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TYPE OF REPORT	BMEL Extension of EURISCO for Crop Wild Relatives (CWR) <i>in situ</i> data and preparation of pilot countries' data sets - A1539
ABSTRACT (Maximum 200 words)	Within the Czech Republic a strategy for conservation of CWR was compiled and published (Taylor et al. 2017). This Strategy is used for further planning of <i>in situ</i> and on farm conservation of PGR. A new updated list of 98 prioritized candidate species for <i>in situ</i> conservation was elaborated. Selection of populations of CWR species preferably in the category of endangered or vulnerable species resulted in botanical monitoring. Pilot populations have been monitored for the period from 3 to 20 years. The GRIN Czech system was revised for minimal set of descriptors required to upload <i>in situ</i> data to EURISCO. Currently the system accommodates <i>in situ</i> data. Collaboration with ENVI sector continued. Methodological guideline for <i>in situ</i> conservation is still on peer review in the Ministry of Environment. National programme for PGR conservation was invited for consultation on new Czech Concept of Genetic Diversity of Wild Organisms under the Ministry of Environment.
KEYWORDS	Country/Region: CZE Crop(s): CWR Subject: selection of species, monitoring, documentation

Report 2024

Introduction

Crop wild relative (CWR) genetic resources native to Europe are related to the many socio-economically important crops cultivated in the region and in other parts of the world and contain a wide pool of evolving genetic diversity. The need for conservation and documentation of CWR has been recognized by the Convention on Biological Diversity (CBD), the Second Global Plan of Action (GPA) for Plant Genetic Resources for Food and Agriculture and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), among other important instruments and plans. Populations of crop wild relatives occurring *in situ* are potentially valuable resources for crop science and plant breeding. New challenges from climate change increase the need to explore potential sources of new diversity.

The CWR populations need to be conserved and should be available to users. However, the current conservation and access to these CWR populations varies strongly. *In situ* conservation of CWR is often in the hands of nature conservation organizations, which are sometimes not even aware that they are managing these resources. Other CWR populations occur in farmers' fields, roadsides, and other locations, where they are not managed at all. Furthermore, information about the CWR populations, their occurrence and availability, is hardly available.

The ECPGR Concept for *in situ* conservation of crop wild relatives in Europe (Maxted *et al.* 2015) stressed the importance of identifying the important CWR diversity both at the national and regional level. In this context, Weise *et al.* (2020) explored the possible extension of EURISCO for *in situ* crop wild relatives and on-farm landrace data and proposed a set of descriptors that could be used for this purpose. The Secretariat of the ITPGRFA published an international standard of descriptors for CWR conserved *in situ* in an attempt to promote the documentation of these genetic resources and enable countries to compile and exchange data held by different national and international organizations (Alercia *et al.*, 2021). The 'European Strategy for conservation and sustainable use of plant genetic resources' (PGR Strategy), submitted in October 2021 for endorsement of the ECPGR Steering Committee, recognizes that many national programmes within the European region have a growing evidence-base concerning CWR diversity, conservation and use.

CWR in *ex situ* gene bank collections are included in the Czech documentation system GRIN Czech and thus annually uploaded to EURISCO. And although it is in principle possible to include *in situ* populations in EURISCO, provided that they are managed at the standard of *ex situ* collections, i.e., with a 'holding institute' that can also be approached for access.

Objective

The Sub-Grant will contribute to the preparation and inclusion in EURISCO of *in situ* Crop Wild Relative datasets from Czech Republic.

Expected key deliverables

- Reinforce the interaction and collaboration of Ministry of Agriculture (AGRI) with the Ministry of Environment (ENVI), to enlarge the number of populations that can be made available in principle.
- Work on the data base file of candidate species for *in situ* to reach agreement of AGRI and ENVI. Deliverable: Account of agreement reached about availability of *in situ* populations.
- Start *in situ* conservation of the above agreed species outside of protected areas. Negotiation with land owner only, can be signed. Deliverable: account of signed agreements with landowners.

- Start a discussion with ENVI to agree on *in situ* conservation of endangered species on their sites (at first without availability). Deliverable: account of agreement reached Lumpsum Funding Agreement No: L24ROM188.
- Finish manuscript of Methodology on CWR *in situ* conservation, request of endorsement of the methodology by AGRI and ENVI and prepare for publishing. Deliverable: Finalized methodology.
- Provide *in situ* CWR population data to EURISCO (subject to positive conclusion of the above agreements).

Results

1. Strategy for conservation of CWR

The Flora of the Czech Republic counts 3713 species and subspecies belonging to 965 genera. The documentation system GRIN Czech under the National Programme for conservation a use of plant genetic resources and agrobiodiversity includes 1392 species belonging to 463 genera. The system also includes 137 rare, protected and threatened species, which are not available within GRIN Czech online application.

Within the Czech Republic we proposed and published a strategy for conservation of CWR (Taylor et al. 2017). We collated data from the species occurrence database of the Nature Conservation Agency of the Czech Republic (AOPK CR, 2012). Other important data sources were collecting databases at the Genebank, Crop Research Institute, Prague (Holubec et al., 2014). The recent coverage of the Czech territory by collecting activities is good for the main biodiversity hotspots, like xerophilous grassland areas, river canyons, mountainous areas, etc. (for details, see Fig. 1). However, further collection activities are planned for the next period as well.

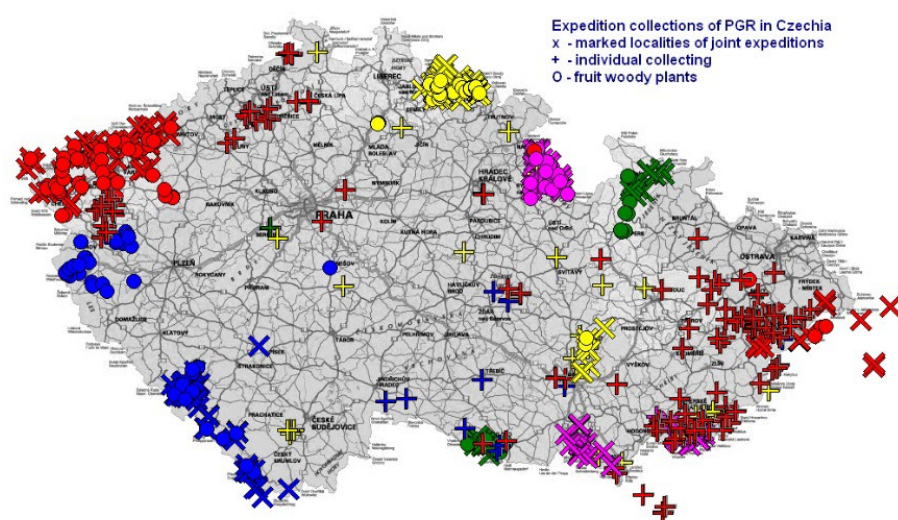


Fig. 1. Collecting and monitoring missions in the Czech Republic

We generated a CWR checklist (national Inventory) of food and feed species for the Czech Republic and generated a map of observed priority richness in the Czech Republic (Fig. 2). The richest grid cells with the presence over 80 per cent of CWR were found in Southern Moravia, České Středohoří Mts. and the Czech Karst, located SW from Prague. For details, see Fig. 2.

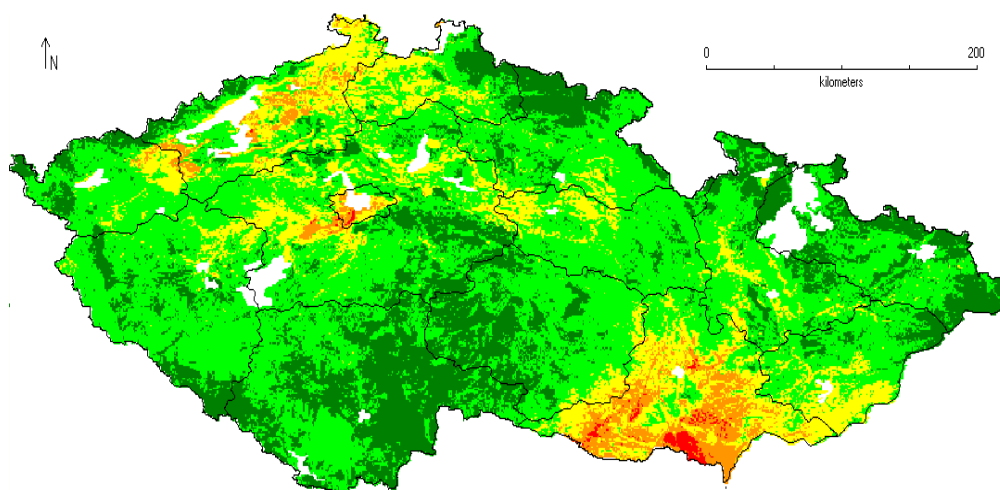


Fig. 2. Observed priority richness areas in the Czech Republic. Biodiversity hotspots are marked by the red colour.

2. Inter-Sectoral Collaboration

In situ conservation of CWR should be harmonized with the environmental sector – Ministry of Environment and its acting bodies: National Parks and the Nature Conservation Agency of the Czech Republic. CWR are materials of interest not only for agriculture, their conservation in the wild nature is a subject for multiple stakeholders.

The National Coordinator for PGR Vojtěch Holubec requested an appointment at the Ministry of Agriculture with the minister Marek Výborný. The meeting was held on the 4th of January 2024 at the minister's office. The National Coordinator informed the minister about the progress of the National Programme for the Conservation and Use of Plant Genetic Resources and Agroibiodiversity (NPCPGR). He described the situation in Europe and activities of ECPGR in CWR conservation. He stressed the need for the opening of intersectional collaboration between the AGRI and ENVI sectors. The minister promised that.

During February the Ministry of Agriculture (AGRI) with the Ministry of Environment (ENVI), had a meeting on objectives touching both sides and conservation of CWR was taken into account. The Minister of Environment agreed to invite National Coordinator of PGR to the meetings of just compiled National Concept of Genetic Diversity of Wild Organisms.

In 2024 National Coordinator attended two meetings of the National Concept and presented agricultural activities: The European Strategy for Conservation of PGR (ECPGR, 2021) and National Action Plan of NPCPGR. Surprisingly both Action Plans (ENVI and AGRI) were very similar, differing only in material (endangered wild plants versus CWR). National Coordinator did comparison and highlighted all analogic points. The ENVI side did not want to include CWR in their AP even if many target species were identical. But both parties expressed to search fields of collaboration.

National Coordinator also informed about the pending manuscript Methodology: Guidelines for *in situ* conservation (Holubec, Janovská and Papoušková, 2025 in prep.). The manuscript was sent for peer review to the Nature Conservation Agency of the Czech Republic under the Ministry of Environment in the beginning of 2024.

3. The methodology: Guidelines for *in situ* conservation and a list of proposed species for *in situ* conservation

In situ conservation of CWR in the Czech Republic is being solved in the manuscript: Guidelines for *in situ* conservation (Holubec et al, 2025 in prep.) which was sent for reviewing to the Nature Conservation Agency of the Czech Republic. The problems are protected plant species which are not possible to enrol, because it is in controversy with the Act 114/1992: Act on protection of nature and landscape with a Decree 395/1992 On threatened species. This problem was opened for discussion between agricultural and environmental sectors. Proposed species for *in situ* conservation that fell under the legislative protection currently cannot be included, because they cannot be collected for backup to the Gene Bank and thus do not meet requirement of availability. Similarly proposed sites in protected areas cannot be included unless they are approved by the Nature Conservation Agency of the Czech Republic. Both topics were discussed in 2024. The Nature Conservation Agency of the Czech Republic requested list of prioritized target species of CWR and promised agreement on species with lower levels of protection (C3 and C4 plants according to the Red list of the Czech Republic, Grulich, 2012).

4. Documentation of *in situ* conservation

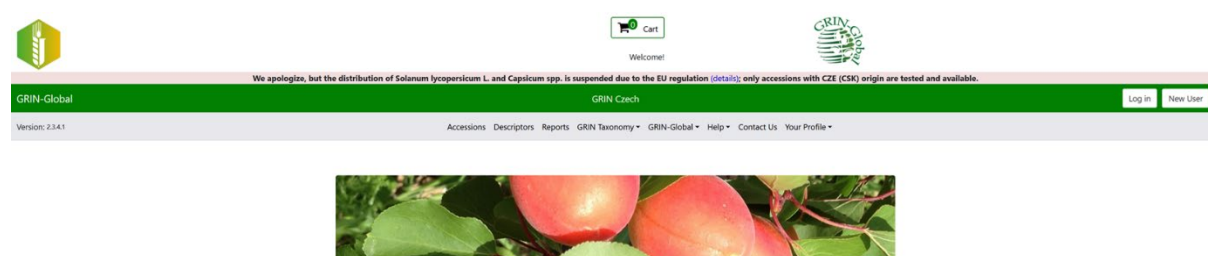
Czech Gene Bank has been running the National PGR documentation system GRIN Czech since 2015, after replacing an old system EVIGEZ, which was running since 1984. The GRIN Czech documentation system enables a wide extension of descriptors and increases the diversity of included data. The system was revised for the presence of minimum descriptors required to upload *in situ* data to EURISCO. Currently, the system can accommodate necessary *in situ* data. Therefore, the Czech Republic has *in situ* conservation within the national documentation system GRIN Czech.

Descriptors for *in situ* conservation recommended by van Hintum (2022) were activated in the documentation system GRIN Czech. The data for selected *in situ* candidate populations were uploaded into the documentation system. Activated descriptors are shown in the table 1.

Table 1. GRIN Czech documentation adjusted to *in situ* conservation. Case sample:

Humulus lupulus L.

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Accession ID	08x9001001
DOI	N
Taxon	Humulus lupulus L.
Name	Jeseníky2020/112
Origin	Czech Republic
Maintenance Site	Jeseniky
Is Backed Up?	N

Backup Location	
Status	Not active
Life Form	Perennial
Level Of Improvement	Wild
sampstat	100
Reproductive Uniformity	
Received As	Plant
Received Date	2020
Is Web Visible?	Y
Note	Curator: Vladimír Nesvadba
ploidy	

Accession Source	1026334
Source Type	Collection source event
Source Date	2020
Geography	Czech Republic
Is Origin?	Y
Collecting or Acquisition Source	Roadside
Quantity Collected	3
Unit Quantity Collected	count
Collected Form	cuttings
Number Plants Sampled	1
Environment Description	by the road on the bushes and trees
Collector Verbatim Locality	Jeseniky
Elevation (meters)	376
Latitude	50.37638889N
lat_str	50°22'35"N
Longitude	17.10805556E
long_str	17°06'29"E
Georeference Protocol	Lat./long. determined by GPS
Associated Species	
Is Web Visible?	Y

5. Research and monitoring of *in situ* candidate populations

The research of CWR populations was preferably devoted to endangered species marked by the red list categories C1, C2, C3 and C4 (Procházka, 2001, PLADIAS, 2022, Botany.cz, 2023). The Czech Republic is rich in many minor crops like grasses, fodder crops, fruits, vegetables, medicinal and aromatic, etc. The main Czech herbaria (PR, PRC, BRNU) were visited and plant databases were checked. Selected endangered species were considered for *in situ* conservation within CWR category and confirmed the choice from prioritisation (in agreement with Taylor et al., 2017).

A long-term monitoring programme is applied to two populations of *Allium schoenoprasum* in Vltava and Elbe River Basin (Zbraslav, Jarov, Děčín), two populations of *Hierochloa odorata* in Elbe River basin

(Grado, Václavka) and *Astragalus excapus* in Czech Middle Mts. (Radobýl). Recent monitoring of *Triticeae* grasses (*Agropyron pectinatum*) was undertaken during the past two years.

Among grasses and legumes, most of the monitored populations are located in the NW Bohemia and the southern Moravia. Altogether, it is 25 populations of 18 plant species. In the year 2024, the following populations were visited, monitored, and the phytosociological relevés were recorded.

The monitoring has taken place during the period of full vegetation from May to August. All types of vascular plants were recorded at the locations (nomenclature was unified according to Kaplan et al., 2021). Permanent plots of 2 x 2 m in size were marked on each locality, where phytosociological relevés were recorded, using the Braun-Blanquet combined scale of abundance and dominance (Moravec 1994). Relevé comparison was used to monitor floristic development over time. Botanical diversity was assessed based on the calculation of the Shannon (H) and Simpson index (D) and their standardized version of Evenness (Eh and Ed). Development of the number of species in the area and the value of the Shannon index were evaluated graphically in terms of the trends of individual indicators in connection with previous years. Monitoring of the above-mentioned populations was undertaken in 2024.

The list of target *in situ* species has been elaborated jointly with Tomáš Vymyslický, curator of fodder plants, and Simona Raab, curator of grasses (Appendix 1). The list includes 99 prioritised species of food and fodder crops. It was sent to the Nature Conservation Agency of the Czech Republic for approval because it includes mainly red list and protected species.

6. Overview of sites included in *in situ* conservation in the Czech Republic in 2024

6.1. Monitoring of coastal chive sites – *Allium schoenoprasum* ssp. *schoenoprasum*. The Děčín location represents the occurrence of chives on the paved navigation of the Elbe River bank. The total coverage on the permanent area is 90-100%, of which the coverage of chives on the standard area was permanently rated as grade 3. The Shannon and Simpson index values are at medium levels. Additional chive seedlings in the number of 100-200 plants are spread around the monitored population. Despite the growing nitrification and ruderalization from the nearby sewage outlet, the chives are stabilized and, on the contrary, their abundance is increasing. Děčín's population is permanently stabilized despite the occurrence of floods.



Fig. 3, 4. Locality Děčín with monitored plot of *Allium schoenoprasum* var. *schoenoprasum*.

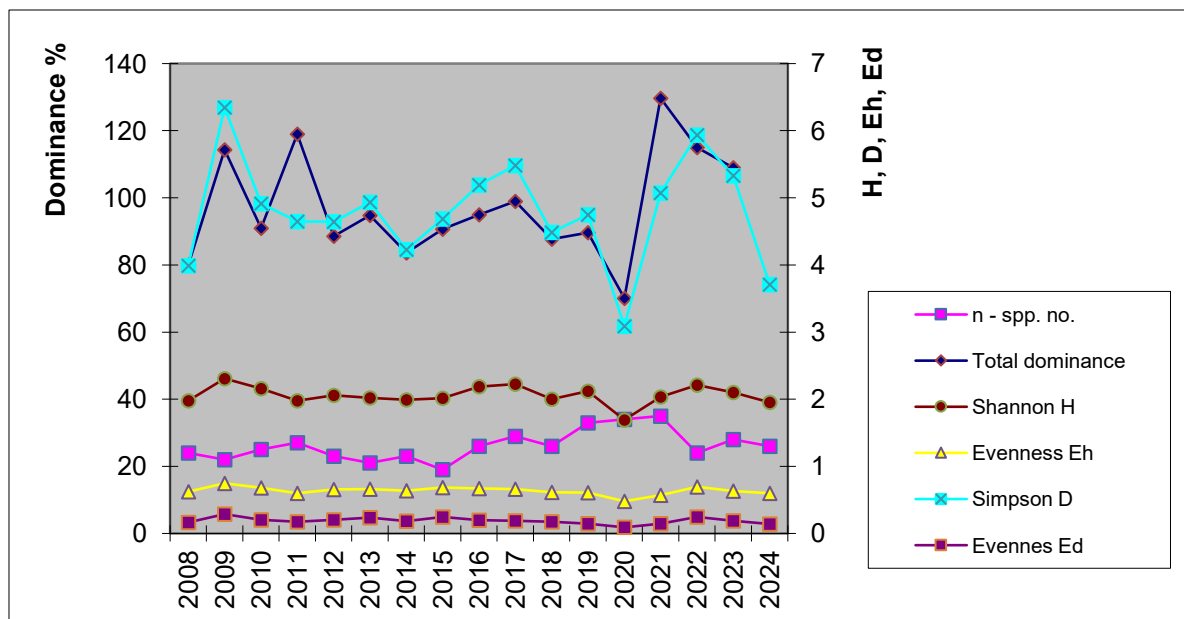


Fig. 5. Monitoring of site with *Allium schoenoprasum* var. *schoenoprasum* in Děčín, Elbe River Basin. Results based on the analyses of phytosociological relevés (Number of species, Total dominance, Shannon's diversity index, Evenness Index, Simpson's diversity index, Species evenness).

The occurrence of chives near Zbraslav along Vltava River was first recorded in 2001. In 2002 and 2006, floods affected the locality, which almost destroyed it. Genetic diversity was greatly depleted by subsequent bank restoration. Since 2008, the residual population has been monitored. Another population on the opposite river bank was taken for monitoring since 2022. This population belonging to the village Horní Břežany – Jarov is distributed on rocky pavement of the bank in the length of ca 50 m. It is very viable and stable for many years and will be used for *in situ* conservation.



Fig. 6. Locality Jarov with monitored plot of *Allium schoenoprasum* var. *schoenoprasum*



Fig. 7, 8. Locality Jarov with monitored plot of *Allium schoenoprasum* var. *schoenoprasum*

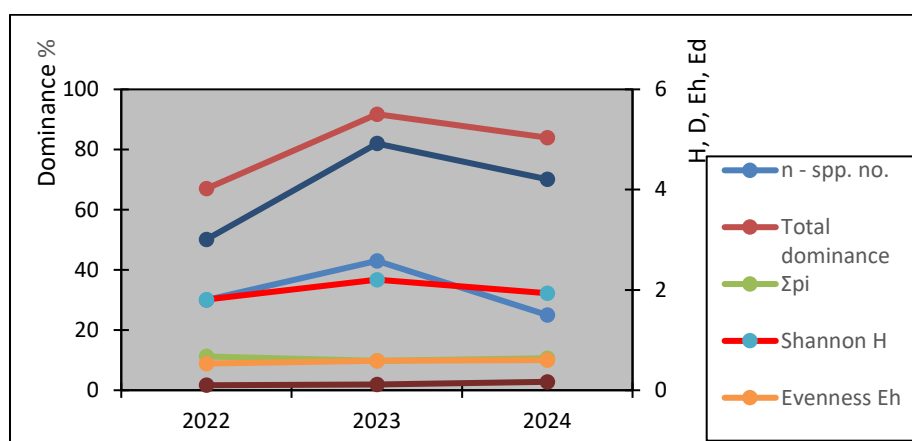


Fig. 9. Monitoring of site with *Allium schoenoprasum* var. *schoenoprasum* in Horní Břežany - Jarov, Vltava River Basin. Results based on the analyses of phytosociological relevés (Number of species, Total dominance, Shannon's diversity index, Evenness Index, Simpson's diversity index, Species evenness).

6.2. Monitoring of *Agropyron pectinatum*

It belongs among the species with continental and submediterranean areas of distribution. It extends into southern Moravia from the Pannonian Plain. Furthermore, the species is distributed in the Mediterranean region from Morocco and southern Spain to the Balkans and eastern Turkey. To the east, it has a wide area of distribution in the Eurasian steppe zone up to northern China and Mongolia. In the Czech Republic, the *Agropyron* naturally grows in a single location, Ječmeniště Protected Area in the Znojmo region. Other data on the occurrence of this species in our territory are related to introduced individuals.

The *Agropyron* population occurs on a steep southern slope, its size is ca 100 x 50 m. The steppe vegetation consists of mainly xeric species: *Festuca valesiaca*, *F. rupicola*, *Stipa capillata*, *Thinopyrum intermedium*, *Salvia nemorosa*, and others. Altogether there occurs 17 species. Summary of data from phytosociological relevés is shown in the Table 2. Botanical diversity is quite high, despite lower species numbers in the permanent plot. There are high values of both Shannon and Simpson indices. The

population of *Agropyron pectinatum* counted several hundred individuals in 2024 and for all tested years is very stable.

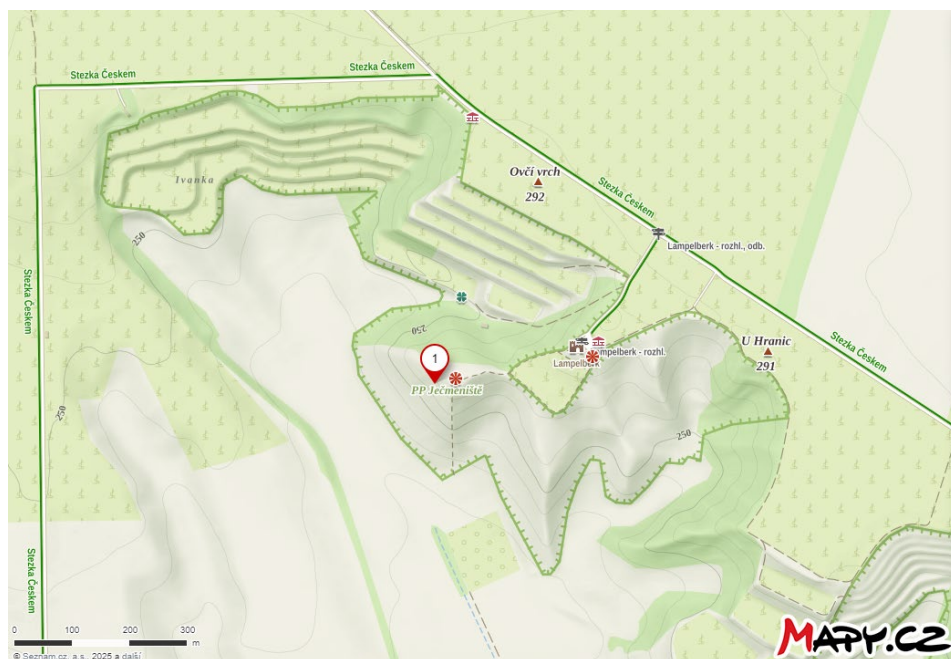


Fig. 10. Map of the locality Ječmeniště with the position of monitored plot of *Agropyron pectinatum*.



Fig. 11. Locality Ječmeniště with monitored plot of *Agropyron pectinatum* in 2024.



Fig. 12. Plants of *Agropyron pectinatum* in 2024.

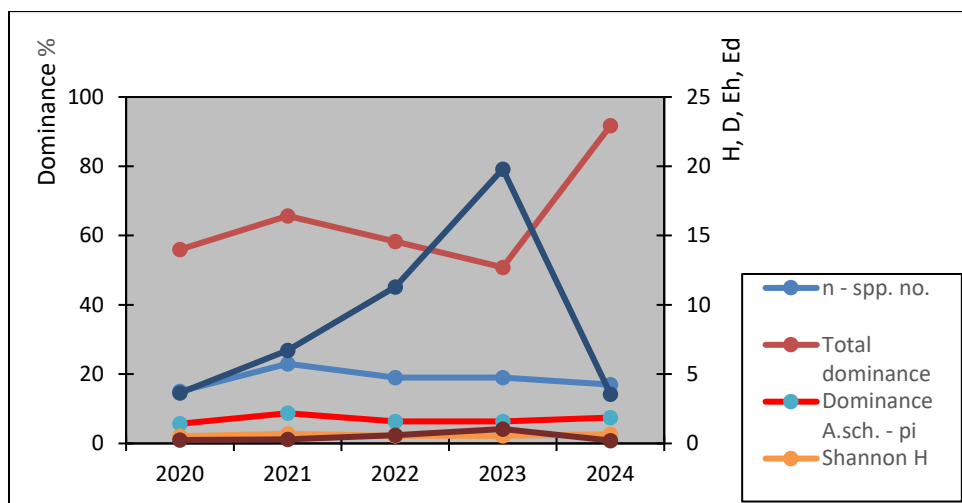


Fig. 13. Monitoring of site with *Agropyron pectinatum* in Ječměniště. Results based on the analyses of phytosociological relevés (Number of species, Total dominance, Shannon's diversity index, Evenness Index, Simpson's diversity index, Species evenness).

Table 2. Summary of data from phytosociological relevés of *Agropyron pectinatum* site in Ječměniště recorded in different years.

	2020	2021	2022	2023	2024
3	0	0	0	0	1
	2	1	1	0	1
2a	2	3	3	4	2
2m	0	1	1	1	2
1	0	6	3	4	3
+	9	6	7	8	4
r	2	6	4	2	4

n - spp. No.	15	23	19	19	17
Total dominance	16	18.2	29.35	50,84	91,73
Shannon H	2.007	2.109	1.919	0,194	0,864
Evenness Eh	0.76	0.799	0.748	1,597	1,856
Simpson D	6.643	7.559	5.681	0,542	0,655
Evenness Es	0.474	0.54	0.437	19,802	3,564

Given that the crested wheatgrass occurs naturally at only one location, even a slight random impact, such as partial shading or excessive trampling, can have a significant effect on the status of its population. It is therefore necessary to carefully monitor it at this location and adjust management measures accordingly to be as gentle as possible.

6.3. Monitoring the sites of *Hierochloë odorata*.

At the Grado site there is a rich population on the sands along the side arm of the Elbe River. It is necessary to admit that flowering was significantly lower in recent years due to the shading of large trees around. The abundance/dominance was decreased from the original value 3 to 2m. The overall plant cover is permanently at the level of 70 - 80 %, due to the significantly lower representation of other species. The site is often damaged by cottagers through sand mining and dumping of garden waste. The most significant risk factor is the shade of tall trees. The population was stabilized despite these negative factors.

At the Václavka locality, this is the bank of the closed pool of the original side river arm. A significant damage to the habitat occurred due to the shading of surrounding trees the total dominance was increased to nearly 60%. The abundance/dominance was decreased from the original 3 to +. Shannon's index had a slightly decreasing tendency at both locations. Unrestricted natural succession of tree species on both sides is causing subsequent population decrease.



Fig. 14, 15. Locality Grado with monitored plot of *Hierochloë odorata*.

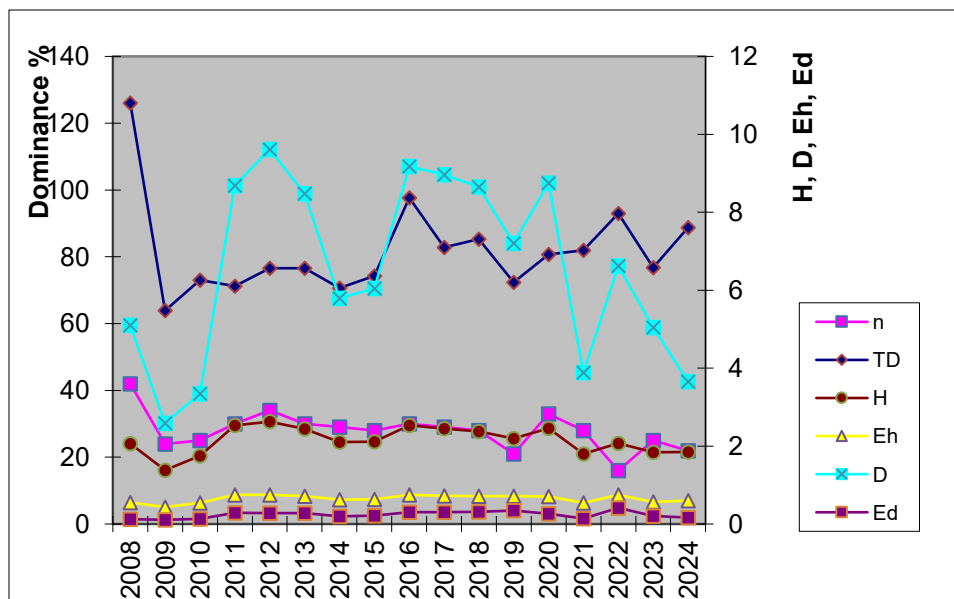


Fig. 16. Monitoring of site with *Hierochloë odorata* in Grado, Elbe River Basin. Results based on the analyses of phytosociological relevés (Number of species, Total dominance, Shannon's diversity index, Evenness Index, Simpson's diversity index, Species evenness).



Fig. 17, 18. Locality Václavka with monitored plot of *Hierochloë odorata*.

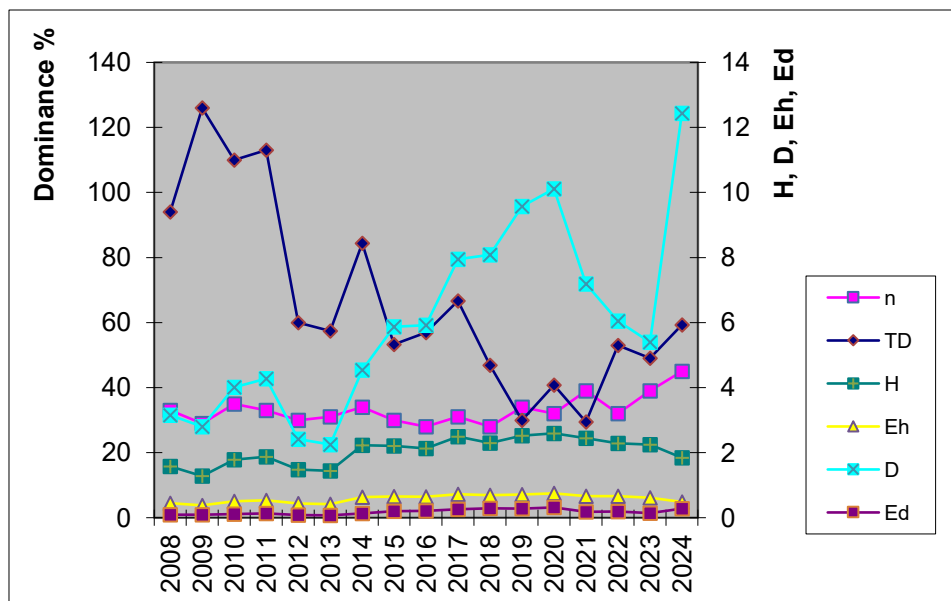


Fig. 19. Monitoring of site with *Hierochloë odorata* in Václavka, Elbe River Basin. Results based on the analyses of phytosociological relevés (Number of species, Total dominance, Shannon's diversity index, Evenness Index, Simpson's diversity index, Species evenness).

6.4. Monitoring of hop - *Humulus lupulus*

Responsibility for the hop collection has the curator Vladimír Nesvadba in the Hop Institute Žatec that serves also as a liaison institution. The curator monitors the distribution of hop in Jeseníky Mts. In the northern Moravia (Fig. 20 and 21). The monitoring sites are inside and outside of the Protected Landscape Area (PLA) Jeseníky. Several sites are also on private land. Wild hop is often distributed along rivers, locally in forest margins and in secondary vegetation around villages.

An inventory of wild hop accessions in the Jeseník region was carried out repeatedly in 2024. A check of 54 items was carried out, of which 43 were found and then 37 samples were harvested for further evaluation. The inspection and subsequent harvesting of samples were affected by floods. Some items were not found and some could not be reached. Overall, it can be said that almost 85 % of the items were harvested compared to 2023.

Selected suitable accessions from the above-mentioned inventory were negotiated for *in situ* conservation with private owners. Negotiations have already started also with PLA headquarters.

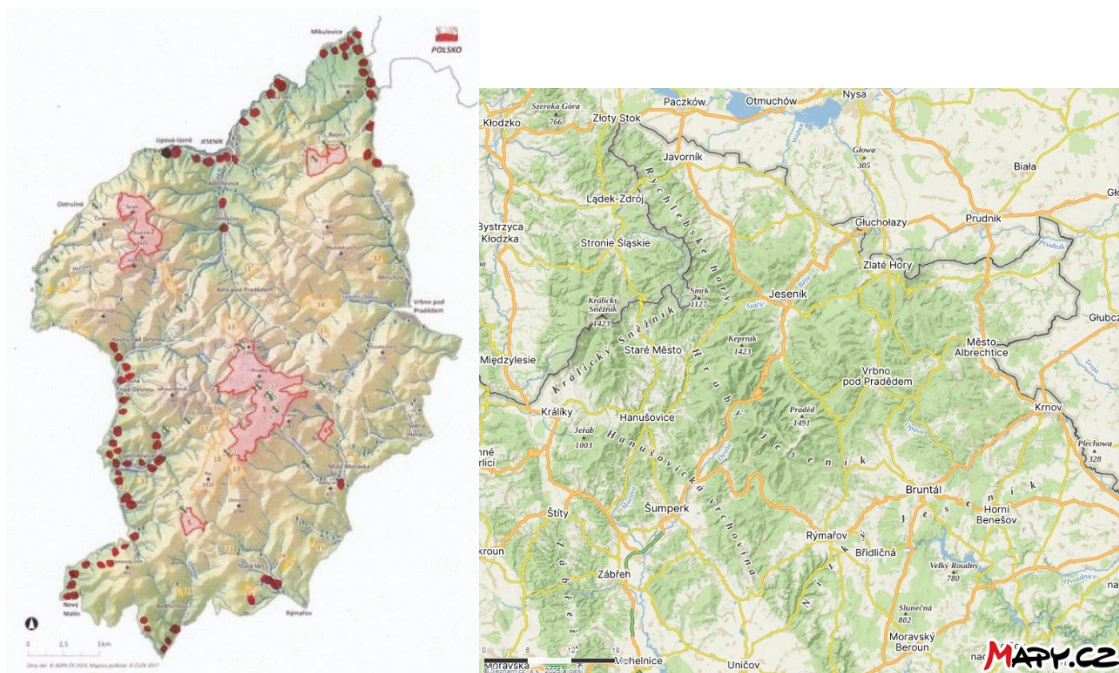


Fig. 20, 21. PLA Jeseníky Mts. And marked sites of wild hop (*Humulus lupulus*) on the border of PLA



Fig. 22, 23. Sites of wild hop (*Humulus lupulus*) outside of PLA Jeseníky Mts.

6.5. Monitoring of *Glycyrrhiza glabra* sites

Glycyrrhiza glabra was cultivated in the past in southern Moravia from the 18th to the beginning of the 20th century. Many of these plantations disappeared, but some of them survived till the present days (Localities Pouzdřany, Popice and others). The largest populations are located in the Natural Reserve (NR) Pouzdřany steppe and its surroundings. The population is distributed along the NP border, partly within the NP, and partly outside the NR. Another suitable site for the monitoring of *Glycyrrhiza glabra* are the vineyard terraces near Popice.



Fig. 24, 25, 26. The site of *Glycyrrhiza glabra* in the Popice locality.



Fig. 27. *Glycyrrhiza glabra* in the NR Pouzdřany Steppe border in 2024.

6.6. Monitoring of *Cerasus x eminens* localities

A natural hybrid of *C. fruticosa* and *C. vulgaris* (*Cerasus x eminens*) is possible to be found the region of south Moravia. In current years the hybrid is unfortunately pushing out both parental species from the localities. This genetic erosion is unfortunately negative from the point of view of the genetic diversity of both parental species. On the other hand, this hybrid is a valuable source of genes for the breeding and improvement of cultivated cherries. Two localities of the hybrid were selected for monitoring: NR Pouzdřany steppe and Letonice (NR Větrníky). Both sites are good candidates for *in situ* conservation.



Fig. 28, 29. Hybrid cherry *Cerasus x eminens* in the NR Větrníky Steppe.

6.7. Monitoring of *Fabaceae* and *Poaceae* localities

In the next survey of selected sites are included the localities, that were monitored in 2024. Populations of forage plants, that are included in the national *in situ* list, were selected for monitoring. The populations are distributed as scattered populations in steppes of S Moravia and NW Bohemia, and also in disturbed habitats near the protected areas. They have been monitored by the Research Institute of Fodder Crops, Ltd. Troubsko and OSEVA PRO Ltd., Grassland Research Station, Zubří.

Table 3. The survey of monitored populations of forage species in 2024.

Plant species	Monitored locality
<i>Astragalus austriacus</i>	Popice
<i>Astragalus austriacus</i>	Hnojnice
<i>Astragalus excapus</i>	Raná
<i>Astragalus onobrychis</i>	Syrovce
<i>Bothriochloa ischaemum</i>	Raná
<i>Cerasus x eminens</i>	Pouzdřany
<i>Cerasus x eminens</i>	Letonice
<i>Festuca valesiaca</i>	Raná
<i>Festuca valesiaca</i>	Hnojnice
<i>Festuca valesiaca</i>	Popice
<i>Glycyrrhiza glabra</i>	Pouzdřany
<i>Glycyrrhiza glabra</i>	Popice
<i>Chamaecytisus austriacus</i>	Milešovice
<i>Chamaecytisus virescens</i>	Nosislav
<i>Oxytropis pilosa</i>	Nosislav
<i>Oxytropis pilosa</i>	Raná

<i>Oxytropis pilosa</i>	Hnojnice
<i>Poa badensis</i>	Raná
<i>Poa chaixii</i>	Zubří, Hodorf
<i>Stipa capillata</i>	Popice
<i>Stipa capillata</i>	Syrovce
<i>Trifolium fragiferum</i>	Brno-Holásky



Fig. 30. Locality of *Astragalus onobrychis*, Syrovce, S Moravia.



Fig. 31. Locality of *Astragalus austriacus*, *Stipa capillata* and *Festuca valesiaca*, Popice, Mohyla, S Moravia.



Fig. 32. *Chamaecytisus x virescens*, locality Nosislav, S Moravia.



Fig. 33. Locality Hnojnice, NW Bohemia, with the populations of *Stipa capillata*, *Astragalus austriacus*, *Festuca valesiaca* and *Oxytropis pilosa*.



Fig. 34. Locality Raná, NW Bohemia. One of the best-preserved steppe sites in the Czech Republic.



Fig. 35. *Astragalus excapus*, Locality Radobýl, NW Bohemia.



Fig. 36. *Poa chaixii*, Locality Hodorf – Zubří, E Moravia.

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APPENDIX 1

Species	Red list of CZE flora	Legally protected
<i>Acorus calamus</i>	N	N
<i>Aegilops cylindrica</i>	N	N
<i>Agrimonia procera</i>	C3	N
<i>Agropyron pectinatum</i>	C1r	N
<i>Achillea nobilis</i>	C3	N
<i>Alcea biennis</i>	C2b	stronglyThreatened
<i>Allium flavum</i>	C3	N
<i>Allium senescens</i> ssp. <i>montanum</i>	C4a	N
<i>Allium schoenoprasum</i>	C3	N
<i>Allium sphaerocephalon</i>	C2b	N
<i>Althaea officinalis</i>	C2t	N
<i>Anchusa officinalis</i>	N	N
<i>Artemisia abrotanum</i>	N	N
<i>Artemisia dracunculus</i>	N	N
<i>Asparagus officinalis</i>	N	N
<i>Astragalus austriacus</i>	C3	stronglyThreatened
<i>Astragalus danicus</i>	C3	Threatened
<i>Astragalus exscapus</i>	C2b	stronglyThreatened
<i>Astragalus onobrychis</i>	C3	Threatened
<i>Bothriochloa ischaemum</i>	C3	N
<i>Bromus commutatus</i>	C3	N
<i>Bromus ramosus</i>	C3	N
<i>Bromus secalinus</i>	C1t	N
<i>Cannabis ruderalis</i>	N	N
<i>Carum carvi</i>	N	N
<i>Castanea sativa</i>	N	N
<i>Corynephorus canescens</i>	C4a	N
<i>Cynodon dactylon</i>	C4a	N
<i>Cytisus procumbens</i>	C3	N
<i>Chamaecytisus virescens</i>	C3	N
<i>Digitalis grandiflora</i>	N	N
<i>Digitalis purpurea</i>	N	N
<i>Dorycnium germanicum</i>	C3	N
<i>Dorycnium herbaceum</i>	C3	N
<i>Festuca filiformis</i>	N	N
<i>Festuca pallens</i>	C4a	N
<i>Festuca vaginata</i>	C1b	N
<i>Festuca valesiaca</i>	N	N
<i>Genista pilosa</i>	N	N
<i>Genista sagittalis</i>	N	Threatened
<i>Gentiana cruciata</i>	C2b	Threatened
<i>Glycyrrhiza glabra</i>	N	N
<i>Helictotrichon planiculme</i>	C2r	N
<i>Hierochloë odorata</i>	C1	N
<i>Hippocrepis comosa</i>	C1b	N
<i>Hordelymus europaeus</i>	N	N
<i>Humulus lupulus</i>	N	N
<i>Hyssopus officinalis</i>	N	N
<i>Chamaecytisus albus</i>	C2r	Critically threatened
<i>Chamaecytisus austriacus</i>	C3	N
<i>Chamaecytisus virescens</i>	C3	N
<i>Iris pumila</i>	C2r	stronglyThreatened

<i>Lactuca quercina</i>	C3	N
<i>Lactuca viminea</i>	C3	N
<i>Lavatera thuringiaca</i>	C4a	N
<i>Lathyrus aphaca</i>	N	N
<i>Lathyrus pannonicus</i>	C2b	Critically threatened
<i>Linum flavum</i>	C2b	Threatened
<i>Linum tenuifolium</i>	C3	Threatened
<i>Lithospermum officinale</i>	C2b	N
<i>Lotus tenuis</i>	C3	N
<i>Malus domestica</i>	N	N
<i>Malus sylvestris</i>	C3	N
<i>Medicago minima</i>	C3	N
<i>Medicago prostrata</i>	C2r	N
<i>Melica ciliata</i>	C3	N
<i>Nigella arvensis</i>	C1t	N
<i>Onobrychis arenaria</i>	C4b	N
<i>Origanum vulgare</i>	N	N
<i>Oxytropis pilosa</i>	C3	N
<i>Poa badensis</i>	C2r	N
<i>Poa bulbosa</i>	N	N
<i>Poa crassipes</i>	C1r	N
<i>Poa chaixii</i>	N	N
<i>Prunus fruticosa</i>	C2t	N
<i>Prunus mahaleb</i>	C3	N
<i>Prunus x eminens</i>	N	N
<i>Puccinellia distans</i>	C1t	N
<i>Pyrus communis</i>	N	N
<i>Pyrus pyraeaster</i>	C4a	N
<i>Ribes petraeum</i>	C1r	N
<i>Ribes uva-crispa</i>	N	N
<i>Rosa spinosissima</i>	C2b	N
<i>Salvia aethiopis</i>	C1t	Critically threatened
<i>Sesleria caerulea</i>	N	N
<i>Sorbus domestica</i>	N	N
<i>Stipa capillata</i>	C4a	N
<i>Tetragonolobus maritimus</i>	C3	N
<i>Thymus serpyllum</i>	C4a	N
<i>Trifolium fragiferum</i>	C3	N
<i>Trifolium ochroleucon</i>	C3	N
<i>Trifolium retusum</i>	C1t	N
<i>Trifolium rubens</i>	C3	N
<i>Trifolium striatum</i>	C1t	N
<i>Trigonella monspeliaca</i>	C1t	Critically threatened
<i>Verbascum phoeniceum</i>	C3	Threatened
<i>Vicia cassubica</i>	C3	N
<i>Vicia grandiflora</i>	N	N
<i>Vicia pannonica</i>	C2t	N