

1. Information about the target species or related species

List and briefly describe the elements that could be considered when making Non-detriment findings:

1.1. Biological and species status:

General (all species):

- Population size (small populations pose a greater risk)
- Species id (need to be able to determine what species is being traded)
- Threat status
- Population structure (mainly need to determine relative numbers of adults, juveniles, seedlings)
- Recruitment
- Recovery after harvesting,

Specific instances:

- Habitat condition (as an indicator of other impacts on the population)
- Pollinators (cycads and many succulents have specific pollinators)
- Population health (e.g dead-live ratios, infections, predation)
- Growth rates (individual growth rates)
- Mortality (where harvesting of dead material is important)

1.2. Takes/uses (e.g. harvest regime):

- Trade history (what volume has been harvested in the past)
- Frequency of harvest (sporadic, continuous, once off..)
- Harvest method (destructive/ non-destructive)
- Quantities (material harvested)
- Part of the plant being harvested (removal of whole adult plant, seedlings/ juveniles, seed, leaves, bark, male cone, fruits, stems)

1.3. Management, monitoring and conservation:

- Existing management plan (incl. traditional systems)
- Prescribed methodologies exist and are being used for surveys & assessments;
- Adherence to management plan
- Regular monitoring is taking place (e.g. live/dead ratios, recruitment, recovery)
- Artificial propagation (in situ/ ex situ)
- Extent of illegal trade

2. Field methodologies and other sources of information.

List and describe examples of field methodologies and other sources of information for monitoring populations and/or regulating harvests which could be utilized to obtain data on the elements described below.

2.1. Biological and species status data:

- Red data lists
- Population surveys
- Checklists and Floras
- ID manuals/ field keys
- Use of GPS; GIS
- Transect and plot methods; cluster sampling;
- GARP
- Interviews with stakeholders
- DNA methods (in development)
- Demographic models

2.2. Harvesting and trade data:

- Resource assessment
- Interviews with stakeholders
- Permit data
- Import/ export data
- Measurements of harvest
- Data from local markets
- Monitoring of recovery after harvest

3. Data integration for NDF elaboration

List and/or describe data integration that could be helpful in formulating the non-detriment finding.

- Biological data (to determine production) and market data (to determine demand) integrated to determine whether offtake is likely to impact populations;
- spatial information on species abundance and harvesting to ensure that NDF accounts for possible clustering of trade in specific areas;
- Harvesting history and trends;
- Type, method, and frequency of harvesting and its impact on vulnerable stages
- management plan (with monitoring programme)
- information on threats (e.g. invasives, habitat degradation) with information on sites where harvesting occurs
- threat data, spatial distribution, and harvesting data
- legal and illegal harvest values (socio-economic information)

4. List and describe the ways data quantity and quality may be assessed

HIGH CONFIDENCE NDFs

1. Distribution range
2. Species Id
3. Population size
4. Population structure
5. Conservation status
6. Vulnerable stages
7. Genetic diversity data (structure)
8. Recruitment data
9. Recovery span of leaf-stems-flower removals
10. Life span
11. Harvest capacity
12. Trade frequency and intensity
13. Management plan
14. Monitoring actions / plots

MEDIUM CONFIDENCE NDFs

1. Distribution range
2. Species Id
3. Population size
4. Conservation status
5. Trade frequency and intensity
6. Vulnerable stages
7. Some data related to the recovery span of leaf-stems-flower removals

LOW CONFIDENCE NDFs

1. Distribution range
2. Species Id
3. Population size
4. Conservation status
5. Trade frequency and intensity
6. Basic life history information on vulnerable stages

5. Summarize the common problems, error, challenges or difficulties found on the elaboration of NDF.

- Identification of species in trade (species & commodities)
- Mixed sources of specimens in trade (wild & artificially propagated; in situ and ex situ nurseries)
- Limits to generalization
- Lack of finances
- Lack of information on resilience to harvesting
- Uncertainty about the extent of illegal trade
- Incomplete information across the range of the species
- Inadequate monitoring and feedback
- Climate change
- To avoid situations where ex situ production undermines in situ conservation efforts
- Challenge: good set of information for all the species listed on CITES
- Capacity in country to generate relevant information

6. Summarize the main recommendations which could be considered when making an NDF for this taxonomic group.

- Adopt a generally precautionary approach because these groups have a high number of threatened species;
- If there is certainty about the species and the source, and the trade involves a low risk activity, then its relatively easy to make an NDF from basic sources (e.g. Distribution range, Population size, conservation status, trade frequency and intensity, basic life history information on vulnerable stages)
- Cycads & succulents are relatively well known groups so scientific authorities should consult experts and utilize the substantial data sources;
- Compile a database of experts and primary data sources;
- IUCN Global Cycad Assessment will have very good basic information as a starting point for NDFs
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7. Useful references for future NDF formulation.

- WCMC database
- National databases on trade
- IUCN/ SSC Cycad Action Plan / IUCN/SSC 'cactus & succulent' Action Plan
- IUCN Cycad conservation assessment database
- IUCN Red list and national red lists
- Published information (journals & books, including Floras and checklists)
- CITES identification manuals and checklists
- PlantNet website for cycads
- Catalogues of species in trade (including websites)
- Societies and specialist groups