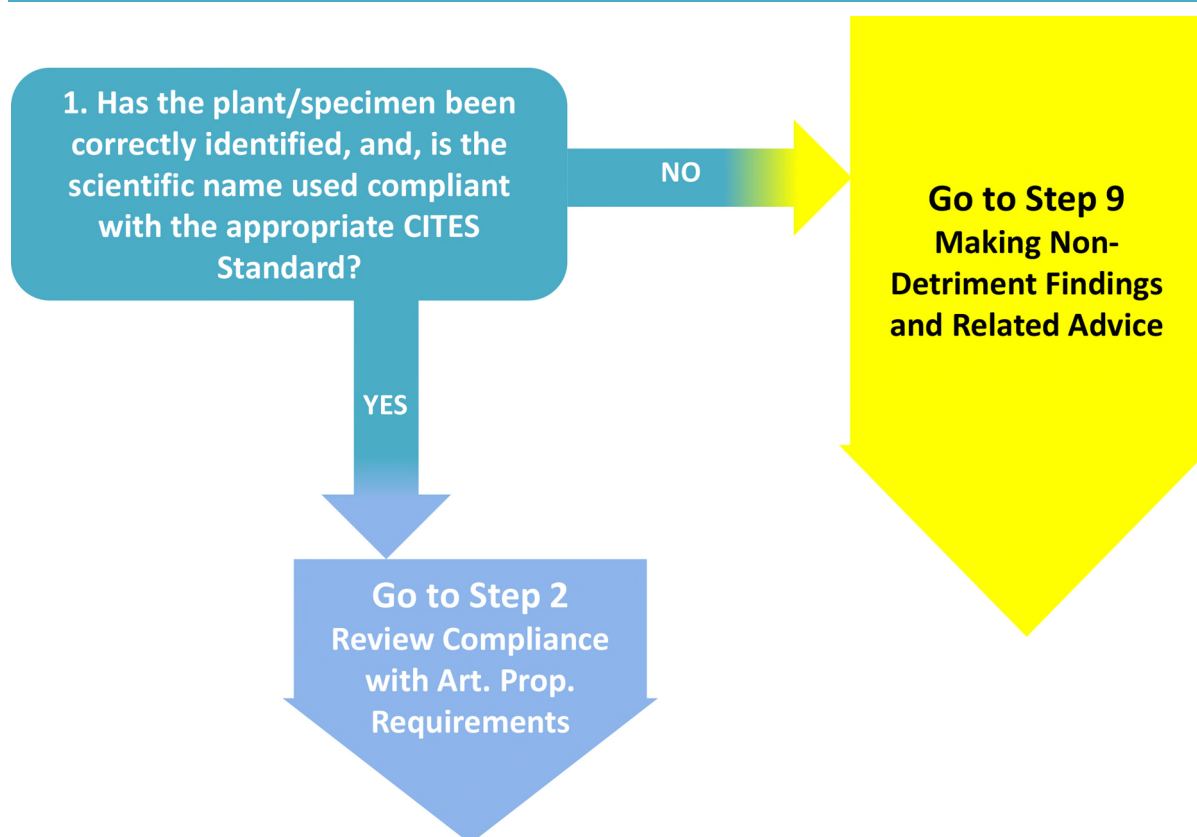


Figure 2: Key Question and Decision Path for Step 1.

Guidance for Step 1

Key Question 1.1. Is the Scientific Authority confident that the plant/specimen concerned has been correctly identified, and, is the scientific name used compliant with the appropriate CITES Standard?

Guidance notes:

The Scientific Authorities do not normally see the specimens for which a permit is being sought, therefore a judgement on the correct identification of the species must be made on the basis of the information supplied on the permit and an understanding of the trade.

Identification of the specimen(s) may be considered clear if the following conditions are met:

- a) The specimen(s) for export is/are identified on the permit application to the level of species, subspecies, or botanical variety as appropriate; AND
- b) The taxon named on the export permit application is in accordance with the nomenclature adopted by CITES (see Res. Conf. 12.11 (Rev. CoP19). The Scientific Authority may choose to correct a simple identification error or out-dated name or synonym where the correct name is obvious.

Guidance for Step 1

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 Res. Conf. 12.11 (Rev. CoP19) which is revised at each CoP. The standard scientific names are consolidated in the Checklist of CITES Species and Species+. These databases are the most accessible source of approved names to be used on CITES permits. Other databases (see Useful Sources) can be used to assist in understanding the taxonomy of plant species, but these are not sources adopted by CITES.

If “Yes” (conditions a and b are met OR the Scientific Authority has corrected a simple error or out-dated name): record concerns resolved and information sources used in the **Worksheet for Step 1**.

If “No” (condition a and b are not met) or in cases of uncertainty, the Scientific Authority may wish to request photos for identification or call upon the Management Authority to investigate a concern about the intentional or unintentional substitution of another species for the one named in the permit application, particularly in cases where look-alike species have significant levels of illegal trade. If the Management Authority is unable to resolve these concerns then describe any concerns about species identification in the **Worksheet for Step 1**, and **go to Step 9: Decision 9.1**.

NDF at Generic Level

The Convention asks for an 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 included within the mixed population by applying a precautionary approach.

Endpoint of Step 1: The Scientific Authority identifies any concerns about the identification of the specimens in trade. Confidence in the identification of specimens ensures that species information can be applied to the rest of the NDF process to determine whether the proposed trade will not be detrimental to the survival of the species.

Useful Sources and Examples of Recommended Information Quality

CITES References & Sources

- [List of standard references adopted by the Conference of the Parties / Flora, Res. Conf. 12.11 \(Rev. CoP19\) Standard nomenclature](#)
- [CITES Database Species+](#)
- [Nomenclature specialist of the CITES Plants Committee](#). Currently this is Ronell Klopper.

References or tools not adopted by CITES but which are useful guides:

- [Plants of the World Online](#)
- [World Flora Online](#)

Useful Sources and Examples of Recommended Information Quality

- [Medicinal Plant Names Services Royal Botanic Gardens](#), Kew
- [International Plant Names Index \(IPNI\)](#)
- [Germplasm Resources Information Network \(GRIN\)](#)
- [African Plant Database](#)
- [Tropicos](#)
- [Plant Resources of Tropical Africa \(PROTA\)](#)
- Published national, regional, and global floras
- 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

STEP 2

REVIEW COMPLIANCE WITH REQUIREMENTS FOR ARTIFICIAL PROPAGATION

Rationale: why is this step important?

If an export applicant presents sufficient information for the Scientific Authority to determine that the specimens clearly meet all CITES requirements for artificially propagated as defined in [Res. Conf. 11.11 \(Rev. CoP18\)](#), a simple positive decision may be made to permit export. However, concerns about compliance with these requirements (such as illegal trade of wild-harvested specimens declared as artificially propagated, or use of wild parental stock for nursery propagation of seedlings for export trade) need to be investigated before allowing trade.

CoP18 approved the use of source code Y for plants obtained through assisted production. These are plants which do not fulfil the definition of artificially propagated but are not considered to be wild as they have been planted or propagated with some level of human intervention. These plants still require an NDF. In applying the 9-Steps to plants or specimens assigned with source code Y these should not be treated as artificially propagated plant specimens under source code Y may in some cases also be considered lower risk, although NDFs are still needed for any initial wild specimens that existed in situ or any removed from the wild to establish or enrich the production. If additional ongoing wild sourced specimens are harvested to sustain the production system, these would also require an NDF. Where artificially propagated specimens are used to establish or enrich the system, an NDF for the wild parental stock is required. The full 9-Step process should be applied and no shortcut to Step 9 should be taken here.

Key Questions and Decision Path for Step 2: Review Compliance with Artificial Propagation Requirements

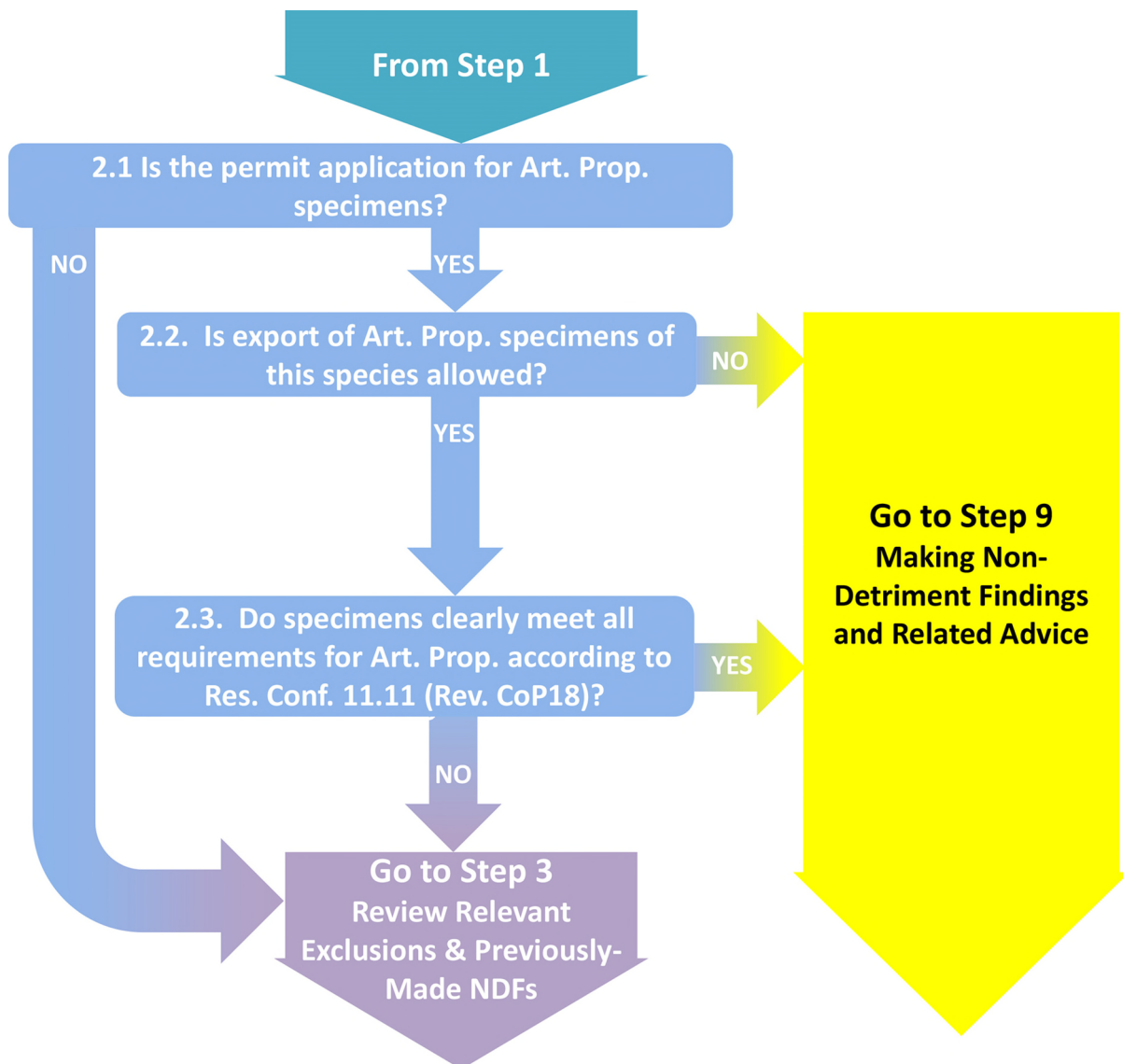


Figure 3: Key Question and Decision Path for Step 2.

Guidance for Step 2

Key Question 2.1. Is the permit application for artificially propagated specimens?

Guidance notes:

In most cases the Scientific Authority does not see the specimens to which the permit application refers. It is therefore important that the permit application contains sufficient information to enable the Scientific Authority to answer this and the following Key Questions in **Step 2**.

The source-code is specified on the permit application. An updated Guide on the application of CITES source codes, including source code “Y” will be updated on the CITES-website in 2024. Likewise, the Guidance on terms related to the artificial propagation of CITES regulated plants was adopted at PC 27 and will also be made available on the CITES website in 2024.

If “Yes”, record information sources used in the **Worksheet for Step 2** and go to Key Question 2.2.

If “No”, then **go to Step 3**.

Key Question 2.2. Is export of the artificially propagated specimens of this species allowed by national or relevant sub-national legislation?

Guidance notes:

National or sub-national legislation may specify exemptions or restrictions intended to support positive effects or limit detrimental impacts of artificial propagation on wild populations (e.g. collection of seeds and spores). A country may prohibit export of whole plants, including from artificial propagation.

Advice of the Scientific Authority must comply with national or relevant sub-national legislation. Although the legal acquisition finding (LAF) is a task of the Management Authority (Art. IV 2b of the Convention), 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.

If “Yes”, record information sources used in the **Worksheet for Step 2** and go to Key Question 2.3.

If “No”, describe relevant legislation and record information sources used in the **Worksheet for Step 2** and **go to Step 9**: Decision 9.2.

Key Question 2.3. Do the specimens covered by the export permit application clearly meet all requirements for artificial propagation according to Res. Conf. 11.11 (Rev. CoP18)?

Guidance notes:

CITES requirements for artificial propagation are met if:

- The parental stock has been legally acquired and cultivated or wild-harvested in accordance with Res. Conf. 11.11 (Rev. CoP18), and
- Specimens were produced from artificial propagation in accordance with Res. Conf. 11.11 (Rev. CoP18).

If an export permit application contains sufficient information for the Scientific Authority to determine that the specimens clearly meet all CITES requirements for artificial propagation

Guidance for Step 2

according to Res. Conf. 11.11 (Rev. CoP18), a simple positive decision can be made enabling a permit to be issued for export.

The Scientific Authority could call upon the Management Authority for additional information to help confirm artificial propagation.

Specimens determined not to clearly meet all requirements for artificial propagation according to Res. Conf. 11.11 (Rev. CoP18) are not excluded at this step.

Specimens for which there are concerns over compliance with Res. Conf. 11.11 (Rev CoP18), e.g. uncertainty over parental stock or the species is not known to be produced in sufficient volumes for quantity requested for export, should record “No” and continue the NDF process.

Some species may be propagated or cultivated for which the requirements of Res. Conf. 11.11 (Rev. CoP18) are not fully met. For such cases the Parties have developed the source code Y. Although these may not strictly comply with Res. Conf. 11.11 (Rev CoP18), harvest of these may pose no detriment to the wild populations. In such cases Steps 3 to 9 will help in the determination of non-detriment. For example, the Scientific Authority may need to evaluate any impact on the wild population from sourcing of or replenishing mother stock.

If “Yes”, record requirements met and information sources used in the **Worksheet for Step 2**, and **go to Step 9**: Decision 9.3.

If “No”, record information sources used in **Worksheet for Step 2** and **go to Step 3**.

NOTE: Some countries have introduced nursery registration schemes, which may confirm the artificial propagation of the species in accordance with Res. Conf. 11.11 (Rev. CoP18). Where export permit applications for artificially propagated plants are frequently received for particular species, it may be useful for Scientific Authorities and Management Authorities to provide guidance on the necessary requirements for recognition of “artificial propagation”. A register of nursery or cultivating operations meeting these requirements may also facilitate decision making.

Endpoint of Step 2: Scientific Authorities make a decision about whether the specimens covered by the export permit application meet the Convention’s requirements for artificial propagation, enabling issue of an export permit; whether a detailed NDF is required to investigate concerns about non-compliance and detrimental effects on wild populations; or whether concerns about non-compliance require negative advice on this permit application.

Box 1: NDFs for source code Y.

The complexity of the NDF will depend on the specific production system and area, whether the harvest is part of the species current range and being enriched, original range and being reestablished or being planted in a new area outside its range. It may be necessary to determine non-detriment for any initial wild specimens that existed in situ, or any removed from the wild to establish or enrich the production. If additional ongoing wild sourced specimens are harvested to sustain the production system, these would also require an NDF. Where artificially propagated specimens are used to establish or enrich the system, an NDF for the wild parental stock is required. Whichever source code a scientific authority assigns in such a case it should be recorded as well as the reason for the choice. The SA should take an approach that is precautionary to the risks and takes into account the vulnerability of the national population as a whole. Each case is therefore likely to differ.

Example: In 2022, Mexico's Scientific Authority, CONABIO, with the support of the Commission for Environmental Cooperation of North America (CCA) generated guidance on the implementation of CITES source code Y for tree species and developed Non-Detriment Findings in Mexico, with which they concluded that:

- o planted trees would meet the definition of assisted production ("Y").
- o trees that grow from naturally dispersed seeds in natural ecosystems will be considered wild ("W").
- o if seeds or seedlings were planted among "wild" trees and distinction between them is not possible, all should be considered as "W", as per the precautionary principle.
- o only if there is solid data confirming the wood comes exclusively from trees that were planted from seeds from a controlled environment would the "Y" source code be assigned.
- o overall, the procedure to develop NDF for assisted production would be similar to that of "wild" populations, but with greater attention to the composition and structure of the production area.
- o the situation of polycultures under controlled conditions was not clear within the artificial propagation application and recommend using source code "Y" until this situation is clarified.

Useful Sources and Examples of Recommended Information

- Export permit application information concerning source of specimens (wild / artificial propagation / unknown)
- National and sub-national legislation relevant to export of this species
- [Guide on the application of CITES source codes](#) (will be updated in the course of 2024)
- Guidance on terms related to the artificial propagation of CITES regulated plants (please check the CITES-website)
- Nursery surveys and inventories
- [Res. Conf. 11.11 \(Rev. CoP18\)](#): Regulation of trade in plants
- [Res. Conf. 9.19 \(Rev. CoP15\)](#): Registration of nurseries that artificially propagate specimens of Appendix-I plant species for export purposes
- [Res. Conf. 18.7 \(Rev. CoP19\)](#): Legal acquisition findings.
- [Preliminary guidance on terms related to the artificial propagation of CITES regulated plants](#) (CITES, 2021).

STEP 3

REVIEW 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.

Key Questions and Decision Path for Step 3: Review Relevant Exclusions and Previously-Made NDFs

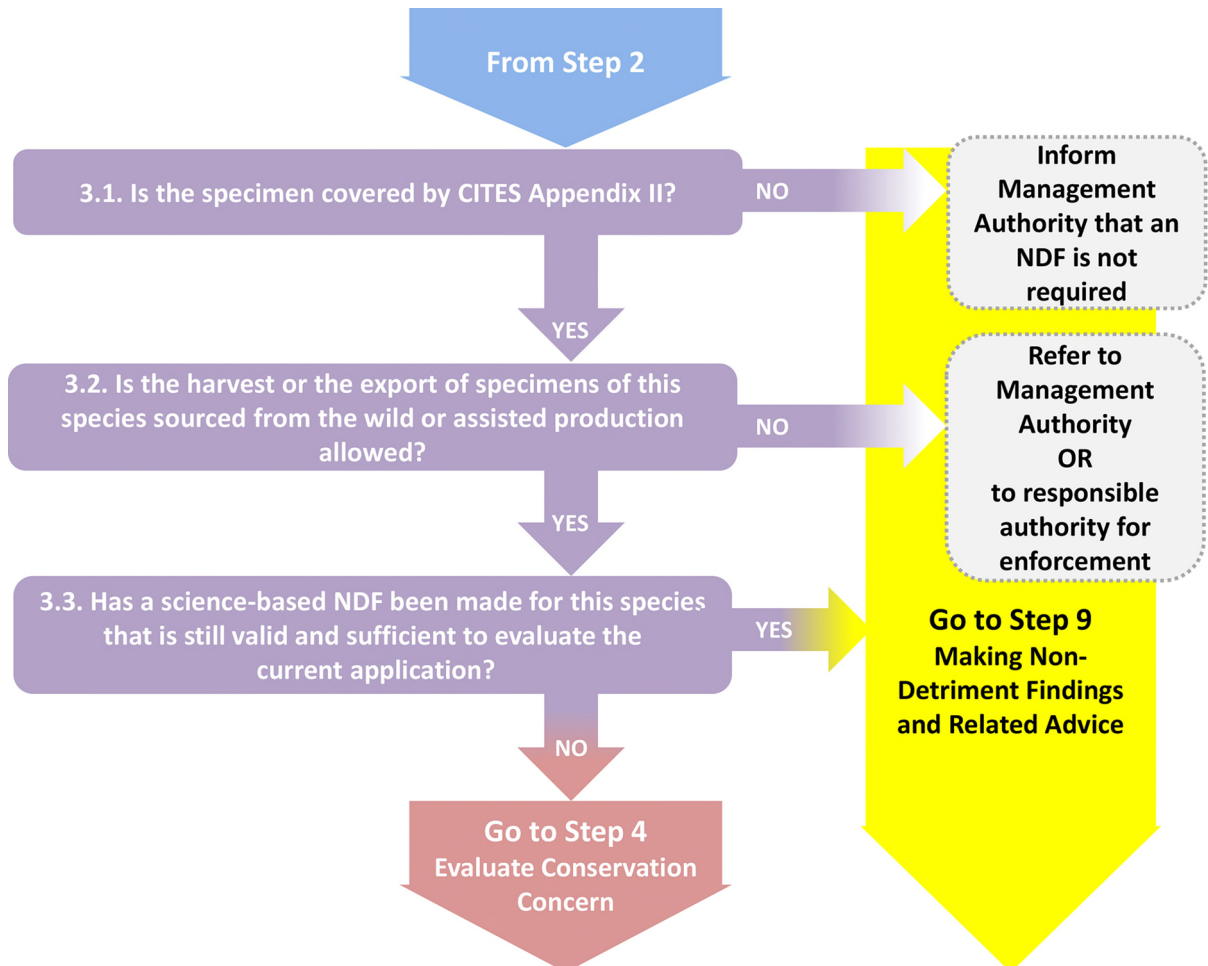


Figure 4: Key Question and Decision Path for Step 3.

Guidance for Step 3

Key Question 3.1. Is the specimen covered by CITES Appendix II?

Guidance notes:

- Some specimens are excluded from CITES control by the relevant numbered annotation to Appendix II or through the Interpretation section of the [Appendices](#).
- The [CITES glossary](#), available on the CITES website, summarizes, inter alia, definitions of terms given in the Convention and Resolutions.
- There are also special provisions for scientific and forensic specimen loan and exchange. This facility has been expanded beyond traditional herbaria and scientific institutions to include registration of forensic research and diagnostic testing laboratories to facilitate the expansion of new technologies used in CITES. Parties should check the details in [Resolution Conf. 11.15 \(Rev. CoP18\)](#) and the [list of Registered Facilities](#) on the CITES website.

If “Yes”, record information sources used (e.g., Appendix II on the CITES Secretariat website or Species +) in the **Worksheet for Step 3**, and go to Key Question 3.2.

If “No”, describe the reason for exclusion and record information sources (e.g., an annotation) in the **Worksheet for Step 3**, record information sources used, and **go to Step 9**: Decision 9.4.

Inform the Management Authority that an NDF and CITES export permit are not required.

Key Question 3.2. Is the harvest or the export of specimens of this species sourced from the wild or assisted production allowed?

Guidance notes:

- Advice of the Scientific Authority must comply with national or sub-national legislation, the verification of legality is the task of a Management Authority (Art. IV 2b of the Convention)
- Although the legal acquisition finding (LAF) 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. CITES has been developing [guidance on LAFs](#) (Annex 1 of Resolution Conf. 18.7 (Rev. CoP 19) including a rapid guide to legal acquisition findings (see Annex 3) with a dedicated [webpage](#).

If “Yes”, outline the legislation or regulation and its relevance in the **Worksheet for Step 3**, record information sources used, and go to Key Question 3.3.

If “No”, outline the legislation or regulation and its relevance in the **Worksheet for Step 3**, record information sources used, and **go to Step 9**: Decision 9.5.

Key Question 3.3. 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 notes:

- Check for possible previous NDFs. If there has been a positive NDF in the past: What information was it based on and is it still valid? Is there now new, or more up to date information available that would make a new assessment necessary?

Guidance for Step 3

- A Party may decide that a certain amount of offtake annually will be non-detrimental. This may be formalised in an annual quota, nationally or by area. In this case offtake up to this level and export from the harvest can be allowed without having to make a new NDF for each application. Similarly, for specific harvest areas, managers may have calculated annual sustainable offtakes which are detailed in management plans. A national quota may be summed up from such individual quotas.
- A well-implemented export quota system eliminates the need for an NDF for each individual shipment of CITES specimens. (See Box 2: Export Quotas and NDF for further information).
- If the SA concurs with the non-detrimental assessment of the proposed offtake, it may only be necessary to make this finding once a year, but to track exports from the area (traceability of chain of custody) and ensure that harvest is not being exceeded. The Management Authority will consider the chain of custody in making LAF; exchange with them regarding this may be helpful. If the NDF is not made on a case-by-case basis it may be necessary for the SA to pay attention to external factors (i.e., climatic) or unusual levels of illegal harvest / trade that may impact on the sustainability of the harvest.
- A country may establish this predetermined level of export as an export quota, which should relate to named material and volume (e.g. kg of the specific commodity) allowed to be exported over a set period of time.

If “Yes”, describe the previously made NDF, record information sources used in the **Worksheet for Step 3**, and **go to Step 9**: Decision 9.6. This may be positive, or negative if exceeds the quantity that the SA considered to be sustainable.

If “No”, record absence or deficiencies of a previous NDF, information sources used, and **go to Step 4**.

Endpoint of Step 3: Scientific Authorities may not need to undertake a detailed NDF if export of the specimens involved are not covered by CITES Appendix II, if the specimens are prohibited by national or sub-national legislation, or if the export permit application is consistent with previous science-based findings.

Box 2: Export Quotas and NDF

Resolution Conf. 14.7 (Rev. CoP15) outlines the conditions relating to the establishment and management of national export quotas. This Resolution states:

- where possible export quota should cover a calendar year;
- when quotas are established, they should be set as a result of a non-detriment finding by a Scientific Authority;
- export quotas should be set on a level that takes account of the number or quantity of specimens that are taken from the wild legally or illegally;
- export quotas are usually established for a set number or quantity of plants;
- quotas may be set for certain types of parts and derivatives – for example bulbs;
- names used should follow CITES Standard nomenclature;
- terms used should follow those in the Guidelines for the preparation and submission of CITES annual reports (CITES, 2023);
- Parties should inform the CITES Secretariat of nationally established export quotas and updates;
- every Party is responsible for monitoring their export quotas and ensuring that they are not exceeded. Data should be maintained on same.

Adequate conversion factors should be used when making non-detriment findings (NDFs) and establishing voluntary annual national export quotas (Resolution Conf. 10.13 (Rev. CoP18), aiming in particular at converting volumes of traded commodities into volumes of the natural resource as inventoried. That enables a Scientific Authority to assess the impact of the traded volume on the species population. A quota may also have evolved over a long period of time based on discrete management of harvested populations, with management adjusting 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. An NDF should be made whenever an export quota is established for the first time or revised, and reviewed annually.

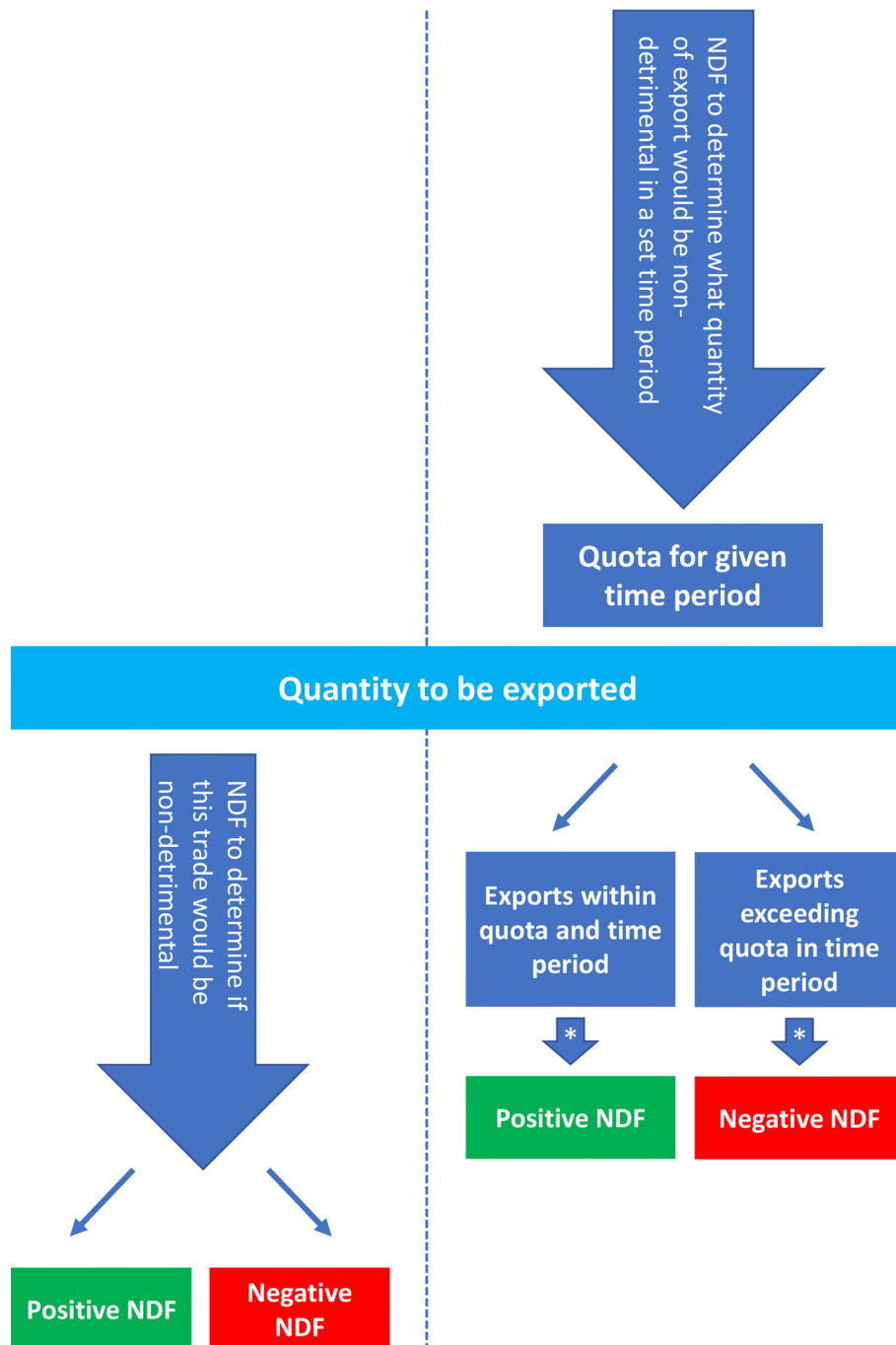


Figure 5: Simplified diagram for export where no quota exists (left hand side) and where a quota has been determined based on an NDF (right hand side).

* indicates further checks may be necessary. There may also be conditions or advice with the NDF decision. Time period and area to which the quota applies may be specific and should be taken into consideration.

Useful Sources and Examples of Recommended Information

General:

- National and sub-national legislation relevant to export of this species
- [Res. Conf. 18.7 \(Rev. CoP19\)](#): Legal acquisition findings.
- CITES Database [Species+](#) Species Appendix listing
- Relevant annotations

Annotations:

- Illustrated Manual of Plant Annotations in the CITES Appendices (Schippmann, 2020). Note this is based on CoP18 Appendices.
- CITES glossary

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

Trade records:

[CITES Trade Database](#). Records of trade in specimens and species included in Appendices I, II, and III (in accordance with Art. VIII.6)

Nationally established export quotas:

- [Res. Conf. 14.7 \(Rev. CoP15\)](#) Management of nationally established export quotas CITES export quotas
- [Res. Conf. 12.3 \(Rev. CoP19\)](#) Permits and certificates
- Periodic reports of the national CITES Authority to the CITES Secretariat, including updates on national CITES export quotas

Adaptive management

[Module 1](#), Chapter 9 of the CITES Non-Detriment Findings Guidance of the Secretariat

STEP 4

EVALUATE CONSERVATION CONCERN

Rationale: why is this step important?

This step considers existing conservation status assessments of the species to document relevant threats.

It is not intended by this guidance that the Scientific Authority will undertake conservation status assessments as part of the NDF. 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 assessments 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). They may be formal and published as in the case of IUCN Red List assessments or national Red Data books, threatened species listings etc. Often formal assessments may not be available for the species concerned. If this is the case, non-published or informally published data or the view of national experts (including local and indigenous peoples and communities) can be used, but it is important to properly reference the material, and assign it a confidence level. If, for example, valuable information is obtained from an interview with an expert, a record of the interview should be made, preferably in a file note, with details of time and place, the expert's details and contact information, the information the expert supplied and, for example, notes on whether this will be published. This should be safely filed where it is known and accessible to SA staff. This file note information should then be used to help assign a category in the worksheet, referenced and assigned confidence levels.

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 an 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 and consider this as higher risk.

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.

Key Questions and Decision Path for Step 4: Evaluate Conservation Concern

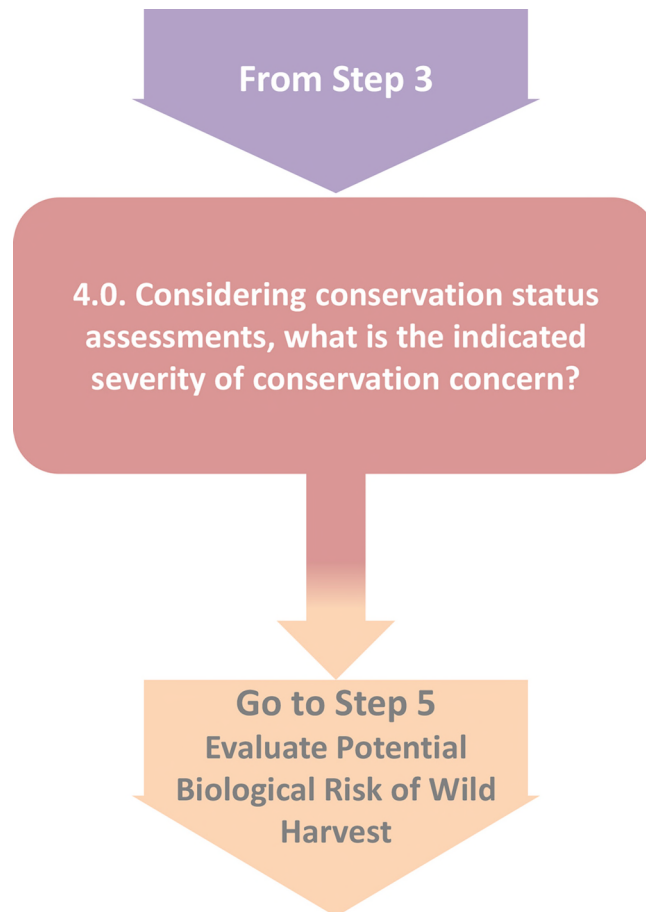


Figure 6: Key Question and Decision Path for Step 4.

Guidance 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 notes:

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 (4.1 in worksheet). A global conservation status

Guidance for Step 4

assessment of a species distributed in more than one country can be less important for your specific NDF 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 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
- acceptable confidence level.

A certain amount of judgment will be needed where there are multiple assessments that differ, some of which may give conflicting indication of status. It is also important to consider the quality of information underpinning assessments.

It is not recommended to average the results of several assessments (4.2 in worksheet).

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 harvested population 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”.

Endpoint of Step 4: Based on existing conservation status assessments, threats contributing to the risk of extinction of the national population or sub-population(s) are documented, and severity of conservation concern relevant to the harvest area is evaluated by the Scientific Authority.

Useful Sources and Examples of Recommended Information

Sub-national and national conservation status assessment systems:

- State, provincial, and national Red Data books
- [National Red Lists](#)
- National conservation assessments
- [Conservation Data Centres](#) (such as [NatureServe Explorer](#))

Multi-country / regional conservation status assessment systems:

- [NatureServe Explorer \(United States and Canada\)](#)
- [Regional Red List Assessments](#)

Global conservation status assessment systems:

- [IUCN Red List of Threatened Species](#)
- Assessment Tools – Rapid Conservation Assessments - Royal Botanic Gardens, Kew.
- [BGCI ThreatSearch](#)
- [GeoCat](#) – Geospatial Conservation Assessment Tool
- [Protected Planet](#) – Species biological data and information
- [The Botanical Information and Ecology Network \(BIEN\) database](#)
- [Global Biodiversity Information Facility](#) (GBIF)

Factors to Consider: Conservation Concerns

The factors and indicators defined in this table use information from existing conservation status assessments in simple rankings of severity of conservation concern. These rankings use IUCN Red List categories and criteria as a benchmark against which Scientific Authorities can compare any existing assessment categories and criteria applied in national, sub-national, and other relevant conservation status evaluations.

Use the **Worksheet for Step 4** to evaluate the severity of conservation concern relevant to the harvest area.

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 not considered to be threatened. 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). - Little concern over the conservation status and the species is considered to be abundant based on grey literature or expert advice.
Medium	- The species, population, or sub-population has been assessed and is considered to nearly qualify as threatened. 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). - Some concern over the conservation status with some populations known to have been reduced based on grey literature or expert advice.
High	- The species, population, or sub-population has been assessed and qualifies as threatened. 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). - Species considered rare or depleted within the country and concerns have been raised regarding conservation status in grey literature or by experts.
Unknown	- Conservation status has not been assessed 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). - No information was found on the conservation status of the species in grey literature or through experts.

* 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 5

EVALUATE POTENTIAL BIOLOGICAL RISKS OF WILD HARVEST

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 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 the 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.

Key Question and Decision Path for Step 5: Evaluate Potential Biological Risk of Wild Harvest



Figure 7: Key Question and Decision Path for Step 5.

Guidance for Step 5

Key Question 5. Consider the biological characteristics that affect the potential risk of wild harvest to species survival. Is the severity of potential biological risk indicated for each of these factors “Low”, “Medium”, “High”, or “Unknown”?

Guidance for Step 5

Guidance notes:

From the many biological characteristics that might be considered relevant to the impact of wild harvest on species survival, the following have been consistently identified in CITES discussions and documents related to making science-based NDFs:

- 1) Potential local harvesting risk
- 2) Geographic distribution
- 3) National population size and abundance
- 4) Habitat specificity and vulnerability
- 5) Role of the species in its ecosystems

Indicators of severity of risk associated with each of these potential biological characteristics that affect the risk of wild harvest to species survival are elaborated below in the table of **Factors to Consider: Potential Biological Risk of Wild Harvest to Species Survival**.

Recommended information quality: For species lacking relevant conservation status assessments in Step 4, Scientific Authorities will need to gather any available information about potential biological characteristics for Step 5. For species with conservation status identified in Step 4 as “Low concern”, it is likely sufficient for Scientific Authorities to use routine verification sources (see first column of table “Useful Sources and Examples of Recommended Information Quality”) to gather any additional information needed about the species’ biological characteristics to complete Step 5. For species identified in Step 4 as “Medium”, “High” or “Unknown” conservation concern, the effort to locate available higher-quality information is recommended to fill any remaining information gaps for Step 5.

Use the **Worksheet for Step 5** to record available information corresponding to each of these factors, the severity of risk indicated, the sources used and the confidence in the sources.

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

➔ **Go to Step 6.**

Endpoint of Step 5: Ranking of potential biological risk is used to guide Scientific Authorities to seek higher quality information about harvest and trade impacts related to higher risk and unknown biological characteristics (Steps 6 and 7), to require greater management rigour for higher levels of severity of risk (Step 8), and to use greater precaution in making NDFs for those species with overall higher potential biological risk (Step 9).

Useful Sources and Examples of Recommended Information Quality

All Species / Specimens Requiring a Detailed NDF	Species with Medium, High, and Unknown Severity of Conservation Concern Identified in Step 4
Routine verifications: • Permit application • Results of detailed conservation status assessments (outputs from Step 4 recorded in Worksheet for Step 4) • Scientific publications and databases providing taxonomic description of species, floras, vegetation type / zone maps	Existing information, where available: • Herbarium records • Vegetation surveys and inventories • Ecological risk assessments • Relevant knowledge and expertise from scientists, harvesters, local communities, other resource managers • Management plans • Resource assessments

Factors to Consider: Potential Biological Risk of Wild Harvest

The factors and indicators defined in this table use information about the biological characteristics of the species concerned with a ranking of risk severity level: Low, Medium, High, and Unknown. Scientific Authorities can identify specific factors of risk and evaluate the general severity of potential risk of wild harvest to species survival by using this table in combination with the **Worksheet for Step 5**.

For most species, information will be available for Factors 1 and 2, but not for all of the factors included in the table. Record available information and unknown factors in the **Worksheet for Step 5**.

Table 2: Factors to Consider: Potential biological factors related to risk

1. Potential local harvesting risk	
[Risk severity can be assessed using the decision trees and the look up table in Figure 8. Some of the combinations are reflected in the example indicators but not all.]	
Risk severity	Example Indicators
Low	• Plant parts easy to identify & one or more of the following example indicators • Only dead parts harvested or no damage from harvesting • If live parts harvested, only flowers, fruits or seeds • Recruitment of new plants from seed easy and rapid • Harvesting does not reduce seed production and impact population recruitment

Risk severity	Example Indicators
Medium	- Recruitment of new plants from seed easy and rapid - If seed recruitment poor there is compensating vegetative reproduction - Harvesting does impact population recruitment but not significantly degrade population
High	- Plants parts not easy to identify or whole plant harvested - Perennial parts harvested e.g. stems, roots - Species is slow growing late to reproduce and / or not resprouting - Recruitment of new plants from seed is poor - Little or no vegetative reproduction - Harvesting significantly degrades population maintenance
Unknown	Information about this factor is unavailable

Explanation: The resilience of the species concerned is dependent on the plant part that is harvested in relation to the ability of the individual plant and the harvested population to recover. For example, harvest of leaves from a tree species is regarded as having a low risk of killing the tree or decreasing the local harvest population over time, while harvest of roots from an herbaceous species rates as high risk because each plant harvested may be destroyed by the harvest. For the evaluation of this factor, the life form of the species (annual, biennial, perennial, geophyte, shrub, and tree) must be considered. Key to the overall assessment is the impact of harvest on population recruitment.

Risk severity can be assessed using the decision trees and the lookup table in Figure 8. Some of the combinations are reflected in the example indicators, but not all. Example indicators which are not highlighted above, but which may influence harvesting risk include the reproductive strategies of the species concerned. This is where asexual reproduction, abiotic pollination and seed dispersal are low risk strategies in contrast with species with male and female flowers on separate plants (dioecious) or that set seed and then die (monocarpic). Species which are dependent on specialised pollinators or seed dispersers are especially vulnerable. If the species you are considering falls into one of these categories its vulnerabilities should be taken into account when assessing risk. The reproductive strategy impacts the ability of the local harvest population to recover, influencing the ability of the remaining plants to rebuild the population or repopulate harvested areas.

Remember this factor is about the potential impacts due to the species biology. The actual harvesting impacts are considered in **Step 6, Factor 1: "Impact of harvest on target populations"**. For instance, where highly destructive harvest practices are used (e.g., if entire tree branches are cut to harvest leaves).

2. Geographic distribution

Risk severity	Example Indicators
Low	Distribution is widespread, commonly occurring through the country (likely in several countries)
Medium	Distribution is restricted to a relatively small part of the country (and likely to few countries)

Risk severity	Example Indicators
High	Distribution is locally restricted, i.e. endemic, found in only one or few localities
Unknown	Information about this factor is unavailable
Explanation: This factor assesses the known (primarily) national / (secondarily) global range and distribution of the species. Consider whether the distribution of the species is broad and continuous, or to what degree it is restricted and fragmented.	
3. National population size and abundance	
Risk severity	Example Indicators
Low	Sub-populations of the national population are large and spread homogeneously across the landscape
Medium	Sub-populations of the national population mostly medium-sized, sometimes large, unevenly distributed
High	Sub-populations of the national population are always small; scattered in low density across the landscape
Unknown	Information about this factor is unavailable
Explanation: This factor assesses the spatial distribution across the range of the species. It assesses whether populations are large, abundant and homogeneous or small, clumped and scattered. This factor may be assessed differently in different range countries because a species that is distributed across national political boundaries may be more abundant in the centre of its natural range and less abundant at the periphery, as well as other factors affecting the species.	
4. Habitat specificity and vulnerability	
Risk severity	Example Indicators
Low	Species is highly adaptable to various habitat types; the habitat is stable (not declining in area or quality)
Medium	Species is adapted to a few stable habitat types or is adapted to a variety of habitat types that are declining in area or quality
High	Species is narrowly specific to one habitat type or to only a few threatened habitat types that are declining in area or quality
Unknown	Information about this factor is unavailable
Explanation: This factor assesses habitat preference of the species concerned. It looks at the availability and abundance of habitats occupied and also at the threat to these habitats.	

5. Role of the species in its ecosystems	
Risk severity	Example Indicators
Low	Based on research there are no dependent species or key functions
Medium	Not relevant: see explanation below
High	Keystone species, nurse plant, major food source for other species
Unknown	Information about this factor is unavailable
Explanation: This factor considers the role of the species in the ecosystem and whether ecosystem processes are interrupted or changed by the harvest of the species. Is the species a keystone or guild species, do other species depend on it for survival (e.g., food source)? NOTE: Information about this factor is not commonly available, but may be included in some detailed conservation status assessments. A “medium” indicator is not meaningful for this factor. A species either does, or does not, have a known key ecosystem function as defined. Further details on role of species in ecosystem can be found in CITES NDF Guidance Module 1 Section 6.	

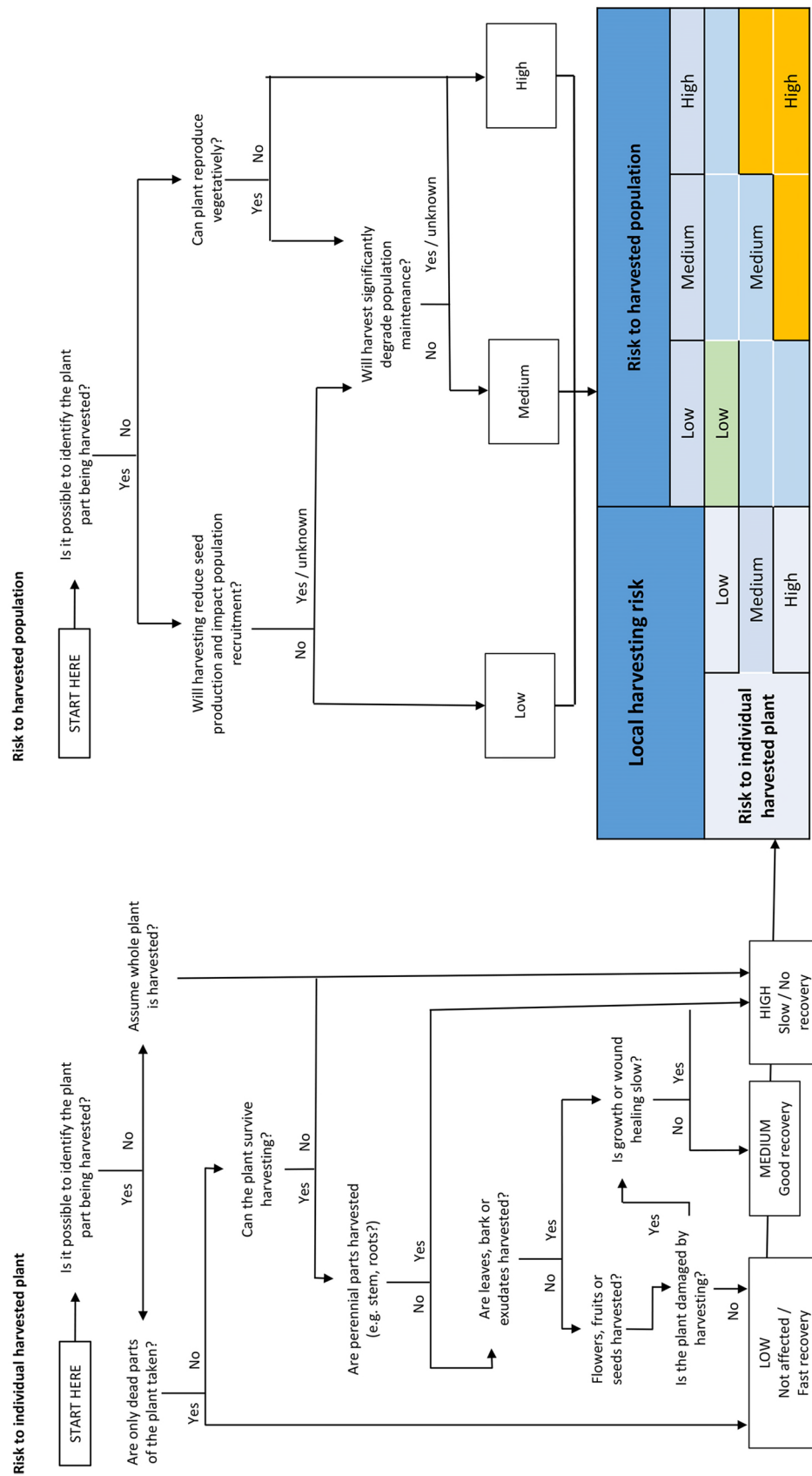


Figure 8: Decision trees and look-up table to assist in identifying potential risk to individual harvested plants and to harvested plant populations (adapted from Wong et al., in preparation).

STEP 6

EVALUATE IMPACTS OF WILD HARVEST

Rationale: why is this step important?

The impacts of wild harvest can be detrimental to the individual plants, to the harvested populations, and to the national population of the species concerned overall, as well as to the species' ecosystem and other species on which it depends. Scientific Authorities can identify and evaluate these impacts by considering the best currently available information about the harvest practice used and harvest intensity (e.g. proportion affected of the individual plant, harvested populations, and the national population overall). Although population decline may be caused by impacts unrelated to wild harvest (which may have been identified in existing conservation status assessments in Step 4), population trends can also be a useful indicator of detrimental impact of wild harvest.

In some cases, existing management measures may mitigate (= reduce the severity of) harvest impacts. Management measures are considered in Step 8. Therefore, this Step looks at actual impact of the harvest for the export in question rather than potential impact. However, it is important to consider this in relation to other harvest of the species (legal and illegal and for domestic use and trade) in order to assess the detriment of harvesting on the species.

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

Key Question and Decision Path for Step 6: Evaluate Impacts of Harvest

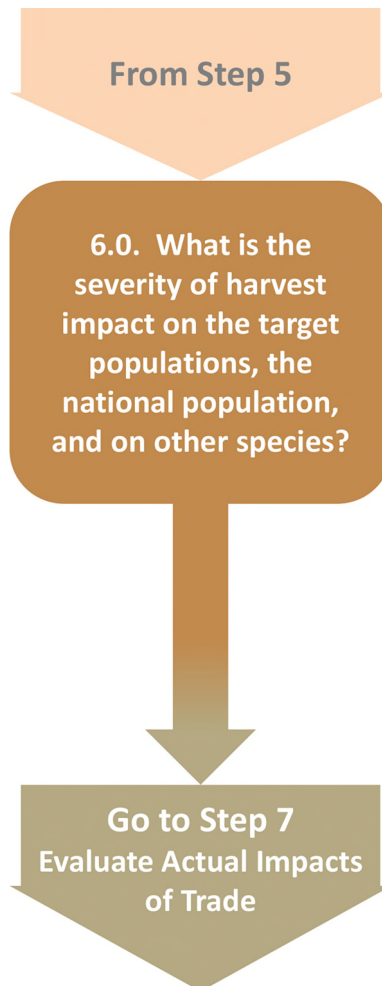


Figure 9: Key Question and Decision Path for Step 6.

Guidance for Step 6

Key Question 6: Considering the impacts of harvest, is the severity of harvest impact on the target population, the national population, and on other species “Low”, “Medium”, “High”, or “Unknown”?

Guidance notes:

Factors that affect the impact of harvest on species survival are elaborated below in the table
Factors to Consider: Impacts of Harvest.

Guidance for Step 6

When considering harvest impact the total actual off-take should be considered, which may include a large proportion of wasted material, harvest for domestic use and illegal harvest.

Recommended information quality: For species with “Medium”, “High” or “Unknown” ratings in Steps 4 and 5, the effort to locate higher-quality information should focus on any remaining information gaps for Step 6. For species lacking relevant conservation status assessments in Step 4, Scientific Authorities will need to gather any available information on harvest impacts for Step 6. For species with conservation status identified in Step 4 as “Low conservation concern” and “potential biological risks” identified as “Low” in Step 5, it is likely sufficient for Scientific Authorities to use routine verification sources to gather any additional information needed about actual harvest impacts to complete Step 6.

When considering information available on impact of harvest from inventory data, it may be useful to consider the appropriateness of inventory design. Further guidance on this is given in Wong et al. (in preparation).

Use the **Worksheet for Step 6** to record available information corresponding to each of the harvest impact factors and the severity of impact indicated (see table of Factors to Consider: Impacts of Harvest, below).

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

➔ Go to Step 7.

Endpoint of Step 6: Based on the best available information of recommended quality, Scientific Authorities determine the severity of impact of harvest on the harvested population, the national population, and on other species. The harvest impact is used to guide Scientific Authorities to expect greater management rigour for higher levels of severity of harvest impact (Step 8), and to use greater precaution in making NDFs for those species with higher or unknown severity of harvest impact (Step 9).

Useful Sources and Examples of Recommended Information Quality

All Species / Specimens Requiring a Detailed NDF

Routine verifications:

- Permit application (e.g., number or volume of specimens included in relation to other permits for the same species in the current year)
- Conservation status assessments (Step 4) – population trends and harvest impacts
- Scientific publications / reports describing harvesting practices, population trends

Species with Medium, High and Unknown Severity of Conservation Concern or Risk Identified in Steps 4 – 5

Existing qualitative information:

- Harvest method (e.g., written or verbal instructions for harvesters, Good Practice guidelines, Standard Operating Procedures)
- Management plans
- Vegetation surveys and inventories (e.g. surveys conducted at harvest locations and at sites protected from harvest)
- Expert, harvester, local community, resource manager reports of actual harvest practices used
- Qualitative indices (e.g., harvesters' perceptions of change in resource availability and quality)

Existing quantitative information:

- Records of harvest yields (e.g., volume/area/year) and frequencies
- Vegetation surveys and inventories (e.g. surveys conducted at harvest locations and at sites protected from harvest)
- Commercial census
- Quantitative indices (e.g., roots per pound harvested as an indicator of population size and age-class distribution)
- Monitoring data, sampled and modelled population parameters (e.g., changes in abundance, distribution, age or size-class structure, regeneration)
- Wong et al. (in preparation): Resource inventories of CITES-listed plant species. A guidance for the design and the review of inventories to support sustainable harvesting and management. This document helps determine the most appropriate survey design for different plant species and can help in interpreting inventory data.

Factors to Consider: Impacts of Harvest

The factors and indicators defined in this table use information about the harvest practices and population trends in a simple ranking of impact severity: Low, Medium, High, and Unknown. Scientific Authorities can identify and evaluate detrimental impacts of harvest on the target populations, and species concerned by using this table of factors in combination with the **Worksheet for Step 6**.

For most species, information will be available for Factor 1 but may be more difficult to locate for Factors 2 – 3. Record available information and unknown factors in the **Worksheet for Step 6**.

Table 3: Factors to Consider: Impacts of Harvest

1. Impact of harvest on target populations for the exports requested	
Harvest impact severity	Example Indicators*
Low	- Non-lethal harvest (plant part harvested and practice used) small proportion of the yield (e.g. leaves, seeds, fruit) is harvested and is unlikely to reduce reproductive success - Small proportion of individual plants in the population is affected by harvest (quantity harvested is small in comparison with quantity available for harvest) - Harvest frequency is low relative to the rate of regeneration of the part harvested (e.g., once per season) - Harvest doesn't change the structure of the population (harvest not targeted to particular age / size-classes)
Medium	- Harvest sometimes lethal (harvest practices used sometimes lead to mortality of individual plants) - Moderate proportion of individual plants in the population is affected by harvest (quantity harvested is moderate in comparison with quantity available for harvest) - Harvest frequency is moderate relative to the rate of regeneration of the part harvested (e.g., several times per season). - Non-lethal harvest is reducing reproductive success in target population - Moderately selective harvest of age / size class
High	- Harvest often lethal (harvest practices used often lead to mortality of individual plants) - Harvest frequency is high relative to the rate of regeneration of the part harvested (e.g., numerous times per season) - Large proportion of individual plants in the population is harvested (quantity harvested is large in comparison with quantity available for harvest) - Reproductive success in target population is significantly reduced by harvest - Highly selective harvest of one age / size-class (except if age-class selected is no longer reproducing)
Unknown	Information about this factor is unavailable

Explanation: This factor considers the characteristics of harvest that affect the long-term viability of reproducing populations, such as recruitment (the addition of individuals to a population through reproduction and / or dispersal from other populations). For example, if the target population is very small, collecting most of the seeds may have a large impact on population viability and species survival. The total actual offtake should be considered, the part of a plant harvested is not always just the part used: e.g., it is possible that the common harvest practice may be lethal for individual plants whereas the targeted plant parts could be harvested in a non-lethal manner (e.g., cutting down a tree to harvest the fruit or leaves). Harvest may include a large proportion of wasted material. Total harvest for domestic use and export including illegal or unreported harvest that is not accounted for in documentation of material in trade should be considered. Sometimes indicators identified for the same harvest are assigned to different risk categories. It is recommended to record them all to assess the management in Step 8.

2. Impact of harvest on national population for the exports requested

Harvest impact severity	Example Indicators*
Low	• A small proportion of national population affected by harvest • Harvest infrequent with respect to the rate of replacement of harvested individuals • Population numbers and distribution stable or increasing
Medium	• Harvest frequent but low-to-moderate proportion of the national population affected • Population numbers and distribution stable
High	• High proportion of national population affected • Long term, continuous harvest • Population numbers and distribution declining due to harvest
Unknown	• Information about this factor is unavailable

Explanation: This factor considers the characteristics of harvest in terms of scope of harvest impact (e.g., the plant, the target population, the national population), and the effect on the national population of the species concerned.

NOTE: Information about population trend (increasing, stable, or decreasing) may be available from existing conservation status assessments (Step 4).

3. Impact of harvest on other species and ecosystems for the exports requested	
Harvest impact severity	Example Indicators*
Low	- Target species easy to identify, unlikely to be confused with other species - Harvest practices have a minimal (or even positive) effect on non-target species and the environment (e.g., animals that eat fruit, seeds; removal of an alien / invasive species)
Medium	- Target species occasionally confused with other species - Harvest practices occasionally disruptive to non-target species or environment - Harvest has a moderate effect on resources available for other species
High	- Target species is easily confused with other species; indiscriminate harvest of the target species in place of another look-alike species, or of another look-alike species in place of the target species - Harvest practices have a substantially negative effect on non-target species or the environment
Unknown	Information about this factor is unavailable

Explanation: Harvest can have direct impacts on non-target species in the ecosystem or on the species role in the ecosystems. The Convention Text specifically directs that “the export of specimens of any such species should be limited in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs” (Article IV paragraph 3). Further details on assessing these impacts are in CITES NDF Guidance Module 1 Section 6.2 and Module 2 Section 6.8.4 Ecosystem Impacts Evaluation). It is advised that a pragmatic approach might be to assume that if there is a viable population, distributed over much of its range which is being sustainably harvested, then a species’ role in the relevant ecosystems is being maintained.

This factor considers the characteristics of wild harvest that may impact other species either accidentally (as in the case of harvest of look-alike species) or as a result of harvest practices or taxa that depend on the target species (e.g., for food or micro-habitat, as in the case of some epiphytes). Harvest damage to the target species’ ecosystem or to other species on which it depends can reduce the viability of the target population. Based on the best available information consider the following impacts:

- a) significant change in the abundance of another native species;
- b) an increase in the abundance of a non-native species or over-abundance of another species;
- c) a reduction in a demographic rate in any life stage of another native species (e.g., germination, seed production, nest success, natal dispersal, etc.) that has the potential to decrease its abundance or otherwise reduce its viability;
- d) a change in any ecosystem process or structural feature;
- e) a change in the typical patterns of behaviour (e.g., social interactions, patterns of aggregation, movement) among individuals of the species being assessed or other species;
- f) change in genetic structure or variability of the population that indicates that one or more of the ecological functions of the species are, or will become, impaired.

* 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?

The impacts of harvest to the harvested populations (“target population”) has been considered in Step 6. Here the impact of trade is considered. The term “trade” when used in the context of CITES usually implies international trade, and international trade is the potential threat relevant to CITES. However, in this step both domestic and export trade are considered under the term trade. The impacts of trade when combined can be detrimental to the survival of the species concerned. Scientific Authorities can identify and evaluate trade impacts by considering the available information about the scale and trend of both 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.

Key Question and Decision Path for Step 7: Evaluate Impacts of Trade



Figure 10: Key Question and Decision Path for Step 7.

Guidance for Step 7

Key Question 7. Considering the impacts of trade (domestic and export) 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 for Step 7

Guidance notes:

Factors that affect the impact of trade on species survival are elaborated in the table below.

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 “Step 7_Trade-Impact” and fully cite it in the worksheet “Sources_used”

→ Go to Step 8.

Endpoint of Step 7: Based on the best available information quality, Scientific Authorities determine the severity of impact of legal and illegal trade on the species concerned. Scientific Authorities are guided to expect greater management rigour for higher severity of trade impact (Step 8), and to use greater precaution in making NDFs for those species with higher or unknown severity of trade impact (Step 9).

Useful Sources and Examples of Recommended Information Quality

All Species / Specimens Requiring a Detailed NDF

Routine verifications:

- Export permit application (proposed volume or number of specimens)
- Export trade history
- Records of current and past years’ trade levels from national CITES databases or the CITES trade database Internet searches for both common and scientific names can give an indication of demand.

Species with Medium, High, and Unknown Severity of Conservation Concern, Risk, or Impact Identified in Steps 4 – 6

Existing qualitative information:

- Additional information from the CITES trade database (also see guide to using the trade database)
- Market reports
- Enforcement reports (including seizure data)
- Reports of exports and imports from other Parties
- Field and market surveys
- Information from traders, harvesters, wildlife managers

Existing quantitative information:

- Quantitative information on numbers of specimens exported (CITES trade database)
- Trends in volume of national exports
- Trends in volume of domestic trade (if available)
- USFWS LEMIS and EU-TWIX databases (for illegal trade)

Factors to Consider: Impacts of Trade

The factors and indicators defined in this table use information about the characteristics of trade in the species concerned and trends in legal and illegal trade to rank trade impact severity: Low, Medium, High, and Unknown. Scientific Authorities can identify and evaluate detrimental impacts of trade to the species concerned by using this table of factors in combination with the **Worksheet for Step 7**.

Where trade is in processed products, the offtake will need to be considered and conversion factors used to estimate this. For instance, trade in litres of extract or oil would need to be converted back to the quantity needed to be harvested to produce that volume. Conversion factors may be available from the industry or literature.

For most species, information will be available for Factor 1 & 2 but may be more difficult to locate for Factor 3. Record available information and unknown factors in the **Worksheet for Step 7**.

Table 4: Factors to Consider: Impacts of Trade

1. Trade impact severity on harvest area population	
Trade impact severity	Example Indicators*
Low	- The quantity of specimens on the permit application is low in comparison to total annual production, no other exports have been applied for in the current year. - Permit quantity and previous (within the same year) exports and production for domestic trade are well within the harvest area's annual production quantities.
Medium	- The quantity of specimens on the permit application is close to, but under the harvest area annual production, no other exports have been applied for in the current year. - Permit quantity is low in comparison to total annual production, but permit quantity and previous exports and production for domestic trade are under but close to the harvest area's annual production quantities.
High	- The quantity of specimens on the permit application is above the total annual production. - Permit quantity and previous exports and production for domestic trade are over the harvest area's annual production quantities
Unknown	- No conversion factors are available for the products in trade. - Information on previous trade and domestic trade originating from this harvest area is not available. - Information on the sustainable production capacity of the harvest area is not available.
Explanation: The permit quantity should be compared with production quantity 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. It may be necessary to convert the quantity of specimens in trade to the amount that it would be required to harvest to produce the exports in question. Conversion factors will be different for different species and products in trade.	

2. Magnitude and trend of legal trade (domestic and export)	
Trade impact severity	Example Indicators*
Low	- Number or volume of specimens in trade is small in relation to abundance of the species (information from Steps 4 and 5) - Trade volume / market demand decreasing over time - No shortage of material in trade observed
Medium	- Number or volume of specimens in trade neither small nor large in relation to abundance of the species (Steps 4 and 5) - Trade volume / market demand stable or slowly increasing over time
High	- Multiple uses in commercial trade (i.e. the species supplies several products to different types of markets) - Trade volume / market demand high in relation to information about abundance of species and part used (Steps 4 and 5) - Trade volume / market demand increasing quickly, or decreasing in response to limited resource availability - Shortages of material in trade
Unknown	Information about this factor is unavailable
Explanation: This factor considers the characteristics of trade (domestic and export) magnitude in relation to harvest and trade volume trend (decreasing, stable, or increasing). Trade might be increasing or decreasing which could indicate changes in supply or demand. Price changes might indicate that a decreasing trade volume is due to declining resource, driving up the price.	
3. Magnitude of illegal trade (domestic and export)	
Trade impact severity	Example Indicators*
Low	- Good documentation of domestic and international trade - Trade chain transparent - Little concern about substitution for a look-alike species - Estimated harvest and estimated volume in legal domestic and reported export trade are approximately equal
Medium	- Poor documentation of trade (domestic and international) - Trade chain difficult to track - Some concern about substitution for a look-alike species - Some concerns about whether estimated harvest and volume in legal domestic and reported export trade are approximately equal

Trade impact severity	Example Indicators*
High	• Documented illegal trade • Little documentation of legal domestic and international trade • Trade chain not transparent • Great concern about substitution for a look-alike species • Quantities legally exported are significantly smaller than quantities reported by importing countries
Unknown	• Information about this factor is unavailable
Explanation of this factor: This factor considers whether known illegal trade exists, whether illegal trade is significant in proportion to the overall volume of trade, and whether the substitution for a look-alike species in trade has a significant influence on the species of concern's survival.	

* 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 8

EVALUATE EFFECTIVENESS OF MANAGEMENT MEASURES

Rationale: why is this step important?

For most wild-harvested plant (and indeed animal) 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. In many cases the management required may be simple and informal if the resource is well known to the national experts and there is little risk to the survival of the species.

Steps 4 – 7 of this Guidance have supported Scientific Authorities to assess conservation concern, potential biological risk, harvest impact, and trade impact, and to identify the particular factors that contribute to the severity of concern, risk, and impact. 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.

In some cases, existing management measures may mitigate harvest and trade impacts; therefore, it is not possible to consider harvest impact and trade impact 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”).

Key Questions and Decision Path for Step 8: Evaluate Effectiveness of Management Measures

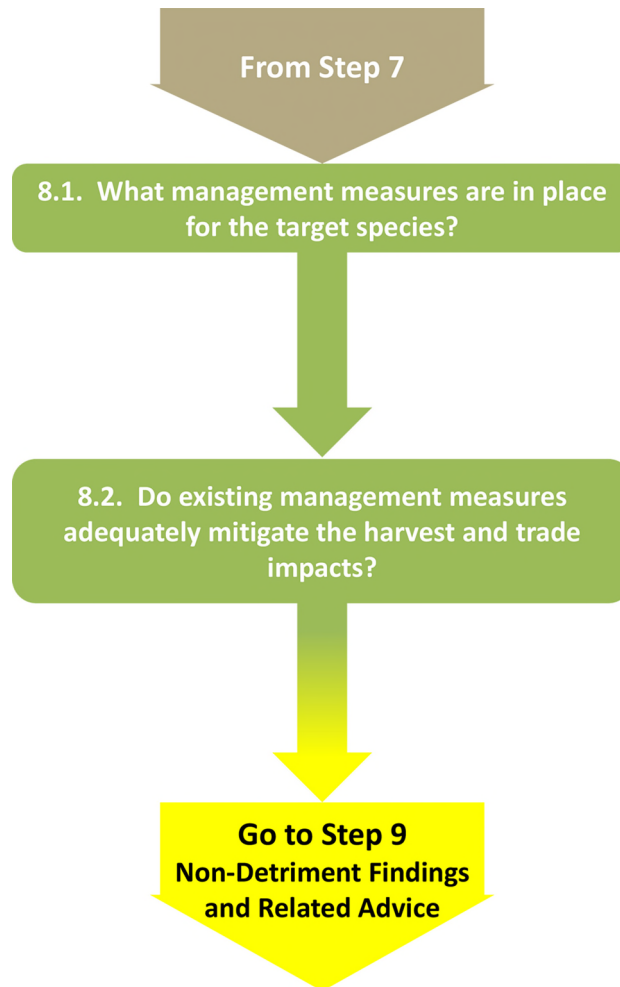


Figure 11: Key Question and Decision Path for Step 8.

Guidance for Step 8

Key Question 8.1. What management measures are in place for the target species?

Guidance Notes:

Referring to the **Factor Table for Step 8** below, and using the **Worksheet for Step 8.1**, record summary information about the existing management measures relevant to harvest and trade impacts identified in Steps 6 – 7. It is also possible to enter management measures directly into Step 8.2 matched with the impacts identified in earlier steps.

Recommended information quality: For species identified in Steps 6 – 7 as having low harvest impacts or trade impacts, this Guidance considers it sufficient for Scientific Authorities to use routine verification sources to gather any additional information needed about management measures in place to complete Step 8. For species identified in Steps 6 – 7 as “Medium”, “High”, or “Unknown” harvest impacts or trade impacts, the guidance considers the effort to consult available higher-quality information recommended to complete Step 8.

➔ Go to Key Question 8.2

Key Question 8.2. Do existing management measures adequately mitigate (= reduce the severity of) the harvest impacts and trade impacts identified?

Guidance Notes:

Worksheet for Step 8.2 allows for an evaluation of existing management measures in terms of mitigation of risk and a synopsis of the previous steps before arriving at the final step of the guidance. To this end, transfer the results of conservation concern (Step 4) and potential biological risk (Step 5) from the **Worksheets for Steps 4 and 5** into the upper part of **Worksheet for Step 8.2**.

Then transfer results of 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**.

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. Of the risks identified in previous steps, identify which are the most important to be adequately mitigated through management measures. If using the worksheets, identify the respective risks in the column titled “Key” with a Red Dot ●

In a third step, transfer the existing management procedures for the target species from **Worksheet for Step 8.1** to the lower part of **Worksheet for Step 8.2**. Place the existing management procedures against those trade and harvest impacts identified in Steps 6 and 7 which they can possibly mitigate.

In a last step, use the **Worksheet for Step 8.2** to evaluate whether management measures in place adequately mitigate the severity of harvest and trade impacts, based on the following conditions for appropriate management rigour:

- a) Management measures do not exist or are unknown to exist.
- b) Management measures exist but do not have the appropriate level of rigour in place to address the harvest and trade impacts.
- c) Management measures have the appropriate level of rigour required to mitigate harvest and trade impacts, but may not be implemented effectively or the results are unknown.

Guidance for Step 8

- d) There is evidence that the existing management measures are effectively implemented to mitigate harvest and trade impacts.

A precautionary approach in this Guidance treats “Unknown” concern, risk or impact as equal to a “High” level of severity, requiring intense management rigour.

Identify and record gaps between management measures required and those in place.

Taking the guidance into consideration, make an overall judgement of whether rigour of management measures in place is appropriate to the severity of harvest impacts, and trade impacts identified.

→Go to Step 9: Decision 9.8

Example: A species may be slow growing and produce few viable seeds (therefore identified as “high severity of biological risk” for those factors in Step 5). If wild collection targets fruits of mature plants, this would be non-lethal, but potentially have a high impact on the targeted populations by selectively targeting a limited resource important for population regeneration. The management measures in place would need to consider the maximum number or proportion of fruits that can be harvested without reducing the viability of the harvested population(s), and have a system in place to monitor the intensity and longer-term impacts of harvest.

Endpoint of Step 8: Based on available information, Scientific Authorities identify the level of rigour of management measures in place for the target species and populations, and evaluate whether these are appropriate and effective to mitigate (= reduce the severity of) the harvest impacts, and trade impacts identified in Steps 6 – 7.

Some like to have a method to visualize the information in Step 8 for Harvest Impact and Trade Impact and the overall Management assessments of the measures taken to address these. This is possible by producing a simple Radar Plot. To automatically produce a Plot complete the dedicated Radar Plot Table in worksheet 8.2 by following the instructions.

Useful Sources and Examples of Recommended Information Quality

All Species / Specimens Requiring a Detailed NDF

Routine verifications:

- Export permit application
- Conservation status assessments specifying existing management
- Information on existing quotas (and the basis for setting them), monitoring of harvest and trade levels and impacts, enforcement
- National legislation (conservation, harvest, trade of species concerned)

Species with Medium, High and Unknown Severity of Conservation Concern or Risk Identified in Steps 4 – 7

Existing qualitative information: • Approved local / national / state / provincial management plan(s) • Interviews with harvesters, traders, resource managers, enforcement officers, and other stakeholders along the supply chain • Harvester instructions, including harvest practices, impact mitigation measures, volume and quality controls	Existing quantitative information: • Quantitative monitoring in protected and harvest areas • Quantitative monitoring of domestic and export trade • Quantitative off-take thresholds (e.g., estimates of maximum sustainable yield, minimum viable population)
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Factors to Consider: Existing Management Measures

This table ranks management procedures relevant for harvest and trade against the rigour of management. These should be considered as examples of the types of management measures. It is not expected or necessary that management measures in place will have all of the characteristics outlined in this table.

Table 5: Factors to Consider: Existing Management Measures

Examples of Management of wild harvest impacts (Step 6)
Basic • Informal (usually verbal) harvest guidelines and controls describing accepted practices • Good practices defined as general guidelines (“rules of thumb”) • Local control over access to and use of harvest area
Moderate • Local management with clearly defined harvest controls; e.g., ○ Maximum / minimum age or size classes restrictions ○ Harvest seasons ○ Maximum harvest quantity (often expressed as a proportion of available plant parts / individuals) ○ Harvest frequency ○ Number of harvesters (per season) ○ Type and methods of use of harvest equipment • Monitoring of harvest controls
Comprehensive • Harvest guidelines and controls established based on estimated quantities of regulated (managed) versus unregulated (unmanaged including illegal) harvest • Approved and coordinated national and local (site specific) harvest management plans with clear monitoring requirements; e.g., ○ Maintaining harvest records ○ Documenting harvest practice

Examples of Management of wild harvest impacts (Step 6)	
	○ Resource inventory and yield data ○ Regeneration data ● Management approach is adaptive: e.g., ○ Regular review of harvest records ○ Regular harvest impact monitoring ○ Regular adjustment of harvest instructions ● Harvest restrictions (including quotas) based on research and monitoring results: e.g., ○ Estimated minimum viable population ○ Maximum sustainable harvest quantity ○ Proportion of mature, reproducing individuals to be retained ● Periods of allowed harvest determined using reliable and practical indicators (e.g., seasonality, precipitation cycles, flowering and fruiting times) and based on information about the reproductive cycles of target species. ● Demographic assessments (e.g. size or age-class distributions) use reliable and practical data (e.g.; plant diameter / DBH, height, fruiting and flowering, local harvesters' knowledge). ● Access to the harvest area defined, monitored and enforced by a recognized authority (e.g.; a local community, private landowner, government agency responsible for managing and regulating the harvest).
Examples of Management of trade impacts (Step 7)	
Basic	● Qualitative monitoring of trend of regulated and unregulated trade (increasing, stable, or decreasing)
Moderate	● Points in the trade chain (chain of custody) known and monitored ● Qualitative indicators of changes in supply and demand (both domestic and international) ● Qualitative indicators of scale and trend of trade (domestic and international) ● Qualitative indicators of regulated and unregulated trade ● Precautionary (limited data) export quotas
Comprehensive	● Export quota system based on biologically derived local and national data; annually reviewed; may specify product types ● Trade chain (chain of custody) well documented ● Quantitative indicators of changes in supply and demand (both domestic and international) ● Quantitative indicators of scale and trend of trade (domestic and international) ● Quantitative indicators / estimates of regulated / unregulated trade

STEP 9

NON-DETRIMENT FINDING AND RELATED ADVICE

Rationale: why is this step important?

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”².

These Steps and the related guidance support various outcomes, depending on:

- (Step 1) whether there are concerns about specimen identification
- (Step 2) whether the specimen(s) clearly meet(s) all requirements for artificial propagation according to Res. Conf. 11.11 (Rev. CoP18)
- (Step 3) whether the specimens can be excluded from a detailed NDF by legislation banning export, CITES listing annotations, or compliance with a previously made, science-based NDF
- (Step 8) whether existing management measures adequately mitigate (= reduce the severity of) harvest and trade impacts identified in Steps 6 – 7.

This Guidance additionally supports Scientific Authorities to gather, evaluate, and document relevant information for which the data quality is “proportionate to the vulnerability of the species concerned”³.

The task remaining 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.

² Resolution Conf. 16.7 (Rev. CoP17), Non-detriment findings [<http://www.cites.org/eng/res/16/16-07.php>]

³ Ibid.

Decisions for Step 9

Non-Detriment Findings and Related Decisions

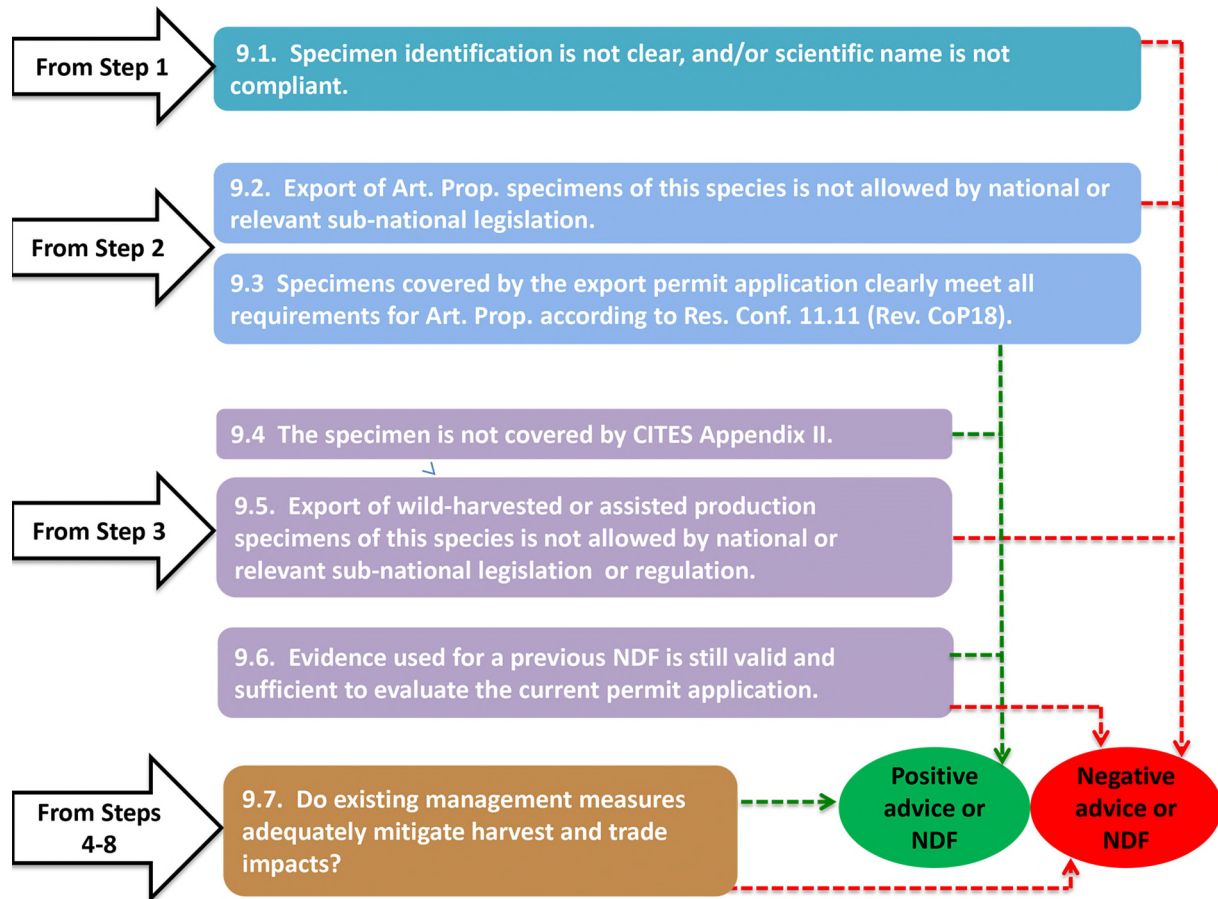


Figure 12: Summary of decisions which can be made in Step 9.

Guidance for Step 9

Decision 9.1

The outcome of Step 1, Key Question 1.1 is: The Scientific Authority is not confident that the plant / specimen concerned has been correctly identified, and / or that the scientific name used is compliant with the appropriate CITES Standard.

Guidance notes:

Without a clear taxonomic identification (i.e. the naming of the species is in accordance with the adopted CITES references) of the specimens involved, the Scientific Authority may be unable to confidently apply species-related information required to determine whether the proposed trade will not be detrimental to the survival of the species.

Guidance for Step 9

Concerns over the species' identity were identified by the Scientific Authority and were not easily corrected or resolved by consultation with the Nomenclature specialist of the Plants Committee or the Management Authority. Record the justification for this finding in the **Worksheet for Step 9, Outcome 9.1**.

The Scientific Authority's advice supported by this Guidance is ➔ **Negative advice**

If the Scientific Authority decides to make a positive NDF, the basis for the finding should be documented.

Decision 9.2

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

Guidance notes:

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 ➔ **Advise the MA that export should not be allowed.**

Record the basis for the decision in the **Worksheet for Step 9, Outcome 9.2** or refer to the response in the **Worksheet for Step 2, Key Question 2.2**.

If the Scientific Authority advises a positive decision (approval of the export permit), the basis for this advice should be documented.

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 according to Res. Conf. 11.11 (Rev. CoP18).

Guidance notes:

The Scientific Authority's advice to the Management Authority, supported by this Guidance, is ➔ **Approve export**

Record decision in the **Worksheet for Step 9, Outcome 9.3**.

Decision 9.4

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

Guidance notes:

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 for Step 9, Outcome 9.4**.

Guidance for Step 9

Decision 9.5

The outcome of Step 3, Key Question 3.2 is: Harvest or export of specimens of this species sourced from the wild or assisted production is not allowed by national or relevant sub-national legislation or regulation.

Guidance notes:

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

➔ **Advise the MA that export should not be allowed.**

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

Record decision in the **Worksheet for Step 9, 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 notes:

If there is a standing NDF, a previous NDF evaluation 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 for Step 9, Outcome 9.6.**

Decision 9.7

The outcome of Step 8, Key Question 8.2 is: Do existing management measures adequately mitigate (= reduce the severity of) harvest and trade impacts identified?

Guidance notes:

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 conditions or management advice" (e.g. upon verification of information or management measures, verification that exports remain within quota)**

Guidance for Step 9

➔ **Negative NDF** if the evaluation of available information indicates “No or Uncertain”, management measures in place are not sufficiently rigorous and effective. There may also be conditions or management advice that would need to be implemented before an NDF might be considered Positive.

Record decision in the **Worksheet for Step 9, Outcome 9.8**. Any Conditions relating to this process should be recorded in the worksheets. For more information on Conditions and management advice see CITES NDF Guidance module 1.

Endpoint of Step 9: Scientific Authorities make science-based positive or negative NDFs, or other relevant decisions concerning the proposed export of specimens, guided by the outcome of Steps 1 – 8 of this Guidance. NDFs are justified by evaluating whether the existing management procedures are appropriate and effective to mitigate (= reduce the severity of) the identified wild harvest impacts and trade impacts. If there is insufficient information to enable the Scientific Authority to determine with confidence that the proposed trade will not be detrimental to the survival of the population or species, the precautionary approach supports a negative NDF.

Quality of information gathered and evaluated (and the associated time and effort of the Scientific Authority) to support the NDF and related advice is appropriate to the severity of conservation concerns, potential biological risks, harvest impacts, and trade impacts identified.

In accordance with Res. Conf. 10.3, paragraph j, Scientific Authorities may define any permit adjustments, qualification, precautions, or information gaps that should be communicated to the CITES Management Authority.

Acknowledgements

We would like to thank all who contributed to the development of these Guidelines, including those that have provided invaluable expertise to the development of the 9-step Perennial Plants guide. Special thanks go to Uwe Schippmann and Danna Leaman who were instrumental and integral to the first versions of the Perennials Guidance.

Each training workshop, consultation and presentation that has been made on the 9-steps has provided invaluable feedback on how to improve the guidance. We have attempted to incorporate this in each revision and are hugely grateful to all of those that have provided their time and wisdom over the years.

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Many thanks also to the translators, French: Richard and Danièle Devitre, Spanish: Wendy Byrnes, and to Natalie Hofbauer for her patience and eye for detail in finalizing the pdfs.

References

Every effort has been made to ensure the links to documents are up to date. For CITES documents, if links do not work they should be possible to find through the CITES website. Resolutions may be updated at meetings of the CoP but these should be available through the Resolutions page.

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- Resolution Conf. 11.15 (Rev CoP18): Non-commercial loan, donation or exchange of museum, herbarium, diagnostic and forensic research specimens. – URL: <https://cites.org/sites/default/files/documents/COP/19/resolution/E-Res-11-15-R18.pdf>
- Resolution Conf. 12.11 (Rev. CoP19): Standard nomenclature; 24 pp. – URL: <https://cites.org/sites/default/files/documents/E-Res-12-03-R19.pdf>.
- Resolution Conf. 14.7 (Rev. CoP15): Management of nationally established export quotas; 3 pp. – URL: <https://cites.org/sites/default/files/documents/COP/19/resolution/E-Res-14-07-R15.pdf>.
- Resolution Conf. 16.7 (Rev. CoP17): Non-detriment findings. – URL: <https://cites.org/sites/default/files/documents/COP/19/resolution/E-Res-16-07-R17.pdf>.
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Weblinks

- BGCI ThreatSearch: <https://www.bgci.org/resources/bgci-databases/threatsearch>
- BGCI ThreatSearch: <https://www.bgci.org/resources/bgci-databases/threatsearch>
- Botanical Information and Ecology Network (BIEN): <https://bien.nceas.ucsb.edu/bien/>
- CITES export quotas: <https://cites.org/eng/resources/quotas/index.php>
- CITES glossary: <https://cites.org/eng/resources/terms/glossary.php>
- CITES NDF portal: <https://cites.org/eng/prog/ndf/index.php>
- CITES Review of Significant Trade Management System: <http://sigtrade.unep-wcmc.org/>
- CITES Trade Database: <https://trade.cites.org/>
- EU-TWIX: <https://www.eu-twix.org/>
- GeoCat – Geospatial Conservation Assessment Tool: <https://geocat.kew.org/>

Global Biodiversity Information Facility (GBIF): <https://www.gbif.org/>
IUCN Red List of Threatened Species: <http://www.iucnredlist.org>
IUCN Red List of Threatened Species: <https://www.iucnredlist.org/>
LEMIS, US Fish and Wildlife Service: <https://lemis.fws.gov/>
Medicinal Plant Names Services Royal Botanic Gardens, Kew: <https://mpns.science.kew.org/mpns-portal/>
National Red Lists: <http://www.nationalredlist.org/>
NatureServe Explorer (United States and Canada): <https://explorer.natureserve.org>
Nomenclature specialist of the CITES Plants Committee: <https://cites.org/eng/com/pc/member.php>
Plant Resources of Tropical Africa (PROTA): <https://prota4u.org/database/>
Plants of the World Online: <http://apps.kew.org/wcsp/home.do>
Protected Planet – Species biological data and information: <https://www.protectedplanet.net/en>
Regional Red List Assessments: <https://www.iucnredlist.org/about/regional>
Species+: <http://www.speciesplus.net/>
Tropicos: <https://tropicos.org/home>
WFO Plant List: <https://wfoplantlist.org/plant-list>

Appendix: Tools for recording NDFs

Consolidated Worksheets and Draft Report Format

- [Excel Worksheets for Download](#) (also reproduced below)
- [Decision Tree \(online\) to store information.](#)

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: Guidance for Perennial Plants. 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

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

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

Information Sources Consulted

This table can be used to keep a detailed record of information sources consulted to make the NDF. This record will be helpful in compiling and justifying the NDF (Steps 1-9).

Level of confidence in information source

- High: up-to-date, directly relevant to the species concerned, published and peer-reviewed; reference recognized by CITES
- Medium: somewhat dated, indirectly relevant to the species concerned, unpublished or not peer-reviewed
- Low: out-of-date, less relevant to the species concerned

Citation used in Worksheets for Steps 1-9	Information source (Full reference)	Relevant Steps	Level of confidence in source
<i>[Number, author & date, or alternative preferred format]</i>		<i>[Steps to which this source contributed information]</i>	<i>[high, medium, low]</i>

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 plant/specimen concerned has been correctly identified, and, is the scientific name used compliant with the appropriate CITES Standard?	Conditions a and b are met OR the Scientific Authority has corrected a simple error or out-dated name and taxonomic concerns have been resolved	yes	X	Describe concerns or error(s) resolved below	Go to step 2
	Conditions a and b are not met	no	X	Describe concerns or unresolved error(s) below	Go to Step 9: Decision 9.1
	Concerns cannot be resolved by the Scientific Authority or referral to the MA or the Nomenclature Specialist of the CITES Plants Committee				
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	Go to Key Question 2.2	
	no	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	Describe relevant legislation below	Go to Key Question 2.3
	no	Describe relevant legislation below	Go to Step 9: Decision 9.2
Describe relevant legislation: [text]			
2.3 Do the specimens covered by the export permit application clearly meet all requirements for artificial propagation according to Res. Conf. 11.11 (Rev. CoP18)?	yes	Describe requirements met below	Go to Step 9: Decision 9.3
	no	Describe unmet requirements below	Go to Key Question 2.4
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. Is the specimen covered by CITES Appendix II?	yes	X	Go to Key Question 3.2	
	no	X	Go to Step 9: Decision 9.5	
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 specimens of this species sourced from the wild or assisted production allowed?	yes	X	Go to Key Question 3.3	
	no	X	Go to Step 9: Decision 9.6	
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 is sufficient to evaluate the current export permit application?	yes	X	Go to Step 9: Decision 9.7	
	no	X	Go to Step 4	
Previously made NDF: [text]				

Non-Detriment Finding (NDF)

Step 4: Conservation Concern

4.1 Conservation status assessments

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

4.2 Overall severity of conservation concern of selected assessment

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

High	Med	Low	Unk	Information sources used

Copy grey section into spreadsheet
Step8.2_Summary

Non-Detriment Finding (NDF)

species name filled on Info_Page

Step 5: Potential Biological Risks

Refer to the factor table for step 5 in the Guidance document

Factor	Risks	High	Med	Low	Unk	Information sources used	Confidence level
local harvesting risk							
geographic distribution	[insert extra lines if needed]						
abundance							
habitat specificity							
role in ecosystem							



local harvesting risk					
geographic distribution					
abundance					
habitat specificity					
role in ecosystem					

Summary of intrinsic risk:

Copy grey section into spreadsheet Step8.2_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
<i>on target population</i>							
	[insert extra lines if needed]						
<i>on national population</i>							
<i>on ecosystem</i>							

Copy grey section into spreadsheet Step8.2_Summary

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
Impact severity on harvest area population							
Magnitude and trend of legal trade							
	[insert extra lines if needed]						
Magnitude of illegal trade							

Copy grey section into spreadsheet Step8.2_Summary

Non-Detriment Finding (NDF)

species name filled on Info_Page

Step 8.1: Management measures in place

Refer to the factor table for step 8 in the Guidance document

HARVEST Management measures	Information sources used	Confidence level

TRADE Management measures	Information sources used	Confidence level

Copy grey sections
into spreadsheet
Step8.2_Summary

species name filled on Info_Page

[illegible]

1) Copy the red dot into the column "Key" to indicate whether one or several of the factors contribute to the impact on the species above average (key factors) and thus have to be valued higher than other factors.

Non-Detriment Finding (NDF)

species name filled on Info_Page

Step 9: Non-Detriment Finding and Related Advice

Possible Outcomes of the NDF process based on this Guidance are listed in in this worksheet. Each export permit application should have just one of the following outcomes. 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
9.1. The outcome of Step 1, Key Question 1.1 is: <i>The Scientific Authority is not confident that the plant/specimen concerned has been correctly identified, and that the scientific name used is compliant with the appropriate CITES Standard</i>	☒ Negative NDF ☒ Positive NDF ☒ Other: e.g., Negative NDF pending referral to the Management Authority Justification for the advice of Scientific Authority: <i>[Summary, or refer to Worksheet 1, Key Question 1.1]</i>
9.2. The outcome of Step 2, Key Question 2.2 is: <i>Export of artificially propagated specimens of this species is not allowed by national or relevant sub-national legislation</i>	☒ Negative decision (recommend denying export permit) Justification for advice of Scientific Authority: <i>[Summary, or refer to Worksheet 2, Key Question 2.2]</i>
9.3. The outcome of Step 2, Key Question 2.3 is: <i>Specimens covered by the export permit application clearly meet all requirements for artificial propagation according to Res. Conf. 11.11 (Rev. CoP18)</i>	☒ Positive decision (recommend approving export permit) Justification for advice of Scientific Authority: <i>[Summary, or refer to Worksheet 2, Key Question 2.3]</i>
9.4. The outcome of Step 3, Key Question 3.1 is: <i>The specimen is not covered by CITES Appendix II</i>	☒ CITES Export permit not required Justification for advice of Scientific Authority: <i>[Summary, or refer to Worksheet 3, Key Question 3.1]</i>
9.5. The outcome of Step 3, Key Question 3.2 is: <i>Export of wild-harvested specimens of this species is not allowed by national or relevant sub-national legislation or regulation</i>	☒ Negative decision (recommend denying export permit) ☒ Other: e.g., Negative NDF pending referral to the Management Authority to investigate Justification for advice of Scientific Authority: <i>[Summary, or refer to Worksheet 3, Key Question 3.2]</i>
9.6. The outcome of Step 3, Key Question 3.3 is: <i>Science used for a previous NDF is still valid and sufficient to evaluate the current export permit application</i>	☒ Positive NDF, proposed export is within the parameters of the previous NDF ☒ Negative NDF, proposed export is not within the parameters of the previous NDF Justification for advice of Scientific Authority: <i>[Summary, or refer to Worksheet 3, Key Question 3.3]</i>
9.7. Step 8, Key Question 8.2 is: <i>Do existing management measures adequately mitigate (reduce the severity of) harvest and trade impacts identified?</i>	☒ Positive NDF if the evidence indicates "Yes" or "Yes, with specific conditions or management advice" ☒ Negative NDF if the evidence indicates "No or Uncertain" . Conditions may be given that would be necessary to consider a positive NDF in future ☒ Other: e.g., Negative NDF pending additional information required to evaluate harvest impacts or trade impacts or management Justification for advice of Scientific Authority: <i>[Summary, or refer to Worksheet 8, Key Question 8.2]</i> Specific conditions, management procedures, precautions, other actions that need to be undertaken to ensure the survival of the species: <i>(Please list any such recommended actions below)</i>

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