NDF WORKSHOP CASE STUDIES
WG 4 – Geophytes and Epiphytes
CASE STUDY 2
Galanthus woronowii
Country – **GEORGIA**
Original language – English

ASSESSING HARVEST LEVELS FOR *GALANTHUS WORONOWII* LOSINS K. IN GEORGIA AND THE CHALLENGE OF PRODUCING A NON-DETRIMENT FINDING

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I. Background information on the taxa

1. BIOLOGICAL DATA

1.1. Scientific and common names:

Scientific name: *Galanthus woronowii* Losinsk. (fam. Amaryllidaceae)
Common name: Snowdrop
Figure 1. *Galanthus woronowii* in Ajara (SW Georgia)

1.2. Distribution

Galanthus woronowii is distributed in the Caucasus and Transcaucasus, southern Russia, Georgia and north eastern Turkey (Figure 2). It is primarily found around the eastern Black Sea coast area in the ancient provinces of Colchis and Lazistan (the Euxine Province) (Davis, 1999). Isolated populations of *Galanthus woronowii* are also found in central Georgia in the close vicinity of the capital, Tbilisi (Kikodze & Khutsishvili, 1996).

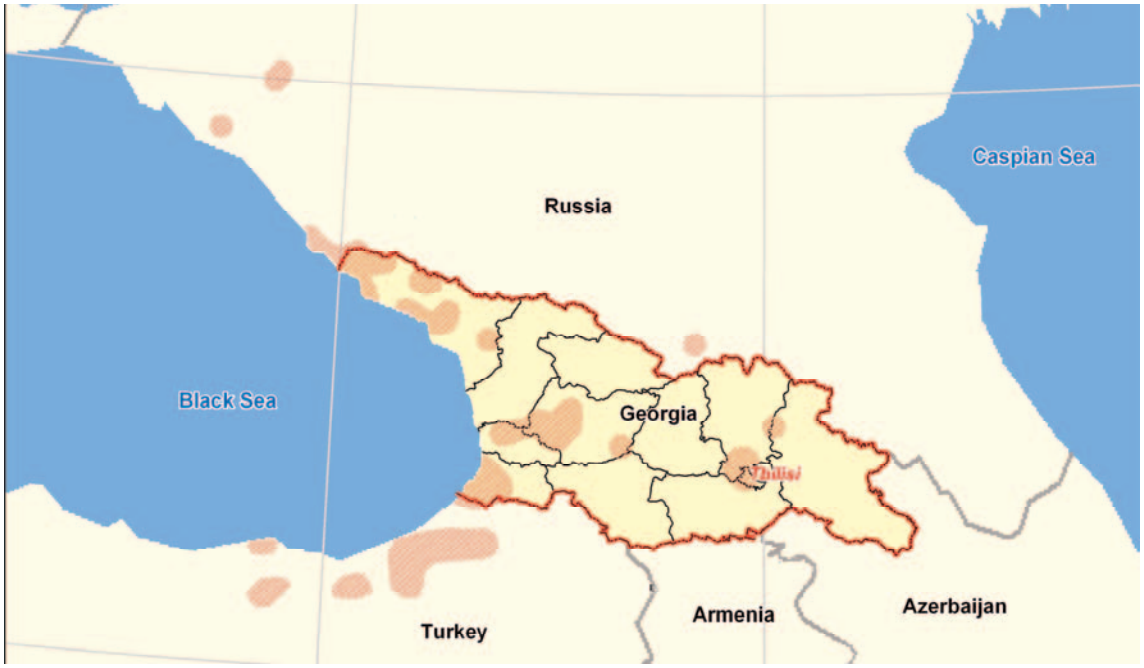

Figure 2. Distribution of Galanthus woronowii in Georgia and neighbouring countries

1.3. Biological characteristics

1.3.1. *Provide a summary of general biological and life history characteristics of the species.*

Galanthus woronowii reproduces by seed or vegetatively by bulbs. It is a very tolerant plant towards human-induced disturbances such as trampling.

1.3.2. *Habitat types: Specify the types of habitats occupied by the species.*

Populations of *Galanthus woronowi*i occur in deciduous forests (Figure 3), (*Alnus barbata, Carpinus caucasica, Zelkova carpinifolia,* etc.), hazel scrub, near springs, and in man-made habitats – roadsides (Figure 5), cornfields, tea and citrus plantations (Figure 4). The distribution of *G. woronowii* in Georgia ranges from almost sea level to approximately 900 metres in altitude.

Figure 3. Deciduous forest habitat of *Galanthus woronowii*

Figure 4. Citrus plantation habitat of *Galanthus woronowii*

Figure 5. Roadside habitat of *Galanthus woronowii*

1.3.3. *Role of the species in its ecosystem*

Galanthus woronowii is an early flowering plant primarily associated with woodlands. It possibly plays an important role in ecosystem functioning in early spring through nutrient cycling and as a food source for insects.

1.4. Population:

1.4.1. *Global Population size:*

Galanthus woronowi occurs only in Russia, Georgia and Turkey. Precise information on the global population size is not available, although it is known that populations considerably vary in size and area of occupancy between several square metres to several tens of hectares. Larger populations are found in areas located in Black Sea coastal zone, although populations extending towards central Georgia (eastern most border of distributional area) are smaller in size and support lesser number of plants.

1.4.2. *Current global population trends:*

___increasing ___decreasing ___stable __X_unknown

Recent studies in Georgia revealed no negative trend in almost all populations visited in 2006 within the framework of the project "Survey of Transcaucasian Snowdrops and Establishment of Snowdrop Collections at Bakuriani Alpine Botanical Garden, Institute Of Botany, Georgian Academy of Sciences" supported by Stanley Smith (UK) Horticultural Trust (Kikodze & Khutsishvili, 2006).

1.5. Conservation status

1.5.1. *Global conservation status* (according to IUCN Red List):

___Critically endangered ___Near Threatened ___Endangered
___Least concern ___Vulnerable ___ Data deficient

The specie is not included into the IUCN Red List. It is included in the Red Data Book of Turkey under the category "Vulnerable" (Ekim, 2000).

1.5.2. *National conservation status for the case study country*

No conservation status is assigned to *Galanthus woronowii* in Georgia. This species is not included into the Georgian Red Data Book (1982).

1.5.3. *Main threats within the case study country*

___No Threats
X__Habitat Loss/Degradation (human induced)

___Invasive alien species (directly affecting the species)
X__Harvesting [hunting/gathering]
___Accidental mortality (e.g. Bycatch)
___Persecution (e.g. Pest control)
___Pollution (affecting habitat and/or species)
___Other_____
___Unknown

At present no reliable data is available to quantify the population loss due to these activities. However, some data provided by the Georgian Ministry of Environment Protection and Natural Resources indicates damage to *G. woronowii* populations as a direct result of harvesting of bulbs in the wild.

2. SPECIES MANAGEMENT WITHIN THE COUNTRY FOR WHICH CASE STUDY IS BEING PRESENTED.

2.1. Management measures

2.1.1. *Management history*

No formal management plan has been developed, to date, for *Galanthus woronowii* in Georgia. The sustainability of wild populations were occasionally assessed by field inspection by the regional representatives of the Georgian Ministry of Environment Protection and Natural Resources in order to prevent damage to wild populations from illegal harvesting. Since 1997, when Georgia became a signatory of CITES, the Ministry of Environment Protection and Natural Resources has recommended that traders establish artificial propagation sites and propagate *Galanthus woronowii* to preserve wild populations from destruction. Since 2000, the Ministry of Environment Protection and Natural Resources has requested that traders provide detailed information on the propagation sites. Randomly selected propagation sites have been monitored by the members of Scientific Authority from 2000 to 2005.

2.1.2. *Purpose of the management plan in place*

An informal management plan is currently in place. This aims to control harvesting levels in wild populations and to prevent the overexploitation of sites supporting populations of *Galanthus woronowii*. A quota system has been established to regulate exports. A detailed management plan for the *Galanthus woronowii* will be prepared as one of the outputs of a project "Improving the implementation of CITES for *Cyclamen coum* and *Galanthus woronowii* from Georgia"

2.1.3. *General elements of the management plan*

General elements of proposed new management plan are as follows:

- Ensure the non-detrimental harvesting levels in wild populations
- Ensure that harvesting takes place in the populations subject to trade and not in populations of species recognized as rare and endangered at national and international levels
- Facilitate artificial propagation of *Galanthus woronowii* as a basis for sustainable trade and conservation of wild populations

2.1.4. *Restoration or alleviation measures*

No restoration projects or guidelines specific to *Galanthus woronowii* have either been developed, nor implemented, although some experiments were carried out at the Department of Plant Conservation (Tbilisi Botanical Garden and Institute of Botany) to propagate *Galanthus woronowii* by seeds under different environmental conditions. Seed-grown *Galanthus woronowii* plants are part of the living collections of the above Department and could be used as seed and living plant sources in potential restoration projects.

2.2. Monitoring system

2.2.1. *Methods used to monitor harvest*

The harvest of *Galanthus woronowii* bulbs in Georgia has been monitored by the representatives of CITES National Scientific Authority on an annual basis. However, only a small proportion of the harvested sites were inspected for the purpose of quota establishment.

2.2.2. *Confidence in the use of monitoring*

Based on the current monitoring system and lack of reliable data, both from the wild populations and cultivated sites, there is low confidence from available data that the wild populations of bulbs are not affected by the harvesting. No detailed scientific assessments of cultivated sites have ever been conducted, therefore no accurate data is available on the proportion of export quota harvested from the wild and from cultivated sites.

2.3. Legal framework and law enforcement:

Until 2005 there was no national legislation on CITES related issues in Georgia. Export, import and re-export permits were issued directly according to the Articles of the Convention. In 2005 the Georgian Law on Licenses and Permits was adopted. This Law was a pioneer in Georgian legislation, establishing that the export, import, re-exports

and introduction from the sea of specimens of species included in Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) requires appropriate permits. The rules and provisions for issuance of these permits were determined by the Decree of the Georgian Government #96 (2006). These provisions are similar to that required by CITES.

In case of commercial trade in *Galanthus and Cyclamen*, priority was given to those exporters who had already concluded an agreement with an importer at the highest price. This was due to the fact that demand on *Galanthus* export was greater than the export quota (18 million bulbs). In accordance with new legislation adopted in 2007 (Decree of Georgian Government #21, 2007), the Ministry for Economical Development of Georgia is currently responsible for the organization of auctions to sell export licenses for *Galanthus*. Companies are sold licenses enabling the export of *Galanthus* bulbs. Annual export quotas will still be established by the Scientific Authority and officially submitted to the Ministry for Economical Development of Georgia.

3. UTILIZATION AND TRADE FOR RANGE STATE FOR WHICH CASE STUDY IS BEING PRESENTED.

3.1. Type of use (origin) and destinations (purposes

Galanthus woronowii is an attractive ornamental (Figure 1) and is a very popular plant of horticultural interest in Europe. *Galanthus woronowii* is also a medicinal plant and source of galanthamine. The purpose of trade is commercial, for horticulture.
Harvest:

3.1.1. *Harvesting regime*

Collection of *Galanthus* bulbs is carried out in cultivated areas; mainly in cornfields and plantations of citrus and tea. In cornfields, the soil is cultivated by plough, bulb collectors follow behind and gather the bulbs between soils tussocks. In citrus plantations, bulbs are collected during the maintenance of citrus plants and they are separated from the soil by raking. Bulbs are collected by local farmers (Fauna & Flora International, 1999). The bulb harvest usually takes place in April-May. The proportion of artificially propagated and wild bulbs is still unknown. At present, all material is treated as wild collected.

3.1.2. *Harvest management/ control*

In accordance with new legislation adopted in 2007, the Ministry for Economical Development of Georgia is responsible for the organization of auctions to sell export licenses for *Galanthus*. In 2008, four

companies were sold ten-year long licenses that enable them to export of *Galanthus woronowii*. The annual export quotas will be still established by Scientific Authority and officially submitted to the Ministry for Economical Development of Georgia. The new quotas will be established on a sustainable basis.

3.2. Legal and illegal trade levels:

National export quota of *Galanthus woronowii* is established by Scientific Authority on annual basis and forms a basis of the regulation of legal trade. There is no evidence of illegal trade in Galanthus from Georgia.

II. Non-detrimental Finding procedure (NDFs)

Provide detailed information on the procedure used to make the non-detriment finding for the species evaluated.

1. IS THE METHODOLOGY USED BASED ON THE IUCN CHECKLIST FOR NDFs?

The methodology does not strictly follow the IUCN checklist for NDFs. An NDF checklist (Table 1) and Radar chart has been prepared (Figure 6) to show the current situation.

2. CRITERIA, PARAMETERS AND/OR INDICATORS USED

Based on previous experience of harvesting and stock assessment of *Galanthus*, a revised process of NDF is been proposed. The previous method involved limited field inspections, and limited input of hard scientific data to the NDF process and quota setting. This is not a reliable method to provide an accurate NDF and to ensure sustainability of harvest. The revised process has identified criteria, parameters and/or indicators to be used in future NDF studies. The different criteria will be applied to artificial propagation sites and wild populations. To ensure the sustainability of wild populations the total number of individuals, in sampling areas extrapolated over the entire population area, before and after the harvest will be compared to identify trends in the population demography. The main parameters will be the number of adult individuals of commercial bulb size in sampling area and natural death rates.

3. MAIN SOURCES OF DATA, INCLUDING FIELD EVALUATION OR SAMPLING METHODOLOGIES AND ANALYSIS USED

An extensive survey of published and unpublished literature sources will be undertaken prior to the commencement of actual field research.

This will also include the documents stored at the Ministry of Environment Protection and Natural Resources and reports prepared by international working groups. Information on geographical distribution and ecological peculiarities of target populations will be extracted from herbarium material stored at different herbaria in Georgia and outside the country. In the field, random sampling method will be utilised, aimed at the collection of comprehensive data on the numbers of plants per population and spatial distribution patterns. Field data will be statistically analysed and incorporated into GIS.

4. EVALUATION OF DATA QUANTITY AND QUALITY FOR THE ASSESSMENT

Preliminary studies will be carried out in order to assess the effectiveness of chosen methodology. Based on the preliminary results, necessary changes will be made to improve the methodology and make it better adapted to relatively rapid and reliable field data collection.

Table 1. Responses to IUCN Checklist Non–Detriment Finding questions for *Galanthus woronowii* in Georgia

Question number	Question Category	Question	Response
2.1	BIOLOGY	Life form	1
2.2		Regeneration potential	3
2.3		Dispersal efficiency	3
2.4		Habitat	2
2.5	STATUS	National distribution	1
2.6		National abundance	4
2.7		National population trend	3
2.8		Information quality	3
2.9		Major threat	2
2.10	MANAGEMENT	Illegal off-take	5
2.11		Management history	3
2.12		Management plan	4
2.13		Aim of harvest	3
2.14		Quotas	3
2.15	CONTROL	Harvest in PA	1
2.16		Harvest in strong tenure	1
2.17		Open access harvest	2
2.18		Confidence in harvest management	5
2.19	MONITORING	Monitoring method	5
2.20		Confidence in monitoring	5

2.21	INCENTIVES	Effect of harvest	5
2.22		Species conservation incentive	4
2.23		Habitat conservation incentive	4
2.24	PROTECTION	Proportion protected from harvest	4
2.25		Effectiveness of protection	5
2.26		Regulation of harvest	4

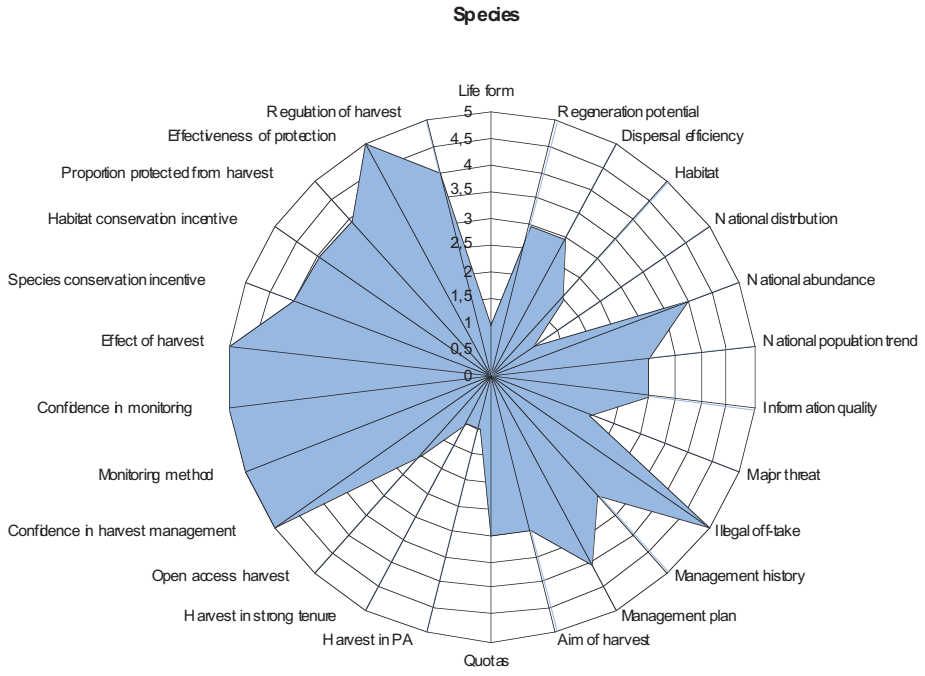

Figure 6. A Non-Detriment Finding Radar chart for Galanthus woronowii in Georgia

5. MAIN PROBLEMS, CHALLENGES OR DIFFICULTIES FOUND ON THE ELABORATION Of NDF

The baseline information on *Galanthus* production in Georgia is unclear; it is still in question whether the bulbs harvested can be considered artificially propagated or wild collected in terms of CITES, At present as a precautionary measure all bulbs are treated as wild origin. No recent and validated data is available on the location, size and productivity of artificial propagation sites – the cultivation areas. Wild stock

of *Galanthus* has also never been accurately assessed. Therefore, studies will be undertaken, as part of the CITES project, as matter of urgency, to clarify these issues. On the basis of these studies science based NDF's will be carried out and sustainable quotas established or confirmed.

6. RECOMMENDATIONS

- It is important to develop a standard procedure for NDF studies in geophytes
- The procedure should be aimed to combine the collection and analysis of both qualitative and quantitative data

- Upon the completion of the first phase of NDF studies, effective monitoring system should be developed to assess trends in the wild populations and on the sites of artificial propagation
- The results of NDF studies should form the basis for the elaboration of National Management Plans for the target species

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