

Factors to be considered during a CITES Non-Detriment Finding

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This table summarizes the “relevant elements that should be taken in consideration in order to formulate adequate NDFs”². This synopsis follows primarily the tables 1 and 2 of the IUCN NDF Checklist and also takes on board additional elements from other documents:

- (1) IUCN NDF Checklist³
- (2) Cancun Workshop Case Study Format⁴
- (3) EU-SRG Guidance Paper⁵
- (4) International Standard for the Sustainable Wild Collection of Medicinal and Aromatic Plants, ISSC-MAP⁶
- (5) Susceptibility Matrices provided by Cunningham and Peters⁷.

With the ISSC standard it was possible to underpin the factors “Management Plan” and “Monitoring Methods” with more detailed criteria. These sections are shaded in **blue** and **green**. A third factor imported from ISSC-MAP is the “Role of the species in the ecosystem” (shaded **red**) which is currently not covered in the IUCN Checklist.

Factors to be assessed	Explanation	Ref
Harvest characteristics (Table 1)		1
<ul style="list-style-type: none"> • Type of harvest 	<ul style="list-style-type: none"> • Harvesting regime: extractive versus non extractive harvesting, harvesting effort, harvesting method, harvest season; extent to which utilization is from artificially propagated or wild specimens • Distinguish Non-lethal harvesting; removal of whole plant (incl. bulbs); killing of individual by removal of seeds, leaves, bark, roots, wood 	1, 2
<ul style="list-style-type: none"> • Harvest specificity 	<ul style="list-style-type: none"> • Indiscriminate collection of other species vs. target species easy to identify 	5
<ul style="list-style-type: none"> • Multiple use 	<ul style="list-style-type: none"> • Multiple, conflicting uses vs. single use or non-competing 	5
<ul style="list-style-type: none"> • Demographic segment of population 	<ul style="list-style-type: none"> • Are mature and immature plants harvested? 	1, 2
<ul style="list-style-type: none"> • Relative harvest volume 	<ul style="list-style-type: none"> • Quantitative information on numbers or quantity, if available; otherwise, a qualitative assessment; include also illegal trade • Trade level: High – medium – low • Yield per plant: Low – medium – high 	1, 5
<ul style="list-style-type: none"> • Utilization trend 	<ul style="list-style-type: none"> • Increasing fast <> Slowly increasing <> Stable or decreasing 	5
<ul style="list-style-type: none"> • Regulated / unregulated 	<ul style="list-style-type: none"> • “Regulated” refers to a sanctioned (government approved or otherwise official) harvest that is under the full control of the manager • Quantify the level of legal and illegal national use plus export 	1, 2
<ul style="list-style-type: none"> • Reason for harvest 	<ul style="list-style-type: none"> • Forces driving the harvest, e.g. commercial, medicinal, subsistence hunting, sport hunting, trophies, pet, food 	1, 2
<ul style="list-style-type: none"> • Commercial destination 	<ul style="list-style-type: none"> • Local, national, international 	1, 2
<ul style="list-style-type: none"> • Information quality 	<ul style="list-style-type: none"> • Assess the quality of the information and where necessary, prioritise steps to improve data quality 	3
Biological characteristics (Table 2)		
<ul style="list-style-type: none"> • Scientific (and common) names 	<ul style="list-style-type: none"> • Correct taxonomy and nomenclature, incl. synonyms 	2

Factors to be assessed	Explanation	Ref
• Life form	• Basic life forms for plants: tree, shrub, perennial, annual, bulb, climber, epiphyte, etc.	1, 5
• Reproduction	• Regeneration or reproductive strategy: dioecious, sexual, asexual • Pollination: biotic (specialised vector?), wind • Pollinator abundance • Flower/Fruit phenology: annual, supra-annual, unpredictable	2, 5
• Dispersal	• Seed germination: viability, dormance • Seed dispersal strategy • Disperser abundance • Dispersal efficiency	1, 5
• Regeneration	• Capacity of the species to reproduce; four basic types of regeneration potential are distinguished • Growth rate • Sprouting capability • Regeneration Guild: Early Pioneer <> Late Secondary <> Primary	1, 5
• Habitat	• Preference: Types of habitats occupied by the species and, when relevant, the degree of habitat specificity • Specificity • Habitat threat	1, 2, 5
• Risk of mortality after harvest / before export	• For species where trade is primarily in live specimens	3
• Role of the species in its ecosystem	• Negative impacts caused by [...] collection activities on other wild species, the collection area, and neighbouring areas shall be prevented.	2, 4
	2.1 Rare, threatened, and endangered species and habitats that are likely to be affected by [...] collection and management are identified and protected.	4
	2.1.1 Existing species and habitat conservation strategies relevant to the collection area are recognized and included in the management plan.	4
	2.1.2 Knowledge of special functions in the ecosystem / dependent relationships between target [...] and other species is documented and incorporated into management and monitoring.	4
	2.2 Management activities supporting wild [...] collection do not adversely affect ecosystem diversity, processes, and functions	4
	2.2.1 The habitat management practices applied in the collection area are described.	4
	2.2.2 Negative impacts of [...] collection practices and management activities on the collection area are identified in the management plan.	4
	2.2.3 Implemented collection methods & tools are appropriate: damage to the plant/plant population is minimised.	4
	2.2.4 The management plan [...] includes strategies to prevent or reduce negative impacts on other species and the collection area.	4
	2.2.5 Changes in ecosystem structure, function, and services are monitored and reported	4
	2.2.7 Landscape-level and intensive management practices promoting [...] resources (e.g. overstorey reduction, enrichment planting) do not negatively affect sensitive species or the ecosystem structure, diversity processes and functions in the collection area.	4
Population status		

Factors to be assessed	Explanation	Ref
• Distribution	• Currently known global range of the species	2, 5
• Global conservation status	• According to IUCN Red List	2
• Global population size and trend	• this type of data also needed to evaluate the IUCN red listing criteria: population reduction, extent of occurrence, area of occupancy, population size, number of populations	2
• National conservation status	•	2
• National distribution	• Currently known range of the species in the country; indicate whether or not the distribution of the species is continuous, or to what degree it is fragmented. if possible, provide a map	1, 5
• National abundance	• Local population sizes: Everywhere small <> Large to medium <> Often large • Spatial distribution: Scattered <> Clumped <> Homogeneous	1, 5
• National population trend	• Population increasing or decreasing? to be measured over a time period independent of the harvest	1
• Major threats	• Assess severity of the impact of the major threat • habitat loss / degradation; invasive alien species (directly affecting the species); harvesting; persecution (e.g. pest control); pollution (affecting habitat and/or species)	1, 2
• Information quality	• Assess the quality of the information and where necessary, prioritise steps to improve data quality	1
Harvest management		
• Illegal harvest or trade	• How significant is the national problem of illegal or unmanaged harvest or trade? Assess the levels of both unmanaged and illegal harvest	1
• Management history	• What is the history of harvest? Is the harvest ongoing or new?	1, 2
• Management plan	• Is there a management plan related to the harvest of the species? Purpose of the management plan; general elements of the management plan	1, 2, 4
	5.1 A species / area management plan defines adaptive, practical management processes and good collection practices.	4
	5.1.1 A management plan for sustainable collection exists.	4
	5.1.2. The management plan includes: a) Plant and habitat conservation strategies b) Internal quality standard according to indicator 6.1.2 c) Documented procedures required by this Standard (e.g. monitoring, measurements and analysis of impacts of collection practices) d) Documents needed by the wild collection company / organization to ensure the effective planning, operation and control of its processes e) Records and documents required by this Standard.	4
	5.1.4 The management plan is reviewed at regular intervals on a timeframe specified in the plan to ensure its continuing suitability, adequacy, and effectiveness in meeting the objectives of this Standard.	4
	5.1.5 The management plan takes into consideration any management plan that refers to the collection area and that is produced by the appropriate resource management authority.	4
	5.1.6 Overlapping and adjacent protected areas and areas with special management objectives are identified.	4
	5.1.7 Other activities in the area representing potential threats on sustainability of species and habitat are identified (e.g. other collectors in the same	4

Factors to be assessed	Explanation		Ref
		area).	
	5.1.12	Written internal instructions exist for each collection area on: a) collection sites, b) collection methods, c) maximum collection quantities, d) maximum allowed collection frequency, and e) periods to avoid and concentrate collection activities.	4
• Aim of harvest		• What is harvest aiming to achieve? Conservation benefit, population control, commercial benefit?	1
• Quotas		• Is the harvest based on a system of quotas? What is their basis ?	1
• Restoration or alleviation measures		•	2
• Legal framework and law enforcement		• National and international legislation relating to the conservation of the species	2
Control of harvest			
• % of harvest in state PA		• What percentage of the legal national harvest occurs in State-controlled Protected Areas?	1
• % of harvest in areas of strong tenure		• What percentage of the legal national harvest occurs in areas with strong local control over resource use? e.g.: a local community or a private landowner is responsible for managing and regulating the harvest	1
• % of harvest in open access areas		• What percentage of the legal national harvest occurs in areas where there is no strong local control, giving de facto or actual open access?	1
• Confidence in harvest management		• Do budgetary and other factors allow effective implementation of management plan(s) and harvest controls?	1
Monitoring of harvest			
• Monitoring method		• What is the principal method used to monitor the effects of the harvest? Direct population estimates; quantitative indices; qualitative indices; national monitoring of exports	1, 2
	1.2	[..] Collection and management practices are based on adequate identification, inventory, assessment, and monitoring of the target species and collection impacts.	4
	1.2.2	Management strategies are defined and implemented to reduce identified threats to species considered "vulnerable" according to the IUCN Red List.	4
	1.2.3	[..] Species targeted for collection and their geographic sources are accurately and adequately identified with voucher specimens from the collection site.	4
	1.2.5	Internal collection instructions define collection methods for each target [...] species / part of plant based on appropriate sources of information and knowledge of biological characteristics of the species.	4
	1.3	The rate (intensity and frequency) of [...] collection does not exceed the target species' ability to regenerate over the long term.	4
	1.3.1	Baseline information is available on target species' population size, distribution, and structure (age classes) in the collection area.	4
	1.3.2	Maximum allowed collection quantities are defined in the internal collection instructions for each species/ part of plant and for each collection area.	4
	1.3.3	Collection quantities are defined using reliable and practical measurements (e.g., volume, weight, number).	4

Factors to be assessed	Explanation	Ref	
<ul style="list-style-type: none"> Confidence in monitoring 	1.3.4	When appropriate and adequate knowledge / information is not available, a data collection programme is undertaken and any ongoing collection takes a precautionary approach (collected quantities below potential production).	4
	1.3.5	The proportion of mature, reproducing individuals to retain in the target populations for collection is determined to maintain a baseline population density and a baseline structural and genetic diversity.	4
	1.3.6	Minimum and maximum age / size class allowed for collection is defined for the target species and collection site in the internal collection instructions.	4
	1.3.7	The age / size-classes are defined using reliable and practical characters (e.g., plant diameter / DBH, height, fruiting and flowering, local collectors' knowledge).	4
	1.3.8	Maximum allowed frequency of collection of the target species, defined in the collection instructions, does not exceed the rate of replacement of adult individuals or plant part collected in the collection region.	4
	1.3.9	Periods allowed for collection are determined using reliable and practical indicators (e.g., seasonality, precipitation cycles, flowering and fruiting times) and are based on information about the reproductive cycles of target [...] species.	4
	1.3.10	Consolidated data on collected quantities are available (species/area/year) and confirm compliance with collection instructions.	4
	1.3.11	Collection quantities, periods and frequency of collection are recorded and confirm compliance with collection instructions.	4
	5.2	Management of [...] wild collection is supported by adequate and practical resource inventory, assessment, and monitoring of collection impacts.	4
	5.2.1	Assessment and regular monitoring of the target [...] resources and habitats, and of social / cultural and economic issues related to [...] collection are performed, documented, and incorporated into the management plan.	4
	5.2.2	Collection instructions specify observations required to monitor collection impacts.	4
	5.2.3	Periodic regeneration surveys are conducted within the management area using repeatable, comparable survey methods.	4
	5.2.4	Population size, distribution, and structure (age/size-class distribution) as recorded in the regeneration survey remain equal to or above baseline values and reflect a healthy population.	4
	5.2.5	Periodic monitoring within the management area confirms that availability, viability and quality of the target resource / part of plant remain stable or increase.	4
<ul style="list-style-type: none"> Confidence in monitoring 	<ul style="list-style-type: none"> Do budgetary and other factors allow effective harvest monitoring? Evaluation of data quantity and quality 	1, 2	
Incentives and benefits from harvest			
<ul style="list-style-type: none"> Effect of harvest compared with other threats 	<ul style="list-style-type: none"> What is the effect of the harvest when taken together with the major threat that has been identified for this species? 	1	
<ul style="list-style-type: none"> Species conservation incentive from harvesting/ trade 	<ul style="list-style-type: none"> At the national level, how much conservation benefit to this species accrues from harvesting? 	1	
<ul style="list-style-type: none"> Habitat conservation incentive from harvesting / trade 	<ul style="list-style-type: none"> At the national level, how much habitat conservation benefit is derived from harvesting? 	1	
<ul style="list-style-type: none"> Other conservation benefits 	<ul style="list-style-type: none"> 	3	
<ul style="list-style-type: none"> Local and other benefits 	<ul style="list-style-type: none"> 	3	
Protection from harvest			

Factors to be assessed	Explanation	Ref
<ul style="list-style-type: none"> Proportion of range or population protected from harvest 	<ul style="list-style-type: none"> What percentage of the species' natural range or population is legally excluded from harvest? 	1
<ul style="list-style-type: none"> Confidence in effectiveness of strict protection measures 	<ul style="list-style-type: none"> Do budgetary and other factors give confidence in the effectiveness of measures taken to afford strict protection? 	1
<ul style="list-style-type: none"> Effectiveness of regulation of harvest effort 	<ul style="list-style-type: none"> How effective are any restrictions on harvesting (such as age or size, season or equipment) for preventing overuse? 	1

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² NDF Workshop Doc.1, page 2. http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/Links-Documentos/WebPage%20-%20NDF%20Workshop%20Doc.%201%20-%201Sept08.doc

³ Rosser & Haywood (2002): Guidance for CITES Scientific Authorities. Checklist to assist in making non-detriment findings for Appendix II exports. - xi+146 pp., IUCN, Gland and Cambridge

⁴ NDF Workshop Doc.3, http://www.conabio.gob.mx/institucion/cooperacion_internacional/TallerNDF/Links-Documentos/WebPage%20-%20Format%20-%2023%20May%2008.doc

⁵ Duties of the CITES Scientific Authorities and Scientific Review Group under Regulations 338/97 and 865/2006. <http://ec.europa.eu/environment/cites/pdf/srg/guidelines.pdf>

⁶ http://www.floraweb.de/proxy/floraweb/map-pro/Standard_Version1_0.pdf

⁷ CUNNINGHAM (2001): Applied ethnobotany. Earthscan; PETERS (1994): Sustainable harvest of non-timber forest plant resources in tropical moist forest. An ecological primer. - WWF Biodiversity Support Program, Washington.

Cancun case studies: Matrix Lifeform vs. Plant Part

Case studies Matrix Lifeform PlantPart.doc

Life form	Case study	Country	Plant part used
Tree	<i>Caesalpinia echinata</i>	BR	wood
Tree	<i>Pericopsis elata</i>	CM	wood
Tree	<i>Guaiacum sanctum</i>	MX	wood, extract
Tree	<i>Swietenia macrophylla</i>	PE, BO, BR	wood
Tree	<i>Gonystylus bancanus</i>	MY	wood
Tree	<i>Aquilaria malaccensis</i>	MY	wood
Tree	<i>Prunus africana</i>	CM	bark
Tree	<i>Taxus species</i>		bark, needle, extract
Perennial	<i>Tilandsia xerographica</i>	GT	live plant
Perennial	<i>American ginseng</i>	CA, US	root
Perennial	<i>Pelargonium sidoides</i>	LE	root
Perennial	<i>Nardostachys grandiflora</i>	NP	root
Perennial	<i>Cibotium barometz</i>	CN	root
Succulent	<i>Hoodia gordonii</i>	ZA	whole plant
Succulent	<i>Aloe species</i>	KE	leaves, (root)
Succulent	<i>Carnegiea gigantea</i>	MX	live plant
Cycad	<i>Dioon edule</i>	MX	seed, (live plant)
Cycad	<i>Ceratozamia mirandae</i>	MX	live plant, seeds, leaves
Cycad	<i>Encephalartos species</i>	ZA	live plant, seeds, bark
Cycad	<i>Cycas circinalis</i>	IN	live plant
Geophyte	<i>Galanthus elwesii</i>	TR	live plant
Geophyte	<i>Galanthus woronowii</i>	Georgia	live plant
Epiphyte	<i>Vanda coerulea</i>		live plant
Epiphyte	“orquídeas”	EC	live plant
Epiphyte	<i>Ansellia lindl.</i>	KE	live plant