

# **FAIRWILD RESOURCE ASSESSMENT**

## **FAIRWILD GUIDANCE MANUAL FOR ESTABLISHING SPECIES AND AREA MANAGEMENT PLANS FOR LOW RISK PLANT SPECIES**

**Version 1.0**

December 2014



**giz**



**This document**, and other documents related to the FairWild Standard are available on the FairWild website: [www.FairWild.org](http://www.FairWild.org).

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# Preface

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This manual is intended to give guidance for the implementation of ecological criteria of the FairWild Standard Version 2.0 (FairWild Foundation 2010a). It is written to introduce procedures for conducting resource assessments and developing management plans for plants which are classified by the FairWild Foundation as being at 'low risk' of unsustainable collection.

It can be used by as yet uncertified collection operations as a guideline on how to comply with the requirements for resource assessment for low risk plants, or by certified wild collection projects as further guidance for implementation and identification of aspects of their management that might need to be improved.

## Structure

The manual provides practical examples for all relevant aspects of a species and area management plan, and explains the relevant principles, criteria and indicators of the FairWild Standard. It also identifies which FairWild Standard performance indicators (FairWild Foundation 2010b) include minimum requirements and which can be fulfilled additionally for best practice.

## Implementation



Describes how each principle can be implemented

Describes a document which should be prepared and kept by the operator. Examples of how these documents should look are found in the annex.



Describes a formal document which is issued by a third party such as relevant authorities, head of the community, external experts, etc.

# 1. Introduction

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## 1.1 The FairWild principles related to species-area management plans

One of the basic intentions of the FairWild Standard and certification scheme is to prevent negative impacts on collected target plant resources through inappropriate collection techniques and through exploitation levels over the production capacity. This is expressed by Principle 1 and partly by Principle 9 of the FairWild Standard:

### **Principle 1: Maintaining Wild Plant Resources**

**Wild collection of plant resources shall be conducted at a scale and rate and in a manner that maintains populations and species over the long term.**

#### **Criterion 1.1: Conservation status of target species**

*The conservation status of target species and populations is assessed and regularly reviewed.*

#### **Criterion 1.2: Knowledge-based collection practices**

*Collection and management practices are based on adequate identification, mapping, inventory, assessment and monitoring of the target species and collection impacts.*

#### **Criterion 1.3: Sustainability of collection rate**

*The rate (intensity and frequency) of target resource collection does not exceed the target species' ability to regenerate over the long term.*

Principle 1 requires that the wild collection activities shall be organised so that the collected target plants and plant parts are not over-collected. It especially addresses the factors of time and space: when can collection be conducted, and when can it be repeated in the same area? How is the collection area defined?

It also gives directions on how to define maximum quantities that can be collected per target plant: How much can be collected year by year, so that enough plant material is left for reproduction? It also deals with the human component of wild collection: What information do instructions for collectors have to contain?

Principle 1 thus forms the basis of understanding, how the target plant and plant part can be collected without negative impacts. To fully understand the potential for a resource to be used sustainably, it is necessary to ensure the correct identification of the target plant, review of any existing research or classification of its conservation status according to Red Lists<sup>1</sup>, and the compilation of information about its biology, including the potential for the resource to regenerate.

**Principle 9: Applying Responsible Management Practices**

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

**Criterion 9.1: Species / area management plan**

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

**Criterion 9.2: Inventory, assessment and monitoring**

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

Principle 9 gives guidance on how the collected plant resources can be managed sustainably, and how this management can be organised to enable quick reactions to changes or factors which may threaten the resources or the collection operation. Transparency of management and participation of other stakeholders is a very important point in implementing the FairWild Standard.

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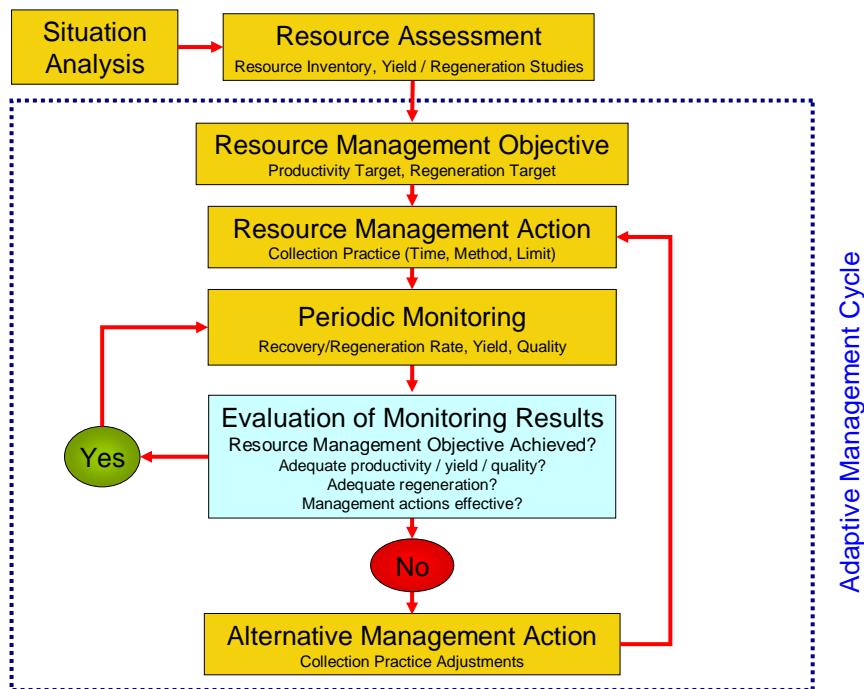
<sup>1</sup> The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria. <http://www.iucnredlist.org/>

## 2. An adaptive management cycle

The basis for developing any species and area management plan will be a thorough analysis of the situation, followed by a resource assessment. To successfully manage the resource, the objectives (in terms of productivity and regeneration) need to be clearly set, and management practices defined e.g. through a set of collection instructions that give guidance on methods and limits to collection.

The situation needs to be re-evaluated periodically and compared to the initial situation analysis and resource assessment. If this periodic monitoring shows that there are no significant changes in the target plant population collection practices can continue without any changes. If monitoring shows that there are negative impacts resulting from activities of the collection operation or from other factors, the management planning and its implementation need to be adapted accordingly. Examples of potential action may be writing new collection instructions and developing adapted training for the collectors or influencing local or national policy with regard to sustainable land use.

This process is called adaptive management planning, and is illustrated within the blue square of the following diagram:



The resource assessment can be broken down into five steps, which feed into the adaptive management process:

Step No.	Name and result of the step
1.	<b>Situation analysis:</b> Baseline information is available on the target plant population size, distribution, and structure.
2.	<b>Resource inventory:</b> The first assessment of total volume and distribution/ locations of the target plant within a defined collection area is available.
3.	<b>Yield/Regeneration studies:</b> The determination of sustainable yield in percent of target plant population or percent of individual target plant in volume or kg/area is available
4.	<b>Assessment of harvest impacts:</b> Results are available on the effect of harvest methods and harvested quantities on the target plant.
5.	<b>Periodic monitoring:</b> Steps 2, 3 and 4 are repeated in regular time intervals. The results show if wild collection of the target plant in the defined collection area is sustainable or not.

The assessment needs to be specific to the area where the plant is collected. If the plant is collected in several distinct collection areas, the procedure needs to be repeated in each area.

## 2.1 Situation analysis

The situation analysis provides a foundation for later steps in the resource assessment process. A full situation analysis will address not only the ecological factors (the focus of this guidance document), but also relevant social, legal, economic and broader environmental factors.

A key part of the situation analysis is to understand the likelihood, or risk, that collection will be unsustainable. Not all species respond to collection pressures in the same way. As part of the FairWild certification application process, the FairWild Foundation provides the applicant with a classification of the risk status for the applied plant(s), based on an analysis of a number of biological factors. The result of classification will be provided to the applicant together with a “fact sheet” for each plant assessed. Most of the background information needed for the situation analysis is contained in the fact sheet. However, as the risk analysis is based on a desk review, it will need to be complemented with field information on the local plant population size and specific collection conditions.





It is also of vital importance that there are no doubts about the correct identification of the target plant. All further steps are based on the correct identification of the target plant with its accepted scientific name.

As a minimum, what needs to be done for low risk species?





- The correct local, trade and scientific name of the target plant needs to be confirmed through a herbarium voucher specimen (see chapter 3.2 for explanations)
- A fact sheet or plant monograph needs to be available for each target plant
- The protection status of the target plant needs to be known

In order to better understand the differences between plants classified as low, medium or high risk, the following table gives an example on a typical low risk plant, the herb of stinging nettle (*Urtica dioica*) and of a species at higher risk of unsustainable collection, the root of yellow gentian (*Gentiana lutea*). In the example both target plants are collected in Albania (Southeast Europe):



Scientific name of target plant	<i>Urtica dioica</i> , <i>Urticaceae</i>	<i>Gentiana lutea</i> , <i>Gentianaceae</i>
Photo of the target plant		
IUCN Red List Assessment	Not evaluated	Not evaluated
National Conservation Status	Not threatened	Listed as "Endangered" in Albania
Basic botanical data	Deciduous perennial plant up to 150 cm high, regeneration through seeds and rhizomes. Dioecious plant. Pollinated by wind.	Herbaceous perennial up to 100 cm high, regeneration through seeds. Flowers hermaphrodite, pollinated by insects.
Identification problematic?	No danger of confusion with other species	Confusion possible, especially when not yet in flower.
Geographic distribution and habitat	Vigorous growth, distributed over a wide range of countries of the northern hemisphere, and a wide range of habitats.	Scattered and restricted to alpine meadows in Turkey, Ukraine, all Balkan countries, Italy, Switzerland, Austria, Germany, France, Spain, Portugal.
Local population size	Often abundant. A weed in gardens and on cultivated land.	In Albania, scattered distribution at high mountain level in the northern and eastern part of the country.
Collected plant part	The upper 50 cm of the herb are collected before flowering. The plant regenerates quickly due to its quick and rigorous growth. 	The roots are collected often before flowering, and their collection destroys the whole plant 
Growth and regeneration rate	Within 3-4 months	Plants can become 50-60 years old. Plants flower for the first time after 5-10 years of vegetative development. Regeneration of one harvested tap root after ca. 10 years.
Commercial demand	No shortage of material in trade, but high quality material can be scarce.	Shortages of material in trade.
Other plant parts used?	Also the rhizomes are collected and used medicinally.	Only the roots are used commercially.
One or several user groups?	More than one group collects in the same collection area without management agreements	More than one group collects in the same collection area without management agreements

In a further example all baseline information about the target plant is available in a plant monograph:

<b>Botanical Name:</b> <i>Tussilago farfara</i> L.	<b>Botanical Family:</b> <i>Asteraceae</i>
<b>Plant Local name(s)</b> English: Coltsfoot, German: Huflattich, Georgian: viristerfa, Azerian: Ögey ana, Armenian: Տաստրակ, խոչկորիկ	
<b>Description of the Plant</b> Coltsfoot is a perennial herbaceous plant that spreads by seeds and rhizomes, the plant is typically between 10 - 30 cm in height. It is often found in colonies of dozens of plants. It is in flower from February to April, and the seeds ripen from March to May. The leaves, which resemble a colt's foot in cross section, do not appear usually until after the seeds are set. Thus, the flowers appear on stems with no apparent leaves, and the later appearing leaves then wither and die during the season without seeming to set flowers. The large leaves with their thick felt-covered undersides occur in rosettes. The flowers of both species are hermaphrodite (have both male and female organs) and are pollinated by insects. The plant is self-fertile. The plant is native to temperate western and northern Asia, Europe and northern Africa, and naturalized elsewhere. In the Caucasus, it occurs in Georgia, Armenia and Azerbaijan.	
 <p><a href="http://commons.wikimedia.org/wiki/File:Coltsfoot.jpg">http://commons.wikimedia.org/wiki/File:Coltsfoot.jpg</a></p>	 <p><a href="http://commons.wikimedia.org/wiki/File:Huflattich_Blaetter.jpg">http://commons.wikimedia.org/wiki/File:Huflattich_Blaetter.jpg</a></p>
<b>Herbarium specimen</b>  <p><a href="http://vanherbarium.yyu.edu.tr/flora/famgenustur/ast/tus/images/Tussilago-farfara-L.-ma1768.jpg">http://vanherbarium.yyu.edu.tr/flora/famgenustur/ast/tus/images/Tussilago-farfara-L.-ma1768.jpg</a></p>	 <p><a href="http://commons.wikimedia.org/wiki/File:Koeh-142.jpg">http://commons.wikimedia.org/wiki/File:Koeh-142.jpg</a></p>

**Confusion possible with other similar plant(s):**

The described species is not easily confused with other related plant species.

Care must be taken not to confuse the leaves with the leaves of similar looking plants from the Caucasus, e.g. *Petasites hybridus*, a similar looking species which grows in moist and damp places like riversides. The leaves of *Petasites* are not as felty as Coltsfoot, they are large, on stout 80-120 cm tall stems, round, with a diameter of 40-70 cm.



<http://commons.wikimedia.org/wiki/>

File:Petasites\_hybridus\_Sturm53\_cleaned\_fragment.jpg

**Protection status**

IUCN Red List Status: not listed

National Red List of Georgia: not listed

National Red List of Armenia: not listed

National Red List of Azerbaijan: not listed

**Description of the collection habitat**

Coltsfoot is growing mainly on heavy clay soils, in hedgebanks, wasteland, often as a pioneer, and on dunes and shingle in coastal zones. It is also common on paths and roads, roadsides, disturbed areas or similar compacted soil. Special care must be taken not to collect this plant on or next to contaminated places, as well as gardens, roads, waste deposit and industrial sites.

**Description of collected part(s) of the plant**

The fresh or dried leaf, harvested after flowering and seed production (*Farfarae folium*): Whole or cut, fresh or dried leaves of Coltsfoot, harvested after flowering time from May to summer.

**Description of collection technique**

Only young, healthy, green and undamaged leaves are harvested fresh, by hand, with knives, scissors or sickle. Do not pull up the plant with its roots, always make a clean cut for harvest. The leaves should be collected when they are not covered with dew.

**Sustainability**

The plant produces its leaves annually. 30 % of the population at one site has to stay untouched. It is not allowed to pull out the plant from the soil. Collection on or next to places with human influence such as paths, dirt roads, roadsides, houses, gardens, settlements etc is forbidden.

**Post collection treatment**

Harvest containers have to be clean, dry and well ventilated. New bags should be used which are labeled with the following information: Name of collected plant, collection area, collector name, date of collection, weight.

Dry smaller quantities naturally in a well aerated place with no direct sunlight. The drying place has to be protected from dust, animals and insects and well-aired (wind). Dry larger quantities in dryers with maximum air temperature of 40 degree Celsius. Dried plant have to be packed in paper or jute bags until used. Storage has to be protected from light and moisture.

Care has to be taken that processed material does not become mouldy and it has to be free from other plants or plant parts. Water content: not more than 10.0%. Foreign organic matter: not more than 2.0%

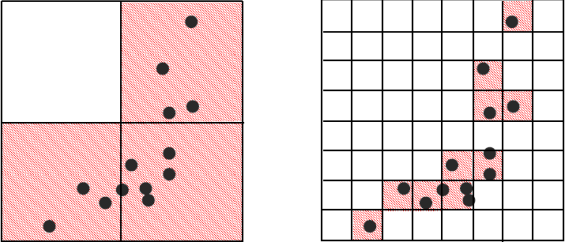
Processing has to maintain the nice green colour, the characteristic flavour and the slightly bitter taste.


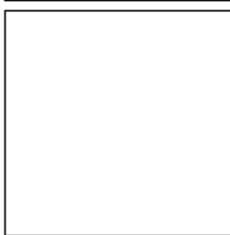
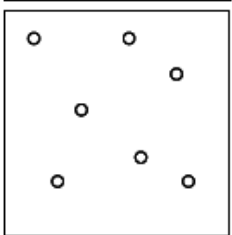
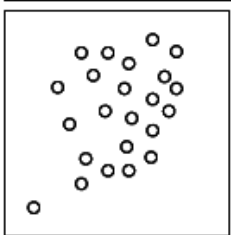
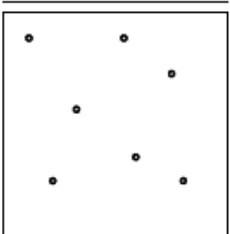
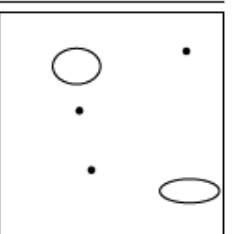
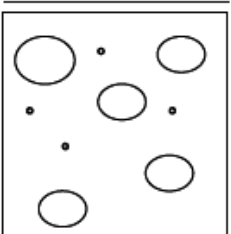
## 2.2 Resource inventory

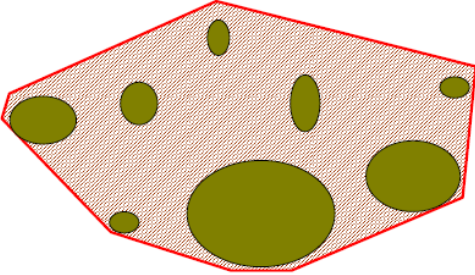
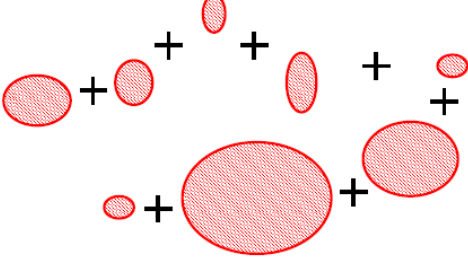
The resource inventory serves to understand how much of a target plant species or the collected plant part is present within the collection area. It is also needed to complete the question about local target plant population size. The results of the inventory need to answer the question:

*How much biomass of the target plant species is present within the collection area?*

The answer to this question can only be found within the individual collection areas, and some field work is necessary to answer it. For low risk plants, it is usually not necessary to carry out extensive fieldwork, or estimate biomass to a high level of precision. The following table shows examples of *what can be done* to conduct a resource inventory. Minimum requirements for FairWild are listed at the end of the example.

Question to be answered	Possible answer given as example
<p><b>Does the target plant occur all over the collection area or only in certain places?</b></p>	<p>In this example the plant occurs on meadows and along paths and extensively used fields. It does not occur in forests, rivers, lakes, etc.</p> <p>The percentage of suitable habitats needs to be established by field work and by using maps. A grid can be put over the collection area, and it can be determined for each square of the grid if it is suitable or not for the target plant. The smaller the size of each grid cell, the more precise the result:</p> <div style="text-align: center;">  </div> <p>These two pictures show the same occurrence (the same number of points) of the target plant in the same area, but in the right picture the size of the grid cells is much smaller, and 10 out of 64 cells or about 1/6 of the collection area is marked as suitable for the target plant. In the example to the left 3/4 of the area is marked as suitable, because the size of the cells is much bigger.</p> <p>It is likely that the <i>quality of data</i> in the left example will be lower than in the right example.</p>

Question to be answered	Possible answer given as example
	<p>In this example the target plant grows only in open habitats. The scale of assessment in the example is 200 x 200 meters or 40.000 m<sup>2</sup> or 4 ha. <b>Distribution patterns on the small scale</b> assess the dispersal of the target plant within a few hundred meters. <b>Distribution patterns on landscape level</b> will assess the dispersal of the target plant within more than 1000 meters.</p>  <p>The photo shows the small scale distribution of the target plant, in this example the distribution is <i>agglomerated</i> (several plants growing close to each other, the next agglomeration will be found in some distance to this agglomeration).</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;"> <p>200 m</p>  <p><b>No occurrence</b></p> </div> <div style="text-align: center;"> <p>200 m</p>  <p><b>Scattered occurrence</b></p> </div> <div style="text-align: center;"> <p>200 m</p>  <p><b>Aggregated occurrence</b></p> </div> </div> <p>The distribution pattern of the target plant on landscape level can be assessed as well. The area of a 1000 x 1000 meter patch equals 1.000.000 m<sup>2</sup> or 100 ha or 1 km<sup>2</sup>. Possible results of the assessment can be that the distribution pattern is regular but for some scattered target plants only; it can also be of insular pattern of single patches, or an insular pattern of various patches.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;"> <p>1000 m</p>  <p><b>Regular pattern of scattered individuals</b></p> </div> <div style="text-align: center;"> <p>1000 m</p>  <p><b>Insular pattern of single patches</b></p> </div> <div style="text-align: center;"> <p>1000 m</p>  <p><b>Insular pattern of various patches</b></p> </div> </div>

Question to be answered	Possible answer given as example
<p><b>In which percentage of the collection area does the target plant occur?</b></p>	<p>In this example it is estimated that the whole collection area has a size of 100 ha, and the target plant occurs in 20% of the habitats within this area, which equals 20 ha (Total area in red, suitable habitats in green).</p>  <p>The diagram shows a collection area represented by a red-outlined irregular polygon. Inside this area, there are several green circles of various sizes, representing suitable habitats for the target plant. The total area of these green circles is 20 ha, which is 20% of the total 100 ha collection area.</p>
<p><b>In the suitable habitats, how much of the plant occurs on average?</b></p>	<p>If the whole above ground stems and leaves of the plant are harvested: on average about 1000 kg dry plant per ha can be harvested. This quantity is based on either estimations or field work.</p>  <p>The diagram shows several red circles of various sizes, representing the biomass of the target plant in the suitable habitats. The circles are of different sizes, with the largest circle being significantly larger than the others, indicating that the biomass is not uniformly distributed across the suitable habitats.</p>

What *has to be done* if the baseline inventory for a low risk species is made?

A resource inventory requires some fieldwork to be carried out, with sampling points defined. In some cases, sampling may be carried out from observation points which should be identified and marked as precisely as possible. Methods should address the following questions:

- How many sampling points / observation points are needed?
- How large should each area within one sampling / observation point be?
- Should the sampling / observation points be distributed randomly or regularly within the collection area?

At each sampling or observation point, the total biomass and the harvestable biomass of the target plant part should be estimated. Further details are given in sections 2.3 and 2.4.

The ability to calculate overall quantities of biomass depends on the collection areas being well defined, independent of where sampling / observation points are located (see chapter 3.3 for practical examples of maps that can be used to define collection areas).


### 2.3 Yield and regeneration studies

Yield and regeneration studies serve to understand how much of the desired plant part(s) the target species produces under normal conditions, the time required for harvested parts to regenerate or for seedlings to replace harvested individual plants and size-classes, and how productivity and regeneration vary across the collection area. The studies should serve to answer the following questions:

*How much of the target plant can be harvested each season without damaging the long-term sustainability of the target plant species?*

*What is the regeneration rate of harvested target plant populations or harvested plant individuals or plant parts?*

Again, some field work is usually necessary to answer this question, in addition to a desk review of the current scientific understanding of the species' biology and regeneration capacity. For low risk plants, the work involved is usually not extensive. The following table shows examples of *what can be done* to conduct yield and regeneration studies.


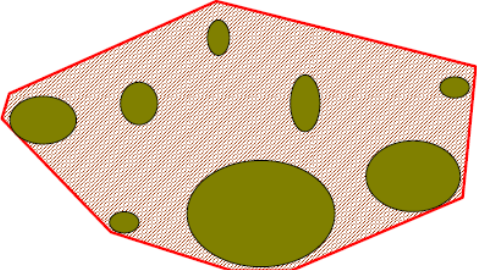
Question to be answered	Possible answer given as example
<p><b>How much can be harvested in total in the collection area if all plants are harvested?</b></p>	<p>In our example, a total quantity of 20.000 kg dry mass can be harvested in 20 ha in one harvest. Our target plant regenerates within 3 months after cutting; it can therefore be harvested two times per year, which adds up to 40.000 kg dry mass in one collection season.</p> 
<p><b>How much can be harvested if only the optimum quality is cut?</b></p>	<p>Quality requirements for the target plant foresee that only the best quality shall be harvested. If only healthy plants in full vigour are harvested and if only the upper half of each plant is cut, the harvestable quantities are reduced to about half the weight or 20.000 kg per collection season.</p>
<p><b>How much can be harvested if some plants are left for sustainability?</b></p>	<p>Although this species can recover quickly to provide two harvests per collection season, results of long-term studies indicate that continued harvest at this intensity can lead to long-term declines. As a sustainability measure, a rough guideline is set that at maximum 75% of all plants of the plant population shall be harvested. Thus the sustainably harvestable quantity is reduced by 25% if the collectors leave every fourth target plant untouched. About 15.000 kg can be harvested sustainably from the example collection area.</p>
<p><b>How much can be harvested each season without damaging the long-term sustainability of the target plant species?</b></p>	<p>In the example it was calculated that about 15.000 kg of high quality dry plant material can be harvested sustainably within one collection season.</p> <p>In order to compare the calculated amount with actually harvested amounts, collectors should be interviewed to find out harvested amounts per season in the past years. The result can be compared to long term or historical harvest data for the same area. If both figures differ substantially, the reasons for the difference should be investigated: did collectors harvest by using non-sustainable methods or quantities, or is there a mistake in the used methodology for the calculation? Do collectors also harvest outside the defined collection areas?</p>

## 2.4 Assessment of harvest impacts

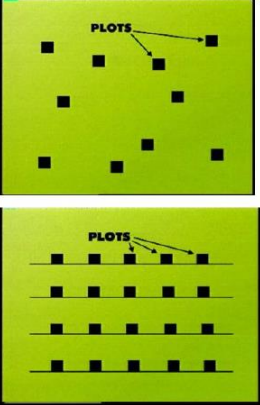

Assessing harvest impacts serves to determine whether current harvest levels and controls result in adequate resource regeneration and productivity. The key question for assessing harvest impacts is:

*What is the impact of the current harvest method and procedure on the target plant population and the ecosystem and habitats of the collection area? What factors other than harvesting regimes may influence target plant populations and their regeneration?*

The following table gives examples on *what can be done* to assess the harvest impacts. In most cases, harvest impacts can only be assessed after several years of collection.

Question to be answered	Possible answer given as example
<p><b>How can the harvest impact be observed over time?</b></p>	<p>In order to observe the impact of the harvest over time, a number of observation points should be defined which need to be checked every year before the harvest begins. They need to be defined already in step 2 of the resource assessment, during the inventory.</p> <p>Sampling and observation points are defined points in the collection area which can easily be identified in the field, also over various years. Ideally they are identified through GPS data (see below).</p> 
<p><b>How many observation points are needed?</b></p>	<p>At least one sampling or observation point in each suitable area shall be defined. More points are needed in larger areas. In the example below, for each of the six smaller areas one sampling or observation point is suggested, and 2-3 points for the two larger areas.</p> 
<p><b>How can observation points be defined?</b></p>	<p>The most precise way to define observation points is by taking their GPS data. This does not necessarily require a GPS instrument; today many cell phones can be used as well. If GPS identification is not available, each point needs to be well described, e.g. "from the village xy follow the path until the large oak tree to the right is reached. From under the tree, look to the meadow to the north. Go direction north for 30 meter so that you stand in the middle of the meadow". Photos or sketch maps will support the description.</p>



	<h2 style="text-align: center; color: green;">USE APPROPRIATE PRECISION</h2> <p><u>Random plots</u></p> <ul style="list-style-type: none"> <li>• preferred by statisticians</li> <li>• eliminate bias</li> </ul> <p><u>Systematic sampling</u></p> <ul style="list-style-type: none"> <li>• preferred by collectors &amp; communities</li> <li>• eliminates bias</li> </ul> <p><u>Replication</u> (minimum 3-5 samples per treatment)</p> <ul style="list-style-type: none"> <li>• improves precision</li> <li>• reduces chance effects</li> </ul> 
<p><b>What needs to be checked in each observation point?</b></p>	<p>A written description is suggested for each point, with the following observations:</p> <ul style="list-style-type: none"> <li>• How large is the area of sampling / observation? (e.g. 2x2 m for open habitats, larger areas like 10x10 m or even 100x100 m for bush-land and forest)</li> <li>• Which other (key) plants are present in the area of observation?</li> <li>• How many target plants are present in the area of observation? (Count either individual plants, plant height or plant biomass depending on what is harvested)</li> </ul> <p>Each year the regeneration of the target plant should be controlled in the defined sampling / observation area before harvest; the result of the analysis should be documented.</p> 

The following information about sampling or observation points should be available:

- How are each sampling or observation point defined (size, location and further characteristics)?
- How can each sampling or observation point be found (exact location)?
- What was observed in each point at the first resource inventory?
  - How many harvestable plants?
  - Estimated harvestable biomass?
  - Which other plants grow in the sampling area?
  - What protected plant or animal species occur in or around the sampling / observation point?
  - Any problems observed (e.g. erosion, habitat destruction by animals etc)?
- What was observed in each sampling or observation point at repeated observations (the same parameters should be assessed as in the first inventory)?

## 2.5 Periodic monitoring and harvest adjustments

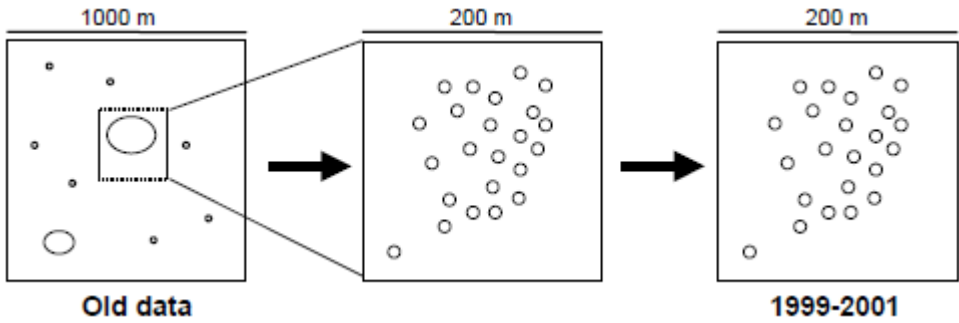
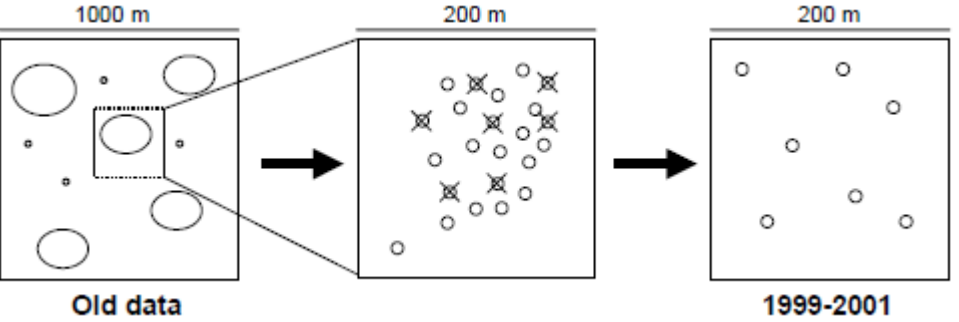
Periodic monitoring allows the determination of potential adjustments which should be made to the method, frequency or intensity of harvesting. It also helps identify impact on the habitats and target species that was caused by factors other than harvesting. Monitoring shall help to answer the following questions:

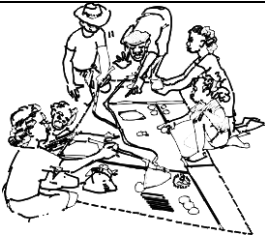
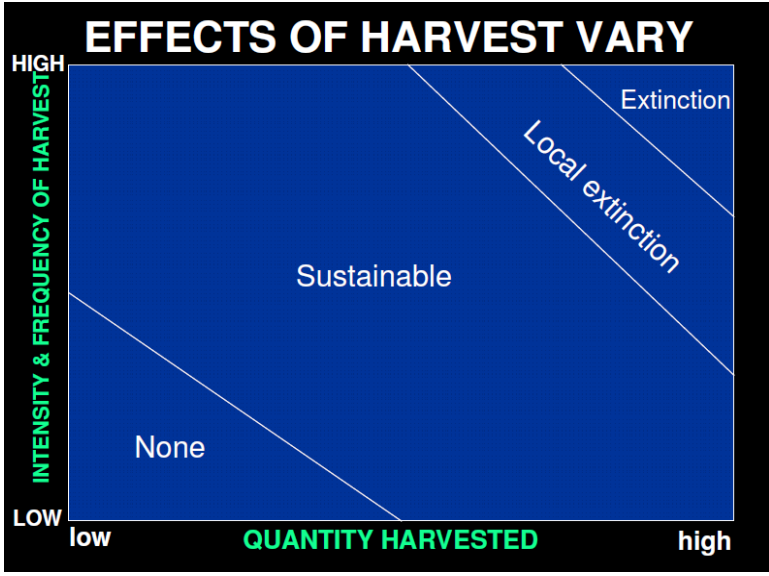
*Is the management successful in sustaining harvest quality and quantity of the target plant?  
Is the target plant maintaining base-line yields and is the plant population regenerating?*

If an adjustment is needed, the following question should be answered:

*What adjustments should be made to the current method, frequency and intensity of harvesting in order to maintain or restore adequate conditions for sustainable wild collection?*

The following table gives examples on *what can be done* to conduct periodic monitoring and harvest adjustments.

Question to be answered	Possible answer given as example
<p><b>Are the target plant yields constant?</b></p>	<p>Compare the results for each sampling or observation point over the years in order to determine whether the target plant is regenerating well or if populations decline. The following schematic graphics show changes that may occur between the first assessment (<i>old data</i> on the left) and a monitoring assessment some years later (1999 – 2001, on the right):</p>  <p>No changes occurred; the collection practices of the target plant are likely to be sustainable because of good management or because of very low harvested amounts.</p>  <p>Only few target plants are still found in the collection area after some years of collection. Either the collection of the target plant is not sustainable or there are other factors, which have caused the reduction of the target plant. An adjustment of current harvest practices is needed.</p>

<p><b>Is the plant population regenerating?</b></p>	<p>Make also observations of the whole area. Include the knowledge of collectors into the monitoring. Write a small monitoring report for the target plant.</p> <p>Observations of declining quality or quantity of material provided by collectors, or reports of increasing travel time needed to find plants for collection, may also be an indication that the target population is failing to regenerate at a rate that keeps p with harvesting levels.</p>	
<p><b>What if quantities or quality of the target plants is getting less?</b></p>	<p>Find out why the quantity or quality is getting less:</p> <ul style="list-style-type: none"> <li>• Is the plant harvested too frequently in one season?</li> <li>• Is too much volume of the target plant parts harvested per plant?</li> <li>• Is the regeneration period not long enough?</li> <li>• Are other parts than the target plant parts harvested?</li> <li>• Do collectors not stick to the harvest methods?</li> <li>• Are other collection companies harvesting the same resource in the same collection areas?</li> </ul> <p>The following graph shows the effects of low or high intensity and frequency of harvest, and the effects of harvested quantities. If for example high quantities are harvested but the intensity and frequency of the harvest is low, the wild collection operation can still be sustainable. With increasing intensity, frequency and harvested quantities the plant may become locally nationally or even internationally extinct.</p>	 <p><b>EFFECTS OF HARVEST VARY</b></p> <p>The graph plots Intensity &amp; Frequency of Harvest (Y-axis, from LOW to HIGH) against Quantity Harvested (X-axis, from low to high). The regions are defined as follows:</p> <ul style="list-style-type: none"> <li><b>None:</b> Low intensity/frequency and low quantity harvested.</li> <li><b>Sustainable:</b> Low to medium intensity/frequency and low to medium quantity harvested.</li> <li><b>Local extinction:</b> Medium to high intensity/frequency and medium to high quantity harvested.</li> <li><b>Extinction:</b> High intensity/frequency and high quantity harvested.</li> </ul>
<p><b>What has to be adjusted?</b></p>	<p>After finding out which factors are influencing the target plant or plant part, a decision should be made on how to adjust the current methods. For example, collectors may need to be further trained and collection instructions revised. Purchase centres should be informed accordingly. The management plan should reflect the adjusted harvest protocol.</p>	

The following steps are suggested for implementation and documentation:

- How often is each sampling or observation point being visited?
- What are the changes?
- Are there any changes which seem to have negative impacts on the target plant or the collection area, or any other plant or animal species within the collection area?
- What causes the changes observed?
- What should be done to make sure that the negative trend does not continue?

It is recommended to write regular monitoring reports about the findings. If there are negative impacts on the target plant, the collection area or any other plant or animal species within the area, adequate measures should be identified and implemented to mitigate the effects. All necessary steps should be taken, such as for example:

- Change collection instructions
- Distribute the instructions to collectors
- Train collectors about new instructions
- Intensify monitoring of the identified factors (repeated observations when? By whom? How documented?)

### 3. A species and area management plan for low risk plants

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The management plan of a company is the written compilation of all relevant documents, such as results of resource assessment and monitoring, procedures, quality requirements, collector instructions, policies etc. For low risk plants, the FairWild Operator Profile and other documents can be used as basic management plan; for medium or high risk plants it either needs to be filled out in more detail or a separate species and area management plan for each plant should be compiled.

The following chapter explains specific aspects which are covered in the FairWild Standard Version 2.0 and the accompanying Performance Indicators. It gives guidance on which requirements need to be implemented for low risk species (and to which extent), and it is grouped according to the sequence given in the FairWild Standard. In some cases, overlapping topics are grouped together across several FairWild Principles.

#### 3.1 Conservation status of target species

*The conservation status of target species and populations is assessed and regularly reviewed.*

##### **MINIMUM REQUIREMENTS FROM YEAR 1:**

- 1. Current global and national conservation status of the collected plants is known and included in the resource assessment or plant profile.**

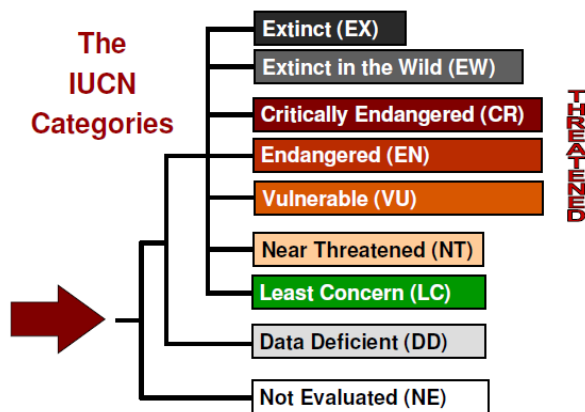
##### ***NORM REQUIREMENTS:***

- 1. Threatened species in collection operation assortment are identified.**  
The collection operation does not collect any threatened species for commercial purposes, neither as FAIRWILD target species nor outside FAIRWILD certification.

#### Explanation of requirements

Criterion 1.1 deals with the assessment of collected target plants against any existing Red Lists, Red Data Books, or any other established protection status of the target plant. As mentioned in chapter 2.1.1, the FairWild Foundation provides applicants with the result of a risk classification, as well as with a fact sheet for the target plant. In the fact sheet all available information is contained about the international protection status of the target plant, and information about national or local red lists if available. However, any FairWild-certified company should actively research the national or local protection status, since it is often written in the national language and thus cannot always be assessed by the FairWild Foundation.

For an understanding of the Global Red List Assessment of the International Union for Conservation of Nature (IUCN), the following explanation is given here:



The IUCN Red List Assessment is an assessment of how likely a species might become extinct in the future. Species classified as “threatened” have to be treated with special care in wild collection, and the risk of threat needs to be well known. Only the listing as “critically endangered”, “endangered” and “vulnerable” classify a species as “threatened”. The reasons for threat are expressed through a code. The reasons for threat are always explained (see the practical examples at the end of this document for a full assessment).

### Implementation guidance

The global conservation status is included in the fact sheet, which is provided by the FairWild Foundation. If the fact sheet is not available for any reason, the global conservation status needs to be assessed by searching the database of the IUCN, called IUCN Red List of Threatened Species. The national conservation status should be assessed by consulting National Red Lists or National Red Books, or by consulting the relevant official institution (Ministry of Environment or similar).



*Study the fact sheet for your target plant, which was provided to you by the FairWild Foundation. Use the information about target species assessment for filling out the following documents:*



*The FairWild Operator Profile needs to be filled in with the information about relevant Red Lists and Red Data Books as well as any other relevant information on the status of protected plants which are collected by the operator.*



*A ‘Specification of Collection Area’ and a ‘FairWild Plant Specification Form’ should be filled in and kept up to date for each distinct collection site and for each target plant. Information about the protection status of the target plants and the collection area should be described and constantly updated.*



*Check for each species in the assortment list if it is included in any relevant Red List. The results should be documented in a separate table or the operator profile.*

If National Red Lists or Red Data Books exist, the status of their implementation should be researched: are the listed plants protected by law? Which laws or regulations apply?



*Attach a copy of the relevant law or regulation that implements the protection status.*

Example from IUCN Red List assessment

Question to be answered	Possible answer given as example																																		
<p><b>Is the target plant on the IUCN Red List?</b></p>	<p>Result of the IUCN data base research for <i>Crataegus darvasica</i> (<a href="http://www.iucnredlist.org/apps/redlist/details/63471/0">http://www.iucnredlist.org/apps/redlist/details/63471/0</a>, assessed on 20.2.2011):</p> <p><b>Taxonomy [top]</b></p> <table border="1" data-bbox="379 432 1417 499"> <thead> <tr> <th>Kingdom</th> <th>Phylum</th> <th>Class</th> <th>Order</th> <th>Family</th> </tr> </thead> <tbody> <tr> <td>PLANTAE</td> <td>TRACHEOPHYTA</td> <td>MAGNOLIOPSIDA</td> <td>ROSALES</td> <td>ROSACEAE</td> </tr> </tbody> </table> <table border="1" data-bbox="379 528 1417 595"> <tr> <td><b>Scientific Name:</b></td> <td><i>Crataegus darvasica</i></td> </tr> <tr> <td><b>Species Authority:</b></td> <td>Pojark.</td> </tr> </table> <p><b>Assessment Information [top]</b></p> <table border="1" data-bbox="379 689 1417 869"> <tr> <td><b>Red List Category &amp; Criteria:</b></td> <td>Critically Endangered B2ab(iii,v) <a href="#">ver 3.1</a></td> </tr> <tr> <td><b>Year Assessed:</b></td> <td>2007</td> </tr> <tr> <td><b>Assessor/s</b></td> <td>Participants of the FFI/IUCN SSC Central Asian regional tree Red Listing workshop, Bishkek, Kyrgyzstan (11-13 July 2006)</td> </tr> <tr> <td><b>Reviewer/s:</b></td> <td>Newton, A. &amp; Eastwood, A. (Global Tree Red List Authority)</td> </tr> </table> <p><b>Justification:</b> This species has a tiny area of occupancy, and its population is severely fragmented. Its numbers are declining and its habitat is being reduced as a result of overgrazing and cutting. Consequently it is assessed as Critically Endangered.</p> <p><b>Geographic Range [top]</b></p> <table border="1" data-bbox="379 1070 1417 1182"> <tr> <td><b>Range Description:</b></td> <td>Only found in south west Darvas (Tajikistan).</td> </tr> <tr> <td><b>Countries:</b></td> <td><b>Native:</b> Tajikistan</td> </tr> </table> <p><b>Population [top]</b></p> <table border="1" data-bbox="379 1279 1417 1357"> <tr> <td><b>Population:</b></td> <td>A very rare species restricted to a very small area.</td> </tr> <tr> <td><b>Population Trend:</b></td> <td>↓ Decreasing</td> </tr> </table> <p><b>Habitat and Ecology [top]</b></p> <table border="1" data-bbox="379 1451 1417 1485"> <tr> <td><b>Systems:</b></td> <td>Terrestrial</td> </tr> </table> <p><b>Threats [top]</b></p> <table border="1" data-bbox="379 1581 1417 1615"> <tr> <td><b>Major Threat(s):</b></td> <td>In decline with threats including over grazing and cutting.</td> </tr> </table>	Kingdom	Phylum	Class	Order	Family	PLANTAE	TRACHEOPHYTA	MAGNOLIOPSIDA	ROSALES	ROSACEAE	<b>Scientific Name:</b>	<i>Crataegus darvasica</i>	<b>Species Authority:</b>	Pojark.	<b>Red List Category &amp; Criteria:</b>	Critically Endangered B2ab(iii,v) <a href="#">ver 3.1</a>	<b>Year Assessed:</b>	2007	<b>Assessor/s</b>	Participants of the FFI/IUCN SSC Central Asian regional tree Red Listing workshop, Bishkek, Kyrgyzstan (11-13 July 2006)	<b>Reviewer/s:</b>	Newton, A. & Eastwood, A. (Global Tree Red List Authority)	<b>Range Description:</b>	Only found in south west Darvas (Tajikistan).	<b>Countries:</b>	<b>Native:</b> Tajikistan	<b>Population:</b>	A very rare species restricted to a very small area.	<b>Population Trend:</b>	↓ Decreasing	<b>Systems:</b>	Terrestrial	<b>Major Threat(s):</b>	In decline with threats including over grazing and cutting.
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<p><b>Why is the target plant not listed under the IUCN Red List?</b></p>	<p>If all search criteria are correct but no results are obtained, the species is probably not yet recorded in the Red List. Although the IUCN Red List is the world's most comprehensive list of species threatened with extinction, it is far from being complete. Some groups have been completely assessed (e.g., mammals, birds, amphibians), however most groups have been assessed only partly or not at all. Therefore, the target species may not be included under the IUCN Red List Categories and Criteria (i.e., it is 'Not Evaluated'). Plant species may have been assessed for the 1997 IUCN Red List of Threatened Plants, which used the older pre-criteria Red List assessment system and therefore it does not appear in the current Red List. For plant species it is therefore recommended to check both the online Red List and the 1997 plants Red List publication.</p>																																		

### 3.2 Correct identification of the target species

#### **MINIMUM REQUIREMENTS FROM YEAR 1:**

- 1. Species targeted for collection are clearly identified** through voucher specimens from the collection site with accurate scientific names as well as clearly recognized local and trade names.

Species identification may require some field work and cooperation with botanical experts. The field work is best done during the vegetation or flowering period, so that the target plants and plant populations can be seen in flower, which helps for correct identification and mapping.

#### Explanation of requirements

For each collected plant the scientific name has to be known and should be confirmed by a botanical expert. In cases where close relatives of the same plant species are collected, the scientific name of each relative of the target plant needs to be known, especially when on a Red List.

In order to clearly identify each species, a herbarium or voucher specimen needs to be collected, labelled and identified by a botanical expert. The voucher specimen should be kept by the operator for proof of identification.

The following aspects should be considered:

- The plant must be pressed during the drying process. It is not enough to provide an air-dried plant without pressing
- The pressed and dried plant needs to be glued or otherwise attached to a sheet of paper that is big enough (normally a white A3- size paper sheet)
- The plant needs to show all relevant parts for correct identification (flowers, fruit, seed, underground parts etc)
- The herbarium specimen needs to have a label with the following minimum information:
  - Date of collection
  - Place of collection
  - Name of the collector
  - Place of repository (where the specimen will be maintained)
- If correct identification of the scientific name of the target plant is not easy:
  - Name of the taxonomic expert who has confirmed the identity of the specimen

Instructions on how to prepare a voucher specimen can be found under

- <http://www.plantbio.uga.edu/about/herbarium/>
- [http://www.herbarium.rdg.ac.uk/making\\_specimens/model\\_label.html](http://www.herbarium.rdg.ac.uk/making_specimens/model_label.html)
- <http://www.cgrer.uiowa.edu/herbarium/HerbariaAndSpecimens.htm>
- <http://www.botany.unimelb.edu.au/herbarium/files/MakeHerbSpec.pdf>
- <http://www.bg-base.com/outputs.htm>
- <http://www.auburn.edu/herbarium/label.html>
- <http://botany.si.edu/projects/algae/collpres/labels.htm>

#### Implementation guidance



*For all FairWild target plants a herbarium voucher has to be established. A herbarium voucher is a dried and pressed plant, glued on a piece of paper. The herbarium voucher should be kept in a dark, dry and safe place and it can be used for training of collectors and purchase staff.*



*Each target plant should be described in the 'FairWild Plant Specification Form', along with a description of close relatives and other plants which might be confused with the target plant, if applicable.*



Voucher specimens of target plants can be compared with herbarium specimens from other collections (such as Botanical Gardens, Universities, private collections), or they can be compared online by checking on the websites that can be found in the link list in chapter 1.3.



*If the target plant is not easily identifiable or has similarly looking relatives:  
A copy of the statement of a botanical expert or institution who confirms the scientific name of the target plant should be attached.*

Example of a voucher / herbarium specimen: *Origanum vulgare*



<http://hoppe.bibliothek.uni-regensburg.de/files/FeB/presentation/1350.jpg>

### 3.3 Mapping and separation from agricultural lands

#### **MINIMUM REQUIREMENTS FROM YEAR 1:**

1. **The collection areas are separated from agricultural lands.** Collection may be realized from truly wild areas or from uncultivated patches/trees in low intensity agricultural lands.

#### **MINIMUM REQUIREMENTS FROM YEAR 2:**

1. **Mapping of target populations in the collection areas: Basic maps have to identify the collection areas and location of target plant populations.** Basic maps have to identify the location of the collected plants within the collection areas.

#### **NORM REQUIREMENTS:**

1. **Maps indicate all major sources of potential contamination: towns, industry, landfills, intense agriculture areas.** These sources of contamination need to be described in the management plan and collection rules if necessary.

## Explanation of requirements

FairWild-certified wild collection can only take place in well-defined collection areas. The definition of collection areas is established through good maps, which identify all collection areas, purchase stations, processing and export sites and include other relevant information such as relevant landmarks, places, the scale of the map etc. The collection areas should not have been treated with or exposed to any inputs which are not allowed by organic regulations relevant to the location of the collection operation. Collected target plants have to grow spontaneously, i.e. without targeted agricultural management. The collection areas should be free of possible contamination sources. As a result, some areas within the collection area may not be suitable for certified collection and should hence be excluded (human settlements, cultivated fields, proximity to major roads or landfills). Areas which are excluded from collection should be marked on the maps.

## Implementation guidance



*The 'Specification of collection area' document (see Annex) should to be filled in and kept up to date for each distinct collection site.*



*For an overview of all collection areas, purchase stations, processing and export sites and other relevant locations, an overview map should be prepared that shows all relevant facilities.*



*For each collection area, topographical maps with a scale of 1: 50 000 or less should be made available. Alternatively, also hand drawn community maps, GPS and Internet based maps can be acceptable for low risk plants.*

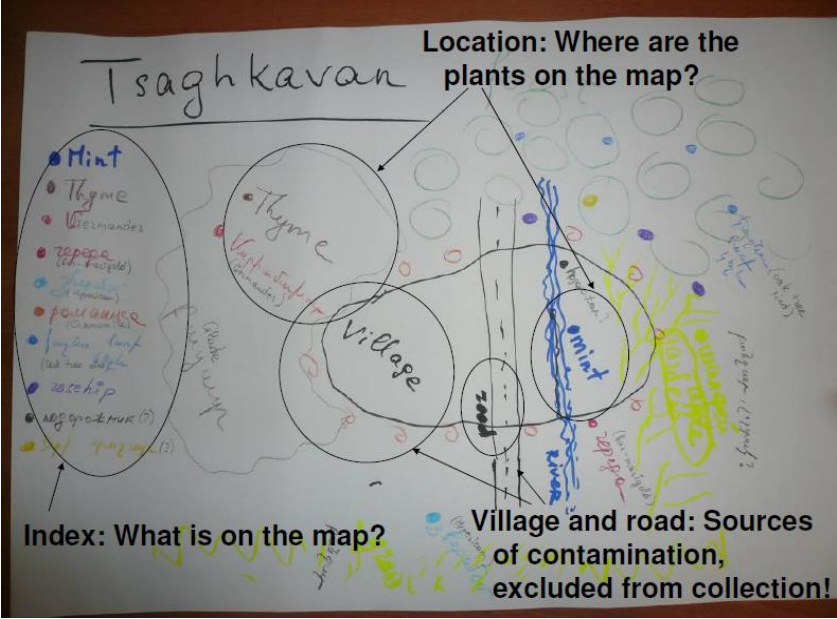
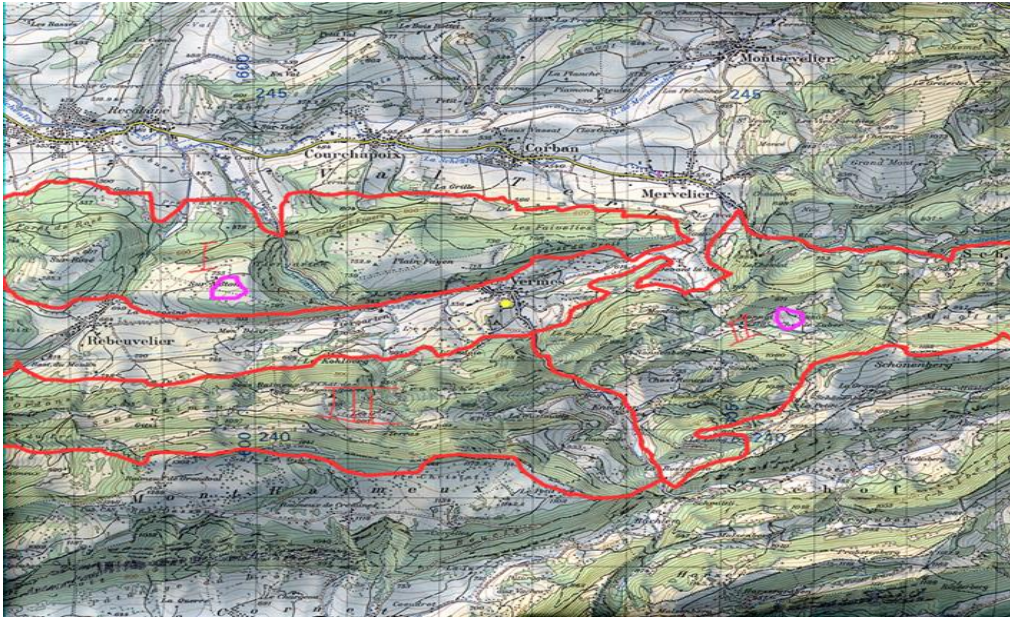


*Mapping of target populations in collection areas: maps should identify the location of the collected plants within the collection areas.*



*Confirmation: A confirmation by the relevant authority that the collection area has not been treated with any toxic input may be required in case of doubt.*

Example of mapping

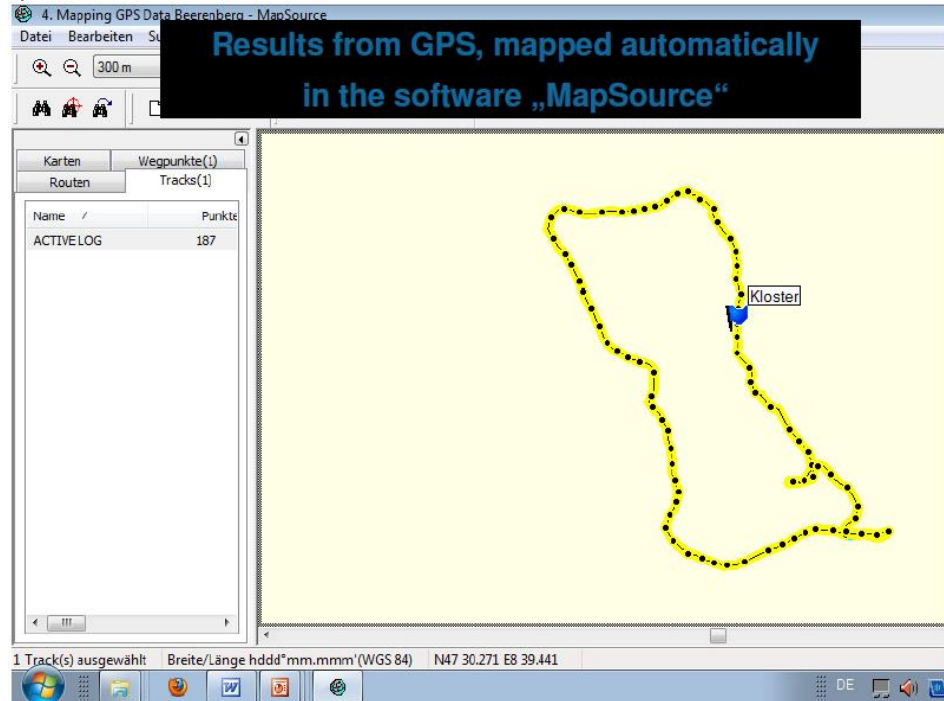
Question to be answered	Possible answer given as example
<p><b>How can the collection area be shown on maps if there are no official or topographical maps available?</b></p>	<p>Collectors will know their collection area and the location of target plants. Maps can be developed together with collectors for a first overview. With time, these maps should be redrawn and more details should be included.</p>  <p>The hand-drawn map is titled 'Tsaghkavan'. It features several hand-drawn circles and lines. On the left, there is an 'Index' listing plants: Mint, Thyme, Wormwood, Zappa (aka. Fustic), Panchak, Juniper (leaf), Zaccarp, and Nigella. The main map area shows a 'Village' and a 'River'. A 'Village and road' area is circled in red, with a note: 'Village and road: Sources of contamination, excluded from collection!'. Other areas are circled in blue and yellow. A note at the top right asks: 'Location: Where are the plants on the map?'.</p>
<p><b>What information should topographical maps reveal?</b></p> <p><b>How can outer and inner boundaries be shown?</b></p> <p><b>How to mark sources of contamination?</b></p>	<p>Wherever available, topographical maps should be used, and outer and inner boundaries marked.</p>  <p>The topographical map shows a landscape with contour lines and various geographical features. A red line traces a path across the map, indicating boundaries. Two purple circles are drawn on the map, marking specific locations. The map includes labels for several locations: Courchipoix, Corban, Mervelier, Verines, and Rebeuvelier. Elevation contours are marked with numbers like 245 and 240.</p> <p>Topographical map 1:50.000 with indication of outer and inner boundaries of the collection area (red), and sources of potential contamination (purple)</p>

How can GPS based maps and Google Earth be used for producing maps?

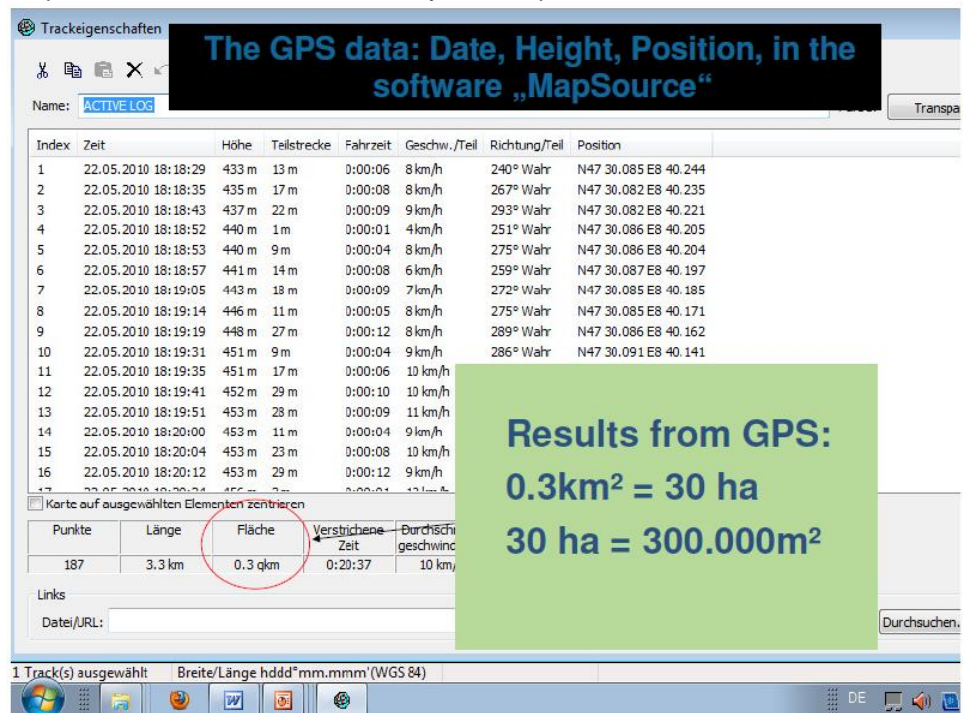
How can the size of a collection area and of suitable habitats be determined?

In this example the target plant is collected in a forest on a hill. By using a handheld GPS and a computer, the size of the collection area can be calculated and the size of suitable habitats within the collection area can be calculated. Access to professional Geographic Information System (GIS) software will allow more precise mapping.

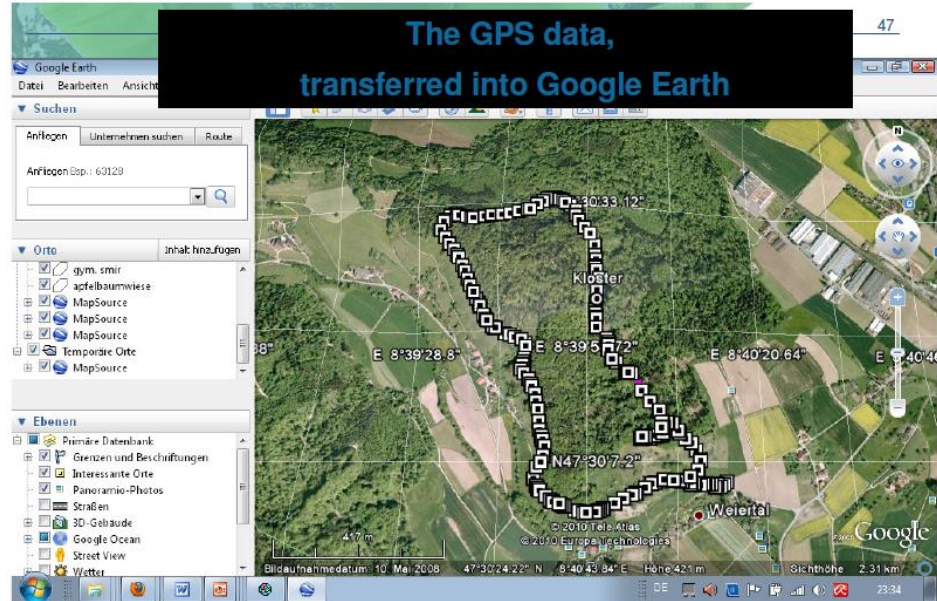
Step 1: Drive or walk around the collection area with the GPS device switched on



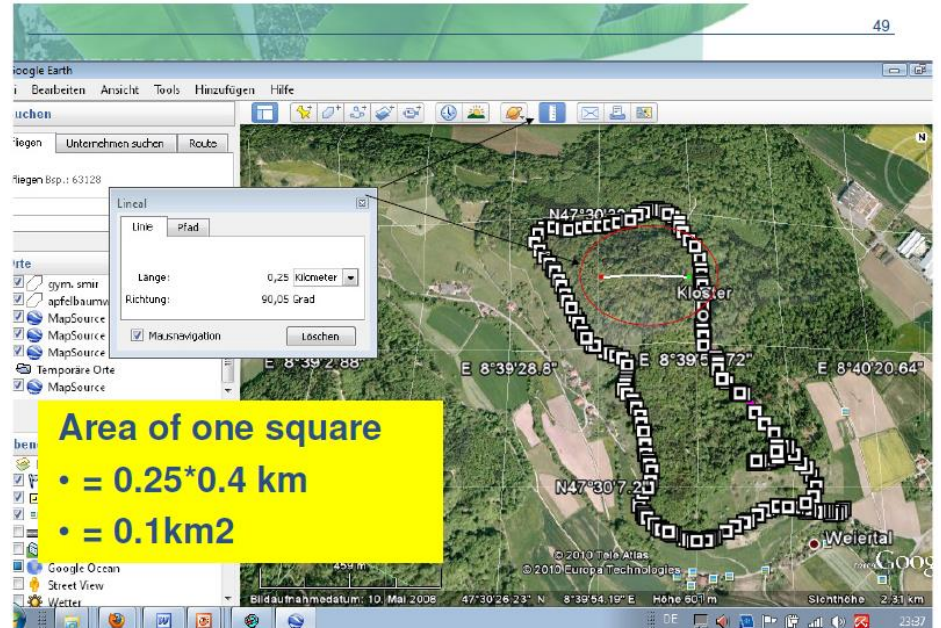
Step 2: Download the GPS data on your computer



### Step 3: GPS data transferred to Google Earth



### Step 4: Calculation of the area in Google Earth



**Calculation of area**

**Area covered by GPS:**

- = 0.25 km<sup>2</sup>
- = 0.1 km<sup>2</sup>

**Covered by GPS: ca 3.5 squares**

- = 0.35 km<sup>2</sup>
- = 35 ha
- = 35000 m<sup>2</sup>

**Covered by forest: ca 9 squares**

- = 0.9 km<sup>2</sup>
- = 900 ha

### 3.4 Complete basic data about the target plant

**MINIMUM REQUIREMENTS FROM YEAR 1:**

1. **For each target species, complete basic data is available in writing.** Latin and local names, collected plant parts, collection method and period have to be compiled in a written document.
2. **For each target species, information about reproduction system and replacement rate is available.** There has to be at least sufficient basic knowledge available about reproduction to understand the sustainability of collection.

#### Explanation of requirements

In order to guarantee sustainable wild collection, all basic facts about the collected plants need to be known: reproduction system, rate of replacement, collected plant parts, legal protection status, and others.

#### Implementation guidance

The basic data for the target plants can be compiled either in a document such as a plant monograph, or in the plant specification forms provided by the certification body. Basic data should not be limited to information on correct names and collection methodology, but should also include information about the plants' reproduction system and the rate of regeneration of collected plant parts.

Different plant species reproduce differently, for example through seed or through roots and rhizomes. The rate of replacement depends on the collected part of the plant: if the whole root system is collected the harvested plant will die, and replacement may take several years.



*Study the fact sheet for the target plant, which will be provided by the FairWild Foundation.*



*Complete the 'FairWild Plant Specification Form', including correct information on the reproduction system and rate of replacement.*



*Attach all available plant monographs to the operator profile / management plan. Attach also all available published material on the regeneration rate, reproduction system, or taxonomy.*

### 3.5 Maximum allowed collected quantities

#### **MINIMUM REQUIREMENTS FROM YEAR 1:**

1. **Quality of data used to define maximum allowed collected quantities for each target species:** At least approximate estimations of maximum quantities have to be available.
2. **Sustainability of maximum allowed collection quantities for target plants or plant parts collected:** there must not be any indication that current maximum collection quantities of the target plant / plant part reduce the quality or availability of the target plant in the collection area.

#### **MINIMUM REQUIREMENTS FROM YEAR 2:**

1. **Baseline information and inventory data on target plant species in the collection area is available.** These data need to include plant population size, distribution within the collection area, the structure of the plant population and its size and age classes, the rate of reproduction, growth and regeneration.

#### **Explanation of requirements:**

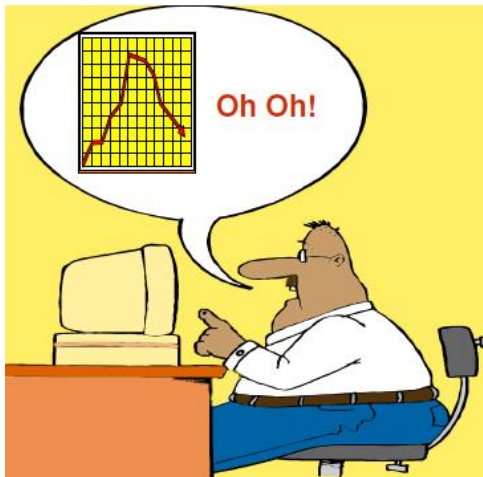
Maximum allowed collection quantities have to be established for each FairWild target species. There should be no indication (e.g. through collector observation, inspection or information from third parties) that maximum allowed collection quantities reduce the quality or availability of the target plant or plant populations in the collection area. Ideally, maximum collection quantities are justified by adequate inventory, yield and regeneration estimates that are greater than the volumes harvested.

The figures for maximum allowed quantities for collection can be based on data from

1. **Observation:** based on well-documented observations of all known individuals of the target plant population (e.g. if the target plant is a tree, to count all trees in the area or a typical part of the area, and to record their age and size classes)
2. **Estimates:** based on calculations that may involve assumptions from the past (e.g. use of historical data of harvested quantities of the target plant, and their comparison with the present distribution and availability of the target plant)
3. **Evidence:** based on information related to the abundance or distribution of the target plant population (e.g. estimates of collectors or purchase manager of how much can be harvested this season)

Maximum collection quantities should be calculated by using scientific methodologies for medium and high risk species. For low risk species which are abundant in the collection area such detailed information is not required in most cases.

## Implementation guidance:



Data *quality* can be high (e.g. a statistical analysis of the whole target plant population) or low (e.g. the estimate of the purchase manager based on previous season's harvests, if not based on field assessment).

Quantitative data from scientific resource assessments provide the most robust basis for defining maximum allowed collection quantities. A combination of ideally all three sources of information is needed for medium/ high risk species (observation, estimates and evidence). The results of resource assessment, monitoring activities and information from / knowledge of collectors should be integrated to determine optimum sustainable collection quantities.

The assessment can be based on long-term collection in the area or it can be based on general concepts such as rules of thumb that are not scientifically proven.



*The results of resource assessment should be documented in the management plan / FairWild Operator Profile. Describe which data were used for the resource assessment and illustrate the methodology how the data were obtained.*

Further guidance for implementation of resource assessment for high risk species is available at the FairWild Foundation.

### 3.6 Collection limits (frequency, periods, quantities)

#### **MINIMUM REQUIREMENTS FROM YEAR 2:**

- 1. The sustainability of collection frequency as predefined in collection instruction needs to give at least basic baseline and monitoring data.**  
There must not be any indication of declining target plant populations. It has to be assured that the rate of replacement of collected plants or plant parts is higher than the collection rate.

#### **Explanation of requirements**

Collection limits are determined by the collection quantities, frequency and periods allowed for collection.

*Collection frequency:* Frequency is defined as the number of repetitions of a periodic process in a unit of time. In wild collection it is the answer to the question: "how often can a collector harvest the same plant in the same collection area in the same season and/or over longer time frames"? The answer could be "collect every season" because the target plant reproduces annually, or it could be "collect once every second or third season in the same area" because the reproduction rate of the collected target plant is two or three years.

*Collection periods:* The periods in which collection is allowed should be defined according to the reproduction cycle of the target species. They can also be determined according to practical indicators such as seasonality, precipitation cycles, flowering and fruiting times. They answer the question "at what time(s) during the year should the target plant part be collected?" The answer could be for example "after the seeds have ripened and fallen to the ground".



*Collected quantity:* The maximum allowed quantity per target plant that can be sustainably collected from one collection area in one season. Answer to the question: “what volume can a collector collect sustainably from the same plant in the same collection area in the same season”? The answer could be “leave 50% of the plants untouched” or “collect only every third flower”, or it could be a quantitative indication, such as “not more than 1 kg of leaves per tree”. This quantity can be estimated for low risk plants but should be calculated through resource assessments for medium and high risk plants.

The collection frequency should be predefined in the collection instructions for each plant. Collection should never exceed the rate of replacement of the target plant or plant part. Waiting period needs between one collection event and the next should be determined (time period until the collector can collect the target plant parts again from the same plant or area). For low risk target plant species, at least inventory and monitoring data should be available. Ideally, the frequency of collection is lower than replacement rates.

### Implementation guidance

The determination of adequate collection frequencies is easy for most low risk species, because they reproduce the collected plant part annually (e.g. wild apples) or in even shorter intervals (e.g. leaves of *Urtica dioica*). Example: If the leaves of a species re-grow within 3 months and the interval between two collection events is 6 months, the replacement rate is higher than the frequency of collection. This is the case for many ruderal target plant species which are commonly called “weeds”.

The following table gives a rough indication of adequate collection frequency depending on the life form and the target plant part. Unnecessarily destructive harvesting methods (e.g. felling, uprooting whole plants when only the herb is needed) are not considered.

Life form Plant part used	Trees, shrubs	Dwarf shrubs	Perennial herbs	Annuals
<b>Roots/rhizomes/ bulbs: partial harvest possible</b>	few to several years, until full replacement of target plant part			Once every 1- 2 years.
<b>Roots/rhizomes/ bulbs: partial harvest not possible</b>	Several years, until adult age/ size class* of target plant is reached again (waiting period from seed dispersal until a new, mature plant has developed and has dispersed its seeds)			Most important is that enough of the target plants remain in the field to produce seed, in order to keep the target plant population stable.
<b>Whole plant</b>				
<b>Exudates</b>	few to several years, until full replacement of target plant part		---	Monitoring has to guarantee equal amounts of seedlings are produced every season.
<b>Bark</b>			---	
<b>Wood</b>			---	
<b>Herb</b>	Once every 1- 2 years; until full replacement of target plant part and with enough remaining plant parts that the target plant population is stable (so that enough seed can be produced annually to maintain the plant population)			
<b>Leaf</b>				
<b>Flower</b>				
<b>Fruit/seed</b>				



*The sustainability of collection frequency should be documented in the management plan or the FairWild Operator Profile.*



*In the 'FairWild Plant Specification Form' the regeneration period of the target plant and the frequency of collection should be documented per target plant.*



*The frequency of collection should be included in the collection instructions and collectors should be trained accordingly. Collection instructions and training confirmations can be attached to the management plan.*

### 3.7 Collection rules

#### **MINIMUM REQUIREMENTS FROM YEAR 2:**

1. **Internal collection instructions have to be available in written form, including a description of sustainable traditional practices.** They also need to define the collection methods for all target species.

#### **MINIMUM REQUIREMENTS FROM YEAR 3:**

1. **Collection instructions define for each target plant/ part of plant the collection site & harvest methods.** Adequate collection instructions based on site- and species- specific resource assessment and monitoring information incl. information on any sites excluded from collection need to be given.
2. **Collection instructions have to define maximum allowed collection limits (quantities, frequency, periods).** There has to be a clear and complete definition of collection limits.
3. **A regular revision of internal collection instructions needs to be done.** Instructions are reviewed and revised based on site- and species specific monitoring of collection impacts.

#### **Explanation of requirements**

Rules and guidelines for sustainable collection are of utmost importance for any FairWild certified operation. Rules for collection should include:

- Locations allowed for collection: places allowed or exempted from collection and minimum distances to exempted locations
- Quality and sustainability criteria for the collected plants: target plant identification, collection method, correct timing, correct plant parts
- Collection limits: percentage of plants or plant parts to be left untouched; rules on how often it is allowed to collect from the same plant in the same area (rules on waiting periods or rotation of collection areas)
- Post-collection handling: transport, drying, processing, storage
- Labelling: information to be given on the labels

IMO issued a separate *FairWild Manual for Sustainable Wild Collection Practices* where these points are further addressed. It also contains a auto-assessment checklist for collectors which can be used as a tool for self-control. The manual can be requested from IMOSwiss AG.

#### **Implementation guidelines**

The collection instructions may be distributed to collectors as a separate document or as an annex to the collector contract. The results of the resource assessment should be reflected in the collection instructions.




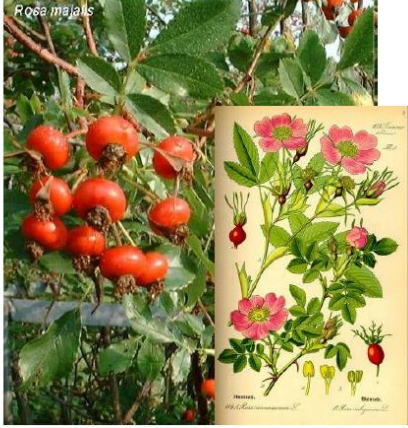
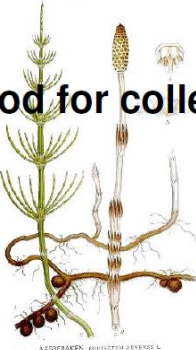
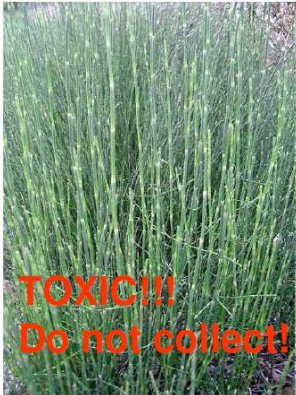

*Print collection instructions for each target plant. Distribute them to all collectors and hand it in to the FairWild certification body. They may also be attached to the operator profile and the management plan.*

A regular revision of the collection instructions is advisable, especially for target species classified as medium or high risk, where small changes in the collection methodology (e.g. harvest after seed development and dispersal) can positively affect the targeted plant populations. This revision should be done at least every three years.



*Keep the history of the different versions of the collection instructions in the operation's archive.*

Example of collection instructions

Question to be answered	Possible answer given as example
<p><b>How can I show the differences between similar plants in the collection instructions?</b></p>	<p>All characteristics of the target plant are described and illustrated through pictures so that plants can be easily identified in the field. If similar looking plants occur, these plants have to be described and illustrated as well:</p> <ul style="list-style-type: none"> <li>• <b>Rosa canina</b></li> </ul>  <ul style="list-style-type: none"> <li>• <b>Rosa majalis</b></li> </ul>  <p style="text-align: center;"><b>Poisonous plants and plant parts</b></p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="579 936 847 1361"> <p><i>Equisetum arvense</i></p> <p style="text-align: center;"><b>Good for collection</b></p>  <p style="text-align: center;"><b>FAIRWILD</b></p> </div> <div data-bbox="978 936 1275 1361"> <p><i>Equisetum ramosissimum</i></p>  <p style="text-align: center;"><b>TOXIC!!! Do not collect!</b></p> </div> </div>
<p><b>How can the sustainable collection methods be explained?</b></p>	<p>Collection methods should include a description of the allowed tools, their application and information on timing of collection. Photos will help:</p> 

### 3.8 Allowed periods for collection

#### ***NORM REQUIREMENTS:***

1. **Allowed periods for collection are determined by 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.

#### **Explanation of requirements**

Allowed periods for collection need to be determined by the collection frequency, which depends on the target plant and the collected plant part, the biology and regeneration of the target plant. Reliable and practical indicators should be chosen so that collectors can easily understand the collector instructions. It is important that enough of the target plants remain in the collection area to produce and disperse seeds it is therefore advisable to consider seed production for determining allowed periods for collection.

#### **Implementation guidance**



*Collection instructions should clearly state which periods are allowed for collection.*

### 3.9 Age and Size Classes

#### ***MINIMUM REQUIREMENTS FROM YEAR 1:***

1. **The minimum biological age / size class allowed for collection is defined for the target species and collection site.** Reliable and practical age / size classes targeted for collection are defined. This definition needs to be done according to the quality parameters which need to be achieved, as well as according to sustainability criteria (for example, collection of leaves only after the annual seed production has taken place).

#### **Explanation of requirements**

Age and size classes do not have to be defined in all cases and for all target plants. Age and size classes **always** have to be established in the following cases:

- For target plants where collection results in death or total extraction of the target plant (e.g. collection of roots or the whole plant, except annual plants and plants classified as low risk such as *Taraxacum officinale*, *Urtica dioica*)
- For target plants classified as medium and high risk
- For target plants or plant parts where the reproduction/regeneration rate is longer than one year
- For target plants or plant parts where the definition of age and size classes improves the quality of harvested products

#### **Implementation guidance**

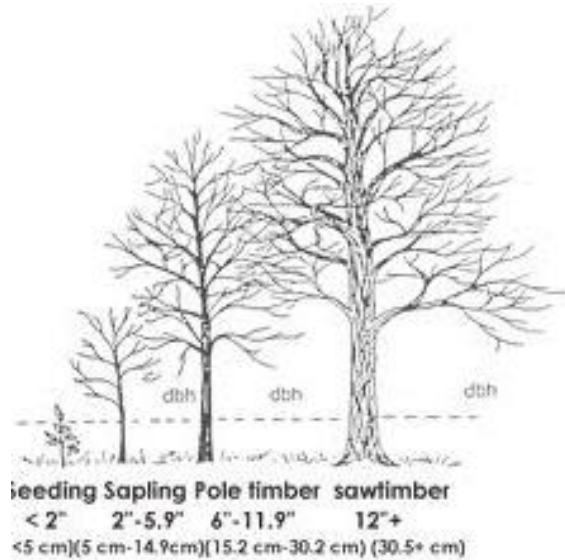


*Define age and size classes for all relevant target plants. The defined age and size classes should be reflected in the collection instructions and the management plan.*

Example of age and size classes

**How can age and size classes be described for collectors?**

The best way to describe age and size classes is to provide collectors with a prepared measuring tool like a matrix (e.g. a string with knots which indicates the diameter for measuring Diameter Breast Height (dbh). With such a tool, collectors can measure if a tree is old or young enough for collection. The instruction “harvest only from trees where this string cannot be wrapped around anymore because the trunk is too thick” should be given to collectors together with the prepared string.




The age and size classes for wild collected plants should always be defined by using clear indicators, e.g. in the case of plants which grow in clusters such as *Iris pallida*, the diameter of the whole cluster plus the development of flowering stalks per cluster can be used as category:




Diameter of whole cluster larger than 40 cm, all of the rhizomes in this cluster have already developed flowers	Class A
Diameter of whole cluster between 20 and 40 cm, most of the rhizomes in this cluster have already developed flowers	Class B
Diameter of whole cluster between 10 and 20 cm, few of the rhizomes in this cluster have already developed flowers	Class C
Diameter of whole cluster less than 10 cm, none of the rhizomes in this cluster have developed flowers yet	Class D


Age and size classes can be used to define also the ideal quality of the target plant to be collected, and should always be explained through photos:



- Age class: Vegetative
- Size class: below 20cm
- =>NOT suitable for collection



- Age class: before flowering
- Size class: between 30 and 40cm
- =>suitable for collection



- Age class: almost flowering, wilting
- Size class: between 30 and 40cm
- =>NOT suitable for collection

### 3.10 Consolidated records on amounts harvested, periods and frequency of collection

#### **MINIMUM REQUIREMENTS FROM YEAR 3:**

1. **Consolidated records on amounts harvested per year and area have to be adequately registered.** These registers have to give all information relevant to check on long-term sustainability.

#### **NORM REQUIREMENTS:**

1. **Consolidated records on actual periods and frequency of collection:** complete information on actual harvest periods and frequency of collection should be available.
2. **In case collectors sell the collected products also to other buyers who are not in the FairWild programme:** all sold quantities are registered in a sales record by the collector and this is included in the documentation / records of consolidated harvested.
3. **Consolidated harvest data confirm compliance with collection instructions,** including maximum allowed quantities, size categories, etc.

#### **Explanation of requirements**

The registration of amounts harvested per year and per collection area is required for certification, in order to guarantee transparency and traceability of collected goods. Should the target plant part be collected in more than one collection area, the collection company needs to present a compilation of harvested amounts per collection area and per year. The operator should prepare information about when each target plant was harvested during the season, and how often per season or over several seasons. This information enables the inspector to judge if sustainability of harvest is maintained over the long term.

### Implementation guidance

Compile the information on plant amounts harvested per collection area in a table and compare it with the data of harvested amounts of previous years. If there are historical data, these can be added to the file. Compare these data with the collection instructions for cross-checking whether overharvesting or harvest during wrong periods has occurred.



*As a minimum, the annual harvested quantities per target plant and per collection area need to be documented in the form 'Consolidated collected quantities FairWild'. If available, additional statistics should be handed in.*

## 3.11 Collectors who sell their collected products also to other buyers

### Explanation of requirements

If collectors sell their goods also to other buyers, it can be extremely difficult to get an overview of the entire harvested amount per collection area. Thus the sustainability of wild collection may be at stake, because the certified operation may manage the collection activities according to the FairWild Standard, but in total the collected amounts may exceed sustainability limits without the knowledge of the certified company.

### Implementation guidance



*Should collectors sell the FairWild certified target plants to third persons or companies as well, all sold quantities need to be registered in a sales record by the collector. The information of additionally sold quantities should be included in the documentation / records of consolidated harvested quantities of the certified collection operation.*



*Alternatively, different collection companies can work together and join their data on harvested amounts to register the correct harvested quantities in the collection area.*

*The document 'Consolidated collected quantities FairWild' or own records of the company should provide full information on the total collected quantities from each collection area. If no records exist about quantities collected for other users, an estimation has to be included (e. g. quantity collected for the company plus 10% collected for home consumption)*

## 3.12 Monitoring of target plant populations

### **MINIMUM REQUIREMENTS FROM YEAR 2:**

1. **Assessment and regular monitoring** of the target resources and habitats are performed, documented and incorporated into the management plan.

### **MINIMUM REQUIREMENTS FROM YEAR 3:**

1. **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
2. **Periodic monitoring** within the management area confirms that availability, viability and quality of the target resource / part of plant remain stable or increase.

### **NORM REQUIREMENTS:**

1. **Periodic regeneration surveys** of the target species within the management area using repeatable, comparable survey methods
2. **Inventory, assessment and monitoring** are conducted using tools and procedures within the reasonable (existing or achievable) capacity of the collectors / field managers

Criterion 9.2 contains all indicators regarding the assessment and regular monitoring of target species in the collection area. Assessment and monitoring activities again involve some field work and should be planned and documented within the management planning process.

### Explanation of requirements

The comparison of results can lead to the following conclusions:

1. At present, the target plant / plant population is constant or increasing in the collection area, compared to results of previous assessments. The collection is sustainable, all current practices can continue, there is no need to change collection instructions.
2. At present, the target plant / plant population is decreasing in the collection area, compared to results of previous assessments. Either the collection practice is not sustainable or factors which are not under control of the FairWild certified company have reduced the target plant population (e.g. a fire, climate change, land conversion, or other changes in the collection area). The reasons for the decrease need to be analysed and corrective measures taken:
  - a. Collection can continue, but with revised collection instructions
  - b. Collection cannot continue. A new collection area needs to be chosen or collection in the same area can only be resumed after adequate regeneration of the target species.
3. The results are not clear or cannot be compared to previous assessments. However, there is no indication that the collection is not sustainable. The assessment methodology needs to be adapted, possibly with the help of a botanical expert.
4. The results are not clear or cannot be compared to previous assessments, but there is indication that the collection is not sustainable. The assessment methodology needs to be adapted and a precautionous approach taken: collectors must be instructed to collect less of the target plant or to stick to a defined waiting period. A botanical expert should be involved in order to improve the methodology and to allow a comparison of previous and present results.

### Implementation guidance



*The results of assessment and monitoring should be documented together with any conclusions and corrective measures in the management plan or the FairWild Operator Profile.*



*The practical part of this manual contains some examples how a simple resource assessment can be conducted. Attached templates may be used for monitoring activities or own templates may be created.*



## 4. Annex

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Documents listed in the annex can be used by FairWild-certified operators to implement the FairWild certification system, or they can be modified as needed in developing a company's own system and documentation. Please contact the staff of IMOSwiss AG (accredited certification body for FairWild) in order to obtain the latest version of these documents.

1. IMO II 28.1 G-e Operator Profile Fairwild, which can be used as basic management plan
2. IMO II 28.1.1 G-e Specification of collection area
3. IMO II 28.1.2 G-e FairWild Plant Specification Form
4. IMO II 28.1.3 G-e Pre Assessment Matrix FairWild
5. IMO II 28.1.6 G-e Consolidated collected quantities FairWild

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Leaman & Cunningham, 2008: Resource Assessment: A guide to implementing Principle 1: Maintaining Wild MAP Resources. IUCN- SSC Medicinal Plant Specialist Group. Online available under <http://www.fairwild.org/documents/>

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Strohbach & Cole, 2007: Population Dynamics and Sustainable Harvesting of the Medicinal Plant *Harpagophytum procumbens* in Namibia. BfN Skripten 203, Bonn.

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