

## CHAPTER 7

# SUSTAINABLE WILD COLLECTION OF MEDICINAL AND AROMATIC PLANTS

*Development of an international standard*

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**Abstract.** Between 50,000 and 70,000 plant species are known to be used in traditional and modern medicine systems throughout the world. Uncounted additional species are used in the growing cosmetics and botanicals industries. The great majority of these materials is provided by collection from wild resources. Notwithstanding growing interest in cultivation, wild collection is likely to continue as the principal source for most species of medicinal and aromatic plants, in most parts of the world, based on biological, economic and social factors. Building on successes in the development of sustainable harvest and resource stewardship standards in other sectors such as timber, non-wood forest products, organic agriculture and marine aquarium fish, an initiative has recently been launched to develop an international standard and criteria for good practice in the sustainable wild collection of medicinal and aromatic plants. This paper summarizes the current status of work to develop this standard, supported by the German Federal Agency for Nature Conservation (Bundesamt für Naturschutz – BfN), WWF Germany and TRAFFIC Europe-Germany), IUCN Canada and the Medicinal Plant Specialist Group.

**Keywords:** certification; good-practice guidelines; non-wood/non-timber forest products; sustainable use; resource management

### INTRODUCTION

*Why is a sustainable wild collection standard needed for medicinal and aromatic plants?*

Medicinal and aromatic plants (MAP) have been an important resource for human health care from prehistoric times to the present day<sup>1</sup>. According to the World Health Organization (WHO), the majority of the world's human population, especially in developing countries, depends on traditional medicine based on MAP (WHO 2002). Between 50,000 and 70,000 plant species are known to be used in traditional and modern medicinal systems throughout the world (Schippmann in press). Relatively few MAP species are cultivated. The great majority is still provided by collection from the wild (Lange and Schippmann 1997; Srivastava et al.

1996; Xiao 1991). This trend is likely to continue over the long term due to numerous factors: most medicinal plants are traded locally and regionally rather than internationally, the costs of domestication and cultivation are high, and land for cultivation of non-food crops is limited. Moreover, cultivation is not necessarily the most beneficial production system. Wild collection practices secure valuable income for many rural households, especially in developing countries, may provide incentives for conservation and sustainable use of forests and other important plant areas, and can be an important factor in the source countries' local economies (Schippmann in press).

However, over-harvesting, land conversion and habitat loss increasingly threaten a considerable portion (approximately 15,000 species, or 21 per cent) of the world's MAP species and populations (Schippmann in press). For these reasons, approaches to wild MAP collection that engage local, regional and international collection enterprises and markets in the work of conservation and sustainable use of MAPs are urgently needed.

*Context: existing frameworks for sustainable use*

In recent years a number of initiatives have been launched to achieve a better framework for the sustainable use of biological diversity, particularly the Convention on Biological Diversity (CBD) (UNEP 2001). Under the CBD, more specific guidance for the ecological, socio-economic and equity basis for conservation and sustainable use of biodiversity has been articulated in the Ecosystem Approach (CBD 2000), the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization (CBD 2002a), the Global Strategy for Plant Conservation (CBD 2002b) and the Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity (CBD 2004).

Existing guidelines for the sustainable collection of non-timber forest products (NTFP) provide useful models for MAP: models for NTFP that may be particularly useful for MAP include the certification system of the Forest Stewardship Council (FSC), the International Federation of Organic Agricultural Movements (IFOAM), and Fairtrade Labelling Organizations International (FLO)<sup>2</sup>. Other relevant models include natural-resource co-management agreements with indigenous communities, and access and benefit-sharing arrangements between genetic-resource users and providers.

More specifically focusing on medicinal plants, the 1993 WHO/IUCN/WWF Guidelines on the Conservation of Medicinal Plants (WHO 1993) and the 2004 WHO Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants (WHO 2003) provide general guidance and principles for the development of a global framework of practice standards for MAP. Of these documents, only the 1993 Guidelines directly address ecological and socio-economic/equity issues related to sustainable wild harvest, and these are now out of date. WHO, IUCN, WWF and TRAFFIC are currently working together to revise these Guidelines through an international consultation process, and with the intent to

incorporate broader guidance and principles related to sustainable use of biological diversity, access and benefit sharing, and fair business practices. Publication of these revised and updated Guidelines is envisaged for 2006 or 2007 (Kathe in press).

Existing principles and guidelines for conservation and sustainable use of medicinal plants address primarily the national and international political level, but only indirectly provide the medicinal plant industry and other stakeholders, including collectors, with specific guidance on sustainable sourcing practices. For example, the revised WHO/IUCN/WWF/TRAFFIC *Guidelines on the Conservation of Medicinal Plants* will provide general principles addressed primarily to governments and other political stakeholders, non-government organizations (NGOs), international government organizations (IGOs), and businesses worldwide. These guidelines call for the development of concrete practice standards and criteria for the conservation and sustainable use of medicinal plants as a practical interface between the general principles set out in the *Guidelines*, and management plans that must be developed for particular species and specific situations.

The development of this standard builds on existing relevant principles, guidelines and standards. Links to other relevant standard frameworks are being explored and developed.

#### *Process to develop the ISSC-MAP*

The process to elaborate a standard for the sustainable wild collection of MAP is a joint initiative by the German Bundesamt für Naturschutz (BfN), WWF/TRAFFIC Germany, IUCN Canada and the IUCN Medicinal Plant Specialist Group (MPSG). Together, these organizations have formed a Steering Group to oversee the development of the standard. An international, interdisciplinary advisory group has been formed to involve relevant stakeholders from ecological, socio-economic and fair-trade sectors in the process of developing and testing a standard for sustainable wild collection of MAP<sup>3</sup>. The members' specific expertise and advice on the content of the standard, the development of practical guidance, and the opportunities to harmonize the development of this standard with other relevant standard frameworks will support the eventual implementation of a MAP standard.

A first draft of this standard was completed in November 2004 for discussion with members of the Advisory Group (Leaman et al. 2004). The first draft consisted of four separate practice standards<sup>4</sup> (I. Ecosystem and MAP resource management; II. Wild collection of MAP resources; III. Domestication, cultivation and enhanced *in situ* production of MAP resources; and IV. Rights, responsibilities and equitable relations of stakeholders). The first draft was presented during the World Conservation Forum of the Third IUCN World Conservation Congress in Bangkok in November 2004. A first expert workshop on the Isle of Vilm (December 2004) provided a discussion forum for the members of the Advisory Group on this first draft standards document and other process related issues<sup>5</sup>.

A second draft of the standard, which is summarized in this paper, is based on the outcomes of the first consultation round and the Vilm workshop. This second draft standard consists of ten principles (and related criteria and indicators), within a

single standard for sustainable wild collection of MAP (Leaman and Salvador 2005). This second draft will be revised based on comments from the Advisory Group, from a field consultation phase late in 2005, and from a second workshop on the Isle of Vilm in December 2005. The third draft will be circulated for further comment and implementation in 2006.

#### *Mission and objective of the ISSC-MAP*

The mission of the standard is to ensure the long-term survival of MAP populations in their habitats, while respecting the traditions, cultures and livelihoods of all stakeholders.

The objective of the standard is to provide a framework of principles and criteria that can be applied to the management of MAP species and their ecosystems. It provides guidance for sustainable wild collection of MAP, and a basis for audit and certification.

#### *Scope and application of the ISSC-MAP*

This standard applies to medicinal and aromatic plants collected from forest and other non-cultivated habitats. It is not intended to thoroughly address product storage, product transport, processing issues or product quality issues, which are being addressed by other initiatives and guidelines, such as the *WHO Guidelines on Good Agricultural and Collection Practices (GACP) for Medicinal Plants* (WHO 2003).

It is the agreed aim of the Steering Group and the Advisory Group working to develop this standard that it should be applicable to the wide array of geographic, ecological, cultural, economic and trade conditions in which non-cultivated MAP are found. It will address wild collection of medicinal and aromatic plant materials for commercial (rather than subsistence or local use) purposes. The standard focuses on good ecological practices but also aims to support responsible social standards and business practices that affect collectors, collection operations and the environments in which MAP resources are collected. Harmonization with appropriate ecosystem, fair trade, production, product quality and other relevant standards is considered an important avenue for developing and implementing this standard.

The Steering Group and the Advisory Group also recognize that, to be successfully implemented, this standard must be relevant and practical to different scales of operation, from relatively autonomous groups of collectors to enterprises fully supported by large companies; from relatively low-volume collection to large-scale collection operations. In developing this standard, the costs associated with field assessment, monitoring and evaluation must also be considered, as well as the requirements of existing or new institutions and resource management authorities.

It is clear that this standard cannot, on its own, define or implement policy, but that it can, and should, set thresholds or define good practice for management and collection of medicinal and aromatic plants in their natural environments.

There has been some discussion within the Steering Group and with members of the Advisory Group, concerning how this standard might most effectively be implemented. Alternatives include voluntary, self-regulating efforts (first-party claims); codes of practice adopted by trade associations or through industry policy (second-party claims); and independent certification or labelling schemes backed by governments, NGOs or certification bodies (third-party claims). The Steering and Advisory Groups are evaluating the relevance and feasibility of these alternatives in different regions and at different scales of operation, whether voluntary approaches or local labelling schemes might develop into a more rigorous certification framework, and how these efforts might best be harmonized with existing relevant frameworks, such as sustainable forest practices, organic agriculture and product quality standards.

#### *Users and beneficiaries of the ISSC-MAP*

To be useful and successful, any standard must have tangible, beneficial results for producers, resource managers and consumers. The Advisory Group has begun to discuss and define the intended beneficiaries of this standard, and the form these benefits might take. For producers (collectors, manufacturers, retailers and others involved in the chain of supply), it is clear that there must be a market advantage resulting from adherence to this standard, in the form of improved access to consumers, premium prices and/or improved company image. Resource managers (who are in many cases also the producers) must have confidence in the reliability and rigor of the standard, as well as the capacity to monitor its application at the collection site. For consumers, there must be evidence that sustainably collected MAP products are better products, and therefore worthy of a higher price and/or greater loyalty to a product, manufacturer or retailer. Are consumers sufficiently interested in MAP resource sustainability (in addition to product quality, fair trade practices, etc.) as a responsible industry approach that deserves their support? These are major questions and challenges in the development of this standard.

#### *Responsibility for the ISSC-MAP*

As many members of the Advisory Group have pointed out, custodial responsibility for the standard must be defined and carried forward through the current and future stages of developing, testing, revising, implementing and again revising this standard. Responsibility will depend to a large degree on the form in which the standard is implemented. At present, the institutional members of the Steering Group – BfN, WWF/TRAFFIC Germany and the MPSG/IUCN – have taken up the task and the responsibility for drafting the standard, in consultation with an international Advisory Group and all interested stakeholders. It has become clear over the initial stage of this process that a substantial constituency of users and beneficiaries does indeed exist, but also that this constituency is very broad in its understanding of resource sustainability, cultural context, trade circumstances and geography. It will be a continuing challenge to find a balance for these interests and

sensibilities that strengthens, rather than weakens, the resulting standard.

### STRUCTURE OF THE ISSC-MAP (DRAFT 2)

The first draft of this standard (Leaman et al. 2004) was divided into four separate ‘practice standards’, each of which contained several principles and numerous related criteria. Ideas for verification and guidance were suggested in broad terms unrelated to specific criteria. Much of the criticism and advice from reviewers of the first draft focused on the need to simplify and refine the focus of the proposed elements to create a single standard and to provide greater consistency in the hierarchy of its components.

#### *Conceptual framework of standard components (vertical structure)*

In this second draft of the standard, we have proposed a clearer functional hierarchy

**Table 1.** Functional differentiation of standard components

<b>Element</b>	<b>Description</b>	<b>Analogy</b>	<b>Example</b>
<b>Standard</b>	Set of rules developed for conceptualization, implementation and/or evaluation of good management practices	Science	Sustainable forest management
<b>Principle</b>	Normative, core commitment or management target which is required to meet the objectives of the standard	Discipline	Management of forests ensures that future generations are provided with an equivalent resource basis for economic use
<b>Criterion</b>	Performance aspect, which serves as object or category for verifying achievement of the corresponding management target (principle)	Measure	Harvested timber volume
<b>Indicator</b>	Concrete, verifiable management requirement, which constitutes the actual performance reference of a particular aspect (criterion)	Measure Benchmark	Harvested timber volumes are below the calculated mean annual timber increments
<b>Verifier</b>	Procedure, document or numerical parameter that is suitable to check compliance with the management requirement (indicator)	Measuring instrument	Inventory

of the components according to the division outlined in Table 1 (Leaman and Salvador 2005).

*Content of the ISSC-MAP*

An important result of the meeting of Advisory Group members on the Isle of Vilm in December 2004 was agreement on eight principles that together create the foundation of this standard. Much discussion focused on how these principles might be grouped to convey a clear sense of the order, or priority, in which they should be addressed in collection operations. There was eventual recognition that actual collection operations might begin to address these principles in an order relevant to the status of development or implementation of the operation. For example, a proposed collection operation would likely begin with resource assessment and management planning, whereas an existing and mature operation would likely begin with assessing and monitoring of the impacts of collection. An abbreviated outline of the revised (Draft 2) ISSC-MAP is provided in Table 2. The entire structure of the standard, including proposed indicators, means and types of verification, relevant guidance required, and reference to other frameworks is available on the Project download website: <http://www.floraweb.de/map-pro/> (Leaman and Salvador 2005).

**Table 2.** Components of the ISSC-MAP (Draft 2)

Sections	Principles	Criteria
<b>I. LEGAL AND ETHICAL REQUIREMENTS</b>	<b>1. Legitimacy</b> MAP collection and management activities are carried out under legitimate tenure arrangements, in compliance with relevant laws, agreements and guidelines	1.1. Management authority, tenure and use rights 1.2. Compliance 1.3. Prevention of illegal / unauthorized activities
	<b>2. Customary rights</b> Local communities' and indigenous peoples' customary rights of use and management of collection areas and wild collected MAPs are recognized and respected	2.1. Access, use and tenure rights 2.2. Benefit sharing 2.3. Cultural heritage and traditional uses 2.4. Participation and integration of local interests
	<b>3. Transparency</b> MAP collection and management activities are carried out in a transparent manner with respect to sharing information and consulting stakeholders	3.1. Information 3.2. Consultation
<b>II. RESOURCE ASSESSMENT, MANAGEMENT PLANNING, AND MONITORING</b>	<b>4. Assessments</b> Regular assessments of the target MAP resources and habitats and of social / cultural / economic issues related to MAP collection, are performed, documented and reflected in management planning, implementation and monitoring	4.1. Basis for assessment 4.2. Knowledge about target MAP species 4.3. Knowledge about MAP habitat / collection area 4.4. Social / cultural / economic issues
	<b>5. Management planning</b> A management plan is written and revised as needed to direct / guide MAP wild collection operations	5.1. Consistency and coordination of the management plan 5.2. Content of the management plan
	<b>6. Monitoring</b> The impacts of collection practices and conformity of management with planning are monitored at regular intervals	6.1. Basis for and application of monitoring

Table 2 (cont.)



Table 2 (cont.)

Sections	Principles	Criteria
<b>III.</b> <b>RESPONSIBLE COLLECTION AND COLLECTION AREA PRACTICES</b>	<b>7. Collection practices</b> The collection of MAPs is conducted at a scale and rate and in a manner that: a) does not undermine the long-term availability, viability and quality of MAP species and populations; and b) does not exceed the target species' ability to regenerate over the long term	7.1. Rationale for MAP collection 7.2. Growth / regeneration 7.3. Age / size class 7.4. Quantity (collectable yield) 7.5. Frequency 7.6. Timing 7.7. Density / abundance 7.8. Good Collection Practices
	<b>8. Environmental impact and conservation measures</b> Collection management maintains ecosystem structure, function and services with a focus on conservation measures essential to the long-term sustainability of MAP resources in the ecosystems in which they occur	8.1. Sensitive taxa 8.2. <i>In situ / ex situ</i> measures 8.3. Prevention of negative impacts
	<b>9. Market requirements</b> Wild collection of MAPs is undertaken according to quality requirements of the market without sacrificing sustainability of the resource	9.1. Financial sustainability 9.2. Transparency and traceability
<b>IV.</b> <b>RESPONSIBLE BUSINESS PRACTICES</b>	<b>10. Worker relations</b> Systems of management for wild collection of MAP resources ensure the capacity of collectors and other workers to comply with the requirements of this standard, and meet or exceed applicable policies, laws and regulations with respect to health, safety and compensation	10.1. Training and capacity building 10.2. Workplace requirements

## NOTES

- <sup>1</sup> “Medicinal” and “aromatic” are terms describing properties of chemistry and use that can be ascribed to plants. Medicinal plants prevent, alleviating, or curing disease. This group can be defined narrowly, to include only those plants already known to be used in this way in some system of medicine, traditional or modern, or it can be defined broadly to include potential, as yet undiscovered uses of this nature. Aromatic plants contain fragrant, essential oils valued as perfumes, herbs, spices, and as medicines. Many “medicinal” plants are thus also “aromatic” (and vice versa), just as medicinal and aromatic uses overlap within particular taxa with other important categories of plant use, such as foods and beverages. The coincidence of highly desirable qualities within particular taxa makes these groups all the more important as plant genetic resources. The degree of overlap between medicinal and aromatic properties and uses has supported the treatment of medicinal and aromatic plants as a single category, particularly from the point of view of commercial harvest, trade, and agriculture (Leaman et al. 1999).
- <sup>2</sup> For a summary and analysis of efforts to consider the relevance and application to NTFPs of various models aimed at certification of sustainable wild collection, see Shanley et al. (2002).
- <sup>3</sup> A current list of members of the Advisory Group is available on the project website: <http://www.floraweb.de/map-pro/>.
- <sup>4</sup> The first draft MAP standard was loosely modelled on the structure of the Marine Aquarium Council (MAC) “Core Standards and Best Practice Guidance for the Marine Aquarium Trade” (MAC 2001), and on the Working Draft ABS Management Tool currently under development by the State Secretariat for Economic Affairs (SECO), Government of Switzerland (SECO 2005).
- <sup>5</sup> Summary minutes of this workshop are available on the project website: <http://www.floraweb.de/map-pro/>.

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