

Sustainable Management of Biodiversity, South Caucasus

Manual for Sustainable wild Collection Practices



**Heiko Schindler
Jenni Ponsens
Antonia Schneider**

Institute for Marketevology (IMO)

Working Papers – 42/2011

Table of contents

Preface and Introduction	2
1 How should sustainable wild collection be done?	3
1.1 Where and how to collect?	3
1.2 Which plants and plant parts to be collected and when?	3
2 Handling of plant material during collection	4
2.1 Harvesting material and conditions	4
2.2 Handling during harvest and transport	4
3 Handling of plant material after collection	5
3.1 Drying	5
3.2 Packaging and Storage	5
4 Commercial Samples and Herbarium Samples	6
4.1 Commercial Samples	6
4.2 Herbarium samples	7
5 Glossary	8
6 Annex: Self- Checklist for Collectors	9

Preface and Introduction

This manual is written within the framework of the programme “Sustainable management of the biodiversity in protected areas and forests, South Caucasus” financed by the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the Deutsche Gesellschaft für Technische Zusammenarbeit (Gtz). This programme has a specific component for sustainably managed wild plant diversity; in order to address this component the Institute for Marketecology (IMO) was assigned with the implementation of a sustainability standard specifically written for the management of wild plants, the FairWild Standard Version 2.0.

The manual is written as a guideline for collectors, collection operators, collection managers, brigadiers, purchase and drying staff of wild growing plants. It gives a brief introduction to sustainable wild collection and describes how wild growing plants should be collected. Further, it explains how the plants should be handled after collection until they are sold to the collection company. The manual is addressed to both collectors who are already experienced in wild collection and to persons who never had any contact with this activity, as well as all trainers, supervisors, instructors and managers who are active in wild collection.

More and more people demand “natural” products made from wild collected plants. Such products may be used in different ways; mainly they are used in the food industry, in the pharmaceutical industry or in the cosmetics industry.

However, the excessive collection of wild plants often leads to a decrease of these plant species, a process called “over collection”. Some species may become endangered or disappear all together. Consequently, collectors have to walk further and further or cannot collect the requested quantities any more. In order to enable continuous collection and therewith to ensure continuous income for collectors, it is important that plant populations remain vital and productive. Sustainable collection methods ensure that plant populations and species are maintained over the long-term.

1 How should sustainable wild collection be done?

Wild collection = collection of plants that grow naturally.

Sustainable wild collection = plants are collected in a way that
→ plant populations do not decrease
→ the species survive in the long-term
→ their surroundings are not damaged
→ no other plants or animals are disturbed

1.1 Where and how to collect?

- Collection methods may not damage the **environment**. They must ensure optimum conditions for **regeneration** of the plant species harvested. Regeneration is guaranteed when enough flowers, seeds, leaves or roots stay untouched, so that they can reproduce.
- Collection may only take place in **non-polluted areas**, or with minimum distance to the sources of **potential contamination sources**, such as
 - human settlements or agricultural areas
 - roads / traffic or industry
 - waste deposits or radioactivity
- Collection has to be made according to the **collection instructions** which are **provided by the collection operator** (brigadier/contact person of your buying company)

1.2 Which plants and plant parts to be collected and when?

- The following plants or plant parts may not be collected:
 - plants that are not **wild** (naturally grown), such as plants from fields, settlements, gardens, paths, roadsides, industrial sites or similar areas
 - **rare species** (species which are not common in the area)
 - species listed as **endangered** or **protected** by law
 - species which may be **destroyed** or **damaged through collection need special care in collection practices** (species which do not reproduce easily or which grow slowly)
- For harvest, **adult plants** may be used **only** (unless different information in collection instructions is given)
- Plants shall be harvested only, when they are at the **best possible quality** for use. Collectors should wait for the demand of the company before they start collecting. Damaged plant material must be generally excluded
- Collect **only** those plant **parts which are used** - The exact quantity and the exact plant part, as demanded by the company, may be harvested - nothing else
- Collect each time in a **different place** within the collection area. Never collect all plants from the same part of the collection area, and do not return to the same site for collection more than once per collection season
- Use a **different part of the collection area** in the next season, or go to a completely different area to collect the same plant, **when collecting herbs, roots, flowers or leaves**
- Always **harvest by thinning**: leave every second plant un- harvested (or as specified in the collection instructions)

- Not all plants are equally suitable for collection. If roots or whole plants are collected, the regeneration of the individual plant may not be possible any more. In such cases, individual plants need to be left untouched. Please consider the following general **harvest limits** to ensure regeneration of the plants

<u>Plant part collected</u>	<u>Maximum percentage that may be collected</u>
• Roots / bulbs:	20% of the population, collection only every 3 rd year
• Leaves:	30% of the leaves
• Flowers:	70% of the flowers of each plant and additionally 80% of the whole population
• Seeds / fruits:	70-80% of the seeds / fruits

2 Handling of plant material during collection

2.1 Harvesting material and conditions

- Plant species should be harvested under the **best possible conditions**. Wet soil, dew, rain or extremely high air humidity should be avoided. **Harvest** is best done **in the mornings**, when there is no dew on plants and when it has not rained the night before
- Harvesting methods **prohibited** are **beating of plants with sticks**, tearing out (parts of) **plants with their roots**, and the **use of axes, saws, chain saws** for cutting whole branches
- **Cutting tools** (scissors, knives, sickles) must be **cleaned** and disinfected between two collections to reduce contamination
- All **containers** used during harvesting must be **new** or well **cleaned** and **free of contamination** from previous material. When containers are not in use, they must be kept in dry conditions free of pests and inaccessible to mice, rodents, livestock and domestic animals

2.2 Handling during harvest and transport

- The harvested plant material should **not** come into **direct contact with the soil**, and not exposed to **direct sunlight, rain, dust, insects or animals**
- Plants must be **promptly collected** and **transported in dry, clean conditions**
- During harvesting **no other plant species** growing in the collection area may be **mixed** with collected plant material, and collected material should be **free of other plant parts from the same plant**
- **Mechanical damage** and **compacting** of the collected fresh plant material must be **avoided**. Transport containers must **not** be **overloaded**, and must not be put on top of each other
- Freshly harvested plant material must be **delivered** as **quickly** as possible to the processing facility in order to prevent degradation.
- Any **pest control measures** taken have to be documented
- **Damaged** plant material must be **separated**
- **Label** all containers with the following: **Collected plant, collection area, collector name, date of collection, weight**

3 Handling of plant material after collection

3.1 Drying

- **Drying facilities** (in the field, at home or in purchase centre) have to be
 - **free of pesticides** and other **toxic materials** like cement, diesel fuel, fertilizers, paint and other chemicals
 - **clean** from garbage, dust, and other goods or materials
 - **dry** and **free from mould**, fungi or deteriorating material
 - **well-aired** through **air circulation** (drying on nets, trays, with ventilator, heat)
- On arrival at the processing facility (collectors home, purchase centre or collection company) the harvested plant material has to be **promptly unloaded** and **unpacked**
- Material should **not** be **exposed directly to the sun** and has to be **protected** from additional **humidity** and **rainfall**
- Drying directly **on the ground** should be **avoided**. Dry on tables, scaffoldings, canvas covers or similar materials. Especially, **do not dry on or next to roads** because the dust from traffic contaminates the goods
- Try to achieve **uniform drying** of the fresh plant material to avoid formation of mould and fungi. **Turn twice a day**, and **spread the plants in thin layers**.
- Poison and pesticides may not be used as pest control measures. **Pest control** has to be done **mechanically** with the help of closed doors, fly screens, lime strips etc. Any pest control measures taken should be documented
- When using **artificial dryers**, the drying **temperature** should **not be too high** (recommended not to exceed 60 degree Celsius)

3.2 Packaging and Storage

After the drying process

- Use only **packing material** provided or authorized by the **Collection Company** (e.g. clean paper bags). **Never** use **old fertilizer bags** or similar contaminated material
- In order to protect the product and to reduce the risk of pest attacks, **early packaging** is advisable
- **Labels** must be filled out and attached to each storage container, with information about **collected plant, collection area, collector or purchase centre name, date of collection, weight**
- Until picked up by the company, containers have to be **stored in a clean and dry places** (free from humidity, mould, and other sources of contamination (as described under "*Drying*"). **Store on pallets**, and at least **30 cm away from walls**

4 Commercial Samples and Herbarium Samples

4.1 Commercial Samples

What is a commercial sample and what is it used for?

A **representative, commercial sample** is a limited quantity of plant material which can be sent to potential buying companies or to laboratories, in order to give information about the plant material available in the collection area. The potential buyer can answer the following questions by analysing the sample:

- Is it the correct plant species (since often different plant species with different chemical and physical characteristics are traded under the same name)?
- Is the quality sufficient (size, colour, smell, look, moisture, mixed with other plants, dust, stones etc)?
- Is the material contaminated with chemicals, heavy metals, mould, fungi or similar substances, and free from insects, hairs, faeces of rodents etc?

Procedures for commercial sample taking

- Any sample has to be **representative**: it has to have the **same quality characteristics as the whole batch of collected goods** (size, colour, smell, look, moisture of plant parts for the sample need to have the same characteristics as the whole batch)
- If coming from different collection areas or collectors, the sample needs to be **homogenously mixed** before sending
- The **homogenous sample** is the final sample which **will be analysed**. The different **spot-samples** (the same plant species from different collection areas/ different collectors) that are taken to produce a final sample **have to be very well mixed** (imagine to mix a red powder with a green one → the final result should be a green-red texture without bigger spots of green or red)
- **Recording of origin** of the different spot samples is very important (names of collectors or purchase centres plus mixed amount)
- Correct botanical **identification** of the sample material needs to be **checked** by the collection operator, as well as **quality** and **appearance**. Botanical name, trade name, quality description, origin, harvest dates and quantity have to be written on the sampling bags/labels
- The homogenous sample is then equally split in two (or more if more samples are needed) parts: **one part of the sample for the potential buyer, one part remains in the collection operation**
- **One part of the sample always remains in the collection operation** and has to be **kept** for at least **one full year**. This is important for eventual later proof that the sent sample was really representative and of good quality

Please use this guideline for producing homogenous samples:

Plant part	Min. amount of ONE spot sample (from one origin)	Min. amount for the homogenous sample	Min. amount per sample bag
Dried herb and roots	300 g	600 g	300 g
Dried fruit and seed	500 g	1000 g	500 g
Liquids (sap, essential oils)	100 ml	200 ml	100 ml

4.2 Herbarium samples

What is a herbarium sample and what is it used for?

A **representative herbarium sample** is a plant of typical appearance, which has been collected fresh from the own collection area, which contains all parts (flowers, fruit, herb, roots if possible) and which is immediately pressed for its conservation. When pressed and stored correctly, it can be kept for hundreds of years. It can help to:

- Identify the exact scientific botanical name of the plant (much more precise than a commercial sample, which consists only of dried and often broken parts of the plant)
- Compare the target plant with already collected herbarium samples from botanical collections
- Train collectors in the exact botanical identification of the needed target plant, in cases where similar looking plants grow in the same collection area
- Give proof over time that still the same plant species grows in the same collection area
- Show potential buyers the target plant with all characteristics and plant parts also when out of season

Procedures for taking a representative herbarium sample

- Any herbarium sample has to be **representative**: it has to be **from the area** where the plant is actually collected. It has to **contain all relevant plant parts** (leaves, stalk, flowers, fruits/seeds and roots for annual/perennial plants, bark for trees)
- If **two similar looking plant species** are **mixed together** during collection, herbarium **samples of both species** have to be taken
- If **the same plant** is collected in very **different environments** (for example lowlands and alpine zones), herbarium **samples of the different collection areas** have to be taken in order to guarantee that the plants from these two areas are really the same species
- The sample needs to be best taken when the **plant is neither wet nor dried out**, during flowering period. Another sample may need to be taken when fruits or seed are developed
- **Harvest** the herbarium specimen **fresh by hand** or with a knife or scissors. **Press** the plant parts **immediately between layers of paper** and a **hard frame** (wooden herbarium frame). Fix the different layers with a belt
- **Arrange the parts** of the plant immediately when still fresh so that they can be seen from different sides (one leaf with its upper side, one leaf with its under side etc)
- On the **label**, immediately note the Latin and vernacular **name of the plant**, the exact **position** of the herbarium sample (ideally GPS Position), the **name of the collector**, and the **date of collection**. Record your observations (soil, other vegetation etc)
- Leave the plant in the plant press until **fully dry**. Change the newspaper layers once a day
- When fully dry, **glue** the pressed plant **on hard paper** together with the **label**. Arrange so that all parts are well visible from different aspects
- Keep the herbarium sample **wrapped in a protective paper** folder and **store away from sunlight, moisture and insects**

5 Glossary

In this section, specific terms used in this guidance manual are defined:

Collection area:	Defined area where the collection of wild plants, which will be certified, may take place. The collection area needs to be indicated on a map.
Collection instruction:	Written description of the plant and plant part to be collected, together with quality requirements, sustainability requirements and instructions on further handling.
Collector:	Person who collects wild growing plants, either on commercial basis for a company or as individual and for own private use.
Operator:	Any individual or organization that organizes a wild collection operation and / or purchase / trade and or processing of the collected material. The operator is responsible for training of collectors, for developing internal collection rules and collector instructions, and for full compliance of the operation with the FairWild or organic standard.
Plant population:	A group of individuals of the same plant, which can be separated either by natural or artificial borders. Natural borders are large water bodies, deserts, high mountains etc. Artificial borders separate similar areas with occurrence of the same plant from each other, for example the plant population of the species x in the department y, or in the country z.
Purchase centre:	Facility that buys collected goods from collectors, either on contract for a collection operator or under own management. First processing steps can also take place there, such as drying, cleaning, cutting, packing etc. Purchase process and storage and their quality are verified during a FairWild or organic audit.
Sustainability:	The long term survival of wild plants including the maintenance of their functionality and productivity within the collection area

6 Annex: Self- Checklist for Collectors

Issue	Question	OK	Not OK
Collection Place	Is the collection place a natural area which has not been changed or contaminated in the past: <ul style="list-style-type: none"> The collection place is not on an old industry site or old battlefield The collection place is not on an old military site The collection place is not on or around agricultural fields The collection place is not contaminated by grazing animals such as cows or sheep 	<input type="checkbox"/>	<input type="checkbox"/>
Collection Place	Is the collection place at least: <ul style="list-style-type: none"> 50 km from any nuclear installation 5 km from cities, towns and airports 1000 metres from major enterprises and industrial installations 300 m from main roads, railways, settlements, small enterprises, and fields 100 m from little roads and byroads 	<input type="checkbox"/>	<input type="checkbox"/>
Collection Place	Collection places can be polluted by movement of water, dust or earth. <ul style="list-style-type: none"> When on a slope, is the collection place NOT located under industrial installations (at least 1000 metres away)? When along a river, is the collection place NOT located where industrial installations contaminate the water (at least 20 km away)? 	<input type="checkbox"/>	<input type="checkbox"/>
Collected plant	Do you collect: <ul style="list-style-type: none"> Only those parts of a wild plant which are actually used (e.g. not to collect roots if only leaves are needed), and in the correct quantity? Only plants which are not damaged by insects, viruses, fungi and other natural or artificial damage? Only according to the specifications of your buyers or traditional knowledge? At adequate times for collection? 	<input type="checkbox"/>	<input type="checkbox"/>
Collected plant	Do you respect these general guidelines? <ul style="list-style-type: none"> Roots, bulbs: collect max. 20% of the population Leaves (bushes, trees): collect max. 30% of the leaves of the tree or bush Flowers: collect max. 70% of the flowers of each plant Seeds/Fruit: collect max. 70-80% of each plant 	<input type="checkbox"/>	<input type="checkbox"/>
Transport, drying, storage	Do you follow these rules? <ul style="list-style-type: none"> Always use clean and new containers for collection, NEVER use containers which were in contact with chemicals before (e.g. fertilizers, petrol etc) During transport and storage NEVER put the collected plants close to chemical substances (cement, colour, oil, agro-chemicals etc) Never use insecticide spray in or around the storage room (household fly spray!!!) 	<input type="checkbox"/>	<input type="checkbox"/>
Identification	Do you always put a label on the containers of collected plants which contains <ul style="list-style-type: none"> Name of collected plant Name of collector Place of collection area Date of collection and quantity 	<input type="checkbox"/>	<input type="checkbox"/>
Legal aspects	Do you know if you are legally allowed to collect in your collection area? <ul style="list-style-type: none"> Do you have a valid collection permit? If no permits are issued: you know who owns the land where you collect? Has the owner given his OK that you may collect on his land? 	<input type="checkbox"/>	<input type="checkbox"/>
Legal aspects	Are you a registered collector? Registered collectors: <ul style="list-style-type: none"> have signed a contract with their buyer (collection company) are registered on a list of collectors, where their address and number of household members who help with collection are listed have received a training in the wild collection rules 	<input type="checkbox"/>	<input type="checkbox"/>

Please give your comments here:





Federal Ministry
for Economic Cooperation
and Development



**Sustainable Management of Biodiversity
South Caucasus**

Programme Office
Ministry of Environmental Protection and Natural Resources
6, Gulua St, 6th. fl
0114 Tbilisi Georgia
T: +995-32-201828
www.giz.de

Institute for Marketecology

as branch of the
BIO Foundation Switzerland
Weststrasse 51
CH-8570 Weinfelden Switzerland
Tel: +41-71-6260626
www.imo.ch