

(Projects funded under the Call 2014 onwards must use this format)



LIFE Project Number
LIFE17 NAT/SK/000589

Final Report
Covering the project activities from 01/09/2018¹ to 31/07/2025

Reporting Date²
28/02/2026

LIFE PROJECT NAME or Acronym
LIFE SUB-PANNONIC

Data Project

Project location:	Slovakia, Czech Republic
Project start date:	01/09/2018
Project end date:	31/12/2024 Extension date: 31/07/2025
Total budget:	3,112,904 €
EU contribution:	2,330,797 €
(%) of eligible costs:	74.87%

Data Beneficiary

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¹ Project start date

² Include the reporting date as foreseen in part C2 of Annex II of the Grant Agreement

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1. List of key-words and abbreviations

List of key-words: *dry grassland habitats, *6210, *6240, *6250, *Onosma tornensis, *Artemisia pancicii, *Himantoglossum caprinum, grazing, restoration, ex-situ cultivation of orchids*

List of abbreviations:

AB	associated beneficiary
After-LIFE	After-LIFE conservation plan
BROZ	BROZ – conservation association
CB	coordinating beneficiary
CZ, CR	Czech Republic
CINEA	European Climate, Infrastructure and Environment Executive Agency
EC	EC - European Commission
ER	expected results
FM	Financial manager
FS	Financial statement
IAS	Invasive and/or alien species
MoA	Ministry of Agriculture
MoE	Ministry of Environment
MTR	Midterm report
NCA CR	Nature Conservation Agency of the Czech Republic (AOPK)
ONYX	ZO ČSOP ONYX (Czech association of nature conservationists - ONYX)
PC	Project coordinator
PM	Project manager
PP	Project proposal
PR	Project report
SC	Steering committee
SCI	Site of community importance
SPA	Special protection area

SNC	State Nature Conservancy of the Slovak Republic
SK, SR	Slovak Republic

2. Executive Summary

The LIFE SUB-PANNONIC project (LIFE17 NAT/SK/000589) was implemented between September 2018 and July 2025 in 21+1 Sites of Community Importance (SCIs) in southern Slovakia and 7 SCIs in the South Moravia region of the Czech Republic. The overall objective of the project was to improve the conservation status of three priority grassland habitats (*6210, *6240, *6250) and three species of Community importance (**Onosma tornensis*, *Artemisia pancicii* and *Himantoglossum caprinum*) at the northern edge of the Pannonian bioregion.

The project addressed the main threats affecting these habitats and species: abandonment of traditional land use leading to overgrowing, spread of invasive alien species (IAS), afforestation and inappropriate forestry practices, small and fragmented populations of target species, and insufficient awareness among stakeholders. In parallel with direct conservation objectives, the project aimed to restore sustainable grazing systems, strengthen cooperation with local farmers, enhance ecosystem services on at least 450 ha of grasslands, and contribute to policy improvements and replication of best practices.

Three expert studies were delivered, forming the scientific basis for habitat restoration and species-specific management. Land tenure security was ensured through the acquisition of 22.71 ha by purchase and 136.5 ha through 30-year lease contracts, resulting in a total of 159.2 ha secured for conservation management, exceeding the originally foreseen 100 ha.

Initial restoration management (Action C1) was implemented on 413.9 ha in Slovakia and 50.3 ha in the Czech Republic (total 464.2 ha), exceeding the planned 450 ha. Invasive alien species were removed on 99.2 ha in Slovakia and 19.3 ha within project sites in the Czech Republic (with additional preventive measures in adjacent areas), clearly surpassing the initial target of 80 ha.

Grazing was reintroduced on 502.8 ha in Slovakia and 38.5 ha in the Czech Republic (total 541.3 ha), significantly exceeding the planned 375 ha. Durable grazing infrastructure was established and long-term commitments were signed with cooperating farmers to ensure continuation of extensive management beyond the project lifetime. The project contributed to the creation of 12.6 full-time equivalent jobs, strengthening the socio-economic viability of traditional grazing systems.

Specific restoration measures for target species were implemented on 31.9 ha (planned: 35 ha). For *Onosma tornensis*, habitat quality was improved on virtually all areas of occurrence of this species in both project sites – on a total size of 20.1 ha (ER = 20 ha). The size of suitable habitat for the species was enlarged by 5.4 ha in SCI Horný vrch (ER = 10 ha). This somewhat falls behind the expected results, however, all the sites with species occurrence were restored and the most potential habitat, where the species could expand its populations were restored. Although short-term population counts were influenced by climatic variability, habitat structure and long-term prospects were demonstrably enhanced.

For *Himantoglossum caprinum*, habitat restoration combined with ex-situ cultivation and planting of 2,020 individuals resulted in a 259% increase in total individuals and a 472% increase in flowering individuals compared to the pre-project baseline, greatly exceeding expectations. For *Artemisia pancicii*, habitat area and population coverage increased by 47%, substantially above the original target.

Monitoring (Action D1) was implemented throughout the entire project period and provided robust data confirming improvements in habitat structure, species trends and management effectiveness.

Dissemination, stakeholder engagement and replication activities (E-actions) played a crucial role in maximising project impact and securing sustainability of results. The project organised public excursions, workshops for key stakeholders, expert working groups and training events in both countries. A structured replication toolkit was developed and applied, leading to 22 documented replications of best-practice methods. Eleven contact points were established to link visitors with local services, supporting local socio-economic benefits. The project created conditions for 16.56 FTE jobs in sustainable farming and tourism, of which 12.6 FTE are expected to remain long-term beyond the project's duration. The project also contributed to improvements in 12 policy instruments at local, regional and national level. Awareness of dry Pannonian grasslands and their management was substantially increased among farmers, authorities, conservation experts and the wider public.

The project was implemented under several challenging external conditions. COVID-19 restrictions affected field logistics and public events during the early phase. Unit costs for shrub and tree removal proved significantly higher than originally estimated; this challenge was addressed through strong cooperation with local farmers who participated in most of the restoration works, thus decreasing the costs and increasing value for money and sustainability of the results. Lengthy and complex permitting procedures, especially in forest-classified parcels in SCI Horný vrch, combined with institutional restructuring following the Reform of National Parks in Slovakia, caused delays and ultimately required prolongation of the project until July 2025.

All challenges were addressed through adaptive project management, continuous communication with the Agency and monitoring team, formal amendments to the Grant Agreement, and strengthened cooperation with landowners and authorities. No major financial or administrative irregularities occurred.

LIFE SUB-PANNONIC has substantially improved the conservation status and long-term outlook of priority Pannonian grassland habitats and their flagship species at the northern edge of their distribution range. Most quantitative targets were achieved or exceeded, while some of the qualitative ecological impacts surpassed the expectations.

The integration of large-scale habitat restoration, sustainable grazing, innovative IAS control methods, species-specific interventions, strong stakeholder involvement and policy improvements demonstrates a successful model for landscape-level grassland conservation. Secured land tenure, established grazing systems and long-term commitments with farmers provide solid guarantees for the continuation of conservation management in the After-LIFE period.

3. Introduction

Overall and specific objectives

The main objective of the project was to improve the conservation status of 3 priority habitats of dry grasslands (*6210, *6240 and *6250) and 3 species of Community importance: **Onosma tornensis*, **Artemisia pancicii* and *Himantoglossum caprinum* in the northern edge of the Pannonian bioregion and on its border with Carpathian and Continental bioregions.

The project was implemented on 21+1 project sites (SCIs) in southern Slovakia and 7 SCIs in the neighbouring Southern Moravia region (Czech Republic). One site (SCI Tarbucka) was added during the course of project implementation.

For **Onosma tornensis*, the project covered all sites of its occurrence in Slovakia within the NATURA 2000 network, representing cca 50% of the total SK/HU population of this endemic species.

For endemic species **Artemisia pancicii*, 1 of cca 10 remaining sites worldwide was covered.

Himantoglossum caprinum – the species was conserved on the northernmost edge of its overall distribution range. The respective populations are very endangered presently, with low numbers of individuals left. The covered sites hold more than 60 % of the overall SR population of this rare species. This percentage changed from the original 80 %, as a new, population-rich locality – Prašník – was discovered during the project.

For the habitats targeted:

*6240 - the project covered and restored the core of habitats occurrence in Slovakia and one of the most important sites in CR.

*6250 – some of the most important sites with this habitat type in the Czech Republic were restored.

Besides the primary nature conservation objectives, the project aimed to bring significant positive impacts on:

* ecosystem functions improved on min. 450 ha of the restored grasslands, including IAS to be removed on 80 ha in project sites

* significant socio-economic benefits from restoring sustainable grazing on min. 375 ha of grassland habitats

* contribution to development of sustainable tourism with active participation of local communities

* increase in competitiveness of local farmers in village communities near project sites

* demonstration and replication of new solutions in the region (e.g. effective IAS removal and complex mitigation strategy).

* improved policies (local, regional, national), in favour of more sustainable conservation of target habitats and species and for more effective and sustainable management of IAS

Sites involved

CZ0620162 Ječmeniště, CZ0620005 Hochberk, CZ0620014 Přední Kopaniny, CZ0624115 Kamenný vrch u Kurdějova, CZ0624116 Čejkovické Špidláky, CZ0623035 Bílý Kopec u Čejče, CZ0624114 Přední Kout, SKUEV0295 Biskupické luhy, SKUEV0269 Ostrovné lúčky, SKUEV0175 Sedliská, SKUEV0277 Nad vinicami, SKUEV0380 Tematínske vrchy, SKUEV0567 Turecký vrch, SKUEV0130 Zobor, SKUEV0392 Brezovská stráň, SKUEV0362 Pieskovcové chrby, SKUEV1362 Pieskovcové chrby, SKUEV0669 Drieňové, SKUEV0359 Dechtárske venice, SKUEV0358 Soví hrad, SKUEV0356 Horný vrch, SKUEV0737 Palanta, SKUEV0353 Plešivská planina, SKUEV0343 Plešivské stráne, SKUEV0355 Fabiánka, SKUEV0345 Kečovské škrapy, SKUEV0347 Domické škrapy, SKUEV0032 Ladmovské vápence, SKUEV0029 Veľký kopec, SKUEV0019 Tarbucka

Habitats and species targeted

**Onosma tornensis* (syn. *Onosma viridis*) – Annex II, IV.

**Artemisia pancicii* – Annex II, IV.

Himantoglossum caprinum – Annex II, IV.

*6240 Sub-Pannonic steppic grasslands – Annex I.

*6250 Pannonic loess steppic grasslands – Annex I.

*6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) - *important orchid sites – Annex I.

Threats targeted

Threat 1: Overgrowing of target habitats due to abandonment from traditional land use (extensive farming or mowing)

Threat 2: Spreading of invasive alien plant species (IAS)

Threat 3: Afforestation of grassland habitats, inappropriate forestry practices

Threat 4: Small and fragmented populations of target species, insufficient experience with practical management

Threat 5: Lack of awareness of public and key stakeholders

Socio-economic context

The project is designed to involve significant cooperation with local farmers and communities. The local farmers are directly involved in implementing the reintroduction of grazing and benefit from the project results. The project also includes (sub)actions focused on increasing the competitiveness of local farmers and bringing new skills to local entrepreneurs (e.g. training of local teachers and guides).

Expected longer term results

- improved conservation status and future outlook of target habitats *6210, *6240 and *6250 (450 ha of target grassland habitats restored by removing of shrubs and trees, mulching, mowing and/or harrowing, prepared for regular grazing or regular mowing applied; IAS removed on 80 ha in project sites, grazing reintroduced on min. 375 ha of project sites)

**Onosma tornensis*: – improved habitat conditions on min. 20 ha, increased suitable habitat size by min. 10. ha

- increased population size by min. 10%

**Artemisia pancicii*: – improved habitat conditions on min. 2 ha, area of suitable habitat further increased by min. 1 ha.

- increased population coverage by min. 15%

- increased number of flowering inds. by min. 30%

Himantoglossum caprinum: SCI Nad vinicami, SCI Zobor

– improved habitat conditions on min. 2 ha, increased suitable habitat size by min. further 1ha

- increased population size by min. 10%

- increased number of flowering inds. by min. 30%

4. Administrative part

Maximum 1 page

- Please briefly describe the following issues:
- The project management process, the working method, the problems encountered, the partnerships and their added value, including comments on any significant deviations from the work plan.
- Communication with the Agency and Monitoring team.
- The changes due to amendments to the Grant Agreement.

The Coordinating Beneficiary of the project was BROZ – conservation association. The Associated Beneficiaries were the State Nature Conservancy of the Slovak Republic (SNC) and ZO ČSOP ONYX (Czech Republic).

The management structure remained stable throughout the entire implementation period. Roles and responsibilities were clearly defined from the beginning of the project and functioned effectively. The Project Manager ensured daily coordination of activities, supervision of technical progress and communication with the European Commission and the external monitoring team. Each beneficiary nominated responsible staff for administrative coordination, reporting and financial control. The Project Steering Committee met regularly and provided strategic guidance and supervision of project implementation.

Communication with the European Commission (EASME, later CINEA) and the external monitoring team was regular and constructive throughout the project duration. The following reports were submitted in line with the reporting obligations of the Grant Agreement:

During the project implementation, the following reports were submitted: Progress Report 1 (31 October 2019), Progress Report 2 (30 November 2020), Mid-term Report (5 April 2022), Progress Report 3 (31 January 2023), Progress Report 4 (31 January 2024), Progress Report 5 (31 January 2025), and the Final Report (28 February 2026).

Five monitoring missions were organised during the project implementation.

During the project implementation, amendments to the Grant Agreement were required. Amendment No. 1 concerned a change of the legal name of the Coordinating Beneficiary and had no impact on the technical or financial implementation of the project.

Amendment No. 2 concerned the prolongation of the project duration until 31 December 2026. The extension was requested in order to address delays affecting primarily Actions C1.1 and C3 and to ensure proper completion of restoration measures.

Several external factors influenced the implementation timeline of selected actions, including COVID-19 restrictions (2020–2022), lengthy permission procedures for restoration activities, institutional restructuring following the Reform of National Parks, and specific terrain-related technical constraints. These factors were outside the direct control of the beneficiaries. The project management team continuously assessed risks, adapted work planning where necessary, and formally addressed the impact of these constraints through the approved project prolongation. Despite these challenges, the partnership remained stable and cooperative, and no structural administrative or financial irregularities occurred.

Financial management was ensured by the Coordinating Beneficiary in compliance with LIFE programme rules and national legislation. Separate accounting records were maintained, and

continuous internal monitoring ensured proper cost allocation and compliance with budget limits. Budget reallocations related to the prolongation remained below the 20% threshold and no major financial irregularities occurred.

Overall, the administrative management of the project was stable and effective, ensuring continuity, transparency and compliance with LIFE requirements throughout the project duration.

5. Technical part

5.1. Technical progress, per Action

Corrections regarding the discrepancies in data reported in previous reports (Mid-term report, previous Progress reports, Monitoring mission of the project in September 2025). There were some discrepancies in data reported in previous monitoring reports or monitoring missions. These usually resulted from errors in calculations or in processing of a large spectrum of data, which ranged over multiple years and various categories. We apologize for these errors. They are listed in text below and corresponding correct data are provided. The corrected data are presented also in descriptions of results achieved under respective project actions in this Final report.

B1 Land purchase: in Progress report 5 we reported the purchase of 23.8 ha of land. The correct number is 22.71 ha of land acquired by land purchase, as is reported in this final report.

E1.6 Public excursions: 73 excursions were reported in Slovakia, the correct number is 71, as is reported in this report.

E2 Awareness-raising key stakeholders: Previously there were 2 seminars for stakeholders reported (in SCI Biskupické luhy with 25 participants) this was a mistake, in reality there was one, in Streda nad Bodrogom with 40 participants.

E3 Replication toolkit: Originally, there were 24 replications of the project's best practice methods reported. After revising the list of replications (according to instructions in official communication from CINEA from 20. January 2026; Ares(2026)608755), we corrected the final number of replications to 22, as is reported in this Final report.

E3.1 Workshops for key stakeholders: It was previously reported that a 1 one-day workshop was organised by SNC and BROZ on 25.6.2020 in Streda nad Bodrogom (SCI Tarbucka) with 40 participants, however in reality this was a workshop organised by SNC and BROZ on 22.-22.3.2022 in Podunajské Biskupice for 25 participants.

E3.3 Work groups for best practice methods: There were previously reported 33 members of the workgroups, however, these groups comprised a dynamic pool of approximately 30 to 33 specialists.

E4.1 Increasing socio-economic benefits: 11 instead of 10 previously-reported contact points were created.

E5.2 Policies: in the monitoring mission of 9/2025 we reported the improvement of 13 policies in total. After revising the inputs and contributions of the project teams we corrected the total number to 12, as is reported in this Final report.

A.1 Expert study on restoration management of grassland habitats

Foreseen start date: 09/2018

Actual start date: 09/2018

Foreseen end date: 12/2019

Actual end date: 05/2021

Deliverable: Expert study on restoration management of grassland habitats

Deliverable foreseen: 09/2020

Deliverable completed: 05/2021

A.2 Expert study on restoration of target habitats by reintroduction of grazing

Foreseen start date: 09/2018

Actual start date: 09/2018

Foreseen end date: 02/2020

Actual end date: 05/2021

Deliverable: Expert study on restoration restoration of target habitats by reintroduction of grazing

Deliverable foreseen: 09/2020

Deliverable completed: 05/2021

Expected results:

- A.1: Expert study on restoration management of grassland habitats.
- A.2: Expert study on restoration of target habitats by reintroduction of grazing.

Description of implementation of the actions A.1 and A.2:

The preparation of the studies started according to plan, on 09/2018. The outlines of the studies according to the project were created by the project manager. Then, the professionally suitable experts were approached and they were given an assignment. Experts subsequently started work on the expert studies. The complete studies were delivered within the External monitoring expert project visit, on 05/2021.

Problems and their solutions:

By the foreseen end date, the majority of the studies was prepared. However, some of the chapters were not delivered by one of the experts, because of his busyness. We asked for a deliverable shift (09/2020 – new deliverable deadline according to Ares(2020)4228517) and moved the parts of the studies to another expert (these were delivered soon). However, some parts were left to the original expert due to high knowledge of specific sites (Slovak Karst section - SCIs Domické škrapy, Fabiánka, Horný vrch, Kečovské škrapy, Palanta, Plešivská planina and Plešivské stráne). Unfortunately, the contractor was late in delivering these last parts also in view of the new deadline due to COVID-19 restrictions (he has to stay at home to nurse the child for the alternating closing of nursery). The complete studies were delivered within the External monitoring expert project visit, on 05/2021. The delay in completing the studies sections for Slovak Karst did not negatively influence the implementation of project's conservation action in this area (nor other project sites), as the project team was in close contact with the author of the delayed sections and all-important inputs regarding the management of the project sites have been (and are) discussed (by telephone, email and personally) and involved in management of the targeted project sites. Therefore, no delays in implementation of concrete conservation actions occurred because of this.

A.3 Expert study on optimal management of target species

Foreseen start date: 09/2018

Actual start date: 09/2018

Foreseen end date: 12/2019

Actual end date: 12/2020

Deliverable: Expert study on optimal management of target species

Deliverable foreseen: 12/2019

Deliverable completed: 12/2020

Expected results:

- Expert study on optimal management of target species.

Description of implementation of the action:

The preparation of the study started according to plan, on 09/2018. The outline of the study according to the project was created by the project manager. Then, the professionally suitable experts were approached and they were given an assignment. Experts subsequently started work on the expert study. The study was completely delivered within the new deadline according to Ares(2020)4228517), on 12/2020.

Problems and their solutions:

Thanks to the same situation as described above in studies A1 and A2, we asked for a deliverable shift (12/2020 – new deliverable deadline according to Ares(2020)4228517) and

moved the parts of the study about *Onosma tornensis*, which were missing to another expert. The study was completely delivered within the new deadline. However, the delay in the delivery of the part of the study did not negatively affect the implementation of activity C3, as the preparation of management measures were directly consulted with the experts even before the official delivery of the study.

B.1 Land purchase and long-term lease of land

Foreseen start date: 09/2018

Actual start date: 09/2018

Foreseen end date: 12/2021

Actual end date: 07/2025

Deliverable: Copies of land purchase/swap contracts, ownership certificates, overview maps and other relevant documentation (delivered with the Mid-term report)

Foreseen end date: 11/2021

Actual end date: 04/2022

Deliverable: Copies of land purchase/swap contracts, ownership certificates, overview maps and other relevant documentation (delivered with the Final report)

Foreseen end date: 03/2027

Actual end date: 02/2026

Deliverable: Data on all land parcels acquired within the project uploaded in the Land purchase database

Foreseen end date: 03/2027

Actual end date: 02/2026

Milestone: B1: 100% of expected results achieved (i.e. min. 30 ha of land purchased, min. 70 ha long-term leased)

Foreseen end date: 12/2021

Actual end date: 01/2023

Milestone: B1: min. 50% of expected results achieved (i.e. min. 50 ha of land acquired by purchase and long-term lease)

Foreseen end date: 03/2020

Actual end date: 01/2023

Milestone: First land purchase/lease contract signed

Foreseen end date: 02/2019

Actual end date: 12/2020

Expected results:

- 100 ha will be purchased or long term leased (the proposal expects 30 ha of land acquired for implementing project actions by land purchase, and 70 ha of land acquired for implementing project actions by land lease).

Achieved results:

Land purchase: a total of 22.71 ha of land was acquired by land purchase within the project (see Table B1a). The land was acquired in project SCIs Pieskovcové chrby and Plešivské stráne.

The acquired land parcels are located in Natura2000 project sites* and the land represents some of the most valuable parts of the project sites, with valuable examples of target habitats. The purchase and long-term lease of land was directly linked to project objectives. In all cases, project restoration actions (C1 and/or C2) were implemented on the purchased land parcels, leading to positive results in restoration of target habitats. The purchase of the land was crucial for implementing the project's key conservation actions. All land acquired by land purchase was privately owned before the project and was not owned by the state or public authorities. All land was acquired for standard market prices typical in the project region and the given type and size of land parcels.

Due to restrictions from the Regional office, Department of Cadastre and specific and more complicated system of ownership and cadastre evidence in Slovakia, we couldn't include the nature conservation clause in the land registry lists. However, the **nature conservation clause is included in all land purchase contracts**, clearly stating that all the land purchased within the project is definitively

dedicated to nature conservation, restoration and environmental education purposes. All land purchase contracts, as well as the statutes of BROZ include a clause stating, that in case of dissolution of BROZ or its inability to take care of the land, the land acquired will be transferred to another body active mainly in nature conservation. All land parcels were purchased by project beneficiary BROZ, which is a well established NGO and they will remain in its ownership also after the end of the project. **All purchased land parcels were uploaded in the Land purchase database.**

Table B1a: Total area of land acquired by land purchase.

Project site	area purchased (ha)
SCI Pieskovcové chrby	22.45
SCI Plešivské stráně	0.26
TOTAL (ha)	22.71
Expected results (ha):	30

Long-term lease of land: in total, **136.5 ha of land was acquired by long-term lease** of land in SCI Ladmovské vápence, from two land owners (one of them is an Association of land owners). This is significantly more than the expected results anticipated in the project proposal (ER = 70 ha). The leased area includes the most valuable part of the site, with the presence of target habitats. The lease contracts enabled the restoration of a significant part of this site (by removal of shrubs and pioneer trees, removal of IAS and reintroduction of grazing). The lease contracts were signed for a period of **30 years**.

Deviations from project plan:

Land purchase and land lease results: In total, there was a somewhat smaller area acquired by land purchase, compared to expected results. However, this is compensated by a significantly larger area acquired by long-term lease of land, with a lease period of 30 years. The total area of land acquired by land purchase and long-term lease of land is 159.2 ha, which is significantly more than the expected results anticipated by the project (ER = 100 ha).

Time duration: The implementation of project action B1 took somewhat longer than the period originally assigned in the project. This was caused mostly by lengthy and complicated negotiations with land owners. However, the expected results of action B1 were generally achieved and the project's concrete conservation actions were successfully implemented on the acquired land parcels.

Problems and their solutions:

***SCI Pieskovcové chrby, land purchase:** from 2021 to March 2023, we gradually purchased the land in SCI Pieskovcové chrby and subsequently implemented restoration measures on the acquired land parcels. However, in the process of Natura 2000 network consolidation, the boundaries of SCI

Pieskovcové chrby were changed. As a result, 3 land parcels, originally located in the project site, are now lying outside the SCI borders. This happened as a result of force majeure, and BROZ as the respective land owner was not contacted nor asked by the respective authorities whether we would accept this change. We found out only after the new Natura 2000 borders were approved by the Government of Slovak Republic in October 2023 (https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2023/451/20240101?fbclid=IwAR0Uy0AotemvXQ6poD4wVGAIQ7Tb1rS4KYgK5L4LRTP33R8ckP_2t-VcJyA). Unfortunately, it is not possible to re-adjust the borders to the original state, even if BROZ as the land-owner would request for it - since this change would require the approval of the Government of SR, which is not feasible. Also, it was not possible to swap them for other parcels in SCI Pieskovcové chrby, as the other landowners were not interested in this.

However, all the land parcels subjected are still located in Natura 2000 network, within the SPA site SKCHVU003 Cerová vrchovina - Porimavie and contain the dry grassland habitats targeted by this project. The conservation results achieved on the parcels by this project will be secured on long-term, since the conservation of the restored grassland habitats will be in line with the conservation of nesting and feeding habitats of bird species, which are protected within the SPA Cerová vrchovina - Porimavie site (namely, the target species *Otus scops*, *Lanius minor*, *Merops apiaster*, *Lullula arborea* and other). Also, the three land parcels are located just besides the current borders of SCI Pieskovcové chrby - therefore, they would form one block with the habitats already present in this site. All the other eligibility conditions of the LIFE programme were met - as is described in the results of action B1, in the top part of this section.

This was already presented in Progress report 5 of this project (see therein for more details), with a preliminary approval received in the official email communication received as an answer to this report – ARES(2025)2893996 (email from desk officer Mrs. Ilenia Babetto, from 9.4.2025).

C. Concrete conservation actions (C1-C3)

Although the extent of project C-actions was quite large (22 project sites in Slovakia, 7 in Czech Republic), with quite ambitious results, we tried to describe the results of each C-action as concisely as possible. The most important results are highlighted in **bold** and compared with expected results of the project (ER). If significant deviations occurred (both positive or negative), these are highlighted and discussed. If relevant, compensatory measures are described (often here, for better context).

Besides the numbers, we focused on **impacts on target species and habitats**, on species rare in national context, or those well indicating the restored target habitats. Where relevant, also socio-economic benefits or good cooperations established with local stakeholders, communities and researchers are outlined. Sustainability of results is described.

C.1 Restoration management of grassland habitats

Foreseen start date: C1.1: 02/2020, C1.2: 07/2020 Actual start date: C1.1: 12/2018, C1.2: 09/2019

Foreseen end date: 31/3/2024

Actual end date: 31/07/2025

Action C1 was implemented using the recommendations of Expert study A1, as well as based on experience and lessons learned from previous LIFE projects (e.g. LIFE PANNONICKSK, CZ-SK SOUTH LIFE).

The purpose of action C1 was to provide the initial restoration management of target grassland habitats and especially to prepare the sites for sustainable long-term management, which is in most cases grazing (action C2). Therefore, actions C1 and C2 are closely connected and their implementation was carefully coordinated, so that their synergic effects could be maximised, to increase the sustainability of achieved results and for effective use of project funds.

The works in Slovakia were coordinated by the project team of BROZ, whilst SNC assisted in contacting and facilitating the meetings with local stakeholders and helped with supervising the field works on part of the project sites. The workers employed by SNC also helped in clearing the shrubs and pioneer trees in some of the project sites (SCIs Ladmovské vápence, Tarbucka, Veľký Kopec, Pieskovcové chrby, etc.). Most of the larger-scale field works were implemented by external assistance and supervised by BROZ and SNC project teams. The works in the Czech Republic were coordinated by ONYX and implemented partly by external assistance and partly by the project team of ONYX.

The project teams had to tackle significantly underestimated unit prices for removal of shrubs and pioneer trees (sub-action C1.1). In the project proposal, we calculated with only 700 eur/ha unit prices. However, the standard market prices were significantly higher – reaching more than 2 000 eur/ha. In many cases, we were able to overcome this problem by very good cooperation with local farmers and stakeholders, who could cover the remaining part of the costs by providing their own people, machinery or other investment from their own sources – to clear grasslands, which they can subsequently use for grazing or mowing. As a result, we were able to clear significant areas of project sites for only the originally foreseen 700 eur/ha unit price, which is well below the standard market prices. This enabled us to save significant money for the project and to achieve and even exceed the originally planned expected results, despite the underestimated budget. However, in some of the sites, it was not possible to reach this type of involvement of local farmers and therefore, the clearing had to be procured for standard market prices (based on multiple offers), which were significantly higher.

The above-mentioned approach was also important, since it provided better connection of the local farmers to their land, leading to more effective care for the restored areas in the long term (i.e. also including the After-LIFE period). In some cases, the local farmers, who are also the owners or users of the respective land, insisted on clearing their land by their own means and would not agree with employing an external company for this purpose.

In project sites SCI Biskupické luhy and SCI Ostrovné lúčky (and partly also in other sites, e.g. Drieňové, Dechtárske vinice, Veľký Kopec) the field works were implemented by the project team of BROZ. Here, the purchase of project machinery was crucial to safeguard effective and sustainable management of grassland habitats (e.g. mowers, mulcher, tractor trailer).

C1.1 Restoration management of grassland habitats

Foreseen start date: 02/2020

Actual start date: 12/2018

Foreseen end date: 03/2024

Actual end date: 05/2025

Milestone: Restoration management started

Foreseen end date: 02/2020

Actual end date: 12/2018

Milestone: Restoration management completed

Foreseen end date: 03/2026

Actual end date: 05/2025

Expected results:

- 450 ha of target grassland habitats will be restored by removing of shrubs and trees, mulching, mowing and/or harrowing, prepared for regular grazing or regular mowing applied (400 ha in SR and 50 in CR).

Slovakia: the restoration management under sub-action C1.1 was implemented on a total area of 413.9 ha of grassland habitats, of this on 8.3 ha in SCI Tarbucka (ER = 400 ha).

Czech Republic: the restoration management was implemented on a total area of 50.3 ha (ER = 50 ha).

Several restoration measures were implemented, depending on the initial state of the particular project sites and objectives of grassland habitat restoration: removing of shrubs and pioneer trees, mulching of dead biomass and dominant grasses, mowing and controlled burning.

On most of the restored areas, grazing was subsequently reintroduced under project action C2, which contributed to securing the long-term sustainability of the achieved results. In some areas (SCI Tematínske vrchy, Ostrovné lúčky, Plešivské stráne), it was not possible to establish a sustainable grazing regime. In such cases, we applied herbicide on the stumps of the removed woody species or by stem-injection method, which will significantly reduce the rate of rejuvenation. The effectiveness of the herbicide application was generally good (50-95%). In areas, where it was in the lower part of this spectrum, we will apply regular control and removal of the growing shoots, if they grow too high. However, the total share of these areas represents only 2.1% of all the areas restored by action C1.1.

Highlight: in Slovakia, **controlled burning** was made legal as a management tool for grassland habitats in Natura 2000 sites. Controlled burning is an effective and cheap management tool for abandoned grassland habitats, heathlands, etc. – and is widely used in various European countries. However, it was completely illegal in Slovakia before this project. During the novelisation of Nature Conservation Act (Law no. 543/2002 Coll.) and thanks to the initiative of BROZ, this management measure was made

legal for purposes of managing selected habitats in Natura 2000 sites. This was achieved by a shared initiative with the CZ-SK SOUTH LIFE project team.

After this, we cooperated with employees of SNC to make this practice used in areas where it is needed (e.g. project SCIs Drieňové, Dechtárske vinice). Also, we shared the knowledge with other LIFE projects implemented in Slovakia, where they adopted this practice too and disseminated the results and lessons learned on various conferences (esp. in Slovakia and Czech Republic).

Highlight 2: very good rejuvenation of rare species was achieved on some of the project sites, where action C1 was implemented. The most significant are:

SCI Horný vrch, part Jasovská planina: some 10,000 individuals of *Thlaspi jankae* have spread on the areas restored by project action C1. Before the project, large parts of this sub-site were covered by dense shrubs and pioneer trees, and the population of *T. jankae* was rather low (several hundreds of inds.). After significant clearing, implemented on a large area, the species has emerged in large numbers. This is currently one of the largest populations in Slovakia – the species is listed in **Annexes II and IV of the Habitats directive**, and it is endemic, occurring only on a handful of sites in Slovakia and Hungary. This makes the result even more valuable.

SCI Horný vrch: species *Pulsatilla patens* has significantly benefited from the restoration management implemented by the project. Before the project, the population trend in this site was significantly negative, due to overgrowing of the grassland habitats and climate change. Thanks to clearing of shrubs (and subsequent reintroduction of grazing), the population trend of the species has improved and the population seems to be stabilised. The species is protected under **Annex II and IV of the Habitats directive** and the site holds one of its most significant populations in Slovakia.

SCI Veľký kopec: new population of *Orchis morio* was discovered on areas restored by project actions C1 and C2, holding up to 100 individuals. The species was most likely not occurring at this place before the project, and also the habitat at this place was not suitable before.

C1.2 Removing of invasive plants

Foreseen start date: 07/2020

Actual start date: 09/2019

Foreseen end date: 03/2024

Actual end date: 06/2025

Milestone: Removing of invasive plants started

Foreseen end date: 07/2020

Actual end date: 09/2019

Milestone: Removing of invasive plants completed

Foreseen end date: 03/2026

Actual end date: 06/2025

Expected results:

- Invasive plants will be removed on 70 ha in project sites in SR and 10 in CR.

In total, **IAS and non-native species were removed on 99.2 ha in project sites in Slovakia** – of this on 20.3 ha in SCI Tarbucka (ER = IAS removed on 70 ha).

In the **Czech Republic, IAS species were removed on a total area of 19.3 ha within the project sites** (ER = IAS removed on 10 ha). As the project sites in Czech Republic were generally smaller and often consisting of multiple fragments, in two project sites (SCIs Kamenný vrch u Kurdějova, SCI Bílý Kopec u Čejče), we removed IAS also in their close vicinity – to prevent re-invasions from the areas lying near

the sites and habitats themselves and to secure the sustainability of results of this action. Therefore, the total area of interventions in the Czech Republic was 38.1 ha.

In Slovakia, we removed IAS outside the SCI borders only on small fragments (i.e. on 0.5-4 ha per site) in 3 SCIs: Tarbucka, Pieskovcové chrbty and Sedliská. In both countries, we used this approach especially for the risky species of IAS, such as *Ailanthus altissima* and *Asclepias syriaca* – where there would be a risk, that they would re-colonize the grassland habitats in project sites from fruiting IAS plants growing in neighbouring areas outside of the borders. Most of these areas are located in SPAs (SPA Cerová vrchovina - Porimavie, SPA Medzibodrožie) and the plots where the IAS were removed will be used by the cooperating farmers for nature friendly grassland management (extensive grazing of mowing). We will also conduct regular checks and in case of emerging IAS individuals, they will be removed (similarly like on the plots in the project sites).

The expected results of the project were achieved and exceeded in both project countries.

Preceding the removal, we conducted mappings of IAS distribution in project sites and their close vicinity, so that the removal could be effectively planned and implemented. We were also raising awareness among local farmers and other land users on IAS species identification, suitable methods of land use for preventing IAS spreading and about effective methods of their control and removal.

On all sites of IAS removal, subsequent controls were conducted and when surviving individuals were found, a repeated round of treatment was implemented to remove them.

When removing IAS, we preferred biological and mechanical methods wherever possible. For species such as *Solidago gigantea*, we used grazing in combination with mowing and mulching of ungrazed patches. Also, on sites, where effective grazing regime could be secured (e.g. SCI Veľký Kopec), we used grazing of goats to suppress the re-sprouting of the removed black locust trees.

However, for resistant species such as *Ailanthus altissima* or *Asclepias syriaca*, grazing or mowing is not effective enough. In such cases, they had to be removed by careful application of herbicide. This was done by stem-injection method for woody species and by point application on leaf surface (for *Asclepias syriaca*).

In almost all areas where IAS was removed, grazing was introduced by action C2 after the removal. This further increased the sustainability of the results, since the animals will help to suppress the (potential) rejuvenation or growth from seedlings of IAS (esp. for species like *Robinia pseudoaccacia*, *Solidago* sp.) .

Highlight: the novel use of AILANTEX substance for biological removal of *Ailanthus altissima*. After contacting the research team at BOKU University, who developed this novel method, we decided to test and apply the biological agent *Verticillium nonalfariae* for nature-friendly removal of IAS *Ailanthus altissima*. It was very difficult to obtain all the necessary permissions – since prior to our use, this substance was not used or allowed in Slovakia nor the Czech Republic. Therefore, we had to initially test the effectiveness of the substance in our grounds, in cooperation with acknowledged researchers. After successful results, we could use the substance successfully on multiple sites in both countries and we also promoted its use for several replications in both countries. The project beneficiaries responsible for this good result were BROZ in Slovakia and ONYX in the Czech Republic. The effectiveness of using AILANTEX varied from more than 90% to less than 50% - largely depending on site specifics. However, it is a very promising method which can be used e.g. in areas where standard use of herbicide is not possible or not desirable.

C.2 Restoration of grassland habitats by reintroduction of grazing

Foreseen start date: 05/2020

Actual start date: 05/2019

Foreseen end date: 12/2024

Actual end date: 07/2025

Milestone: Grazing reintroduced on a total area of 350 ha in SR and 25 ha in CR

Milestone foreseen: 09/2023

Milestone completed: 01/2024

Milestone: Grazing started

Milestone foreseen: 05/2020

Milestone completed: 05/2019

Expected results:

- Grazing reintroduced on min. 375 ha of project sites (350 ha in SK and 25 ha in CR).
- Grazing animals purchased (175 goats, 125 sheep, 7 donkeys).
- Grazing infrastructure on project sites created to secure sustainable grazing regime, which will be continued long-term also after the project end.
- Commitments with land owners signed to prevent actions that would compromise restoration/investments made by the project, duration 20 years or more.
- Improved ecosystem services (biodiversity, pollinators, attractive landscape) reached on min. 375 ha of land
- Increased socio-economic benefits from restored grazing for local communities and farmers; min. 3 long-term and sustainable jobs created

In total, **the grazing regime was reintroduced on 502.8 ha in project sites in Slovakia** (of this, on 55.9 ha in SCI Tabucka), **and on 38.5 ha in project sites in the Czech Republic**. This significantly exceeded the expected results for action C2 (350 ha in Slovakia, 25 ha in Czech Republic). In Slovakia, the reintroduction of grazing was implemented by the project team of BROZ, with SNC assisting especially in more distant sites in eastern Slovakia. In the Czech Republic, action C2 was coordinated and implemented by the project team of ONYX.

In most areas, grazing was restored in close cooperation with local farmers. We conducted many personal meetings to choose the right farmers, with the appropriate motivation and responsible enough. We discussed their baseline situation thoroughly and usually planned the reintroduction of grazing together. Where required, we helped them to obtain necessary permissions, sort out the land ownership (action B1), with communicating the idea in local communities and with local authorities or stakeholders. In several cases, we were ready to help, when the farmers were facing unexpected difficulties and often, we found the solution together.

In many cases, a crucial precondition for restoration of grazing was to clear the overgrown grasslands – which was implemented by project action C1.

The project provided necessary infrastructure for each farmer specifically, based on their individual needs and on the specific character of each site. Usually it was **fixed fences, shelters or watering wells** for grazing animals. We used durable solutions and robust materials that can last for 20+ years – so that the farmers will be able to stand on their own and continue with grazing on restored areas long-term. The cooperating farmers have signed written commitments to secure nature-friendly grazing on the restored areas - also during the **After-LIFE period**. They are committed to take proper care of the grazing infrastructure created by the project and target habitats restored. The agreements typically also contain limits for grazing intensity, so that suitable extensive grazing can be implemented, where necessary.

In SCI Drieňové it was necessary to enlarge the existing shelter, to enlarge the sheep herd, so that an effective grazing regime could be restored on the site.

The reintroduced grazing has improved ecosystem services, such as biodiversity, pollinators and also the attractiveness of landscape. It has also brought significant socio-economic benefits for local communities and farmers, originating especially from the production of meat and milk generated from the restored grassland habitats – resulting in 12.6 FTE long-term positions created, mostly in sustainable farming on the restored project sites.

In SCI Biskupické luhy, reintroduction of grazing was implemented by the **mobile herd of BROZ**. For this purpose, necessary grazing equipment was established and used (animal transporting vehicle, fixed and mobile electric fences, small hand equipment etc.). The grazed animals were offspring of animals from previously completed projects.

Compared to the original project proposal, it was not necessary to purchase as many animals as planned – since on most of the project sites, the grazing was restored in cooperation with local farmers. The saved funds were used especially to cover the increased costs for equipment for grazing.

C.3 Specific restoration measures for target species

Foreseen start date: 03/2020

Actual start date: 09/2020

Foreseen end date: 09/2024

Actual end date: 07/2025

Milestone: Restoration measures for target species implemented and on the expected areas

Milestone foreseen: 03/2026

Milestone completed: 07/2025

Milestone: Implementing restoration measures for target species started

Milestone foreseen: 03/2020

Milestone completed: 09/2020

The restoration measures implemented under action C3 were implemented on a **total area of 31.9 ha** (in both SR and CR). This is somewhat less than expected (ER = 35 ha), since in SCI Horný vrch, we couldn't implement the restoration measures on as large an area as expected and on part of it (3.3 ha), the habitat was improved by removing shrubs implemented by the Electric distribution company. This is not counted as a project result, but it has led to improving the habitat for *Onosma tornensis*.

Furthermore, we significantly increased the population size of *H. caprinum* by planting 2,020 individuals cultivated ex-situ in suitable habitats. Therefore, the overall positive impact of action C3 is very significant - in many ways exceeding the original expectations.

The restoration measures of action C3 were implemented according to the recommendations of expert studies A.3 and in cooperation with leading national experts on the species and in close cooperation with the state and regional nature conservation authorities (SNC, NCA CR, Regional Offices for Nature Conservation).

The achieved results are described and compared with expected results (ER) in the project proposal separately for each target species:

****Onosma tornensis*** (syn. *Onosma viridis*)

The species habitat was improved on virtually all areas of occurrence of this species in both project sites – on a total size of 20.1 ha (ER = 20 ha). Of this, 20 ha in SCI Horný vrch and 0.1 ha in SCI Palanta.

The size of suitable habitat for the species was enlarged by 5.4 ha in SCI Horný vrch (ER = 10 ha). This somewhat falls behind the expected results, however, all the sites with species occurrence were restored and the most potential habitat, where the species could expand its populations were restored. Furthermore, on 3.3 ha of potential habitat, the shrubs were cut by the Electric distribution company, thus indirectly improving the habitat quality in this area.

The habitat was improved and enlarged by removal of shrubs and pioneer trees and removal of their biomass. The conditions for implementing the action were very difficult – especially due to very steep slopes, with coarse and rocky karst relief. In such conditions, only manual hand labour was possible on most parts. Therefore, it was possible to remove the biomass from the site only on parts accessible to machinery. In the remaining area, the biomass was chipped or removed manually into the patches of forest and out of the suitable habitat – since it would not be possible to bring it down the rocky slopes. The isolated patches of species habitat were re-connected by clearing of corridors.

All works were coordinated by BROZ, **in close cooperation with Dr. Robert Šuvada, a leading expert on ecology of *O. tornensis***, who also supervised the field works. He was very positively impressed by the results. According to his opinion, the results of the habitat restoration will have a positive effect for the species for decades.

Problems and their solutions: the implementation of action C3 for *O. tornensis* were significantly delayed. This was due to problems with obtaining permissions to implement restoration in SCI Horný vrch – the most important site for the species. This was caused by a lengthy and complicated permission procedure of Forests of Slovak Republic and related Forestry office (since the land parcels are officially classified as „Forest land“) and a subsequent lengthy process of transferring land management rights onto the Slovak karst National park, which was a result of Reform of National parks, adopted in 12/2021 in Slovakia. This was the main reason for project prolongation. However, the habitat of *O. tornensis* was restored to a sufficient extent and quality by the end of the prolonged project.

The implementation of restoration measures under action C3 started already in December 2022 – in the most valuable parts of SCI Horný vrch, in terms of occurrence of *O. tornensis*. The monitoring plots established to study the impact on *O. tornensis* show a significant improvement of the species habitat already by the end of the project (by 2025). Generally, there are two main factors affecting the species populations: 1) habitat conditions – especially its overgrowing in the past 2) climate change (especially in years with dry spring and summers). Based on the monitoring, it can be concluded that the restoration works implemented by action C3 have significantly improved the species habitat, thus directly addressing the main threat for the species. Affecting climate change is beyond the influence of this project.

ER: increasing the population size of *Onosma tornensis* by 10%. It is not simple to evaluate the achievement of this result, since the species has a fluctuating trend, which is mainly dependent on the climate of each vegetation season. This is well visible on the numbers of OT individuals, which were precisely counted on a 16x16 m relevé established on a plot where shrubs were removed. The numbers of OT inds. increased from 7 plants (2023) to 9 (2024, one year after removal of shrubs), with new young plants rejuvenating on the areas with bare soil created after shrub removal. However, there was a drop to only 7 plants in 2025. This was a result of the very dry spring and summer of 2025, which caused the death of young plants.

However, the phytosociological relevés conducted on this plot show an improvement of the habitat of OT – this is well documented by the decrease of abundance of dominant broad-leaf grass species (esp. *Bromus erectus*) – which pose undesirable competition for this heliophilic species and trigger undesirable litter accumulation. The clearing of shrubs has also increased the share of plots with bare soil surface – which are crucial for establishment of young plants of OT. Therefore, it can be concluded that the habitat of *Onosma tornensis* was significantly improved by implementing action C3, but due to the dry year of 2025, there was not an increase in population counts yet. However, the reverse of this trend towards population increase is most likely just a matter of time (as consulted with Dr. Robert Šuvada – a leading national expert on OT).

Himantoglossum caprinum (syn. *H. calcaratatum ssp. jankae*)

The habitat conditions for the species were improved on 2 ha (ER = 2 ha) and the size of suitable habitat was enlarged by 1.1 ha (ER = 1 ha). The habitat restoration and enlarging was implemented in SCI Zobor and SCI Nad Vinicami. The restoration works consisted of selective removal of shrubs and pioneer trees, opening of forest margins and re-connecting of forest clearings, mowing of grass, raking and removing of dead biomass and small-scale removal of grass turf – to create conditions for germination of *H. caprinum*. The field works were implemented by BROZ and conducted in close cooperation with leading national experts on the species (Assoc. Prof. Dušan Senko, Dr. Jaromír Kučera, Martin Kolník) and with regional directorates of SNC.

On top of this, **we conducted ex-situ cultivation of *H. caprinum***, in cooperation with Plant Science and Biodiversity Centre of Slovak Academy of Sciences. This was the first time in Slovakia (and central Europe), that this method was applied for this species. The cultivation was very demanding and lasted several years. However – in the end, **we planted 2,020 new individuals of *H. caprinum* in suitable habitats in both project sites**, to boost and stabilize the existing populations. The survival rate of the planted individuals was cca 30%, which is a very high number for orchid species. The survival rate for similar orchid species cultivated in ex-situ conditions is often only up to 10%. The high survival rate in our case is most likely thanks to detailed knowledge of target sites and exact analysis of microclimate on places of planting (e.g. by analysis of long-term measurements of soil temperature and humidity, with the use of data-loggers).

The impact of restoration measures of action C.3 on the population size of *H. caprinum* (HC): the population size of HC was monitored on a yearly basis, since 2013. Both the total number of individuals and the number of flowering plants was monitored on SCIs Nad Vinicami and Zobor. The project restoration measures started in December 2020, hence their effect can be expected from the season 2021. Planting of HC cultivated ex-situ started from the season 2021. Therefore, to evaluate the effect of project action C3, we compared the average number of HC individuals before the interventions (i.e. seasons 2013-2020) and after them (seasons 2021-2025). The comparison is shown in Table C3:

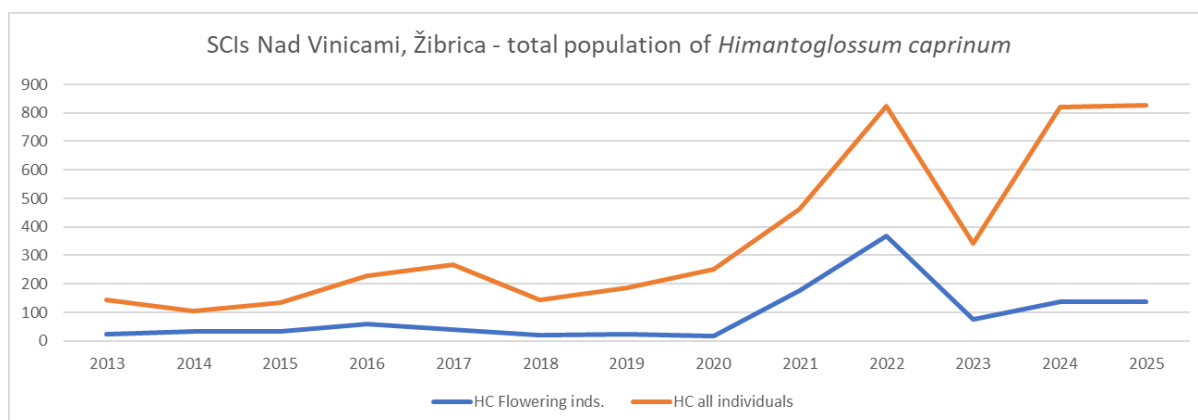
Table C3: *Himantoglossum caprinum* total population (SCI Nad Vinicami + SCI Zobor): average numbers for the periods BEFORE and AFTER project interventions (action C3)

	Period	HC Flowering inds.	HC All inds.
BEFORE C3	2013-2020	31,25	182,75
AFTER C3	2021-2025	178,8	655,2
Ratio After/before		5,72	3,59

The numbers of *Himantoglossum caprinum* in the period after implementing action C3 have increased by +259 % (ER = +10 %). The numbers of flowering individuals have increased by +472 % (ER = +30 %). As can be seen from Table C3, the expected results for target species *Himantoglossum caprinum* have been exceeded very significantly - and the population of the species on the project sites has increased by several fold.

Fig. C3 shows the evolution of the total population of HC on project sites SCI Nad Vinicami and SCI Žibrica. Although there are remarkable fluctuations in the population, the overall trend reflects a significant increase from 2021 - after the start of project restoration measures. This concerns both the number of flowering individuals and the total number of HC individuals.

Fig. C3: The total numbers of *Himantoglossum caprinum* in project sites SCI Nad Vinicami and SCI Zobor - flowering individuals and total number of all individuals.



**Artemisia pancicii*

The habitat conditions for *A. pancicii* were improved on 2.13 ha (ER = 2 ha) and the size of suitable habitat was enlarged by 1.05 ha (ER = 1 ha). This was achieved by selective removal of shrubs; mowing of grass with biomass removal; providing protection from undesirable browsing by game and sheep; raking and removal of dead biomass and by hand picking of competitive vegetation in plot with occurrence of *A. pancicii* and its close surroundings.

The project action was implemented by the project team of ONYX in project site SCI Čejkovické špidláky. All works were implemented in close cooperation with NCA CR and leading national experts on the species.

As a result of the project's restoration measures, the **population coverage of *A. pancicii* has increased by 47% (ER = increase by 15%) – from 19 m² to 28 m²**. This indicates a significant positive effect of the project's restoration measures on the species.

The increase in number of flowering individuals cannot be reliably assessed (ER = 30% increase), since the flowering of the species has a strongly fluctuating trend. In most years, the species reproduction is only vegetative, with no flowering individuals. The last flowering inds. occurred in seasons 2016, 2018 and 2020. Subsequently, flowering of 1 individual was recorded in 2024 and flowering of 4 inds. in 2025. Due to a strongly fluctuating trend, we consider the total coverage of the species population as a much more relevant indicator for the overall "fitness" of the species in this site.

Problems and their solutions: The threat associated with fertilizer runoff from nearby fields, and the application of agrochemicals has been actively addressed since the last mid-term report. Project coordinator of ONYX involved the Regional Authority of the South Moravian Region, Nature and Landscape Protection Agency of the Czech Republic, the Ministry of the Environment and the Czech Environmental Inspectorate (CEI). The most effective tool was several reports to the CEI. In 2024, the local farmer established a grassy strip seven meters wide above the SCI, which effectively prevents most of the pollution run-off to reach the site and the population of the target species. The boundary of the natural monument was measured and marked in the field, to secure the long-term continuation of this result.

However, in September 2025, the farmer temporarily ploughed the grassy strip again, which was documented also on the project monitoring mission. The project team of ONYX has contacted the Nature Conservation Agency of the Czech Republic and the Regional Office of the South Moravian Region (RO SMR) and solved the situation, so that the grassy strip will be restored by the local farmer.

D.1 Monitoring of project impact on target species and habitats

Foreseen start date: 02/2019

Actual start date: 02/2019

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: First annual monitoring report delivered

Deliverable foreseen: 02/2020

Deliverable completed: 05/2021

Deliverable: Second annual monitoring report delivered

Deliverable foreseen: 02/2021

Deliverable completed: 05/2021

Deliverable: Third annual monitoring report delivered

Deliverable foreseen: 02/2022

Deliverable completed: 02/2022

Deliverable: Fourth annual monitoring report delivered

Deliverable foreseen: 02/2023

Deliverable completed: 04/2023

Deliverable: Fifth annual monitoring report delivered

Deliverable foreseen: 02/2024

Deliverable completed: 04/2024

Deliverable: Sixth annual monitoring report delivered

Deliverable foreseen: 02/2025

Deliverable completed: 04/2025

Deliverable: Seventh annual monitoring report delivered

Deliverable foreseen: 02/2026

Deliverable completed: 07/2025

Deliverable: Final monitoring report delivered

Deliverable foreseen: 12/2026

Deliverable completed: 07/2025

Milestone: Baseline data on first permanent monitoring plots gathered (state before the

conservation actions); first reference plots created

Milestone foreseen: 08/2019

Milestone completed: 10/2019

Milestone: Independent monitoring experts procured and appointed

Milestone foreseen: 02/2019

Milestone completed: 10/2019

Milestone: Monitoring of project impact on target species and habitats, monitoring of dissemination actions started

Milestone foreseen: 06/2019

Milestone completed: 06/2019

Description of implementation of the action:

The monitoring of all conservation actions (C-actions) was successfully carried out from 2019 to 2025 by independent external experts (Assoc. Prof. Pavol Eliáš, Dr. Dobromil Galvánek, Dr. Veselý, and others). The annual and final monitoring reports were delivered and are uploaded in the BUTLER system (see also links below). A key achievement was the functional feedback loop where monitoring results were directly used to optimize management in real-time and relevant results were used also for communication and dissemination purposes. For example, grazing periods were adjusted in Slovakia to protect *Iris aphylla* populations, and the intensity of *Ailanthus altissima* treatments in the South Moravian region was increased based on efficacy data.

Habitat Restoration and Resilience (6210, 6240, 6250)* Monitoring confirmed that the restoration measures led to significant positive trajectories for target dry grassland habitats.

- Shrub and IAS Removal: Significant reduction in woody vegetation cover was achieved across all sites (e.g., from 60% to near 0% at SCI Přední kout in CR), leading to improved light conditions and a rapid boost in species richness.
- Grazing Impact: Extensive grazing with mixed herds proved to be the most effective long-term tool for maintaining structural heterogeneity of target habitats.
- Climate Resilience: after the extreme drought in 2022, which caused temporary declines in herb cover, restored and managed sites showed higher resilience and faster recovery compared to abandoned areas. The increased resilience is important especially in the periods of extreme weather triggered by climate change.

Impact on target species

- *Artemisia pancicii* (CR): A remarkable success was recorded at the Špidláký site, where the population coverage has increased from 19 m² to 28 m² (a 47% increase in cover, far exceeding the planned 15%).
- *Himantoglossum caprinum* (SK): This species represents the most significant quantitative success. Thanks to ex-situ cultivation and habitat management, the population in the project sites has increased by +259%, vastly exceeding the 10% target.
- *Onosma tornensis* (SK): Monitoring confirmed that habitat openness achieved through shrub removal stabilized the population. Although sensitive to extreme dry years (2022, 2025), the quality of the habitat is now at a reference level for the species.

Conclusion and long-term vision: the comprehensive summarizing report (2019–2025) provides strong evidence that well-designed restoration management can reverse habitat degradation. The project successfully stabilized priority populations and restored ecological functions across more than 500 ha of steppe habitats in both countries, where grazing as a suitable management method was restored.

Problems and their solutions:

The project addressed and resolved all challenges identified during the Midterm stage, ensuring the scientific integrity and continuity of the monitoring activities. Regarding the monitoring of *Onosma tornensis*, the complementing of large-scale counting with a system of permanent

monitoring plots proved highly effective. This optimization allowed for a more precise assessment of population dynamics and habitat quality, providing superior feedback for management compared only to the originally proposed method. The land ownership issues at SCI Ječmeniště and SCI Přední kout in the Czech Republic, which initially hindered management actions, were fully resolved. By establishing new monitoring plots on alternative land owned by the Nature Conservation Agency of the Czech Republic and partner organizations, we secured stable conditions for both restoration and monitoring. Management interventions on these sites were fully implemented starting in 2022, and the final data reflects successful habitat stabilization. The early personnel change in the Czech monitoring team was managed seamlessly. After Kryštof Chytrý's departure, Dr. Pavel Veselý from Masaryk University took over the responsibility. This transition did not negatively affect the project, as the established methodology and permanent plots remained consistent throughout the entire monitoring period (2019–2025). Finally, although the first habitat monitoring reports experienced minor delays due to expert availability, this was effectively managed through continuous contact with the specialists. All subsequent reports, including the final comprehensive summarizing report, were delivered on time and are annexed to this Final Report.

D.2 LIFE performance indicators monitoring

Foreseen start date: 05/2019

Actual start date: 05/2019

Foreseen end date: 12/2024

Actual end date: 01/2026

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 1)

Deliverable foreseen: 10/2019

Deliverable completed: 10/2019

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 2)

Deliverable foreseen: 11/2020

Deliverable completed: 12/2020

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Mid-term Report)

Deliverable foreseen: 11/2021

Deliverable completed: 04/2022

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 3)

Deliverable foreseen: 01/2023

Deliverable completed: 01/2023

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 4)

Deliverable foreseen: 01/2024

Deliverable completed: 01/2024

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 5)

Deliverable foreseen: 01/2025

Deliverable completed: 01/2025

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 6)

Deliverable foreseen: 01/2026

Deliverable completed: *

Deliverable: Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Final Report)

Deliverable foreseen: 03/2027

Deliverable completed: 02/2026

Milestone: LIFE Performance indicators monitoring started

Milestone foreseen: 01/2019

Milestone completed: 10/2019

Milestone: Baseline data for assessing impact on LPI gathered

Milestone foreseen: 12/2019

Milestone completed: 10/2019

Milestone: LIFE Performance indicators monitoring completed

Milestone foreseen: 12/2026

Milestone completed: 02/2026

Expected results:

- Evaluations of projects impact on LIFE performance indicators elaborated and provided with Progress, Midterm and Final reports. The LIFE performance indicators (LPI) monitoring will be carried out on a regular basis from the beginning of the project until the end of the project. The analysis focusing on the results achieved and/or deviations experienced/expected as compared to the original estimates/inputs in the KPI Webtool and their explanation, to be delivered with each project report - will be added into the design of project action D.2.

Description of implementation of the action:

The results of this action were evaluated mostly based on assessing the achieved results of the project and based on results of expert monitoring and assessments under actions D1, D3 and D4. The data were uploaded to the online KPI webtool. The annual results of LIFE performance indicators monitoring were reported and/or delivered with project's Progress, Midterm and Final reports as well as during regular monitoring visits.

Problems and their solutions:

The deliverable **Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 6)**, originally scheduled for submission with Progress Report 6, was not submitted as a standalone document due to the earlier termination of the project. Following the successful and accelerated completion of all key conservation actions, the final assessment and monitoring results are instead fully integrated and consolidated within this Final Report. Detailed information regarding this administrative adjustment and related project deviations is provided in chapter 6.2 Deviations.

D.3 Assessment of project impact on ecosystem services

Foreseen start date: 05/2019

Actual start date: 05/2019

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: Assessment study on projects impacts on ecosystem functions (services)

Deliverable foreseen: 12/2026

Deliverable completed: 07/2025

Milestone: Assessment of projects impacts in ecosystem functions completed

Milestone foreseen: 12/2026

Milestone completed: 07/2025

Milestone: Assessment of ecosystem functions started

Milestone foreseen: 05/2019

Milestone completed: 05/2019

Expected results:

- Assessment study of project impact on ecosystem functions and services - delivered with the Final report. Preliminary results and recommendations included in the Mid-term report.

Description of implementation of the action:

The action started on 05/2019, in line with the planned milestone. Baseline data were gathered in the field, followed by regular monitoring throughout the project duration. The final impact of the project on ecosystem services was evaluated through two separate monitoring reports (one for the SK and one for the CR). The assessment followed the international CICES classification (v5.2), comparing the baseline state (T0) with the post-implementation state (T1). The process integrated data from biological monitoring and management records to quantify

how habitat restoration enhanced the benefits provided by nature to society.

The assessment documented a measurable improvement (increase by 1 to 2 levels on a 5-point scale) in the following categories of ecosystem services:

- **Provisioning Services:** The restoration of grassland habitats, which were subsequently used for grazing on a total area of 541.3 ha across both countries led to a significant increase in the production of biomass (fodder) and high-quality local products. This service was effectively linked to the local economy via the krajnaziva.sk/en platform in Slovakia and direct cooperation with farmers in the Czech Republic.
- **Regulating & Maintenance Services:** The elimination of invasive alien species (IAS) on 137.3 ha directly improved the erosion control and soil stabilization on steep-sloped steppe habitats. Furthermore, the restoration of biodiversity-rich grasslands significantly enhanced pollination services, benefiting surrounding agricultural landscapes such as orchards, vineyards or arable land.
- **Cultural Services:** The aesthetic and recreational value of the sites (e.g., SCIs Velký Kopec, Fabiánka, Horný vrch, Bílý kopec u Čejče, Kamenný vrch u Kurdějova) was substantially increased. Public access and educational value were improved through the establishment of 3 nature trails and 9 km of educational routes, supported by new visitor infrastructure. This led to a 300% increase in educational outreach compared to initial project targets.

The assessment confirmed that the LIFE SUB-PANNONIC project successfully improved the capacity of restored ecosystems to provide essential services. Both national reports provide evidence that investments in habitat management generates long-term value by increasing the public attractiveness of the landscape and supporting sustainable regional development.

Problems and their solutions: N/A

D.4 Assessment of projects socio-economic impacts and impact of dissemination actions

Foreseen start date: 05/2019

Actual start date: 11/2018

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: Assessment study on projects socio-economic impacts

Deliverable foreseen: 12/2026

Deliverable completed: 07/2025

Milestone: Assessment of projects socio-economic impacts started

Milestone foreseen: 05/2019

Milestone completed: 05/2019

Milestone: Assessment of projects socio-economic impacts completed

Milestone foreseen: 12/2026

Milestone completed: 07/2025

Milestone: Monitoring of impact of project's dissemination actions started

Milestone foreseen: 01/2019

Milestone completed: 11/2018

Milestone: Monitoring of impact of project's dissemination actions completed

Milestone foreseen: 07/2026

Milestone completed: 07/2025

D4.1 Assessment of projects socio-economic impacts

Expected results:

- Assessment study on projects socio-economic impacts - delivered with the Final report.

Description of implementation of the action:

D4.1 Assessment of projects socio-economic impacts:

Monitoring of the socio-economic impacts of the project began in May 2019, in line with milestone 05/2019. The project's impact on socio-economy was evaluated at the local level in

communities in the vicinity of the project sites. Monitoring focused on the public perception of the Natura 2000 network, target habitats and target species, or those related to the target habitats (e.g. *Artemisia pancicii*, orchids, pasqueflowers).

SK: Monitoring at selected project sites (Plešivec, Rožňava near SCI Plešivská planina; Streda nad Bodrogom and Veľký and Malý Kamenec near SCI Tarbucka; Bratislava – Podunajské Biskupice near SCI Biskupické luhy; and Hlohovec near SCI Sedliská) included questionnaire surveys in paper and online form. A total of 226 respondents participated, confirming a steady increase in public acceptance of nature conservation and the perception of the restored areas as a benefit to regional identity and tourism.

CR (7 sites): A comprehensive qualitative analysis was carried out during the final phase of the project at all locations. Through 22 in-depth interviews with key stakeholders (farmers, shepherds, local authority representatives), the institutional and economic benefits of the project were identified.

Key socio-economic findings:

1. Institutional Stability and Governance: Successful transfer of long-term management responsibility to regional authorities (South Moravian Regional Authority, State Nature Conservancy of the SR), ensuring sustainability regardless of private land ownership constraints.
2. Economic Impact on Local Actors: The project directly supported the local economy by engaging small-scale farmers and shepherds in sustainable land management.
3. Conflict Prevention and Acceptance: Intensive communication and field excursions mitigated initial skepticism regarding landscape changes (e.g., shrub removal), resulting in high public acceptance.
4. Capacity Building: The project stabilized specialized implementation teams and developed unique know-how in steppe management, which remains a long-term asset for both regions.

The socio-economic assessment confirms that habitat conservation is sustainable only when integrated into local institutional frameworks. The project successfully transformed environmental objectives into an accepted component of regional development in both project regions.

D4.2 Monitoring of impact of project's dissemination actions:

Expected results:

- Monitoring of results and impact of project's dissemination actions delivered with projects' Midterm and Final reports.

Description of implementation of the action:

External monitoring evaluated the effectiveness of communication tools and the project's real reach across target audiences. The process relied on two reports prepared separately for the Czech and Slovak parts of the project area, allowing for an accurate capture of country-specific activities.

The monitoring quantified key indicators (media reach, website traffic, number of participants of project events, etc.) and analyzed qualitative aspects (participant feedback, stakeholder engagement). It confirmed that the dissemination strategy (Actions E1–E5) effectively fulfilled the established conservation and dissemination objectives.

The monitoring demonstrated high strategy effectiveness, as evidenced by the following results:

Stakeholder Engagement: The realization of 297 individual meetings with stakeholders proved to be the key factor for successful management implementation on private land (actions C1, C2, C3).

Systemic Impact: Project know-how was successfully integrated into 12 strategic policies and documents in both Slovakia and the Czech Republic.

Professional Replication: 22 documented cases of replication confirm the successful adoption of project methodologies by external entities beyond direct LIFE funding - already within the project duration.

E: Dissemination actions - overall assessment

In general, the expected results of the project's dissemination actions (E1-E5) can be assessed as achieved and in several important cases significantly exceeded.

There is one small shortcoming: E1.3: 2 press releases implemented instead of 5 planned. However, the number and impact of media outputs was very significantly exceeded - which is more important.

However, this is largely outweighed by the significant exceeding of expected results in important dissemination sub-actions. Significant was especially their impact on target audience - which in many cases enabled a far more cost-efficient and sustainable implementation of core project actions, especially C1 and C2; as well as enabling their numerous replications and very effective results on policies. The highlights:

E1.3: 66 media outputs achieved in national, regional and local media; more than 4,000,000 total audience reached (CR+SR)

E1.6: 86 excursions for public implemented, with 1,523 participants in total. Many of them were combined with volunteering, where the participants could contribute to practical nature conservation. (ER = 30 excursions)

E2: 290 meetings with stakeholders were conducted (ER = 15 meetings). This was a crucial communication tool for improving cooperation with local farmers and stakeholders. It resulted in a very good cooperation with local farmers (especially in implementing actions C1 and C2), leading to a significantly increased value-for-money of the project and sustainability of the results.

E3: 22 replications were achieved (ER = 12 replications), already in the project duration period. This was thanks to a well-developed set of actions within the Replication toolkit and a well-developed best practice methods, suitable for replication.

E5.2 The project team members have actively participated in **improving a total of 12 policies** (6 in SK and 6 in CR). These include national policies and methodologies (e.g. for IAS removal), as well as regional policies, related to better management of target habitats or target species. They will improve the management of target habitats in the long-term.

ACTION E.1: Awareness raising - public

Foreseen start date: 11/2018

Actual start date: 11/2018

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: **Promotional items and infomaterials - package 1 (chocolates, t-shirts, bags, pens, leaflet, match-match), projects communication plan**

Deliverable foreseen: 06/2019

Deliverable completed: 06/2020

Deliverable: **Promotional items and infomaterials - package 2 (7 e-publications - Czech project sites, printed publication on Czech project sites), projects communication plan**

Deliverable foreseen: 06/2021

Deliverable completed: 06/2022

Deliverable: Promotional items and infomaterials - package 3 (layman report), After LIFE communication plan

Deliverable foreseen: 10/2024

Deliverable completed: 07/2025

Milestone: Establishment of project website

Milestone foreseen: 01/2019

Milestone completed: 01/2019

Milestone: The first press release was created and distributed

Milestone foreseen: 11/2018

Milestone completed: 11/2018

Milestone: Installation of LIFE information panels started

Milestone foreseen: 06/2019

Milestone completed: 04/2020

Milestone: The first workshops for teachers was organised

Milestone foreseen: 06/2020

Milestone completed: 11/2021

Milestone: The first excursion for schools and public was organised

Milestone foreseen: 10/2020

Milestone completed: 04/2019

Milestone: Installation of LIFE information panels completed

Milestone foreseen: 06/2020

Milestone completed: 02/2025

Description of implementation of the action:

E1.1 Creation of Communication Plan

Expected results:

- Projects communication plan (created and regularly updated)
- After LIFE communication plan - for continued dissemination and replication of important best practice methods (to be included with After LIFE conservation plan)

The plan defining the communication and overall PR strategy has been made and it was regularly updated during the project period. The After LIFE communication has been prepared and delivered.

E1.2 Project website

Expected results:

- Project website developed, maintained and promoted during the whole project – in two languages; min. 5 000 unique visitors.

The dissemination of project results was carried out using two specialized web platforms, which were launched in January 2019, in compliance with the milestone (01/2019): the Slovak version (BROZ: <https://broz.sk/projekty/life-sub-pannonic/>) and the Czech version (ONYX: <https://www.csoponyx.cz/projekt-subpannonic-oprojektu>). The total traffic for both project websites reached 8,712 unique visitors, significantly exceeding the target of 5,000 visitors set in the project application. Higher traffic was recorded on the Czech version (6,119 unique visitors) compared to the Slovak version (2,593 unique visitors). Online reach was also successfully achieved through social media, where posts focused on LIFE SUB-PANNONIC on the BROZ Facebook page recorded more than 160,000 views. Both project websites will be sustained also after the end of the project period.

E1.3 Promotion in media

Expected results:

- Media outputs: min. 5 press releases; min. 15 outputs in local, regional, national and international media (printed, radio, TV), reaching min. 2 000 000 audience in total.

A total of 66 media outputs were realised (BROZ: 40, ONYX: 26), with a total outreach of 4,475,871 recipients (SK: 2,485,692, CR: 1,990,179). This included national, regional and local media (TV, radio, news, internet portals), where successful examples of restorations implemented within this project were presented. The original targets of this sub-action were significantly exceeded. Although the target number of press releases was only partially met (two out of five planned were issued), their increase was not considered necessary, since the final target were the media outputs.

A scientific publication was not counted in this dissemination category; it resulted from a rigorous thesis at the Department of Zoology, PRIF UK, entitled *The effect of management change in the Panský diel nature monument (SCI Dunajské luhy) on pollinator diversity* (Mikulíková 2025).

E1.4 Noticeboards

Expected results:

- Information panels created and placed on all project sites: 21 (+1) in SR, 7 in CR

The original project target was to install a total of 28 notice boards (21 in Slovakia and 7 in the Czech Republic). Interest in the notice boards exceeded the plan, and a total of 32 panels were successfully installed across 29 project sites, thus meeting and exceeding the goal. In Slovakia (BROZ, SNC), 25 notice boards were installed, and in the Czech Republic (ONYX), 7 panels were installed.

E1.5 Printed materials, promotional items

Expected results:

- Printed materials and promotional items prepared and distributed:
- Leaflet on target species and habitats (2 x 5 000 pcs, CZ and SK version)
- Layman report (16-20 pages, A4): 500 pcs x 3 language versions (CZ/SK/EN) = 1500 pcs
- 7 e-publication (SCI CZ), 1 printed publication (7 CZ SCI together, 1000 psc)
- ecological textile bags with project motive (2x 500 pcs, CZ and SK versions)
- T-shirts with project motive
- pens (recycled material, 5000 pcs)
- chocolates – with project motive and information on package: 1000 pcs (organic, fair trade)
- games: match-match (CZ and SK version, 2 x 300 pcs)

Nine types of promotional materials were produced and distributed within the project: leaflets on target species and habitats (CZ and SK version) 10 000pcs, e-publications 7 pcs, publication about Czech SCIs 1 000 pcs, ecological textile bags with project motive (CZ and SK versions) 1 000 pcs, T-shirts with project motive 100 pcs, pens 5 000 pcs, chocolates with project motive 1 000 pcs, match-match (CZ and SK version) 600 pcs, layman report (CZ/SK/EN version) 600 pcs.

The majority of the printed materials (including leaflets and ecological textile bags) were distributed by the project partners (ONYX, BROZ, SNC) and cooperating institutions. These materials targeted a wide audience, including the general public, local schools, municipalities, regional nature conservation directorates, universities, farmers, and participants of project events. Due to increased printing costs during the project implementation, the number of copies of the Layman Report was reduced from the original 1,500 copies to 600 copies (in three language versions), following an agreement with the monitor. Nevertheless, the demand for

promotional materials was very high. Feedback from recipients was extremely positive, with particularly high interest in T-shirts, bags, and the '**Grazing is Amazing**' leaflet. Given the significant demand, further interest from cooperating organizations would have necessitated the re-printing of some promotional materials.

E1.6 Excursions for local schools and public, training of teachers

Expected results:

- * min. 30 excursions for schools and public realised on the project sites (15 in SR, 15 in CR), min. 500 participants in total
- * min. 2 workshops for teachers realised (1 in SR, 1 in CR); min. 20 local teachers trained for guiding excursions to the project sites and their habitats

Activity E1.6, focused on excursions and teacher training, was divided into two categories, both of which saw targets met or significantly exceeded. The original plan of 30 excursions was more than doubled – a total of **86 excursions were organised (SK: 71, CR: 15) with a total of 1,523 participants** (SK: 1,379, CR: 144). A large proportion of the excursions was carried out in conjunction with volunteering activities (SK: 59), with primary schools (5), universities (4), and public excursions focused on xerothermic site management (3) showing particular interest. The target in the teacher training category was met by organising two workshops (the first workshop was held at the grammar school in Břeclav, CR - 11/2021 and second one in Veľký Lél, Slovakia - 04/2024). These workshops successfully trained and motivated 32 teachers (SR: 20, CR: 12) to lead their own field excursions.

E.2 Awareness raising - key stakeholders

Foreseen start date: 11/2018

Actual start date: 11/2018

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: Stakeholder engagement - Relevant documentation (lists of participants, photo-documentation, etc.) from organised public events (report I)

Deliverable foreseen: 11/2021

Deliverable completed: 04/2022

Deliverable: Stakeholder engagement - Relevant documentation (lists of participants, photo-documentation, etc.) from organised public events (report II)

Deliverable foreseen: 12/2026

Deliverable completed: 02/2026

Milestone: The first seminar was organised

Milestone foreseen: 03/2021

Milestone completed: 06/2020

Milestone: The first two-days trips for stakeholders was organised

Milestone foreseen: 09/2020

Milestone completed: 10/2023

Milestone: The first meeting with stakeholders was organised

Milestone foreseen: 06/2019

Milestone completed: 11/2018

Expected results:

- 2 two-days trips for stakeholders, min. 50 persons participating
- 3 seminars, min. 45 participants in total
- 15 meetings with stakeholders (estimated number of participants 50+)

Description of implementation of the action:

Activity E2 focused on raising awareness among key stakeholders, which directly supported the successful implementation of project C-actions. The target for excursions was met – two field trips were organised with 51 stakeholders participating (target min. 50):

1. one 3-day trip in Hortobágy NP, Hungary, 11.-13.10.2023 for 25 participants

2. one 2-day trip in SCI Moravský kras, SCI Želiv, SCI Žehuňsko, SCI Nerestský lom and SCI Vrbenské rybníky, CR, 24.-25.5.2024 for 26 participants

The target for the number of educational seminars was achieved: three were carried out with 53 stakeholders participating:

1. 25.6.2020 in Streda nad Bodrogom (SCI Tarbucka), SK, for 40 participants
2. 13.5.2024 in Hustopeče, CR for 5 participants
3. 21.2.2025 in Čejč, CR for 8 participants

However, the key instrument for effective communication was **personal meetings with stakeholders**, where the target was significantly exceeded. Instead of the 15 planned, a total of **290 meetings were held** (BROZ/SNC: 219, ONYX: 71), representing more than a 20-fold overachievement. These meetings involved 905 people (BROZ/SNC: 724, ONYX: 181), compared to the estimated number of 50. Most often, these were meetings with local farmers, land users and owners, mayors, and representatives of regional offices, SNC, and NCA CR. The main purpose was to motivate stakeholders for cooperation in the restoration of target habitats (C1) and the introduction of grazing (C2). This intensive communication was crucial for finding win-win solutions and establishing sustainable grazing models tailored to meet the specific needs of each site and each cooperating farmer. The effort invested in this activity resulted in very high effectivity of results, especially in actions C1 and C2 and of the project as a whole. Also, it has increased the socio-economic benefits generated by the project and their use and acceptance by local farmers and land users.

Problems and their solutions:

The two-day trip for stakeholders was delayed due to Covid19 pandemic (milestone 09/2020).

ACTIONS E.3 Replication toolkit

Foreseen start date: 11/2018

Actual start date: 1/2018

Foreseen end date: 2/2024

Actual end date: 07/2025

Deliverable: Stakeholder engagement - Relevant documentation (lists of participants, photo-documentation, etc.) from organised public events (report I)

Deliverable foreseen: 11/2021

Deliverable completed: 04/2022

Deliverable: Stakeholder engagement - Relevant documentation (lists of participants, photo-documentation, etc.) from organised public events (report II)

Deliverable foreseen: 12/2026

Deliverable completed: 01/2026

Milestone: Informal workgroups for the project specific topics under action E3 created

Milestone foreseen: 06/2019

Milestone completed: 03/2019

Milestone: Information focal points for replication created

Milestone foreseen: 06/2019

Milestone completed: 03/2019

Milestone: Invasives: two-day workshop for regional directorates of SNC as well as other relevant stakeholders was organised

Milestone foreseen: 05/2020

Milestone completed: 05/2025

Milestone: Final international conference was organised

Milestone foreseen: 11/2026

Milestone completed: 05/2025

Milestone: Grazing: two-day field workshops for farmers + other relevant stakeholders was organised

Milestone foreseen: 08/2022

Milestone completed: 03/2022

Expected results:

- 4 best practice/demonstrative methodologies developed by the project replicated: min. in 2 different sites/entities each; min. 12 replications achieved in total.

Description of implementation of the action:

SUMMARY: Five key best practice methodologies were developed, focusing on IAS removal, grazing reintroduction, dung-beetle friendly parasite prevention, optimal management for target species, and controlled burning (the last method was developed on top of the 4 methods foreseen in the project proposal). In total, we have achieved **22 replications** of these best practices in total, already in the project implementation period (9 in SR, 13 in CR) - which confirms the high potential of the project for knowledge transfer. The expected results for replications were significantly exceeded. The replications were implemented mostly by local farmers, municipalities, National Conservation Agency of the CR, local enthusiasts, etc. - based on professional advice and/or know-how provided by the project team. The below listed tools and communication channels were used to foster the replications. Most of them were implemented in protected or naturally valuable areas outside the project SCIs, using the funds and effort of the given entity/stakeholders.

To facilitate this transfer, the project successfully delivered all planned supporting activities:

E3.1 Workshops for key stakeholders

Expected results:

- 2 two-day workshops realised, min. 50 participants in total.

A total of 2 field workshops were held for key stakeholders, engaging 50 participants:

1. two-day workshop was organised by SNC and BROZ on 22.-23.3.2022 in Podunajské Biskupice for 25 participants.
2. two-day workshop was organised by SNC in PLA Cerová vrchovina (SCI Pieskovcové chrby) on 29.-30.5.2025 for 25 participants.

The target audience were represented by SNC representatives, local farmers, mayors, representatives of regional offices, land managers, etc. Workshop topics were restoration of grassland habitats, grazing reintroduction, effective IAS removal, IAS mapping, cooperation with local farmers and land owners/users, etc.

E3.2 Individual communication with key stakeholders

Expected results:

- Min. 40 personal meetings with interested stakeholders (3-5 participants/meeting).

A total of **40 meetings were held with 137 key stakeholders**. Of these, 20 meetings were held in Slovakia for 90 participants and 20 meetings for 47 participants in the Czech Republic.

The meetings focused on personal and targeted communication with stakeholders who have a significant influence on landscape management and the implementation of conservation measures in project areas. These meetings were held primarily with representatives of local and regional institutions, landowners and users, farmers, non-governmental organizations, and entities responsible for landscape management. The aim was to present the positive results of project methodologies, discuss their practical application, and jointly seek solutions tailored to the specific conditions of individual locations and stakeholders - to foster their use as replications.

E3.3 Work groups for best practice methods

Expected results:

- 4 working groups for the target topics created, min. 32 members in total.

Four expert working groups were established, focusing on: (1) IAS removal, (2) grazing reintroduction, (3) dung-beetle friendly parasite prevention, and (4) optimal management for target species. Exceeding the original target, these groups comprised a dynamic pool of approximately 30 to 33 specialists from the State Nature Conservancy (SNC), NGOs, universities, and the Slovak Academy of Sciences. Throughout the implementation period, the group compositions naturally evolved due to personnel changes within partner organizations and to the availability of the given external experts; however, these minor fluctuations had no impact on the groups' functionality or the fulfillment of their objectives. Often, the changes naturally reflected the evolution of know-how and experience with implementation of the given best-practice method. This international platform facilitated the exchange of practical know-how and contacts between Slovak, Czech, and foreign experts. Furthermore, these groups served as a key vehicle for disseminating project methodologies and best practices, with members actively contributing to the implementation of sub-activities E3.1 and E3.2. Alongside these focus areas, best practice and related replications in controlled burning were developed as a strategic management method for dry grassland habitats, further expanding the project's technical and legislative impact.

E3.4 Information focal points

Expected results:

- 4 focal points for the target topics created and in use, min. 40 consultations in total.

Four information focal points were established, providing 45 consultations (25 in SK, 20 in CZ) to entities interested in replication. These points, staffed by designated project experts, served to increase the availability of specialized know-how and facilitate the transfer of experience into practice. The consultations: conducted in person, via telephone, or email, primarily targeted land managers, municipality representatives, local activists, farmers, and officials from MoE, MoA, and SNC. This platform strengthened cooperation of the project team with landowners, farmers, and public administration. Information about these contact points was consistently promoted at project events and remains available on the project websites.

E3.5 Final conference:

Expected results:

- Final international conference organised, min. 50 participants from CR+SR

Final Conference (E3.5): The final two-day international conference took place on May 12-13, 2025, in South Moravia and was attended by 50 participants. The conference consisted of expert contributions and a varied program. Expert lectures and summary of project results and best practice were given by representatives of project teams of ONYX, BROZ, SNC, NCA CR and independent researchers and site managers. The conference was coupled with a field excursion to SCI Kamenný vrch u Kurdějova, where examples of project restoration measures and best practice were presented and discussed.

ACTIONS E.4 Increasing socio-economic benefits

Foreseen start date: 11/2018

Actual start date: 11/2018

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: Stakeholder engagement - Relevant documentation (lists of participants, photo-documentation, etc.) from organised public events (report I)

Deliverable foreseen: 11/2021

Deliverable completed: 04/2022

Deliverable: Stakeholder engagement - Relevant documentation (lists of participants, photo-documentation, etc.) from organised public events (report II)

Deliverable foreseen: 12/2026

Deliverable completed: 02/2026

Milestone: 10 contact points for visitors created

Milestone foreseen: 12/2020

Milestone completed: 12/2024

Milestone: 2 nature trails for visitors created

Milestone foreseen: 04/2020

Milestone completed: 12/2024

Milestone: The first two-day workshop was organised

Milestone foreseen: 10/2020

Milestone completed: 08/2023

Milestone: 22 objects of small scale infrastructure for visitors created

Milestone foreseen: 05/2024

Milestone completed: 12/2024

Milestone: Workshops for guides was organised

Milestone foreseen: 04/2023

Milestone completed: 10/2023

Milestone: Model excursions for guides was organised

Milestone foreseen: 06/2023

Milestone completed: 05/2025

Description of implementation of the action:

The aim of the action was to maximise socio-economic benefits created by the project, especially towards local communities. A significant potential for socio-economic benefits was created by implementing project's C and E actions (e.g. restored extensive pastures, increased potential for sustainable tourism). However, it is not only important to create a potential, but also to prepare local people, entrepreneurs and communities to use it and make the best of it. The below listed sub-actions were designed for this purpose - also after consultations in local communities and positive experience from previous projects.

E4.1 Training local guides and enterprisers

Expected results:

- 2 workshops for guides (min. 20 total participants)
- 2 model excursions for guides, min. 20 participants in total
- 1 two-day workshop for min. 20 participants
- Min. 10 contact points for visitors created

First and foremost, it was important to provide potential visitors with accurate information about the target habitats and their proper management. This information was provided to potential guides at two one-day workshops for a total of 26 participants (08/06/2022/Hrušov SK: 14 part. and 08/05/2025/SCI: Kamenný vrch u Kurdějova, Přední kopaniny, Přední kout CZ: 12 part.), two model excursions for 28 people (27/09/2023/Horná Súča SK: 16 part. and 19/10/2023/Bílý kopec u Čejče CZ: 12 part.) and one two-day workshop for 24 participants (31/08. - 02/09/2023/Žemberovce SK: 24 part.). **Eleven contact points for visitors** were created within local municipalities, SNC regional directorates, private farms, including the BROZ office.

E4.2 Creating small scale visitor infrastructure

Expected results:

- Min. 22 objects of small-scale infrastructure for visitors created altogether at Slovak and Czech project sites/areas.
- 2 nature trails for visitors created (min. 4 panels each)

A total of 22 objects of infrastructure for visitors were created, mostly in cooperation with local craftsmen and artists. These were installed in or near the project sites (15 in SR, 7 in CR). In SK 1 bench, 2 tables with chairs, 2 bicycle racks, and 10 wooden statues were created. In the Czech Republic, one massive wooden bench with a QR code linking to the project website was installed at each project site (i.e. 7 benches in total for CR).

An educational trail was created at the Pieskovcové chrbty site, which was officially opened on May 30, 2025. Two other educational trails were created in the CR, specifically in SCI Bílý kopec near Čejč, SCI Špidláky, and the second in SCI Přední kopaniny, Přední kout, and Kamenný vrch near Kurdějov. A total of three educational trails were created (1 in SR, 2 in CR).

E4.3 Increasing competitiveness of local farmers

Expected results:

- Min. 5 jobs created in sustainable tourism in local communities, min. 3 in sustainable farming
- Min. 10 local farmers participating on the website krajina-ziva.sk, with increased income
- Min. 30 meetings/consultations with local farmers realised, min. 120 participants in total

The project established conditions for **a minimum of 16.56 FTE jobs in the field of sustainable farming and tourism in local communities** (including shepherds, animal caretakers, grassland maintenance staff and local guides). Out of these, **12.6 FTE corresponds to long-term positions expected to continue beyond the project duration** (e.g. shepherds). **Krajina živá programme and website: a total of 10 local farmers cooperating on the LIFE SUB-PANNONIC project were involved** in the website krajina-ziva.sk (“Living land”). We have created profiles for each farmer, with description of their farm and approach, as well as products they sell to promote them. Moreover, the website itself was completely re-designed, with new contents created. Its goal is not only to promote the products of the farmers on a local level, but also to promote nature-friendly farming as a whole, including the added value of products generated and sold by the local farmers. Besides this, we organised multiple events (workshops, conferences, info-desks on public events and fairs) to promote the krajina živá (Living land) programme and its main principles and also to increase the skills and competitiveness of the cooperating farmers. The website presents these data both to the public (as consumers) but also to farmers, who are interested in ways of nature-friendly farming (esp. extensive grazing).

In addition, we have developed the [Living farm](#) program to reward and promote examples of good agricultural practices and raise awareness of nature-friendly approaches among farmers and the general public. We actively collaborate with these ten farms/farmers, which includes in-person and telephone advice on promoting local sales and increasing their competitiveness. **A total of 89 meetings were held with 163 participants (mostly local farmers)**, with the main objective of cooperating on the restoration of grassland habitats, grazing, restoration of dry grassland habitats, consultations on grazing management, habitat restoration and removal of invasive alien species, but also subsidies and opportunities to engage in agrotourism, the introduction of agricultural subsidies, certification of organic farmers, marketing of farm products and much more. In Slovakia, 59 meetings were held for 123 local farmers, and in the Czech Republic, 30 meetings were held for 40 farmers.

ACTIONS E.5: Networking and policies

E5.1 Networking and Integrating nature conservation objectives into relevant policies

E5.2 Integrating nature conservation objectives into relevant policies

Foreseen start date: 09/2018

Actual start date: 09/2018

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: Analysis of the impact of networking activities on policy integration (I) - delivered with Mid-term report

Deliverable foreseen: 11/2021

Deliverable completed: 04/2022

Deliverable: Analysis of the impact of networking activities on policy integration (II)

Deliverable foreseen: 03/2027

Deliverable completed: 02/2026

Expected results:

- **E5.1:** 20 networking trips/events realised and experience/best practice shared with projects/organisations focused on related topics.
- **E5.2:** active cooperation on involving nature conservation objectives into national CAP policies for 2021-2027
- **E5.2:** nature conservation objectives successfully involved in min. 2 regional/national policies

Description of implementation of the action:

E5.1 Networking and Integrating nature conservation objectives into relevant policies:

The project included networking activities focused on systematically building cooperation with key partners in the field of nature conservation and sustainable landscape management as well sharing of know-how and best practice. Networking took place mainly with nature conservation authorities, educational and research institutions, non-governmental organizations, and implementers of successful LIFE projects focused on restoring target habitats or addressing similar threats in the wider region. Networking included participation in professional conferences, working meetings, workshops, and study visits, contributing to the exchange of experiences, dissemination of best practices, and support for the integration of conservation goals into practice and public policy. A total of **55 networking trips/events were organized**, with 1 847 participants (SK: 288 part. and CR: 1559 part.). Of these, 25 took place in SK and 30 in the CR. The ER were significantly exceeded.

E5.2 Integrating nature conservation objectives into relevant policies:

The project team actively worked on involving conservation objectives in regional/national policies and cooperated on involving nature conservation objectives into national CAP policies for 2021-2027. The project teams of BROZ, ONYX and SNC have actively participated in **improving a total of 12 policies** (6 in SK and 6 in CR). These include national policies and methodologies (e.g. for IAS removal), as well as regional policies, related to better management of target habitats or target species.

Slovakia:

1. **Common Agricultural Policy (CAP) 2021–2027:** Active cooperation on national CAP development, focusing on new ecoschemes and the support for extensive grazing.
2. **Act on Nature and Landscape Protection:** Successful integration of **controlled burning** as an official management tool for the restoration of grassland habitats.
3. **Expansion of the Natura 2000 Network:** preparing grounds and obtaining agreements of land owners for enlarging the Natura 2000 network, including important project sites - primarily within the **Slovak Karst National Park**.
4. **Cultural Heritage Protection:** formal inclusion of historical grazing infrastructure -

the **Serenyi's water cistern** (SCI Plešivská planina), into the **National List of Technical Monuments**. We obtained the agreement of the land owner, which was inevitable for its effective conservation.

5. **Invasive Alien Species (IAS) Management:** Obtaining the official authorization for the use of the fungus *Verticillium non-alfae-alfae* as a biological control method for Tree of Heaven in Slovakia. Before this project, it was not officially allowed.

Czech Republic:

1. **Action Plan for Priority Pathways of IAS in the CR:** The project team acted as expert consultants for this national strategic document coordinating the management of invasive alien species.
 2. **Standard SPPK D02 007 – Management of Selected IAS:** Co-authorship of the binding national methodology for regulating invasive plants, with a specific focus on the regulation of *Asclepias syriaca*.
 3. **Regional Regulation of Tree of Heaven (*Ailanthus altissima*) in the South Moravian Region:** Expert assessment and consultation on the mandatory elimination measures for the region, ensuring effective management of this invasive species.
 4. **National Principles for Regulation of *Asclepias syriaca*:** Significant co-authorship of the practical parts of this regulation, which was officially approved by the Government of the Czech Republic.
 5. **Landscape Policy of the Czech Republic:** Active membership in the working group for the new national landscape strategy, focusing on habitat management in conflict with energy infrastructure.
 6. **Podyjí National Park Council:** Appointment of the project coordinator as an expert member of the Council, ensuring the transfer of LIFE project know-how into the park's strategic management.
- In all above listed cases, the crucial knowledge and best practice developed in the LIFE SUB-PANNONIC project was transformed into important national/regional policies. This will lead to more (cost)-effective management of IAS and target habitats on the regional and national levels in the long-term.

The expected results in terms of policies were significantly exceeded (only 2 policies were foreseen in the project proposal).

Problems and their solutions:

Please refer to section 6.4 - Policy impact - Problem related to policy impact - *Verticillium* use and report of an urgent need to fix barriers in EU laws.

F.1: Project management and reporting

Foreseen start date: 09/2018

Actual start date: 09/2018

Foreseen end date: 12/2024

Actual end date: 08/2025

Milestone: Assembling the Steering Committee of the project

Milestone foreseen: 02/2019

Milestone completed: 11/2019

Milestone: Project manager nominated and employed (BROZ)

Milestone foreseen: 09/2018

Milestone completed: 09/2018

Milestone: Project coordinators nominated and employed (ONYX, SNC)

Milestone foreseen: 09/2018

Milestone completed: 09/2018 ONYX, 09/2019 SNC

SNC

All the key project employees were hired on time, in the early beginning of the project. Soon after that, all of them were introduced to their project roles and responsibilities. All of them have access to an electronic version of the PP since its beginning. Partnership agreements were signed between the coordinating beneficiary (BROZ) and all associated beneficiaries and the project's management structure was established.

Project staff was hired by all project beneficiaries, basically according to the project plan and made aware of their responsibilities and duties.

Considering the international nature of the project, two sub-teams were established – in Bratislava/Slovakia (BROZ, SNC) and in the Czech Republic (ONYX). The everyday communication between CB and ABs and all the partners among themselves was being realized via phone calls, e-mails, online meets and other common means.

Regular meetings of the project's **Steering Committee** were held by live or online form, where the overall progress of project implementation, future plans and any related issues were presented and discussed by representatives of all project beneficiaries.

Project's monitoring reports were prepared and delivered to project monitor and CINEA (PR1, PR2, MTR, PR3, PR4, PR5). Besides this, the project results were regularly presented and discussed on visits of the external monitor of the project, including the visit by the project desk officer held in September 2025.

There were several changes on the position of project manager/contact person: Pavol Littera (BROZ), who was the first project senior manager, assisted by Katarína Mikulová in the position of junior manager, who later took over the management of the project. Later, she was replaced by Mrs. Ivana Czocherová, who was replaced in the beginning of 2025 by Pavol Littera. The last two changes were due to the maternity leave of project managers.

F.2 Project bookkeeping, financial management and auditing

F2.1 Project bookkeeping and financial management

F2.2 Project auditing

Foreseen start date: 09/2018

Actual start date: 09/2018

Foreseen end date: 07/2025

Actual end date: 07/2025

Deliverable: Audit report on projects financial statements and expenditures

Deliverable foreseen: 03/2027

Deliverable completed: 02/2026

Milestone: Financial manager employed (BROZ)

Milestone foreseen: 09/2019

Milestone completed: 11/2018

Milestone: Independent external auditing company nominated

Milestone foreseen: 11/2021

Milestone completed: 06/2025

Expected results:

- Smooth projects bookkeeping and financial management.
- An independent audit report on financial statements and expenditures of the project will be attached with the project's Final report.

Description of implementation of the action:

F2.1 Project bookkeeping and financial management:

A full-time financial manager experienced in national and EU accounting/bookkeeping practices was employed for the whole duration of the project. This position was gradually filled

by Pavol Surovec, Miriam Miláčková, Martina Halamičková, and Zuzana Zverková. Financial manager (BROZ) was responsible for overall financial management of the project, planning of financial cash flow, distribution of payments to associated beneficiaries, preparation of the financial reports (for Project manager, Steering committee, Contracting authority and monitoring team), tendering of external contractors etc. Furthermore, coordination of cross-border partnership in economic issues of the project, communication with the beneficiary accountant department, regular elaboration of financial reports and other duties. Project coordinators (ONYX, SNC) were providing regular and timely financial documentation to the Financial manager and all required documents for project's financial reports. In tenders the Green Procurement rules were applied.

F2.2 Project auditing:

According to the rules set up in the financial guidelines the expenditures of the CB BROZ have been audited by the external company. The project audit was implemented by independent auditing company D.P.F. spol. s.r.o., SKAU Licence No. 140 and Ing. Jana Paulenová, SKAU Licence No. 442. It took place at the end of the project and the audit report was issued in the format of "Terms of reference and the certificate on the financial statements".

F.3 After-LIFE plan

Foreseen start date: 07/2024

Actual start date: 04/2025

Foreseen end date: 12/2024

Actual end date: 07/2025

Deliverable: After-LIFE conservation plan

Deliverable foreseen: 03/2027

Deliverable completed: 02/2025

Expected results:

- After-LIFE conservation plan elaborated and delivered with the Final report of the project

Description of implementation of the action:

The After-LIFE plan was prepared and delivered. It contains an analysis of activities that will be carried out in the After-LIFE period, following the end of the project – in order to secure the continuity of project results and the positive state of the restored habitats and species in the project sites. Besides the descriptions of the management measures, also the responsible organisations are described, together with technical and financial means required for the successful implementation, indicating also the expected sources of financing. It also contains an indication of how the cooperation with crucial stakeholders will be continued, as well as a plan for After-LIFE monitoring.

An After-LIFE dissemination and communication plan is an integral part, describing the communication channels that will remain open or active after the project ends and responsible organisations and/or their core staff. These include channels focusing on general public (project website, social media, contacts to be available for media reporters); expert audience (dissemination of project's results and best practice on conferences, networkings, expert workgroups, etc.) and for stakeholders and entities interested in replications of the best-practice developed by the project.

The After-LIFE plan is prepared for both project countries (Czech Republic and Slovakia), with comprehensive summary in English language.

5.2. Main deviations, problems and corrective actions implemented

Describe the main problems or difficulties encountered in the project duration. These may be issues of a technical nature (equipment delivery delayed, construction of infrastructure took longer than anticipated), or financial (the costs did not correspond with the budgeted amounts) or organisational (change of partnership). Provide an assessment of the impact of these deviations on the outcomes of the project and describe the measures taken / to be taken to overcome or alleviate the problems in question.

If the project seems likely to become/stay behind schedule, please indicate this clearly. Signal any changes to the baseline implementation programme.

PROJECT SITES

Addition of a new project site:

One SCI was added as a new project site in Slovakia: **SCI Tarbucka**. This was accepted by the official communication with EC. Site-based (Sub)actions C1.1, C1.2 and C2 were implemented on this site and an additional information panel (E1.4) was placed on this site. Following the instructions in the official communication with EC, we report the results achieved on this site separately and these results were achieved on top of the expected results of the original project plan, thus representing an added value of the project.

Enlarging the areas of existing project sites, changes in boundaries of Natura 2000 sites: this concerns project sites in Slovakia, especially SCIs Horný vrch, Plešivská planina, Plešivské stránne, Kečovské škrapy, Fabiánka, Palanta, Pieskovcové chrby, Tematínske vrchy.

The boundaries of these sites have changed as a result of the Natura 2000 network consolidation process, finished by approval of new borders in 10/2023 by the Government of SR.

Highlight: enlargement of Natura 2000 sites in Slovak karst National park (with contribution of the project). In project sites in Slovak karst National park (SCIs Fabiánka, Horný vrch, Plešivská planina, Plešivské stránne, Kečovské škrapy, Palanta), a significant increase in their area size was achieved. **The total increase of the Natura 2000 network on these sites was 1373.55 ha** (see Table 6.2). This was largely thanks to a very good cooperation with local farmers and landowners developed within this project. Before this project, the land owners and land users - including local farmers - saw Natura 2000 mostly as a burden posing restrictions to their land use. After establishing cooperation on this project, they discovered that they can make use of nature restoration projects, including the LIFE Programme, for restoring overgrown grasslands on their land. Therefore, they have changed their attitude and instead of opposing, they understood and often welcomed the proposal for enlargement of Natura 2000 sites on their land. The main responsible person for negotiating this change was Dr. Robert Šuvada (SNC), who largely cooperated with the project team on implementing project actions C1 and C2 and negotiated the change with the local farmers.

Table 6.2: Enlargement of Natura 2000 sites in Slovak karst National park

Area of Natura 2000 project site (ha)

Project site (SCI)	BEFORE the project	AFTER (5/2025)	Enlarged by
Horný vrch	6027.69	6320.82	293.13
Plešivská planina	2860.31	3022.04	161.73
Plešivské stráně	397.49	411.81	14.32
Kečovské škrapy	354.55	538.36	183.81
Fabiánka	637.66	1 337.89	700.23
Palanta	758.26	778.38	20.12
TOTAL enlargement (ha):			1 373.35

Change of boundaries in SCI Pieskovcové chrby – an impact on project action B1: within the process of Natura 2000 network consolidation (the same process as was described above), the official boundaries of project site SCI Pieskovcové chrby were changed and one section of the project area was suspended and was not included in the newly declared borders. As a result of this, 3 land parcels purchased by the project, which were originally located in the project site are now outside of its boundaries (however, they are still part of SPA Cerová vrchovina – Porimavie). The whole situation is described in detail in Chapter 6.1, section related to action B.1 – please see the description in more detail therein.

IMPLEMENTING OF PROJECT ACTIONS

Site-based actions (C-actions) were not implemented in 4 project sites, SCIs: Brezovská stráně, Soví hrad, Domické škrapy and Kečovské škrapy – out of 29 project sites in total (i.e. on 13.7 % of all sites). This was mostly due to disagreement from land owners, or in some sites, it was not feasible to establish a sustainable grazing or other management regime – therefore, we focused more on the sites, where the long-term perspective of sustainable management was higher and sufficient enough. However, the project objectives and expected results were reached (or exceeded) altogether on other project sites – both in Slovakia and the Czech Republic. Therefore, the general restoration objectives of the project can be considered as achieved.

Deviations in achieving the Expected results of project actions

For most of the project actions, the Expected results foreseen in the project proposal were achieved. In some important cases, they were even exceeded – especially for project actions C1 and C2 – which represent the most important actions of the project.

In some cases, there were deviations in achieving the project results. E.g. for **action B1**, a somewhat lower area of land was acquired by land purchase, but this was compensated by a significantly larger area acquired by long-term lease of land – and therefore, the total area of land acquired by action B1 was significantly higher than anticipated in the expected results.

There were minor deviations in action C3. These are described, compared with the expected results and discussed in Chapter 6.1, in the section dedicated to this project action and evaluated also in Chapter 6.3.

External factors with negative impact on project implementation:

Long lasting COVID restrictions – the outbreak of the COVID 19 pandemic in March 2020 significantly impacted the implementation of many project actions. From this date a series of restrictions including hard lockdowns caused delays in the implementation of various project actions.

Especially affected were the dissemination actions (E-actions), where organising of public events and meetings was severely complicated or even impossible in some periods – e.g. Excursions and events for public and stakeholders (E1.6, E2, E3). We were coping with this situation by organising or attending some of the events online (but this was possible only for some types of events), focusing more on media communication, social networks, etc. However, even with these restrictions, most of the expected results and impacts of the E-actions can be considered as achieved.

Foot and mouth disease outbreak and strict quarantine measures - in spring and summer 2025, in Slovakia, there has been an outbreak of Foot and mouth disease - a highly infectious disease of cattle and other ruminants. Strict quarantine measures were officially installed, including a strict ban to move grazing animals between sites. This also included a ban to move animals from wintering grounds to pastures. As a result, it was not possible to graze animals on a major part of the project sites from early spring until the beginning of summer 2025. This created complications to the mobile herd of BROZ and for some of the local farmers. However, these have been mostly overcome, after the quarantine measures were finished.

DEVIATIONS FROM TIME SCHEDULE

Actions A1, A2, A3: delays occurred with delivery of expert studies (actions A1, A2, A3) – these were to an extent of 9-12 months. However, the project teams of BROZ and ONYX regularly discussed all the relevant findings and recommendations with the authors of the studies even before their official delivery. Therefore, these delays had no negative impact on implementing the concrete conservation actions of the project.

Action B1: delays in the beginning and in implementing action B1 were caused by lengthy negotiations with land owners and with land owners association (SCI Ladmovské vápence). However, the overall results of action B1 can be assessed as achieved - a larger area of land was acquired in total by land purchase and land lease, compared to the expected results of the project – see Section 6.1, action B1 for overall assessment. BROZ has established active contacts with the key land owners, built a good reputation and gained agreements for land management in the target areas. The management/restoration of the land parcels has often been allowed provided that we promised to buy the land. In some cases, this was not possible instantly, due to reasons on the side of the owners (e.g. the parcels were subject to bank pledge, ongoing heritage processes, longer negotiations on prices, etc.). Due to the above reasons, the

lengthier implementation of action B1 had no negative effect on implementing related project's C-actions (all important objectives were met and often exceeded). On the contrary – it enabled us to acquire significantly more land for nature conservation purposes than foreseen by the project, with a good value for money.

Actions C1.1, C1.2 and C2 – implementation started well ahead of the expected milestones (12-19 months ahead), thanks to a very good cooperation with local stakeholders. The implementation started before the official delivery of Expert studies A1 and A2. However, this had no negative effect on the quality of achieved results, as we were discussing the recommendations for restoration management and grazing with authors of the study already before its delivery and we could build on solid experience from preceding LIFE projects implemented in these types of habitats.

For actions C1 and C2, the end date of implementation was later than expected in the original project proposal. However, the core of the restoration work, with a major part of the results were achieved well ahead of the originally foreseen dates. In the end, we were able to exceed the original expected results of the project both for C1 and C2.

Action C3: the implementation was significantly delayed in SCI Horný vrch, which holds the most important population of target species *Onosma tornensis*. This was due to complicated permission procedures and the process of transformation of land management rights from Forests of Slovak Republic, onto Slovak karst National park Directorate – a lengthy process, which was beyond our influence. See the description of Action C3 in Section 6.1 of this report for more details. However, the expected results of action C3 were generally achieved and in some aspects exceeded.

D-actions: Delays occurred in delivering some of the annual reports of monitoring actions (e.g. the First and Second monitoring reports under Action D1). These were caused mostly by delays in the work of external experts. However, these delays did not have a negative impact on the implementation of the project's restoration actions or on the achievement of the expected project results, as the project team remained in continuous contact with the monitoring experts and their preliminary findings and recommendations were regularly consulted and immediately integrated into the ongoing management and restoration measures.

E-actions: Under Action E1 (Awareness raising – public), delays concerned mainly the installation of LIFE information panels and the organisation of workshops for teachers. These delays were mainly linked to COVID-19 restrictions in 2020–2021, which limited public gatherings, school activities and field-based events.

Under Action E2 (Awareness raising – key stakeholders), the milestone related to the two-day field trip for stakeholders was delayed due to the COVID-19 pandemic. Travel restrictions and limitations on international meetings prevented the organisation of study visits within the originally planned timeframe. The activity was successfully implemented once conditions allowed safe in-person events.

The most significant postponements occurred under Action E4 (Increasing socio-economic benefits). Milestones related to the creation of visitor contact points, establishment of nature trails, organisation of workshops for guides and model excursions were completed later than originally foreseen. The delays were mainly linked to the need for coordination with local stakeholders, landowners and service providers, administrative procedures related to

infrastructure placement, and seasonal constraints for organising outdoor activities and training events.

Despite the postponements in selected milestones, all E actions were fully implemented by the end of the project. The delays did not negatively affect the achievement of the overall objectives. In several cases, organising dissemination activities at a later stage allowed the project team to present concrete and measurable conservation results, thereby increasing the practical relevance and impact of the communication activities.

F-actions: the project management and financial management actions started mostly on time and were completed with the end of the project, with the exception of the **Final report delivery, which was delayed** (4 months) due to a huge amount of work (29 project sites, 7 years of project duration) and three changes on the position of project manager (due to maternity leave). Although the preceding managers did their best to hand over all the necessary agenda, it was very difficult and time consuming, to sort out all the results, prepare accompanying documentation, all the annexes and the text of the Final report.

Deviations in budget spending and shifts between budget items – these are described and discussed in Chapter 8 of this Final report.

PROJECT DURATION EXTENDED

The original end date of the project, as foreseen by the submitted project proposal, was due to 31/12/2024. Because of delays, especially in implementing action C3, we officially applied for prolongation of the project, and since we could not properly estimate the date of finishing of action C3, we asked for prolongation until 12/2026, which was approved. However, due to faster implementation of restoration works, we were able to finish all the important conservation actions, including C3 by summer 2025, and therefore, the project was officially finished in 31/7/2025. As a result, the last report of the project is this Final report (delivered on 28/2/2026). The Progress report 6 foreseen in 2/2026 in Grant Amendment 2 was suspended.

Deviations in deliverables and the project reporting schedule

As a result of project prolongation, an updated schedule of project reports was proposed and approved, with Progress report 5 delivered due to 31-01-2025 and PR6 to be delivered due to 31-01-2026. Since the project implementation was officially finished by 31/07/2025, the PR6 was not needed to be delivered, since the data are summarized in this Final report.

The Deliverable “Evaluation and analysis of projects impact on LIFE performance indicators (delivered within Progress report 6)”, related to project action D2 and to be delivered due to 31-01-2026 was not delivered, since the final data of KPI are uploaded and reported with this Final report.

The monitoring of results under action D1 was implemented including the vegetation season 2025 and these data are summarized in the Final monitoring report, delivered with this Final report.

These data reflect and evaluate the results and impacts of most of the restoration actions implemented by the project, including those implemented by action C3 in SCI Horný vrch. Here, the removal of shrubs under action C3 started already in 2023 – on areas which hold the highest concentration of the species populations. The permanent monitoring plot here was

established from 2023 and reported the changes in species habitat quality and population density also in seasons 2024 and 2025. All the monitoring plots established by the project are preserved (and marked in the field) and the After-LIFE plan includes a strategy for continuation of the monitoring of target habitats and target species on sample sites also after the end of the project.

5.3. Evaluation of Project Implementation

Please evaluate the following aspects of the project:

- [Methodology applied](#): discuss the successes and failures of the methodology applied, the results of the actions conducted and the cost-efficiency of actions. The methodology of project implementation has generally followed the project proposal. In key aspects, we were building upon the experience and best practice successfully tested in previous LIFE projects. **Good cooperation with local farmers and stakeholders** was crucially important for successfully achieving the project results and securing their efficiency and sustainability. To achieve this, we invested a lot of energy in meetings with local farmers and stakeholders (action E2), of which the **field meetings** on sites proved the most effective and helpful. **Dissemination** with the public was best achieved by the organisation of numerous **public events** (excursions and volunteer events, sub-action E1.6). Also, the numerous **media outputs** proved to be effective in dissemination towards the wider public. **Cooperation with experts** was very important in fine-tuning the best practice methods of the project and preparing them for successful replications (Expert work groups, Networking).
- The **Replication toolkit** (E3) proved very effective in fostering replications of the project's best practice. More than 20 replications were achieved already in the project duration period, thanks to this effort and effective combination of communication tools under action E3.
- The project team invested a lot of energy in transforming the knowledge and experience from best practice and demonstration methodologies into relevant nature conservation policies. Here, the expertise of the project team was transformed into **12 improved policies**, such as novel and more effective standards of IAS removal, approval of controlled burning as a legal method for management of grassland habitats, enlargement of Natura 2000 network, etc.
- [Compare the results achieved against the objectives and expected results foreseen in the proposal and described in section 4](#): clearly assess whether the objectives were met and describe the successes and lessons learned. This could be presented in a table, which compares through quantitative and qualitative information the actions implemented in the frame of the project with the objectives and expected results in the revised proposal:

Action	Foreseen in the revised proposal	Achieved	Evaluation
A.1	Objectives: Expected results:	Achieved with delay	The delay in completing the studies sections for Slovak Karst did not negatively influence the implementation

	Expert study on restoration management of grassland habitats		of the project's conservation action. The complete studies were delivered within the External monitoring expert project visit, on 05/2021
A.2	Expert study on restoration of target habitats by reintroduction of grazing	Achieved	The delay in completing the studies sections for Slovak Karst did not negatively influence the implementation of the project's conservation action. The complete studies were delivered within the External monitoring expert project visit, on 05/2021
A.3	Expert study on optimal management of target species	Achieved	The study was completely delivered within the new deadline. However, the delay in the delivery of the part of the study did not negatively affect the implementation of activity C3, as the preparation of management measures were directly consulted with the experts.
B.1	100 ha will be purchased or long term leased (the proposal expects 30 ha of land acquired for implementing project actions by land purchase, and 70 ha of land acquired for implementing project actions by land lease)	Achieved and exceeded	A total of 159.21 ha was purchased and long term leased (land purchase: a total of 22.71 ha of land was acquired by the project and long-term lease of land: in total, 136.5 ha of land was acquired by long-term lease
C1.1	450 ha of target grassland habitats will be restored by removing of shrubs and trees, mulching, mowing and/or harrowing, prepared for regular grazing or regular mowing applied (400 ha in SR and 50 in CR)	Achieved and exceeded	A total of 464.2 ha of target grassland were restored (413.9 ha in SR + 50.3 in CZ)
C1.2	Invasive plants will be removed on 70 ha in project sites in SR and 10 in CR	Achieved and exceeded	Invasive plants were removed from a total area of 137.3 ha, of which 99.2 ha were in Slovakia and 38.1 ha in the CR (CR: of which 19.3 ha were in SCI sites).
C.2	Grazing reintroduced on	Achieved	Grazing reintroduced on 541.3

	min. 375 ha of project sites (350 ha in SK and 25 ha in CR)	and exceeded	ha of project sites (502.8 ha in SK and 38.5 ha in CR)
C.3	<p><i>*Onosma tornensis</i>: SCI Horný vrch, SCI Palanta</p> <ul style="list-style-type: none"> – improving habitat conditions on min. 20 ha, increasing suitable habitat size by min. 10. ha. - increasing the population size by min. 10% 	Generally achieved	<ul style="list-style-type: none"> - habitat conditions improved on 20.1 ha within SCI Horný vrch and SCI Palanta through expert-supervised management, primarily via manual shrub removal. - increasing the suitable habitat by 5.4 ha; shortfall due to ecological and technical constraints, partially offset by 3.3 ha of external management. - ecological conditions improved, though the 2025 drought caused temporary fluctuation; long-term increase expected.
C.3	<p><i>*Artemisia pancicii</i>: SCI Čejkovické špidláky</p> <ul style="list-style-type: none"> – improving habitat conditions on min. 2 ha - covering all areas of occurrence of the target species within the SCI Čejkovické špidláky, area of suitable habitat further increased by min. 1 ha (covering also areas, where the species was occurring in the past). - increasing the population coverage by min. 15% - increasing the number of flowering inds. by min. 30% 	Achieved and exceeded	<ul style="list-style-type: none"> - exceeded targets with 2.13 ha improved and 1.05 ha enlarged through shrub removal, mowing, and manual weeding. Pollution runoff was mitigated by a 7m grass buffer strip (re-establishment ongoing with local authorities). - Target significantly exceeded; coverage increased by 47% (from 19 m² to 28 m²), confirming the high efficiency of implemented restoration measures. - measured by population fitness; although flowering is naturally fluctuating (4 inds. in 2025 vs 0 in previous years), the 47% increase in total coverage is a more stable indicator of the target's success.
C.3	<p><i>Himantoglossum caprinum</i>: SCI Nad vinicami, SCI Zobor</p> <ul style="list-style-type: none"> – improving habitat conditions on min. 2 ha, increasing suitable habitat size by min. further 1 ha - increasing the population size by min. 10% - increasing the number of 	Achieved and exceeded	<ul style="list-style-type: none"> - habitat conditions improved on 2 ha (ER = 2 ha) and size of suitable habitat enlarged by 1.1 ha (ER = 1 ha) through selective shrub removal, opening of forest margins, and small-scale turf stripping to support germination. - population size increased by 259% (ER = 10%) and the

	<p>flowering inds. by min. 30%</p> <p>* In total restoration measures specifically targeted for restoration of habitat conditions for target species will be implemented on area of min. 35 ha</p>		<p>number of flowering individuals by 472% (ER = 30%), comparing 2013–2020 averages with the 2021–2025 period.</p> <p>- ex-situ cultivation and subsequent planting of 2,020 individuals (with an exceptional 30% survival rate) significantly boosted and stabilized the populations in both project sites.</p> <p>- Total C3 area: 31.9 ha (ER=35 ha); shortfall due to ecological and technical constraints in SCI Horný vrch, compensated by high-quality restoration of all core sites.</p>
D.1	<p>Independent experts will monitor C-actions in both countries to optimize management, providing annual feedback reports and a final comprehensive summary.</p>	Achieved	<p>Independent monitoring (2019–2025) confirmed the successful restoration of over 960 ha of habitats and resolved all previous Midterm challenges, including land ownership in CZ and methodological optimizations for <i>O. tornensis</i>. A seamless expert transition and functional feedback loop ensured scientific integrity, with final results proving that project interventions effectively reversed habitat degradation.</p>
D.2	<p>Action D.2 involves regular monitoring and reporting of LIFE Performance Indicators (KPI Webtool), with impact evaluations and deviation analyses included in all Progress, Midterm, and Final reports.</p>	Achieved	<p>The annual results of LIFE performance indicators monitoring were reported and/or delivered with project's Progress, Midterm and Final reports as well as during regular monitoring visits.</p>
D.3	<p>Assessment study of project impact on ecosystem functions and services - delivered with the Final report. Preliminary results and recommendations</p>	Achieved	<p>Preliminary results and recommendations were included in the Mid-term report. Assessment study of project impact on ecosystem functions and services was delivered with the Final report.</p>

	included in the Mid-term report.		
D4.1	Assessment study on projects socio-economic impacts - delivered with the Final report. Some preliminary results will be obtained during this phase and included in the Mid-term Report.	Achieved	Assessment studies on projects' socio-economic impacts were prepared and submitted, separately for the SK and separately for the CZ project partners.
D4.2	Monitoring of results and impact of project's dissemination actions delivered with projects' Midterm and Final reports.	Delivered with Final report	The results and impact of the project's dissemination activities were monitored and continuously evaluated by an external specialist throughout the project duration. These results were regularly communicated to the project team, which utilized this feedback for continuous improvement of the project's dissemination strategy. The overall evaluation of the results and impact of the project's dissemination activities was delivered with the Final Report in two separate reports (for the SK and CZ side).
E1.1	- Projects communication plan (created and regularly updated) - After LIFE communication plan	Achieved	- The plan defining the communication and overall PR strategy has been made and it was regularly updated. - After LIFE communication plan is complete and is part of After
E1.2	Project website developed, maintained and promoted during the whole project – in two languages; min. 5 000 unique visitors.	Achieved and exceeded	Two project websites were developed. The total traffic for both project websites reached 8,712 unique visitors.
E1.3	Media outputs: min. 5 press releases; min. 15 outputs in local, regional, national and international media (printed, radio, TV), reaching min. 2 000 000 audience reached.	Achieved and exceeded	Although the target number of press releases was only partially met (two out of five planned were issued), their increase was not considered necessary. This was due to the significant overachievement of the planned number of media

			outputs – a total of 66 outputs were carried out (BROZ: 40, ONYX: 26) instead of the 15 planned. The total outreach of all media outputs reached 4,475,871 recipients (SK: 2,485,692, CR: 1,990,179).
E1.4	Information panels created and placed on all project sites (21 in SR, 7 in CR)	Achieved and exceeded	Interest in the notice boards exceeded the plan, and a total of 32 panels were successfully installed across 22 sites, thus meeting and exceeding the goal. In Slovakia (BROZ, SNC), 25 notice boards were installed, and in the CR (ONYX), 7 panels were installed.
E1.5	Printed materials and promotional items prepared and distributed: - Leaflet on target species and habitats (2 x 5 000 pcs, CZ and SK version) - Layman report (16-20 pages, A4): 500 pcs x 3 language versions (CZ/SK/EN) = 1500 pcs - 7 e-publication (SCI CZ), 1 printed publication (7 CZ SCI together, 1000 psc) - ecological textile bags with project motive (2x 500 pcs, CZ and SK versions) - T-shirts with project motive - pens (recycled material, 5000 pcs) - chocolates – with project motive and information on package: 1000 pcs (organic, fair trade) - games: match-match (CZ and SK version, 2 x 300 pcs)	Achieved	Nine types of promotional materials were produced and distributed as planned, in addition to the layman's report. Due to increased printing costs during the project, the number of copies of the layman's report was reduced from the original 1,500 to 600 (in three language versions).
E1.6	- min. 30 excursions for schools and public realised on the project	Achieved and	A total of 86 excursions were organised (SK: 71, CR: 15) with a total of 1,523

	sites (15 in SR, 15 in CR), min. 500 participants in total - min. 2 workshops for teachers realised (1 in SR, 1 in CR); min. 20 local teachers trained for guiding excursions to the project sites and their habitats	exceeded	participants (SK: 1,379, CR: 144). Two workshops were realised (the first workshop was held at the grammar school in Břeclav, CR - 11/2021 and second one in Veľký Lél, Slovakia - 04/2024) for 32 teachers (SR: 20, CR: 12).
E.2	- 2 two-days trips for stakeholders, min. 50 persons participating - 3 seminars, min. 45 participants in total - 15 meetings with stakeholders (estimated number of participants 50+)	Achieved and exceeded	2 field trips were organised (one 3-day trip in Hungary and one 2-day trip in the CR) with 51 stakeholders participating. 3 seminars were carried out with 53 participants. A total of 290 meetings were held (SK: 219, CR: 71) for 905 stakeholders (SK: 724, CZ: 181).
E.3	4 best practice/demonstrative methodologies developed by the project replicated: min. in 2 different sites/entities each; min. 12 in total	Achieved and exceeded	A total of 5 best practice methodologies were developed. 22 replications of the project's best practice methods were achieved: 13 replications in CR (ONYX) and 9 in SK (BROZ).
E3.1	2 two-day workshops realised, min. 50 participants in total.	Achieved	2 two-day field workshops were held (SCI Biskupske luhy and SCI Pieskovcové chrby) for 50 key stakeholders in discussions on grazing and IAS removal.
E3.2	Min. 40 personal meetings with interested stakeholders (3-5 participants/meeting)	Achieved and exceeded	A total of 40 meetings were held for 120 key stakeholders. Of these, 20 meetings were held in SK for 73 participants and 20 meetings for 47 participants in the CR.
E3.3	4 working groups for the target topics created, min. 32 members in total	Achieved	4 expert working groups comprising 33 specialists were set up to focus on best practice methodologies.
E3.4	4 focal points for the	Achieved	4 information focal points were

	target topics created and in use, min. 40 consultations in total	and exceeded	established and provided more than 45 consultations.
E3.5	Final international conference organised, min. 50 participants from CR+SR	Achieved	The final two-day international conference took place on May 12-13, 2025, in South Moravia and was attended by 50 participants.
E4.1	- 2 workshops for guides (min. 20 total participants) - 2 model excursions for guides, min. 20 participants in total - 1 2-day workshop for min. 20 participants - Min. 10 contact points for visitors created	Achieved and exceeded	- 2 workshops for 26 participants realised - 2 model excursions for 28 participants realised - 1 two-day workshop for 24 participants realised
E4.2	- Min. 22 objects of small-scale infrastructure for visitors created altogether in Slovak and CR sites/areas. - 2 nature trails for visitors created (min. 4 panels each)	Achieved and exceeded	- 22 objects of infrastructure for visitors created (15 in SK, 7 in CR) SK: 1 bench, 2 tables with chairs, 2 bicycle racks, and 10 statues were created CR - 7 benches with QR codes - 3 nature trails created (1 in SR and 2 CR)
E4.3	- Min. 5 jobs created in sustainable tourism in local communities, min. 3 in sustainable farming - Min. 10 local farmers participating on the website krajina-ziva.sk , with increased income - Min. 30 meetings/consultations with local farmers realised, min. 120 participants in total	Achieved	- 16.56 FTE jobs created in sustainable farming and tourism, of which 12.6 FTE are expected to remain long-term beyond the project's duration - 10 local farmers participating on the website https://krajina-ziva.sk/ - A total of 89 meetings were held with 163 local farmers: SK: 59 meetings with 123 farmers CR: 30 meetings with 40 farmers
E5.1	20 networking trips/events realised and experience/best practice shared with projects/organisations focused on related topics.	Achieved and exceeded	A total of 55 networking trips/events realised with 1847 participants: SK: 25 trips/events for 288 part.

			CR: 30 trips/events for 1559 part.
E5.2	<ul style="list-style-type: none"> - active cooperation on involving nature conservation objectives into national CAP policies for 2021-2027 - nature conservation objectives successfully involved in min. 2 regional/national policies 	Achieved and significantly exceeded	12 national/regional or local policies or strategic documents were improved thanks to active participation of project teams of BROZ, ONYX and SNC. This includes active participation in the development of nature-friendly CAP ecoschemes for 2021-2027 in Slovakia.
F.1	<ul style="list-style-type: none"> - Technical, financial and administrative arrangements will be in a timely place to enable the proper running of the project. - All Project staff are appointed and aware of their roles and obligations for completing the project. - High quality project reports will be prepared and submitted on time. All activities described in this application will be implemented on time, in line with the expected results and within budget. 	Achieved	<ul style="list-style-type: none"> -project management effectively established - project staff appointed and trained - reports on project progress prepared and delivered
F2.1	Project bookkeeping and financial management	Achieved	Project's financial management and bookkeeping established
F2.2	Project auditing	Achieved	Audit of project expenditures implemented
F.3	After-LIFE conservation plan, delivered with the final report of the project.	Achieved	After-LIFE plan was prepared and is annexed with this Final report

- Indicate which project results have been immediately visible and which results will only become apparent after a certain time period.

Most of the project results have been immediately visible. This includes most of the project actions, including the restoration of target habitats, part of the target species and the results of the dissemination actions and their impact on target audience. This is documented by the results of monitoring actions (D1, D4.2, etc.), as well as other phenomena - such as very good cooperations established with local farmers and stakeholders, well developed best practice methods, their effective and numerous replications - achieved already in the project period and the 12 improved policies (E5.2).

Some of the results will likely be visible only after a certain period of time. This includes the impact of action C3 on the population of target species *Onosma tornensis*. The action D1 has shown that the habitat of the species has been clearly improved. However, the species population has a very fluctuating trend and it is largely affected by climate change and climatic conditions in the given year. Therefore, it can take several years for the population to effectively react. However, the largest threat for the species (encroachment of the species habitat and accumulation of dead biomass) has been effectively addressed by action C3. The long-term monitoring of the species will be secured also by the national reporting under Article 17 of the Habitats directive. Therefore, the monitoring and evaluation of this long-term trend will be secured.

- If relevant, clearly indicate how a project amendment led to the results achieved and what would have been different if the amendment had not been agreed upon.

Project amendment and its contribution to achieved results

Amendment No. 1 concerned only the change of the name of the coordinating beneficiary and therefore had no impact on the implementation of project actions or on the results achieved.

The project Amendment no. 2 (officially signed on 19. November 2024) concerned mainly two main objectives:

1. the official addition of a project site SKUEV0019 Tarbucka

2. the extension of the project duration.

The part of the amendment concerning **the inclusion of the SCI SKUEV0019 Tarbucka** significantly contributed to the achievement of the project's conservation objectives. The amendment enabled the extension of project activities to a site with high natural value, hosting several habitats of Community interest, including habitat 6210 and priority habitat *6240, as well as species of European importance. Following the actualisation of the site's Standard Data Form during the project implementation, the inclusion of Tarbucka became fully consistent with the project's scope and objectives.

Thanks to the inclusion of the site, it was possible to implement timely restoration and management measures, in particular the re-establishment of extensive grazing through cooperation with a local farmer. The construction of necessary grazing infrastructure, especially fixed fencing, allowed the immediate prevention of further successional overgrowth and degradation of dry grassland habitats. As a result, the project achieved tangible conservation outcomes at SCI Tarbucka, including improved habitat structure, reduced shrub encroachment, and better conditions for target plant and invertebrate species.

If the inclusion of the site had not been agreed upon, the site would have remained unmanaged during a critical period, leading to accelerated succession, loss of characteristic grassland habitats, and a significant decline in their conservation value. Restoration at a later stage would have been substantially more complex, costly, and less effective. Moreover, the project would have missed the opportunity to deliver measurable benefits for an important Natura 2000 site located in close proximity to other project areas, thereby reducing the overall coherence and impact of the project.

The inclusion of the site did not negatively affect the implementation of actions at other project sites and did not result in an increase of the total project budget. On the contrary, the use of existing grazing capacity from local farmers allowed partial savings in planned costs, while increasing the overall effectiveness and sustainability of project results.

The addition of this site to the project was preliminarily approved by the project adviser during the early phase of project implementation, based on its high conservation value and alignment with the project objectives. This prior approval enabled the project to start implementing conservation measures at Tarbucka without delay, ensuring timely intervention at a site threatened by rapid successional processes.

The project amendment related to the **prolongation of the project duration** was crucial for fully realising and consolidating the conservation objectives, particularly within **Action C1.1 (Restoration management of grassland habitats)** and **Action C3 (Specific restoration measures for target species)**. These actions are inherently dependent on seasonal windows and sufficient time to address administrative constraints, complex terrain conditions and ecological responses of habitats and species. In the Amendment, we asked for prolongation of the project period until 31. December 2026. This was to include a safety margin, because in case of bad weather conditions, or other adverse conditions, it was possible that all the planned restoration activities could not be implemented in only one additional season. However, as the works went well and without further delays, we were able to finish all the important project actions and to **finish the project implementation by the date of 31. July 2025**.

Within **Action C1.1**, the project extension enabled the continuation and completion of restoration management on areas where implementation had been delayed due to external factors such as COVID-19 restrictions, administrative processes and unfavourable weather conditions. Without the prolongation, a substantial part of the planned restoration area would have remained unmanaged or only partially restored, limiting the overall effectiveness of the project.

Similarly, for **Action C3**, the extension was essential to continue specific restoration measures for target species, *Onosma tornensis*, where implementation was delayed due to permitting issues, land management changes and extremely demanding terrain conditions (see also Section 6.2 for more details on this delay). The additional time allowed the project to carry out restoration works in appropriate seasons, progressively improve habitat conditions and significantly increase the likelihood of achieving the planned conservation targets.

Without the approved prolongation, key restoration actions would have remained unfinished or ecologically less effective, and the full conservation potential of the project would not have been achieved.

- Describe the results of the replication efforts.

The project's replication strategy was designed as a comprehensive toolkit aimed at maximizing the transfer of proven conservation methods to areas beyond the primary project sites. The core success of this effort is reflected in the significant overachievement of the original targets—instead of the planned 12 replications, a total of **22 successful replications** were documented (**9 in SK and 13 in CR**) covering a total area of over **320 hectares**. This success was underpinned by the development of **5 best practice methodologies**: (1) **IAS removal**, (2) **Grazing reintroduction**, (3) **Dung-beetle friendly parasite prevention**, (4) **Optimal management for target species** (*Artemisia pancicii*, *Onosma tornensis*, *Himantoglossum caprinum*), and (5) **Controlled burning** as a management method for dry grassland habitats. It is important to note, that all these replications were conducted already in the project implementation period. This is a tangible result, going far beyond only improving the replication potential or promising replications that may happen in the After-LIFE period.

The effectiveness of the replication was supported by the intensive engagement of stakeholders through 4 expert working groups (33 members) and 4 information focal points, which provided 45 professional consultations. These platforms enabled the direct exchange of practical know-how between site managers, farmers, and public administration. What also helped were the workshops, networking and individual communication with interested entities (mostly delivered under actions E3 and E5.1), as well as intensive media and social media communication.

Key documented replication examples include:

Slovakia:

- **Invasive Species Management:** Large-scale application of Ailantex for *Ailanthus altissima* removal at **Calvary Nitra**, **SCI Bratislavské luhy - NR Hrabiny**, and **protected vineyards in Rača** (local winemaker). In **NR Pečniansky les**, management of *Solidago spp.* under power lines was improved following project advice.
- **Grazing & Habitat Support:** Introduction of **Konik horse grazing** in **Krupina** and Improvement of grazing practices towards more nature-friendly methods in (and near) **SCI Biskupické luhy** and **Beckov**. In **NR Kobela**, the advice and inspiration from the project team initiated **mosaic burning** of xerothermic habitats following legislative changes and expert consultations.
- **Optimal management for target species:** Professional planting and site preparation for *Himantoglossum caprinum* at **SCI Modrý vrch**.

Czech Republic:

- **Innovative Grazing:** Introduction of new grazing forms, particularly the use of **donkeys** tested alongside sheep and goats on steppe sites.
- **Invasive Species Bio-control:** Widespread transfer of proven methods for eliminating *Asclepias syriaca* and *Ailanthus altissima*, including biological control using the fungus *Verticillium non-alfalfae*.
- **Target Species Recovery:** Transfer of management knowledge for the critically endangered *Artemisia pancicii* to two additional sites, its integration into the Regional Action Plan, and a pilot reintroduction at a historical site. **Note:** this one is not reported as a replication, but the advice and best practice developed by this project team was in fact used for securing better management for the species on top of the planned actions, on sites other than those of LIFE SUB-PANNONIC.

The reported replications were implemented by other entities - i.e. not directly by the project beneficiaries. The project team members provided only professional advice, inspiration and

information on best practice methods developed by this project - to enable these replications. The replications were often implemented in protected areas (including Natura 2000 sites), often targeting valuable dry grassland habitats. But these were mostly areas outside the project sites of the LIFE SUB-PANNONIC project. If they are located in project sites, they refer to actions conducted (and paid for) by other entities (i.e. not by the project, or any other LIFE project), such as companies and enterprises managing land under electric power lines or State Forests. The results of their activities are not reported as direct results of this project, but as replications.

- Indicate the [effectiveness of the dissemination activities](#) and comment on any major drawbacks.

Overall, the dissemination strategy (actions E1–E5) proved effective, successfully transforming theoretical expertise into a systemic shift in landscape management through a highly differentiated communication approach. The project significantly overachieved some of its primary targets, through 66 media outputs and attracting **8,712 unique visitors** to the project websites in Slovakia and the Czech Republic. The best practice and experience in restoration management, as well as public campaigns involving the project team have led to the integration of nature conservation objectives into **12 strategic policies (6 in SK, 6 in CZ)**, including the **CAP 2021–2027 ecoschemes**, the **Slovak National Park Reform**, the **Slovak Nature Protection Act** regarding controlled burning, and the **Czech National Landscape Care Standards** for IAS management, or in some cases - have significantly supported their successful approval.

Another important success was the intensive stakeholder engagement, where the target for personal meetings was exceeded very significantly (**297 meetings with 905 participants, action E2**), crucial for establishing sustainable grazing models (**C2, C1**), effective use of project funds and increasing the competitiveness of local farms via the *krajinaziva.sk* platform. The professional community was further engaged through **4 expert working groups** and **4 information focal points**, providing **45 consultations** that ensured the technical and legal viability of best practice methodologies, such as the application of *Verticillium non-alfae*, as well as **22 replications**, where projects best practice was adopted by other entities (**action E3**).

We also exceeded the expected results in numbers of public events - in total, **86 excursions and volunteer events were organised, with 1,523 participants** (ER = min. 30 excursions, 500 participants). We also implemented 3 workshops for teachers, where 42 participants were trained to lead their own excursions related to the project topics.

What was less effective (drawbacks):

Despite this performance, certain drawbacks were encountered, such as delays in field workshops (**E2, E3.1**), mostly due to the **COVID-19 pandemic**, which the team mitigated by shifting to intensive individual consultations. The target for formal press releases was only partially met (2 out of 5) as the team prioritized direct, high-impact media engagement (here, the overall results were significantly exceeded). Additionally, increased printing costs necessitated a reduction in the **Layman's Report** print run (from 1,500 to 600 copies).

- Policy impact
 - o Describe project achievements which supported legislation (regional, national, EU)

- Indicate the main barriers identified and the action(s) undertaken to overcome them
- Describe any policy developments that resulted from your project activities
- Describe how the project delivered the results foreseen in the Grant Agreement form B3 “EU ADDED VALUE OF THE PROJECT AND ITS ACTIONS”. In addition, if in the Grant Agreement Form B1, the project has been labelled as significantly climate related and/or biodiversity related, cover these elements as well.

The project achieved a profound systemic impact by successfully integrating nature conservation objectives into **12 strategic policies** (6 in Slovakia and 6 in the Czech Republic). This success was achieved thanks to the very active work and engagement of the project teams of BROZ, ONYX and SNC, which incorporated the best-practice and know-how developed by the project into regional and national standards of IAS management, management plans of protected sites, etc.

In Slovakia, the project team played an important role in shaping the **CAP Strategic Plans 2021–2027**, ensuring that extensive grazing and biodiversity-friendly land management are financially supported and practically viable. In the Czech Republic, the project’s best practices were officially incorporated into the **National Landscape Care Standards (NCA CR)**, ensuring long-term methodological continuity for the restoration of Pannonian habitats. Furthermore, the integration of management requirements for the critically endangered *Artemisia pancicii* into **Regional Action Plans** secured the legal and financial future for Annex II species beyond the project’s duration.

Overcoming Identified Barriers The path to these policy changes was challenged by several significant barriers. **Legislative rigidity** initially restricted innovative management tools like controlled burning or legalisation for the use of *Verticillium* for biological treatment of *Ailanthus altissima*. The project team overcame this by providing robust scientific data and by communication with decision-makers, effectively bridging the gap between research and legislation. **Administrative complexity** in agricultural subsidy schemes was addressed by acting as an intermediary between farmers and ministries; through **297 personal meetings**, the team translated field experience into simplified technical requirements for the new CAP schemes. Lastly, the disruptions caused by the **COVID-19 pandemic** were mitigated by a swift transition to hybrid communication and intensified individual consultations, which maintained the momentum of policy negotiations.

EU ADDED VALUE OF THE PROJECT AND ITS ACTIONS

In accordance with the Grant Agreement (Form B3), the project delivered high **EU added value** by harmonizing conservation efforts at a **transboundary scale**. This cooperation directly fulfills the mandates of the **EU Biodiversity Strategy for 2030** and improves the ecological coherence of the **Natura 2000 network** across the SK-CZ border. As a project labeled as **significantly biodiversity-related** (Form B1), it transformed the successful demonstration of novel conservation actions into legally anchored national standards - such as new standards for IAS removal, etc. While primarily focused on biodiversity, the promotion of **nature-friendly agriculture** and habitat restoration also serves as a critical **climate adaptation** measure, enhancing soil health and landscape resilience against droughts in the Pannonian biogeographical region.

The project was designed from the beginning as a contribution to the implementation of EU policies in nature and climate protection, particularly the LIFE Regulation, the Habitats Directive and Objectives 1 and 2 of the EU Biodiversity Strategy. This framework was

translated into measurable results in the Natura 2000 network in the northern part of the Pannonian biogeographical region, both in Slovakia and in the Czech Republic, where the project targeted the strengthening of dry grasslands and species associated with xerothermic habitats, while creating long-term sustainable management based on extensive grazing.

In terms of strengthening the Natura 2000 network and direct impact on habitats, the key activity was C1, which aimed to carry out a “start-up” restoration and prepare the sites for a long-term management regime, for grazing (activity C2).

The project fulfilled and exceeded the original ambition to restore approximately 450 ha, as a total of 464.2 ha of dry grasslands were finally restored (413.9 ha in the Slovak Republic and 50.3 ha in the Czech Republic). This not only improved the condition of the target habitats but also strengthened their function on the northern edge of the Pannonian region, where these habitats are particularly sensitive to overgrowth and fragmentation. The actual obstacles include the underestimation of the unit costs of removing scrub and pioneer trees and the need to address this through intensive cooperation with local actors; this cooperation subsequently became one of the pillars of the sustainability and socio-economic benefits of the project. The project demonstrated a particular European added value in the priority habitat *6240, where the importance of “core” locations of occurrence in Slovakia and one of the most valuable locations in the Czech Republic was already emphasized in the project plan. The final evaluation confirms that the project has indeed covered and restored the key occurrence of *6240 in Slovakia and at the same time a crucial location in the Czech Republic, thus contributing to the improvement of the habitat condition on the northern border of the Pannonian bioregional area. This meant the restoration of the open structure, the removal of successional trees and the setting up of subsequent management, which is essential for the long-term maintenance of the condition, not just for a one-off “cleaning” of the site.

The project fulfilled European priorities (direct link to EU Regulation 1143/2014 on invasive alien species), action C1.2 was focused on invasive species. The project plan envisaged the removal of IAS on 80 ha in the project locations. The result significantly exceeded this ambition, as IAS were removed on 99.2 ha in Slovakia and 19.3 ha were achieved directly in the project locations (or 38.1 ha including buffer strips in the immediate vicinity).

From an evaluation perspective, it is important that it is not just a simple area of "intervention", but a thorough method of work: before the interventions, mapping was carried out, followed by checks and repeated treatment of surviving individuals, and mechanical, biological and, in justified cases, very targeted herbicide application was combined (e.g. for *Ailanthus altissima* or *Asclepias syriaca*). The introduction of the biological substance AILANTEX (*Verticillium nonalfalfae*) for *Ailanthus altissima* also brought demonstrative European value, including the legislatively and practically demanding approval process and subsequent replication of this method in the project region. It was essential that almost everywhere where IAS were removed, grazing in C2 activity was subsequently established, which significantly increases the long-term stability of the results by reducing the risk of IAS returning and supporting the suppression of the rejuvenation of invasive species.

In terms of target species, the fulfilment of the planned "coverage" objectives of the project within Natura 2000 was finally confirmed. For *Onosma tornensis*, the improvement of the condition in all Natura 2000 sites in Slovakia and the coverage of approximately half of the EU population within existing sites was originally declared. The project covered all the sites of occurrence in Slovakia within Natura 2000 and represents approximately 50% of the total SK/HU population of this endemic. However, the expected population increase of 10% is

described in the final assessment as difficult to prove in a short time frame, because the species population fluctuates strongly depending on the course of the vegetation season; specifically, the very dry year 2025 caused the death of young individuals and a temporary decline. Action C3 demonstrably improved habitat conditions and thus created a real prerequisite for subsequent population growth, which will probably manifest itself with more favourable climatic years. The project thus achieved a significant improvement in habitat conditions for this target species.

For *Artemisia pancicii*, the project plan emphasized the global importance of the site and the improvement of the condition at SCI Špidláký. The project covered one of approximately ten remaining sites in the world. In terms of results, habitat improvement and its expansion are documented, and an increase in population coverage by 47% (significantly exceeding the planned ambition of +15%) is assessed as a particularly strong impact.

For *Himantoglossum caprinum*, the project plan emphasized the restoration of populations on the northern border of its distribution area, where the species is highly vulnerable, and the planned coverage of 2 out of 3 Natura 2000 sites declared for the species in the Slovak Republic, with more than 80% of the national population to be covered. During the project, a new, population-rich site, “Prašník”, was discovered, which changed the proportion of the covered population from the originally expected 80% to more than 60%. Nevertheless, the resulting impact of the project is extremely strong and is among the most convincing in terms of evaluation: in addition to the improvement and expansion of the habitat, a pioneering ex-situ cultivation and planting of 2,020 individuals took place, with an approximately 30% survival rate, which is very high for orchids (typically the survival rate for orchids is up to 10%). When comparing the period before and after the interventions, an increase in the total population by 259% (at ER +10%) and an increase in flowering individuals by 472% (at ER +30%) is noticeable. This means that the project not only met expectations but exceeded them several times over and demonstrated that even at the northern border of the area, the population can be stabilized and strengthened by a combination of habitat interventions and targeted support for the reproductive base.

A very important element that the project fulfilled is the mitigation of the negative impacts of climate change by supporting natural processes. Dry xerothermic Natura 2000 sites in this region function as “stepping stones” for the natural migration of xerophilous species towards the north. Strengthening the natural colonization and adaptability of ecosystems reduces “free niches” that could otherwise be easily occupied by invasive species. In practice, this climate-adaptation effect relies on a combination of activities C1.1, C1.2 and C2, i.e. the return of processes that increase the resilience of the landscape to weather extremes.

The project assumed the introduction of sustainable management – extensive grazing on at least 375 ha of abandoned grasslands and argued for a lower carbon footprint of extensive systems compared to intensive livestock production. The final reality not only fulfilled this ambition but significantly exceeded it: grazing was restored to 502.8 ha in the Slovak Republic and 38.5 ha in the Czech Republic under activity C2, i.e. a total of 541.3 ha.

From a life-cycle perspective, the project also fulfilled a key principle: instead of energy- and material-intensive housing of farm animals and feeding them with forage from arable land (with associated emissions from the production of feed, fertilizers and agrochemicals, operation of stables and transport), it restored the direct use of grasslands, which have higher carbon sequestration than arable land and lower susceptibility to erosion.

Activities C1 and C2 were coordinated as a coherent whole. Activity C1 prepared areas for grazing and activity C2 then ensured a long-term grazing regime with securing of necessary infrastructure (fencing, shelters, waterers or boreholes), with cooperating farmers signing commitments to continue nature-friendly grazing on the restored areas also in the After-LIFE period. This is also key for the low-carbon interpretation. Carbon benefits and savings are mainly reflected in the long term, when grazing replaces repeated mechanical interventions and when the function of grasslands for carbon sequestration in the soil is stabilized.

The assessment of the low-carbon dimension of the project also includes how the project handled the biomass generated during restoration interventions. The aim was to minimize emissions associated with the removal and disposal of the material and, conversely, to strengthen local, circular use.

In practice, the wood from the removal of invasive trees and/or the shrubs and pioneer trees was primarily processed by chipping and used as fuel, which supported the energy use of renewable biomass and reduced the need for "waste" transportation over longer distances. Grass biomass from the mowing was used primarily as feed for livestock in connection with C2. For these purposes, technical equipment for mowing and efficient hay transport was provided (e.g. purchase of tractor accessories and a trailer to provide hay for the animals) to make the system self-sufficient in the long term. This approach supports a closed local nutrient cycle and reduces dependence on external inputs. Where it was appropriate and possible, the hay was further processed in a manner consistent with the hierarchy of "feed - energy use - biological decomposition", for example by composting or energy use in downstream facilities (biogas stations), which strengthens the circular nature of management and reduces the carbon footprint associated with biomass management.

The project also declared a "maximum effort" to reduce its own carbon footprint in the areas of travel, implementation of measures, purchases and office operations. In particular, the way in which fieldwork was organised was important: site visits were largely covered by regional staff and shared routes to reduce unnecessary journeys, and some staff were hired directly in the sites so as not to incur additional travel costs. Also, online meetings were often used to reduce the number of travels.

The "best value for money" rule was applied in public procurement and internal processes, suppliers were selected in accordance with public procurement rules, and electronic accounting and electronic communication were gradually strengthened, which reduces administrative consumption of materials. Overall, this corresponds to the approach of green procurement and minimising resource consumption in project operations.

In the area of "Improving ecosystem services", the project reported improving services on at least 400 ha of restored grasslands; the final reality is even stronger, as the restored area of dry grasslands reached 464.2 ha and grazing was restored to 541.3 ha. This is reflected in practice by the restoration of pollination services and biodiversity, the stabilization of soil cover and the reduction of erosion, the increase in the aesthetic and cultural value of the landscape and the creation of representative examples of restored biotopes for education and practice. From an evaluative point of view, it is important that ecosystem services here are not a "side effect", but directly result from the established long-term management (especially grazing), which was materially and contractually anchored in the project (infrastructure, user obligations, long-term tools). The project originally planned to purchase 30 ha of land; in the end, 22.71 ha were purchased, but this "unattained" parameter was more than compensated for by long-term leases. 136.5 ha were leased long-term (out of a planned 70 ha), and in total 159.2 ha were

secured through purchase and long-term lease (out of a planned ambition of 100 ha), with a lease period of 30 years. From an evaluative perspective, it is significant that this result directly enabled the implementation and sustainability of activities C1, C1.2 and C2 in key parts of the sites, because without legal land security it would not be possible to guarantee the long-term continuation of grazing and the protection of investments in restoration. The socio-economic benefits and reduction of social exclusion that B3 put at the forefront are ultimately based on a practical model of cooperation with farmers and targeted communication and support activities. Grazing was restored in most cases in close cooperation with local farmers, the project helped to address initial barriers (access to land, permits, communication with municipalities and stakeholders) and provided the infrastructure so that the system would be functional even after the end of the project. At the same time, activity E4 (and the follow-up work with stakeholders) strengthened the ability of local communities to use restored natural values for sustainable tourism and the local economy, which also accounts for the development of sustainable tourism and increased competitiveness of local producers.

In the line of “replicability and transferability”, the project met the assumptions that the methodologies would not only be demonstrated, but also actively disseminated and reflected in practical replications and policies. The **very good replication potential** of the project is best documented by the high number of replications - 22, - which were achieved already within the project implementation period, significantly exceeding the expected results (12 replications to be achieved). Very important are also the results of improved policies, where, after data correction, the value of **12 improved policies** was determined, i.e. transfer of projects best practice, know-how and initiatives to legal frameworks that can systematically extend the effect of the project beyond its immediate territorial intervention.

5.4. Analysis of benefits

In this section please discuss the project’s progress focusing on the results achieved. Justify any anticipated significant deviations from the targets set initially, and comment on targets already met or exceeded. In the case of the Final report, where relevant, refer to the final actual values of the LIFE Project Indicators (LPIs, formerly known as KPIs):

1. Environmental benefits

a. Direct / quantitative environmental benefits:

- i. LIFE Nature & Biodiversity: e.g. conservation benefits for Natura 2000 (SCI/SPA) and species/habitat type(s) targeted. Highlight briefly issues that may have important policy implications on Natura 2000 also in relation to other EU policies if relevant (e.g. new management techniques and procedures, pump priming agri-environment, links with the water framework directive, etc.). Please also address incentive/pump priming effects (both in financial and policy terms).

The LIFE Sub-pannonic project represents a breakthrough initiative in the restoration of sub-Pannonic and Pannonic xerothermous habitats, which were threatened due to secondary succession and the absence of traditional management. By implementing an integrated approach that combined one-time radical mechanical restoration with subsequent long-term sustainable management (esp. grazing), the project successfully reversed negative degradation trends for the target habitats and species within the involved project areas of Slovakia and the

Czech Republic. This synergistic effect not only halted the loss of biodiversity but also triggered the natural regeneration of ecosystems, thereby increasing their overall ecological stability and resilience to climate change in line with the EU Biodiversity Strategy for 2030.

Action C1.1: Restoration management of grassland habitats

This action represented the primary phase of revitalization and served as a necessary "restart" for heavily degraded areas long exposed to successional processes. Restoration measures directly targeted priority habitats of European importance: **6210*** (*Orchid-rich sites*), **6240*** (*Sub-Pannonic steppic grasslands*), and **6250*** (*Pannonic loess steppic grasslands*). Without this radical intervention, these target habitats would have gradually disappeared. While habitats 6210* and 6240* were revitalized in both Slovakia and the Czech Republic, the restoration of habitat 6250 was carried out exclusively in the Czech Republic* (specifically at the Ječmeniště and Čejkovičké špidláky sites).

- **Quantitative results achieved:**

- **SK:** A total of **413.9 ha** were revitalized (plan 400 ha), with works often performed in demanding terrains (e.g. SCIs in Tematínske hills, Zobor Hills, Slovak Karst, and White Carpathians).
- **CR:** **50.3 ha** were successfully restored (plan 50 ha) at key sites.

- **Detailed description of environmental benefits:**

- **Restoration of light regime and microclimatic conditions:** The removal of dense encroaching woody plants (especially blackthorn, hawthorn, and juniper) led to the immediate lightening of the soil surface. This activated the dormant seed bank that had been suppressed under leaf litter and scrub. Monitoring reports (D.1) confirmed that typical steppe species appeared in the areas as early as the first growing season after intervention.
- **Increased habitat connectivity:** Mechanical clearing of the sites not only benefited the plots themselves but also created vital migration corridors for insects and plants. Fragmented steppe remains were reconnected into functional units, increasing their genetic variability and long-term viability. The improved connectivity of grasslands is important also for their long-term management, since the shepherds can now move their herds much more effectively and reach also for the grasslands that were isolated and fragmented before the project (esp. SCIs Fabiánka, Horný vrch, Drieňové, Plešivská planina, Biskupicné luhy).
- **Innovation in management – Controlled burning:** Within this action, controlled burning of dry grass was successfully promoted and implemented in Slovakia. This procedure proved highly effective in removing excess biomass and suppressing smaller shrubs or their shoots, simulating natural processes in the steppe landscape. This success is of immense importance for nature conservation policy in the SR, as it legalized a method that is economically efficient and ecologically beneficial for restoration of grassland habitats on a country-wide level.
- **Ecosystem services:** The restoration of grasslands significantly improved water retention in the landscape and reduced soil erosion on steep slopes previously exposed to degradation due to unstable scrub cover.
- **Positive impact on Natura 2000 species:** At the **Horný vrch** site (Slovak Karst), the removal of succession led to a dramatic increase in the population of the rare endemic *Thlaspi jankae*. From the originally shaded population remains, a vital community developed after the C1.1 interventions, with an estimated count of up to **10,000 individuals**, confirming the correctness of the restoration technical parameters. Very positive was the impact of restoration measures in SCI Horný vrch on the population of *Pulsatilla patens*. Thanks to the project interventions, the trend of the species has

improved from negative (declining) to stabilised. It is important to note that SCI Horný vrch holds one of the most important populations of both species within Slovakia. Both species are listed in Annexes II and IV of the Habitats Directive.

Action C1.2: Removing of invasive plants

This action was aimed at the elimination of biological invasions, which represent one of the greatest threats to the integrity of sub-Pannonic habitats. Invasive species not only displace native flora but also change the soil composition and prevent the natural regeneration of rare species.

- **Quantitative results achieved:**
 - **Slovakia:** The target was significantly exceeded – IAS were eliminated on **99.2 ha** (original target 70 ha).
 - **Czech Republic:** Interventions took place on an area of **19.3 ha** within the project sites (original target 10 ha).
 - **Most frequent target species:** Tree of Heaven (*Ailanthus altissima*), Black Locust (*Robinia pseudoacacia*), Common Milkweed (*Asclepias syriaca*), and *Solidago* sp..
- **Detailed description of environmental benefits:**
 - **Halting soil degradation and allelopathy:** Many invasive woody plants (especially *Ailanthus* and *Robinia*) release toxic substances into the soil that prevent the growth of other plants. Action C1.2 stopped this chemical degradation of the habitat, allowing the gradual return of sensitive species.
 - **Innovative methodology (Ailantex):** The project brought the pioneering use of the biological agent *Verticillium nonalfalfae* (**Ailantex**). This method is highly selective and safe for the surrounding environment, as it causes the gradual dying of *Ailanthus* without the need for massive use of glyphosates, which is a key benefit in protected areas.
 - **Ecosystem services – Restoration of the nutrient cycle:** By removing invasive species (which often excessively enrich the soil with nitrogen), it will be possible to restore the naturally low level of nutrients typical for steppe communities. This prevents the spread of ruderal weeds and supports the diversity of indicator species typical for target habitats.

Action C2: Restoration of grassland habitats by reintroduction of grazing

The reintroduction of livestock grazing represented a key strategic step for ensuring long-term ecological stability and sustainability of the restored areas.

- **Quantitative results achieved:**
 - **Total grazing area:** Restored on **541.3 ha** (502.8 ha in SR and 38.5 ha in CZ).
 - **Exceeding the target:** The originally set target (375 ha) was exceeded by more than **44%**.
- **Detailed description of environmental benefits:**
 - **Creation of "gap dynamics" (micro-mosaic):** Mechanical disturbance of the soil cover by animal hooves creates small areas of bare soil. These "gaps" are critical for the germination of rare plant species from the seed bank that would not be able to germinate in a dense turf without grazing. At the same time, these patches serve as nesting opportunities for rare species of hymenoptera (solitary bees).
 - **Biomass reduction and suppression of expansive species:** Grazing (especially mixed – sheep, goats, cattle, and horses) selectively removes biomass and suppresses competitively strong grass species such as *Calamagrostis epigejos* or *Bromus erectus*. This frees space for light-demanding herbs and orchids.

- **Ecosystem services – Nutrient cycle:** Animals accelerate the nutrient cycle in the ecosystem. Their manure becomes the basis for rich communities of coprophagous insects (e.g., dung beetles), which subsequently serve as food for rare bird species (e.g., Hoopoe).
- **Sustainability and socio-economic impact:** The restored grassland habitats enabled local farmers to enter **Agri-Environmental-Climate Schemes (AECS)**. The project thus created a functional financial mechanism where nature protection brings economic benefits to local communities, ensuring site management in the long-term.
- **Specific success example:** in SCI Velký Kopec a new population of *Orchis morio* was discovered (cca 100 flowering inds.) a few seasons after the reintroduction of grazing on this site.

Action C.3: Strengthening populations of rare and endangered plant species

Action C.3 achieved extraordinary success in strengthening the populations of priority species, where final KPI values significantly surpassed original expectations. This was made possible by combining direct in-situ restoration measures with expert ex-situ support.

- ***Himantoglossum caprinum*** – Through a combination of habitat improvement and an innovative **ex-situ program (2,020 individuals planted)**, the project achieved a **259% increase in total population** and a significant **472% increase in flowering individuals**. The 30% survival rate of ex-situ plants (vs. the 10% regional standard) proves that the project's micro-climatic analysis and site-specific management were exceptionally precise.
- ***Artemisia pancicii*** – The project halted the decline of this rare relic. By combining IAS removal (*Robinia pseudoacacia*) with the **mitigation of agricultural run-offs (7m buffer zones)**, and small-scale measures targeted directly for the species, the population coverage increased by **47% (ER = 15%)**.
- ***Onosma tornensis*** – Targeted restoration measures in SCI Horný vrch effectively reconnected isolated micro-populations. The removal of shading and the stabilization of limestone screes will allow this steno-endemic to expand back into its historical niches, significantly increasing its genetic and spatial security.

Justification of Deviations and Management Challenges

- **Climate Variability and Extreme Drought:** During the monitoring period (especially 2022 and 2025), target sites were hit by extreme drought. However, long-term monitoring (D.1) showed that thanks to the restoration (removal of dense scrub and reduction of competition), the habitats exhibit a higher rate of regenerative capacity and respond faster to rainy periods compared to unmanaged areas.
- **Economic Factors of Restoration:** Higher costs for mechanical removal in extreme terrains were resolved through partner mobilization and very good cooperation with local farmers, meeting and even exceeding the spatial targets for actions C1 and C2.

Policy Implications and Management Innovations within Natura 2000

The best practice developed by the project was transformed into improvement of several important regional and national policies, which will enable better management of target habitats and species in the long term. This includes the improved standards in IAS management and management plans of protected areas (CR), legalisation of controlled burning and a significant enlargement of Natura 2000 sites in the project area (SR).

Incentive and "Pump Priming" Effects

- **Catalyst for Agri-Environmental Payments:** Project investments in restoration (C1) and infrastructure (C2) were essential prerequisites for farmers to qualify for Agro-environmental schemes (as well as direct payment schemes) under the **Common Agricultural Policy (CAP)**, ensuring long-term economic sustainability.

The quantitative results confirm that the LIFE Sub-pannonic project successfully transformed isolated and degraded locations into functional ecological units with secured management. The established model, which links direct conservation investments with long-term financial mechanisms, ensures the continuity of the achieved spatial targets beyond the duration of LIFE funding.

b. Qualitative environmental benefits

- i. **LIFE Nature & Biodiversity:** What is the outlook for the targeted habitat type and/or species? Have trends already been established? How do you plan to continue and to develop the actions that were initiated in the LIFE project in the years that follow the end of the project and how will the longer term management of the site(s) be assured? Did the project eliminate the threats defined in Form B2d of the Grant Agreement? What are the remaining/new threats? Details should be given regarding what actions should be carried out, when, by whom and using what source(s) of finance.

Outlook & Trends for Target Habitats

The outlook for the target habitats — semi-natural dry grasslands (**6210***), sub-Pannonic steppic grasslands (**6240***), and Pannonic loess steppic grasslands (**6250***) — has improved across all project sites. This conclusion is scientifically supported by the transition of these habitats from a state of degradation to improved functionality and stability. The favorable outlook is based on four key pillars:

- **Botanically Confirmed Restoration of Structure:** Monitoring confirmed that the elimination of successional stages and invasive woody plants led to the successful recovery of natural species composition. Grassland habitats regained their typical spatial structure, evidenced by the expansion of diagnostic species:
 - Within priority habitat **6240***, stabilization and expansion of indicator species *Festuca* sp., *Stipa* sp. and *Sanguisorba minor* have increased.
 - In habitat **6210***, phytosociological records showed a significant increase in typical species such as *Festuca valesiaca*, *Carex humilis*, and *Veronica austriaca*.
 - In habitat 6250 (targeted in CR), restoration management successfully stabilized the unique loess steppe vegetation, supporting the expansion of *Artemisia pancicii* and other specialized species.
- **Legal and Institutional Framework:** Stability is guaranteed by improved land control (ownership and long-term leases under Action B.1) and integrating conservation objectives into official documents, such as Standards for IAS management and removal (CR) and the increase in area size of Natura 2000 project SCIs.
- **Ecosystem Functions and Resilience:** A key qualitative trend is the restoration of ecosystem services. Restored grasslands now function as biodiversity hotspots for pollinators, increasing the stability of the surrounding agricultural landscape (orchards, vineyards). Due to high species diversity, these habitats exhibit increased climate resilience against extreme droughts.

- **Financial Sustainability:** The positive trend is sustainable thanks to the integration of sites into **Agri-Environmental-Climate Schemes (AECS)**, guaranteeing long-term funding for grazing and mowing beyond the project's end.

Target Species as Indicators (Established Trends)

The implementation of action C3 has improved the habitat conditions for all 3 target species. Exceptionally positive was the impact on *Himantoglossum caprinum* in SCIs Zobor and Nad vinicami, but also for *Artemisia pancicii*. For *Onosma tornensis* the habitat conditions for the species were significantly improved on all Natura2000 sites of its occurrence in Slovakia and we expect an improvement in population trend in medium-term horizon (as the species has a fluctuating trend, which is largely dependent on weather conditions in the given season. See previous sections and description of action C3 for more details.

Elimination of Threats (Status of Threats - Form B2d)

The project directly addressed most of the key threats identified in the Grant Agreement, with their elimination supported by impact monitoring (**Action D.1**):

- **Threat 1: Overgrowing of target habitats due to abandonment from traditional land use (extensive farming or mowing):** This threat was eliminated on target plots by reintroducing regular management (scrub removal, mulching, mowing, and grazing) on **413.9 ha in SR** and **50.3 ha in CZ**.
- **Threat 2: Spreading of invasive alien plant species (IAS):** Suppressed in core areas through the elimination of neophytes on **99.2 ha in SR** and **19.3 ha in CZ** (primarily *Ailanthus altissima*, *Asclepias syriaca*, and *Robinia pseudoacacia*).
- **Threat 3: Afforestation of grassland habitats, inappropriate forestry policies:** This threat was most important historically. Currently it is not as significant. However, the clearing of overgrown grassland and restoring their use for grazing will prevent the risk of turning of this land administratively as “forest land” parcels in future (e.g. in processes of land consolidation or similar).
- **Threat 4: Small and fragmented populations of target species:** Successfully addressed through specific measures under Action C.3. The vulnerability of fragmented populations was reduced by active strengthening (planting) and habitat reconnection.
- **Threat 5: Lack of awareness of public and key stakeholders:** Addressed via communication activities (E1-E5) and direct cooperation with land users.

Remaining and New Threats: Action Plan for After-LIFE

- **Remaining IAS pressure:** Risk of re-invasion from neighbouring private plots. Partners (BROZ, SOP SR, Czech NGOs) will perform continuous monitoring of the treated areas and where necessary, the emerging IAS will be removed. The local farmers and land users were mostly trained and informed in target IAS species identification in the field and effective methods of their removal - which will decrease the risk of their future spreading.
 - **Climate Aridity & Drought:** Addressed through **adaptive management**. Instead of full-area clearing, a mosaic management approach leaves small shrub groups to provide shade for sensitive taxa.
 - **Secondary succession:** Continuity of grazing and mowing is ensured by local farmers and landowners, supervised by project partners and funded via **CAP (AECS) payments**.
2. [Economic benefits \(e.g. cost savings and/or business opportunities with new technology etc., regional development, cost reductions or revenues in other sectors\); state the](#)

number of full time equivalent (FTE) jobs created, showing a breakdown in qualified/non-qualified staff.

The LIFE Sub-pannonic project has delivered significant economic impacts by strategically integrating nature conservation with regional development, technological innovation, and sustainable business opportunities. A key achievement was the project's function as a catalyst for regional employment through the creation of 12.6 FTE jobs dedicated to sustainable farming, tourism and land management. In Slovakia, 11.3 jobs were established across eleven SCIs in different farms—Agro Hačava, Arnold Dócs, Družstvo Silická planina, Zagro s.r.o. etc. focused on the long-term maintenance of restored sites, care of animals, and local guiding. In the Czech Republic, a total of 1.3 FTE positions were created, distributed as part-time roles across individual sites (SCI Kamenný vrch u Kurdějova, Přední Kopaniny, Přední kout, Ječmenište, Bílý Kopec u Čejče).

The restoration of overgrown grassland habitats and reintroduction of grazing across 541.3 ha has strengthened the economic outlook for at least 10 local farmers by providing high-quality grazing land and linking them to markets via platforms such as *krajinaziva.sk*. This, together with investments in essential infrastructure, such as electric fencing and watering places, allowed these stakeholders to qualify for Agri-Environmental-Climate Schemes (AECS), securing stable financial flows for the cooperating farmers.

From a technological and budgetary perspective, the project introduced innovative methodologies that offer substantial cost savings compared to traditional management. The successful legalization of controlled burning in Slovakia and the application of the Ailantex substance (and *Verticillium nonalfalae*) provide high-efficiency alternatives to manual biomass removal or repeated chemical treatments. These efficiencies were multiplied through replication activities, as project methodologies were applied across an additional 300.05 ha outside direct sites, optimizing the financial investment in regional land care.

3. Social benefits (e.g. positive effects on employment, health, ethnic integration, equality and other socio-economic impact etc.).

The LIFE Sub-pannonic project has generated substantial social benefits by improving the quality of life for local residents, enhancing regional human capital, and fostering community resilience in both Slovakia and the Czech Republic.

Public Health and Recreation: The restoration of iconic landscapes, such as the SCI Velký Kopec, Tarbucka, multiple SCIs in the Slovak Karst area, and SCI Kamenný vrch u Kurdějova, has significantly increased the aesthetic and recreational value of these regions. By restoring over 541 ha of habitats and creating 3 educational trails (at the Pieskovcové chrby site in SK and in SCI Bílý kopec, Špidláky and SCI Přední kopaniny in CR), the project has provided high-quality spaces for outdoor activities. This includes innovative online educational trails totaling approximately 9 km. The installation of 22 objects of small-scale infrastructure for visitors (including benches with QR codes, tables, bicycle racks, and wooden statues) promotes "slow tourism" and physical activity, which have direct positive impacts on the mental and physical health of local populations. Furthermore, the removal of invasive species and restoration of ecosystem functions like water retention provide indirect long-term health benefits.

Education and Human Capital Development: A cornerstone of the project's social impact was the professional development of local residents. The project successfully trained 32 local guides, trained 28 local teachers for leading their own excursions and established 11 local info-points, transforming community members into ambassadors for their natural heritage. The project also served as a vital academic resource, providing a basis for university research and

theses (e.g., at Comenius University and Masaryk University), thus building long-term scientific capacities. This has led to an increase in environmental literacy across the cross-border region, with project sites continuing to serve as "outdoor classrooms" in the After-LIFE phase.

Community Resilience and Rural Stability: The project acted as a social stabilizer for rural areas by actively engaging at least 10 local farmers in sustainable management models. Beyond the fiscal benefits, this cooperation has strengthened social cohesion by linking traditional farming practices with modern conservation goals. The project successfully integrated specific local groups, such as the Volunteer Fire Department in the Czech Republic, into conservation activities. This integration helps prevent rural depopulation by providing long-term perspectives for family-run farms, such as Arnold Dócs farm, Zagro s.r.o., Silická planina Farming cooperative, Agrodružstvo Rimavská Seč farming cooperative or Agro Hačava, and fostering a sense of shared responsibility.

Equality and Inclusion: The project promoted equality through its inclusive management and hiring practices. The expert and administrative teams consisted of a balanced representation of professionals, ensuring gender equality in decision-making roles. Furthermore, the project's fieldwork provided opportunities for local manual workers, contributing to the professional integration of individuals in economically disadvantaged rural regions.

Regional Identity and Transboundary Cooperation: The preservation of critically endangered species like *Artemisia pancicii* and *Onosma tornensis* has bolstered regional pride and identity. These species are now viewed as unique "natural monuments" of the South Moravian and Slovakian regions. The Slovak-Czech cooperation has also strengthened social ties and the exchange of know-how between the two nations, creating a lasting network of conservationists, farmers, and local authorities.

4. **Replicability, transferability, cooperation:** Potential for technical and commercial application (transferability, economic feasibility - bankability, limiting factors, suitability for additional funding from other streams e.g. structural funds, EIB financial instruments, venture capitals, pension funds, responsible investors) including cost-effectiveness compared to other solutions, benefits for stakeholders, drivers and obstacles for transfer, market conditions, pressure from the public, potential degree of geographical dispersion, specific target group information, high project visibility (eye-catchers), potential for replication in same and other sectors at the local and EU levels, etc. State the project's likelihood of replication (high/low/zero), and if its replication is market-driven or policy-dependant. Specification of potential market/replication vehicles. Possibilities for complementarity with existing market players and/or other solutions/projects (bundling). Those projects who have completed the C2M checklist or engaged in the Close-2-Market (C2M) Initiative should elaborate here on all the relevant C2M aspects. Those projects should also complete, by the Final Report submission stage, the final C2M checklist provided to them by the C2M experts.

The LIFE Sub-pannonic project has demonstrated exceptional replicability and transferability by implementing a scalable model of dry grassland restoration across 22 Natura 2000 sites in Slovakia and 7 key sites in the Czech Republic. The core technical solution, combining initial mechanical restoration (Action C1) with long-term sustainable grazing (Action C2), is directly transferable to the entire Pannonian bioregion including Hungary, Austria, and Romania. Economic feasibility and "bankability" are secured through the successful integration of these management practices into the Common Agricultural Policy (CAP) Strategic Plans of both countries. This allows rural micro-enterprises and local farms, such as Agro Hačava or Farma Kopáč, to finance long-term maintenance through agri-environmental schemes. In the Czech

Republic, the project further proved its resilience by overcoming initial market shortages of graziers in remote sites like Ječmeniště through proactive local networking.

Compared to traditional mechanical maintenance like mulching, the project's solution is significantly more cost-effective. While mechanical mowing requires repeated high energy and labor costs, extensive grazing utilizes biological processes for nutrient cycling and seed dispersal, providing superior ecological results at lower long-term operational costs. This approach creates strong synergies with local market players, including regional guesthouses and "slow tourism" providers, who benefit from the increased aesthetic value of the restored landscape and the supply of high-quality local products. Despite administrative hurdles related to forest-classified lands and initial unit price underestimations for shrub removal, the project maintained progress through intensive cooperation with stakeholders (esp. local farmers and land users).

The project outcomes are highly suitable for bundling with other funding streams, such as Structural Funds (EFRR) for follow-up infrastructure or EIB financial instruments. Furthermore, there is a high potential for "Carbon+Biodiversity" credits as restored grasslands serve as vital carbon sinks, attracting ESG-focused investors. High project visibility was ensured through several "eye-catchers":

- **Urban grazing:** The return of grazing animals to high-traffic sites like SCI Velký Kopec, Biskupické luhy and Kamenný vrch u Kurdějova acted as a major public attraction and educational tool.
- **Digital outreach:** Online educational trails and smart infrastructure with QR codes ensured modern public engagement.

The project has an exceptionally high replication potential, which is best documented by the 22 replications achieved already in the duration of the project period.

[Best Practice lessons: briefly describe the best practice measures used and if any changes in the strategy employed could lead to possible adjustment of the best practices.](#)

The long-term success of the LIFE Sub-pannonic project was built upon a multidisciplinary approach bridging scientific research and practical land management. The project established four expert working groups consisting of up to 33 specialists from the State Nature Conservancy, NGOs, and academia, which facilitated a vital international exchange of know-how. This collaborative effort resulted in five key "Best Practice" pillars that now serve as a legacy for habitat management in the region.

Invasive Alien Species (IAS) Removal: the implementation of the "Ailantex" method, utilizing the fungal pathogen *Verticillium nonalfalfae*, proved highly effective for the selective elimination of *Ailanthus altissima*. This biological control prevented re-sprouting from root systems without the negative environmental impacts of chemical herbicides. Based on field results, the strategy was adjusted to prioritize seed-bearing "mother trees" to maximize impact. This methodology has been successfully demonstrated and is now being replicated in other sensitive Natura 2000 sites where traditional mechanical removal was insufficient. The project team has developed best practice also for removal of other targeted IAS species, esp. *Asclepias syriaca* and *Robinia pseudoaccacia*.

Grazing Reintroduction via "Pump-Priming" This practice used LIFE funding to cover the high initial costs of habitat restoration, such as scrub removal and mulching. This served as a "pump-priming" mechanism, making over 540 ha of previously abandoned land eligible for state Agri-Environmental-Climate Schemes (AECS). By adjusting the strategy to include early administrative and legal support for farmers, the project ensured a smooth transition to long-

term sustainability. This model is now a proven blueprint for reviving traditional grazing across the Pannonian region.

Dung-Beetle Friendly Parasite Prevention To support the biodiversity of coprophagous fauna essential for nutrient cycling, specific veterinary protocols were established decreasing the need to use macrocyclic lactones (e.g., Ivermectin). These measures led to the stabilization of dung beetle populations and improved soil health. **Optimal Management for Target Plant Species** Species-specific management methods for improving the habitats of target species *Artemisia pancicii*, *Onosma tornensis*, and *Himantoglossum caprinum* were developed. These measures resulted in significant population increases, including record flowering numbers. A critical adjustment involved fine-tuning the intensity of selective thinning in canopy covers to maintain optimal micro-climatic conditions.

5. Innovation and demonstration value: Describe the level of innovation, demonstration value added by EU funding at the national and international levels (including technology, processes, methods & tools, nature management methods, models for stakeholder involvement, land stewardship models, organisational & co-operational aspects).

Controlled Burning as a Management Tool. The project successfully developed the legislative and technical frameworks for using prescribed fire in logistically inaccessible dry grasslands. It was the first time that this method was introduced and tested in Slovakia. Lessons learned led to a strategic shift toward "patch-burning" techniques, which ensure the removal of old biomass while preserving essential refugia for invertebrates. This mosaic approach provides a balanced tool for habitat maintenance and is currently being adopted by professional conservationists as a legitimate alternative to mechanical maintenance in specific terrains.

IAS removal: During the implementation of the project, we tested and compared different methods of regulating invasive plant species. We have come to the conclusion that effective management must be based on a combination of targeted chemical interventions, precise mechanical methods and systematic subsequent care of the site. One-time interventions proved to be insufficient. The key is the long-term, repetition and restoration of the habitat after the removal of the invasive species.

We achieved a fundamental innovation in the field of herbicide application. We optimized the selection of active substances and their concentration with regard to the specific species, its phenological phase and the nature of the habitat. We have expanded the technique of targeted spraying so that the contamination of the surrounding vegetation is minimized. We verified the seasonality of the application, including winter dates when injecting into the trunk. We gradually set up a combined system including injection into the trunk, spraying on the leaf, application to the stumps. It has been confirmed that in order to achieve a long-term effect, follow-up control and repeated application in subsequent growing seasons are necessary.

For woody plants, we used herbicide injection and the method of partial bark wounding as the main procedure. We experimentally verified the optimal distances of the wells during injection as well as the required length of the exposed husk when partial bark wounding. At the same time, we innovated the technical equipment, especially the use of cordless drills and precise applicators allowing the dosing of a small amount of product directly into the target tree species. This made it possible to reduce the consumption of herbicides and limit the risk of side effects on the surrounding environment.

Since 2023, we have applied a biological method using *Verticillium nonalfalfae* at several locations. The project has pioneered, tested and successfully introduced this biological method of IAS removal for the first time in Slovakia and the Czech Republic. We chose this approach mainly in places where the use of herbicides was limited - for example, near

sensitive habitats, in areas with protected sources of groundwater or on private land, where chemical regulation was not possible. We verified that this method can represent a suitable additional tool within integrated management, especially in situations where an alternative to chemical interventions must be sought.

For *Asclepias syriaca*, we evaluated the effectiveness of mechanical methods such as uprooting, repeated mowing or grazing. It turned out that these procedures do not lead to the elimination of populations. We have confirmed that mere mowing limits flowering and seed formation, but does not lead to a fundamental weakening of the population. In addition, grazing has proven to be potentially risky, as this species contains latex and toxic substances that can be dangerous for livestock. Therefore, we recommend mechanical intervention only as a supplementary measure, for example to limit the spread of seeds before subsequent targeted treatment.

An important knowledge of the project is the thorough preparation of the site before the actual intervention. It is important to map occurrences, evaluate sensitive elements and coordinate individual measures. We focused on the prevention of collisions between grazing and chemical treatment. We set up a replication model of interventions, which includes not only the liquidation itself, but also the subsequent multi-year care and monitoring. An integral part of the approach is habitat restoration through the support of competitive vegetation (e.g. sowing, more frequent mowing, regular inspections).

The project also included mentoring of implementation teams and methodical supervision of the implementation of interventions. We systematically documented and evaluated the procedures, and on the basis of professional contacts and media coverage, we gradually applied them to other locations as well. The result is a comprehensive, practically verified methodology for the integrated management of invasive species, which combines precise interventions, long-term care and adaptability to different habitat types and property rights conditions.

Ex-situ cultivation of *Himantoglossum caprinum*: this was the first time that ex-situ cultivation of HC was effectively used for stabilising and boosting the populations of the species in Slovakia. The gained knowledge will remain with crucial experts of the Slovak Academy of Sciences, who were cooperating on the project and will be used also for cultivation and rescue of other orchid species in Slovakia.

6. **Policy implications:** Indicate any important achieved targets contributing to the future implementation, design or take-up of regional, national or European legislation. Please highlight any potential unintended impacts, bottlenecks or barriers to the implementation of your project due to regional, national or European legislation including recommended actions further to actions already taken to overcome these barriers.

In total, **12 national or regional/local policies were improved as a result of the inputs of project teams of BROZ, ONYX and SNC**. Of this, 6 were improved in Slovakia and 6 in the Czech Republic. This was achieved by active participation in expert workgroups, supplying of expert inputs which were based on best practice developed by the project (e.g. in novel and effective methods of IAS removal) into nation-wide strategic documents and standards for management of protected areas; providing important inputs in the process of novelisation of Act on Nature Conservation (Slovakia); negotiating agreements with land owners for enlarging of Natura 2000 network, etc.