

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



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Non-Timber Forest Products

CITES IMPLEMENTATION FOR MEDICINAL PLANT SPECIES

1. This document has been submitted by the Secretariat in relation to agenda item 20.

Relevance of medicinal plant species: conservation and trade

2. Medicinal plants are a particularly prominent category of non-timber forest products (NTFP), with important overlaps with plant products used for nutrition, spices, cosmetics and decoration. Medicinal plants are, arguably, the largest among those categories. The number of medicinal plant species in use worldwide has been, tentatively, estimated in the range of 50,000 to 70,000 (Schippmann et al. 2006). In the 90's, some 3000 among those were reportedly traded internationally (Lange and Schippmann 1997), but more recent information does not seem to be available. This confirms World Health Organization (WHO) estimates that the global market for medicinal plant products is substantial ([WHO traditional medicine strategy 2014-2023](#)).
3. Approximately two thirds of the medicinal plant species are being sourced from the wild, and relatively few are cultivated at any large scale (Canter 2005, Schippmann 2002). An estimated 15,000 medicinal plant species (some 20%) are threatened through overharvesting, habitat loss, climate change, and illegal international trade (Schippmann et al. 2006). Sustainable harvest and legal trade are therefore key to ensure the sustainable use of medicinal plants, which makes this group of taxa particularly relevant to CITES.
4. Medicinal plant species are amongst the most important NTFPs in trade, but many trade statistics do not distinguish between medicinal plant products, and other medical products and services. According to the WHO, the output of the Chinese *materia medica* amounted to USD 83 billion in 2012, an increase of more than 20% from the previous year. Annual expenditures on traditional medicine in the Republic of Korea were USD 7.4 billion in 2009, and out of pocket spending for natural products in the United States of America was USD 14.8 billion in 2008 ([WHO traditional medicine strategy 2014-2023](#)). The European market for herbal supplements and herbal medicines is currently worth USD 7.4 billion per year (Heinrich et al. 2018). The international trade in medicinal plant material in 2017 (customs code HS1211, as reported by COMTRADE) amounted to 376,000 tons valued at USD 1.94 billion (exports), and 632,000 tons valued at USD 2.6 billion (imports). From 2001-2014, annual average growth rates of 2.4% in volume and 9.2% in export value of medicinal plant material were observed. Important supply sources are: China and India from Asia; Egypt and Morocco from Africa; Albania, Bulgaria and Poland from Europe; and Chile and Peru from South America. The European Union, Japan and the United States of America are the major consumers (Vasisht 2016). However, none of these market studies distinguishes between cultivated or wild origins.
5. The limited information on medicinal plant markets is also reflected in a lack of understanding of NTFP markets in general, even in economically advanced countries. While there is a basic understanding of the overall NTFP industry, markets, and distribution channels in the United States of America, Chamberlain et al. (2018), report the lack of knowledge about the size and structure of the formal and informal NTFP markets as one of the greatest obstacles to creating effective regulations for NTFP use, and remark that no one classification scheme adequately summarizes production pattern of the NTFP sector. Tracking supply chains of NTFP's that have high economic value, are harvested heavily, or that are rare or rapidly declining is described as vital for management decisions, and is stated to be most effective when it is part of a system that also monitors plant populations and engages market participants.

Relevance of medicinal plant species: health, livelihoods, ecological knowledge, and international policy

6. Medicinal plants are a highly salient class of NTFP due to their immediate relevance to local, national and global health. WHO estimates that 80% of the population across the developing world is depending on health services provided by traditional medical systems, and 50% of the population in the developed world uses alternative or complementary medicine (Bodeker 2005). Medicinal plants form the basis for these health care systems (Barata et al. 2016). Likewise, most active mechanisms used in modern pharmaceutical drugs were either directly or indirectly derived from natural products, which include botanical origins among microbiological and other ones. That observation still holds despite the advent of synthetic and combinatorial chemistry. Of the 1355 drugs that were newly approved between 1981 and 2010, only 29% were purely synthetic, 46% are semi-synthetic, but their active mechanism was derived from or inspired by nature, and 19% were natural products without synthetic modification (Newman and Cragg, 2012).
7. Medicinal plants play a crucial role in rural livelihoods. The collection of wild medicinal plant species secures valuable income for many rural households, especially in developing countries, and it is an important factor in the source countries' local economies (Schippmann et al. 2006, Barata et al. 2016). Medicinal plant cultivation and gathering can play a vital role in the course of livelihood diversification for marginalized populations living in remote areas. However, to allow a fair and reliable income and do not endanger rare plant species, this requires an integration of local and regional producers and trading networks (Pauls and Franz 2013).
8. Centuries or millennia of experience and experimentation have provided healers, elders, and collectors with traditional knowledge of plant ecological requirements, population dynamics and sustainable harvesting techniques. For NTFP's, this frequently is the only available source of knowledge of such characteristics (Berkes 2012, Chamberlain et al. 2018). Many species have high cultural and religious significance to local populations, and frequently are a crucial element of social networks and exchanges that link communities with healers and elders as respected local leaders. Thus, local and traditional knowledge and networks determine the value attached to the species. They also provide potential pathways for identifying cultivation strategies or alternative ingredients, for reaching out to local populations, and for stipulating behavioural change (Chamberlain et al. 2018, **Annex 1** of this document). Currently, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) is developing methods and processes to allow the integration of local, indigenous and traditional knowledge and values into global biodiversity policies ([Decision IPBES-2/4](#), [IPBES/5/15](#), [IPBES/3/INF/7](#)).
9. These considerations make medicinal plants particularly relevant for the Convention on Biological Diversity's [sustainable use objective](#). Reflecting their sociocultural, economic and pharmaceutical relevance to livelihoods, intellectual property rights over medicinal plant resources and related traditional knowledge were also a driving impetus for supplementing the Convention on Biological Diversity (CBD) with the [Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization \(ABS\)](#). The links between sustainable use of biodiversity and health are also reflected in the [WHO-IUCN-WWF Guidelines on the Conservation of Medicinal Plants](#), and the CBD-WHO Biodiversity and Health Mandate that led to the [summary of the state of knowledge](#) report on biodiversity and human health.

Medicinal plant listings in CITES

10. As recognized in document [PC23 Inf. 10](#), the term "medicinal plant" does not have an official (or working) definition under CITES; yet there are some useful definitions developed by WHO, the International Trade Centre (ITC) and the UN Food and Agriculture Organization (FAO), amongst others. In the absence of a consensus definition, [PC23 Inf. 10](#) compared published lists of medicinal plants from literature to CITES Appendixes. It estimates the number of medicinal plants currently listed in CITES Appendixes at 365. Among the 365 identified taxa, 351 are listed in Appendix II, 9 in Appendix I, and 5 in appendix III.
11. However, this number depends strongly on the applied sources, criteria for defining species as 'medicinal', and the comprehensiveness of the compilations. For comparison, [PC24 Inf. 16](#) used a single but well-maintained and scientifically rigorous database (MAPROW, maintained by the German Federal Agency for Nature Conservation, BfN) to determine the number of medicinal plant species listed in CITES Appendixes as 112 (1 in Appendix I, 109 in Appendix II, and 2 in Appendix III). Since this document does not contain trade-related information, the following paragraphs will rely on the analysis mentioned in [PC23 Inf. 10](#).
12. Of the 365 CITES listed taxa identified in [PC23 Inf. 10](#) as medicinal plants:
 - a) 254 are orchids or aloes;
 - b) 47 are either cacti, or *Euphorbia* spp, or *Dalbergia* spp.

- c) Among the remaining 64 species, all but 21 were listed in the years 1975-77 (CoP1), 1990-92 (CoP7/8), or 2000-05 (CoP11-13, suggesting that CITES attention to medicinal plants might have been high during these periods.

Since the listings in a) and b) above were higher taxon listings (family and genus) mainly included for trade in ornamentals or timber, relatively few species were included in the CITES Appendices specifically because of trade in medicinal products (even though there certainly are exceptions, particularly *Prunus africana*, *Taxus spp.*, *Panax spp.*, *Adonis vernalis*, *Siphonochilus aethiopicus*). Suggestions for the inclusion of additional species for this specific reason, taking into account the growing trade in such products, are currently made, inter alia for *Commiphora wightii*, *Paris polyphylla*, and *Fritillaria cirrhosa* (Cunningham et al. 2018a,b,c).

CITES – listed medicinal plants in international trade

13. With support from the Republic of Korea, and within the scope of Decisions 15.57 and 17.93 on combating wildlife cybercrime, the Secretariat researched e-commerce on Amazon and Ebay in 365 CITES-listed medicinal plant species (PC23 Inf. 10). The search was conducted using scientific names at genus and species level, as well as certain, well established common names. Key outcomes of the study were:

- a) Several hundred thousands of offers containing (or claiming to contain) CITES listed medicinal plants were found on sale on these two platforms, and ca. 15,000 among them were live specimen.
- b) More than half of the species were not found on offer at all, while most of the identified offers relate to about 40% of the searched taxa.
- c) Particularly high numbers of offers were found for the following CITES-listed taxa:

Species	Source	Species	Source
<i>Aloe spp.</i>	eBay	<i>Guaiaacum spp.</i>	Amazon
<i>Aloe arborescens</i>	eBay, Amazon	<i>Panax ginseng</i>	eBay, Amazon
<i>Aloe ferox</i>	eBay, Amazon	<i>Panax quinquefolius</i>	eBay, Amazon
<i>Aloe perryi</i>	eBay	<i>Cactaceae spp.</i>	eBay
<i>Hoodia spp.</i>	eBay, Amazon	<i>Opuntia ficus-indica</i>	eBay, Amazon
<i>Rauvolfia serpentina</i>	eBay	<i>Saussurea costus</i>	eBay
<i>Orchis mascula</i>	eBay	<i>Diospyros spp.</i>	Amazon
<i>Phalaenopsis amabilis</i>	eBay	<i>Euphorbia spp.</i>	Amazon
<i>Vanilla planifolia</i>	eBay, Amazon	<i>Euphorbia antisyphilitica</i>	eBay
<i>Cistanche deserticola</i>	eBay	<i>Prunus Africana</i>	eBay
<i>Hydrastis canadensis</i>	eBay, Amazon	<i>Aquilaria spp.</i>	eBay, Amazon
<i>Cyclamen spp.</i>	Amazon	<i>Nardostachys grandiflora</i>	eBay, Amazon
<i>Picrorhiza kurrooa</i>	Amazon	<i>Guaiaacum officinale</i>	eBay, Amazon

- d) Hardly any of the offers mentioned applicable CITES regulations for cross-border trade.
- e) The analysis did not look at the sources of these products, nor at potential exemptions though annotations. It nevertheless suggests that a substantial portion of international e-commerce in CITES-listed medicinal plant products seems to occur outside the purview of the Convention, at a scale which is currently impossible to estimate.
14. The findings summarized in par. 13 are supported by scientific research. Hinsley et al. (2016) found considerable trade in orchids on social media platforms, many of which openly advertised specimens sourced from the wild. Sajeve et al. (2013) monitored 24 cacti sellers on an internet auction site over six months, and recorded sales of CITES-listed live plants that were successfully completed and for which they could identify the plant's country of origin and destination. They compared this information to export permits on the CITES trade data base. Although these report trade data, rather than individual permits, they should reflect the internet trade if export permits were issued, as required for all such transactions. Their data set contained roughly a quarter of the cactus plants for which CITES permits were issued in 2010. There were large discrepancies in the number of plants for which permits were issued and the number of plants traded in online transactions. Their results suggest that only 10% of the plants traded were even potentially legal.

Major discrepancies were also apparent in the number of species and number of importing and exporting countries between the online auctions and permits issued for that year.

15. The Secretariat notes that e-commerce of medicinal plants, as described in the previous paragraph, seems to bear similarity to orchid ([PC24 Doc. 28](#)) and rosewood ([PC24 Doc. 29](#)) trade chains, since it comprises innumerable numbers of retail products containing multiple mixtures of CITES-regulated ingredients in highly processed stages, which are hard to identify, come from different sources, and, theoretically, might require CITES trading permissions at several points in the processing and trading chain.

General characteristics of medicinal plant trade that warrant targeted attention by CITES

16. As the previous sections illustrate, assuring legal and sustainable trade and management of wild medicinal plants has particular challenges that transcend individual species, such as:
 - a) High numbers of mostly wild-sourced species in trade,
 - b) Economically substantial and quickly growing trade volumes and values,
 - c) A diversity of highly processed products traded on e-commerce platforms, which are hard to track or trace, with little indication of applicable CITES-regulation in cross-border trade,
 - d) Immediate relevance to health and livelihoods of a large part of the global population, which far exceeds utilitarian values attached to many other CITES-listed species,
 - e) A need to consider highly relevant local and traditional knowledge bases and networks, due to long-term, intense familiarity of local knowledge keepers with medicinal plant populations and their ecological characteristics, and due to the cultural and medical salience of many species, and
 - f) A demand side which is characterized by a high complexity of actors: ranging from a decentralized general population ordering products online, to traditional or alternative medical practitioners, to highly centralized structures dominated by the pharmaceutical industry.
17. Thus, the relevance and scale of trade in medicinal plant species requires further analysis and collaboration with stakeholders, including the private sector, relevant industries and local populations. Long-term participatory collaboration is required, since it allows to fully integrate traditional knowledge and networks into comprehensive monitoring and management strategies (Chamberlain et al. 2018). Extensive experience and well-tested procedures exist to integrate stakeholder knowledge in decision making processes, and to overcome barriers to participation in marginalized communities (Bergmann et al. 20120, Hitziger et al. 2017, Hitziger et al. 2018, [UNCTAD 2017a, b](#)). The complementarities, gaps and potential conflicts between the CBD provisions and CITES regulations, and between conservation, sustainable medicinal use, and impact on livelihoods warrant collaborative efforts between CITES and other pertinent national and international agencies.

CITES provisions for CITES-listed medicinal plants in international trade

18. The Secretariat notes that medicinal plants are currently not considered at CITES Committees as a group of taxa by themselves, but species-specific regulation, subject to dedicated CITES Decisions or Resolutions, is ongoing on a continuous basis. Medicinal taxa which appeared as species-specific agenda item at PC24 include:
 - a) *Prunus africana*: The current focus is on methodologies for inventories (including the sampling design and the inventory data), sustainable harvesting techniques, monitoring and traceability systems, and perspectives in terms of developing plantations or agroforestry systems as a possible complementary means of sourcing bark in the wild (Decision 17.250, [PC24 Doc. 20](#)).
 - b) Agarwood: The current focus is on identification manuals, plantation programmes that integrate forest recovery programmes; and strengthening networks for sharing information on planting stocks, management, technologies, harvest and trade (Decisions 17.194, 17.197, [Res. Conf. 16.10, Doc. PC24 17.2](#));
 - c) *Osyris lanceolata*: The current focus is on reviewing and gathering further information on the conservation status of, trade in and use of *Osyris* species and look-alike species and, assessing their

impact in the conservation status of *Osyris lanceolata*; assessing the data required to make non-detriment findings following the existing guidance; and to share and exchange data, information, intelligence and law enforcement measures, in combating illegal trade in the species (Decisions 16.153 and 16.154 (Rev. CoP17), PC24 Agenda item 23);

- d) Orchids: The current focus is on the revision of annotations for Appendix II orchids, with a view to examine whether certain finished products should be exempted from CITES regulation (Decision 17.318, [PC24 Doc. 28](#)). The Secretariat notes that the trade patterns in cosmetic products seem to share many similarities with those described in the present document for medicinal plants.
 - e) All of the tree species in the above-mentioned paragraphs 18a-c, and other tree species with medicinal properties are also selected for specific project funding within the *CITES-EU project on "Supporting sustainable management of endangered tree species and conservation of the African Elephant"*.
19. On a generic level, several resolutions stand out for their relevance to medicinal plant species as outlined in par. 16 and 17:
- a) [Res. Conf. 10.19 \(Rev. CoP14\)](#) on traditional medicines, stipulating to
 - work closely with groups of traditional-medicine practitioners and consumers in developing public education and awareness programmes towards the elimination of illegal use of endangered species, and developing awareness of the need to avoid over-exploitation of other wild species,
 - facilitate, encourage and investigate the further use in traditional medicines of alternative ingredients to specimens of threatened wild species, such as synthetic compounds and derivatives of less threatened species, ensuring that this does not lead to other species becoming threatened, and to
 - ensure that traditional medicines intended for domestic use are clearly marked as such and effectively prevented from being exported.
 - b) [Res. Conf. 13.2 \(Rev. CoP14\)](#) on the sustainable use of biodiversity, highlighting in particular the Addis Ababa principles and guidelines 1-14, which focus on decision making and governance structures and emphasize systemic approaches, adaptive mechanisms and participation.
 - c) [Res. Conf. 10.4 \(Rev. CoP14\)](#), [16.4](#) and [16.5](#) on synergies with the convention for biological diversity and other biodiversity-oriented conventions, in particular the Global Strategy for Plant Conservation, which are currently up for extension and re-definition for the post-2020 phase ([PC24 Doc. 12](#)).
 - d) [Conf. Res. 16.6 \(Rev. CoP17\)](#) on livelihoods, which
 - directs the attention of parties to livelihood implications of international trade in CITES-listed species,
 - encourages parties to work with key stakeholder groups to design, implement and monitor effective strategies with regard to the implementation of CITES listings, and to
 - support livelihood options contributing to the conservation of wildlife as an integral part of the response to address illegal trade in wildlife.
 - e) [Res. Conf. 16.7 \(Rev. CoP17\)](#) on Non-Detriment Findings (NDF's), which stipulates adaptive management, including monitoring as important considerations in the making of NDF's, and to base NDF's in resource assessment methodologies, which may include relevant knowledge and expertise of local and indigenous communities; consultations with relevant local, regional and international experts; and local knowledge on trade.
20. Comprehensive overviews of documents and guidance's on CITES with relevance to medicinal plants can be found on the [CITES website](#) and in section 1 of [PC23 Inf. 10](#).

Potential strategy and actions to strengthen CITES regulation and implementation regarding medicinal plants

21. Based on the presented background and trade data, a potential strategy on medicinal plants was outlined in [PC24 Inf. 7](#), aiming to improve CITES regulation and implementation regarding medicinal plant species. Discussions with representatives of Committee members, observer states, NGO's and industry associations at a side event provided crucial input for refining and prioritizing objectives and actions.
22. The following table outlines the elements of such as strategy. It envisions a holistic approach towards aligning sustainable use and conservation of medicinal plant taxa, emphasizing proactive and collaborative bottom-up measures over top-down enforcement. Preliminary priorities considering the relevance and urgency of

each potential action line, are suggested as follows: High (H) Highly relevant, Medium (M): intermediate relevance.

Potential objective	Potential activity	Potential action for discussion / preliminary priority	
1. Enhance mutual awareness and understanding between CITES and medicinal plant stakeholders	1.a Hire a consultant or contract an institution with pertinent expertise for in-depth analysis of e-commerce trade networks	<p>I. Analyse the structure of supply value chains, with a focus on identifying key players or “nodes”, e.g. key producers, intermediate traders, or distribution platforms to end consumers.</p> <p>II. Analyse the structure of the demand side, with a focus on identifying influential key players or nodes, e.g. institutions influencing the demand for medicinal plant products in biomedical, traditional and alternative medical systems.</p> <p>III. Assess the findings of PC23 Inf. 10 to understand e-trade for high-priority species in more detail (e.g. those listed in par. 13c).</p>	H
	1.b Proactively collaborate with relevant stakeholders from medicinal plant supply chain, industry and health sectors	<p>I. Reach out to key players or “nodes”, as identified in activity 1.a to raise awareness of conservation impacts and CITES regulation of medicinal plants.</p> <p>II. Liaise relevant actors, such as the Global Coalition to End Wildlife Trafficking Online, which brings together internet companies from across the world in partnership with wildlife experts at WWF, TRAFFIC the wildlife trade monitoring network, and the International Fund for Animal Welfare (IFAW) for an industry-wide approach to reduce wildlife trafficking online by 80% by 2020.</p> <p>III. Conduct workshops with key stakeholders, in line with Res. Conf. 10.19 (Rev. CoP14) on traditional medicines. This could entail:</p> <ul style="list-style-type: none"> o Reduction of market demand by developing public education and awareness programmes towards the elimination of illegal use of endangered species, and developing awareness of the need to avoid over-exploitation of other wild species and sustainable harvesting. o With regard to high-priority species (e.g. those listed in par. 13c) to facilitate, encourage and investigate the further use of alternative ingredients to specimens of threatened wild species, such as synthetic compounds and derivatives of less threatened species, ensuring that this does not lead to other species becoming threatened. 	H
2. Enable efficient and effective procedures for legal acquisition and non-detriment findings	2.a Consider the role of certification approaches in CITES	<p>I. Build on ongoing analysis of certification systems (PC24 Inf. 12) with a view to in how far they would be able to satisfy CITES provisions of ensuring legality and sustainability of international trade in medicinal plants. In particular, consider the FairWild standard, which was developed by TRAFFIC, WWF, IUCN, the German Federal Agency for Nature Conservation (BfN) and others, and involved extensive consultation with representatives from government, private sector, academia, NGOs, and certification agencies. The standard is based on the International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP), produced by the IUCN-SSC Medicinal Plant Specialist Group, TRAFFIC the wildlife trade monitoring network, WWF Germany and the German Federal Agency for Nature Conservation (BfN), with support from IUCN Canada (see Annex 2).</p> <p>II. Hold an expert workshop, in collaboration with relevant Parties, governmental and non-governmental organizations, to explore advantages and barriers of using certification approaches in CITES regulations, with a focus on complementarities and barriers to implementing certification based approaches alongside the CITES permitting system, and on identifying whether legal and regulatory changes to the CITES framework would be needed to implement such approaches.</p> <p>III. Assess, in line with Resolution Res. Conf. 16.7 (Rev. CoP17) on NDF's, and AC30 Doc. 10.1 / PC24 Doc. 10.1, in how far existing NDF guidelines are complementary to the</p>	H

Potential objective	Potential activity	Potential action for discussion / preliminary priority	
		information provided by certification systems. If appropriate, propose amendments or specifications to existing NDF guidelines (such as the 9-step NDF guideline for perennial plants , the guidance for agarwoods (CoP16 Inf. 11), and snakes (AC29 Doc. 31.1)) that allow to incorporate information provided through certification systems.	
	2.b Consider feasible traceability systems	<ol style="list-style-type: none"> I. Focusing on priority species (e.g. those listed in par. 13c), collaborate with UNCTAD and relevant industry stakeholders to develop pilot systems for tracing medicinal plant products, taking into account work on BioTrade traceability of CITES listed medicinal and ornamental species, undertaken by UNCTAD under contract with the CITES secretariat (PC23 Inf. 05, PC23 Inf. 06, PC23 Inf. 07). II. Apply provisions provided by Res. Conf. 10.19 (Rev. CoP14) on traditional medicines. III. In collaboration with Parties, achieve a working definition for “medicinal plants” (considering they represent a diverse artificial group), and pertinent product codes. IV. Based on the experience with pilot systems, assess the general applicability of traceability systems for this group of taxa. 	M
	2.c Focus CITES regulation on products close to the first point of export	<ol style="list-style-type: none"> I. Identify the main products of specimens in international trade as identified in action 1.a III. II. Assess potential revisions of annotations (Decision 16.162 (Rev. CoP17) for these products, with a view to reducing administrative burden without endangering the sustainability of trade and the populations of concerned species. 	M
3. Support CITES implementation on the ground through incorporating traditional knowledge and networks, and through increased attention to local livelihoods	3.a Design mechanisms for incorporating traditional knowledge and local governance mechanisms for in-situ conservation	<ol style="list-style-type: none"> I. Liaise with key stakeholder groups to design effective strategies for CITES implementation that take into account the Addis Ababa principles and guidelines for sustainable use of biodiversity (Res. Conf. 13.2 (Rev. CoP14)), which focus on decision making and governance structures and emphasizing the inclusion of traditional knowledge, systemic approaches, adaptive mechanisms and participation. To the same end, review and use resources and experiences for participative and transdisciplinary approaches developed elsewhere (e.g. Bergmann et al. 20120, Hitziger et al. 2017, Hitziger et al. 2018, UNCTAD 2017a, b, as well as IPBES). II. In line with Res. Conf. 10.4 (Rev. CoP14), 16.4 and 16.5, consider workshops or other means to assess and promote the use of synergies with relevant tools and guidelines, case studies, access and benefit sharing, and other aspects of sustainable use of biodiversity provided by the convention on biological diversity, which are outlined in PC24 Inf. 6, IPBES, and synergies with other relevant sources. III. Based on a review of existing NDF guidances (action 2.a III), consider amendments to support the inclusion of relevant knowledge and expertise of local and indigenous communities; consultations with local, regional and international experts; and local knowledge on trade. Hold one or more dedicated expert workshops to develop and agree on new or updated materials. 	H
	3.b Develop best practice case studies of linking CITES implementation with local knowledge, governance and livelihood considerations	<ol style="list-style-type: none"> I. Consider amendments of the handbook on CITES and livelihoods (Part 1, Part 2) with detailed guidance for participative governance and decision making mechanisms (Addis Ababa principles and guidelines for sustainable use of biodiversity (Res. Conf. 13.2 (Rev. CoP14)). In line with Conf. Res. 16.6 (Rev. CoP17) encourage the use of the provided methods to assess and mitigate the effects of CITES decisions on livelihoods, in particular during preparations of listing proposals and in efforts to establish sustainable management and monitoring mechanisms. II. Consider developing best practice case studies of linking CITES with local governance mechanisms and livelihood considerations in a framework similar to the CITES-EU project on “<i>Supporting sustainable management of</i>” 	H

Potential objective	Potential activity	Potential action for discussion / preliminary priority	
		<p><i>endangered tree species and conservation of the African Elephant</i>".</p> <p>III. Submit best practice case studies of linking CITES with local governance mechanisms and livelihood considerations to the secretariat, for demonstrating the benefits of sustainable use policies, and for disseminating best practices among CITES Parties and other stakeholders.</p>	
	2. In support of the post-2020 Strategic Vision, strengthen long term synergies with CBD in relation to medicinal plants	<p>I. In line with Res. Conf. 10.4 (Rev. CoP14), 16.4 and 16.5, and in the process of post-2020 revisions of the CITES strategic vision (Decisions 17.18-17.21), strengthen synergies with CBD regarding common priorities related to livelihoods as outlined in PC24 Doc. 12, and PC24 Inf. 6.</p> <p>II. Within the framework of the MoU between both Secretariats, further identify in what form long-term collaborations are of interest to CBD, and whether it could form part of any follow-up to the present collaboration in the framework of the global strategy for plant conservation (PC24 Doc. 12).</p>	M
4. Strengthen national MA/SA capacities	Assist national MA/SA authorities in taking specific measures that strengthen their capacities to manage CITES-listed medicinal plant species and NTFP's	<p>I. Develop materials to enable parties MA/SA authorities to manage CITES-listed medicinal plant species, and their particular characteristics (as outlined in par. 16 and 17), in line with Decisions 17.31-17.35 on capacity building, and drawing on the finding from objectives 1 – 3.</p> <p>II. Upload these materials on the CITES webpage and the CITES Virtual College to make them accessible to Parties.</p> <p>III. Include specific content in the CITES Masters curriculum at the University of Andalucia.</p> <p>IV. Support national capacity building efforts specific to medicinal plants and NTFP's in a framework similar to that of the <i>CITES-EU project on "Supporting sustainable management of endangered tree species and conservation of the African Elephant"</i>.</p>	H

Contribution of local knowledge and practices to resource assessment

(source: [International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants](#))

Methods	Contributions / advantages	Challenges
<i>Overall process</i> Participation of local resource users / collectors in resource assessment and management	<ul style="list-style-type: none"> • Motivates and stimulates interest of local users / collectors • Reduced need for professional field staff and time in field • Local employment opportunities 	<ul style="list-style-type: none"> • Need appropriate equipment, training, and compensation • Literacy and numeracy obstacles
<i>Situation analysis</i> Participatory mapping	<ul style="list-style-type: none"> • Mapping collection area • Mapping resource distribution 	<ul style="list-style-type: none"> • Interface with "official" area maps
<i>Situation analysis, assessment design</i> Participatory Rural Appraisal	<ul style="list-style-type: none"> • History and general trends of resource use, collection, harvest impacts • Prediction of likely impacts of harvest levels and practices • Causes and history of other non-collection disturbances 	<ul style="list-style-type: none"> • Participation of local communities / collectors in deciding what questions are important • Making local / collector engagement worth their time and effort
<i>Harvest impact assessment and monitoring</i> Local user / collector observations to collect field data	<ul style="list-style-type: none"> • Resource users perceptions as to why scarcity has arisen • Identify alternative harvest practices • Reassessment of local decisions on land-use options 	<ul style="list-style-type: none"> • Setting quotas and human carrying capacities if appropriate • Development (or reassessment) of local rules which set limits on who or how many people will harvest from a set area and on harvest methods
<i>Yield studies and monitoring</i>	<ul style="list-style-type: none"> • Greater awareness of resource limits compared with demands • Change in harvest methods more readily understood and adopted. 	<ul style="list-style-type: none"> • Use of local systems of measurement (with calibration to a more universal standard) • Development or reassessment of local rules / limits on harvest (e.g., number of harvesters per area)
<i>Regeneration studies and monitoring</i>	<p>Local knowledge indicators</p> <ul style="list-style-type: none"> • Change in distribution • Change in time required to collect a specific quantity 	<ul style="list-style-type: none"> • Locate plots where a long history of collection has changed population structure, and at the resource frontier where the least collection has occurred.
<i>Field work, record keeping</i> Use of field computers / palm pilots to record observations	<ul style="list-style-type: none"> • GPS-linked data/records • Can overcome literacy and numeracy obstacles • Facilitates quick and easy data processing, storage, retrieval for analysis: <ul style="list-style-type: none"> ◦ Large amounts ◦ Over large areas ◦ Over long time • Can also be low-tech, e.g., dbh rulers using visual rating system and size-class symbols rather than a number scale. 	<ul style="list-style-type: none"> • High cost of equipment vs paper • Need strong technical support • Regular access to electricity, batteries, main computer to download data • May be most appropriate for conservation programmes and rural development projects • Use symbols or icons rather than numbers. E.g., icons need to illustrate rating systems, e.g., of harvest impacts

Source: Cunningham (2001)

ISSC-MAP principles and criteria

(source: [International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants](#))

SECTION 1: WILD COLLECTION AND CONSERVATION REQUIREMENTS
<p>Principle 1. Maintaining Wild MAP Resources</p> <p>Wild collection of MAP resources shall be conducted at a scale and rate and in a manner that maintains populations and species over the long term.</p>
<p>1.1 Conservation status of target MAP species</p> <p>The conservation status of target MAP species and populations is assessed and regularly reviewed.</p> <p>1.2 Knowledge-based collection practices</p> <p>MAP collection and management practices are based on adequate identification, inventory, assessment, and monitoring of the target species and collection impacts.</p> <p>1.3 Collection intensity and species regeneration</p> <p>The rate (intensity and frequency) of MAP collection does not exceed the target species' ability to regenerate over the long term.</p>
<p>Principle 2. Preventing Negative Environmental Impacts</p> <p>Negative impacts caused by MAP collection activities on other wild species, the collection area, and neighbouring areas shall be prevented.</p>
<p>2.1 Sensitive taxa and habitats</p> <p>Rare, threatened, and endangered species and habitats that are likely to be affected by MAP collection and management are identified and protected.</p> <p>2.2 Habitat (landscape level) management</p> <p>Management activities supporting wild MAP collection do not adversely affect ecosystem diversity, processes, and functions.</p>
SECTION II: LEGAL AND ETHICAL REQUIREMENTS
<p>Principle 3. Complying with Laws, Regulations, and Agreements</p> <p>MAP collection and management activities shall be carried out under legitimate tenure arrangements, and comply with relevant laws, regulations, and agreements.</p>
<p>3.1 Tenure, management authority, and use rights</p> <p>Collectors and managers have a clear and recognized right and authority to use and manage the target MAP resources.</p> <p>3.2 Laws, regulations, and administrative requirements</p> <p>Collection and management of MAP resources complies with all international agreements and with national, and local laws, regulations, and administrative requirements, including those related to protected species and areas.</p>

Principle 4. Respecting Customary Rights

Local communities' and indigenous peoples' customary rights to use and manage collection areas and wild collected MAP resources shall be recognized and respected.

4.1 Traditional use, access rights, and cultural heritage

Local communities and indigenous people with legal or customary tenure or use rights maintain control, to the extent necessary to protect their rights or resources, over MAP collection operations.

4.2 Benefit sharing

Agreements with local communities and indigenous people are based on appropriate and adequate knowledge of MAP resource tenure, management requirements, and resource value.

SECTION III: MANAGEMENT AND BUSINESS REQUIREMENTS

Principle 5. Applying Responsible Management Practices

Wild collection of MAP species shall be based on adaptive, practical, participatory, and transparent management practices.

5.1 Species / area management plan

A species / area management plan defines adaptive, practical management processes and good collection practices.

5.2 Inventory, assessment, and monitoring

Management of MAP wild collection is supported by adequate and practical resource inventory, assessment, and monitoring of collection impacts.

5.3 Transparency and participation

MAP collection activities are carried out in a transparent manner with respect to management planning and implementation, recording and sharing information, and involving stakeholders.

5.4 Documentation

Procedures for collecting, managing, and sharing information required for effective collection management are established and carried out.

Principle 6. Applying Responsible Business Practices

Wild collection of wild MAP resources shall be undertaken to support quality, financial, and labour requirements of the market without sacrificing sustainability of the resource.

6.1 Market / buyer specifications

The sustainable collection and handling of MAP resources is managed and planned according to market requirements in order to prevent or minimise the collection of products unlikely to be sold.

6.2 Traceability

Storage and handling of MAP resources is managed to support traceability to collection area.

6.3 Financial viability

Mechanisms are encouraged to ensure the financial viability of systems of sustainable wild collection of MAP resources.

6.4 Training and capacity building

Resource managers and collectors have adequate skills (training, supervision, experience) to

implement the provisions of the management plan, and to comply with the requirements of this standard.

6.5 Worker safety and compensation

MAP collection management provides adequate work-related health, safety, and financial compensation to collectors and other workers

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