LIFE Project Number

<LIFE15 NAT/CZ/000818>

Progress Report 2

Covering the project activities from 22/12/2018 to 31/05/2020

Reporting Date

31/05/2020

LIFE PROJECT Acronym

LIFE for Minuartia

Data Project

Project location:	Želivka SCI and Hadce u Hrnčíř SCI
Project start date:	07/07/2016
Project end date:	31/12/2020 **Extension date:** -
Total budget:	735 940 €
EU contribution:	551 954 €
(%) of eligible costs:	75%

Data Beneficiary

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Section 1 - Overall assessment of the achievements and as to whether the project objectives and work plan are still viable (2 pages max)

The main aim of project - to increase the population of endemic plant species of priority European interest *Minuartia smejkalii* was already fulfilled. We counted totally 916 naturally occurred individuals on Želivka SCI and 508 in Hrnčíře SCI in 2019.

A actions: The last permissions for forest pasture were obtained on 12/03/2019 and 27/5/2019. We continued adopting of the green procurement and accomplished tender for new financial manager and for student internships. Marking in the field is almost completed, the last marking of trees is expected in summer 2020. Preparation of seedlings for enhancement of population DK1 will finished on 9/2020. Preparation of seedlings for reintroduction already finished on 31/10/2019. Based on the data of genetic and hybridization experiments we decided to continue with enhancement of population size by using local seeds, while for ex-situ culture and consequently species reintroduction seed mixture but always from localities of one respective SCI were used. We created totally 6 new rocks, one was placed on more suitable site and two were enlarged. Last garden will be built in 9/2020. We will thus have totally 11 rocks for Hadce u Hrnčíř SCI and 10 rocks for Želivka SCI.

C Actions: Hadce u Hrnčíř SCI were revitalised by tree cutting on 0.9 ha and manual removing of humus layer on 350m^2. **Želivka SCI** is revitalized by mowing twice per year on 6.3 ha, removing of expensive plants (6.1 ha), using hemi parasitic plant *Rhinathus alectorolophus*, grazing twice per year by a herd of 30 sheep since summer 2019 (5 ha), removal of humus layer (0.585 ha) and tree cutting on total area 13 ha. The convention with Bernartice municipality is already negotiated and will be signed during summer. The discussion about convention with the last owner - Forests of the Czech Republic was suspended by COVID-19. We transplanted 173 individuals to DK1 population, 247 individuals to B1 population and 170 individuals to DK2. Since the evaluation of species dispersal ability showed that *Minuartia* is able to spread to only small distance, we decided to create new patch with *Minuartia* in DK3 site by transplantation of 228 individuals. Ex situ population in the Visitor Centre Vodní dům was established by transplantation of 1689 individuals and 1670 individuals were reintroduced to B2. We transplanted totally 382 individuals to private gardens and 208 individuals to botanical garden. Preparation of final methodology is still in progress.

D actions are currently running, but will be delayed due to COVID-19. We collect every year data about habitat quality and fitness of naturally occurred and transplanted plants. Preliminary data let to redirection of management interventions as well as population enhancement on some parts. The first rough analysis suggests that the management interventions had positive impact on population growth rate except DK2 and were published as a student thesis. Plant survival showed slightly higher values then it was expected: B1 - 77%, DK2 57%, DK1 49%, B2 55 %. Majority of plants was flowering and new seedlings established on all sites. Plants in private garden had generally high survival (75%) in the first vegetation season after transplantation, but decreased in the second season (32%). Almost all plants were flowering and new seedlings occurred on all rocks.

E actions: We obtained new versions of poster, postcards and stickers, DIY jewellers are prepared continuously. Two environmental educational programs were running until March, when they were stopped due to COVID-19. In Visitor Centre Vodní dům were installed grinded serpentine rock with explanatory panel and metal sculpture of *Minuartia* flower. Thematic afternoon (43 participants) and photo exhibition were organized. We published two

scientific publications, one popularization paper and one press release. Management plan was approved by state organ of nature protection on 6/4/2020. Discussion about the Rescue planting in private gardens within the working group let to decision that the Final methodology will have 2 parts: common methodology and specific plan for particular species.

F actions: Meetings of project team as well as consortium were organized according to time schedule except March-May, when were cancelled by COVID-19.

Indirect impact and replication effort is based on contact with specialist as well as with general public. Currently, we are discussing with NCA transfer of Rescue planting in private gardens to *Dracocephalum austricaum*, *Sedum villosum* and *Adenophora liliofolia*. Additionally, we have the volunteers interested in planting of rare species from other parts of Czech Republic. On international level, we discuss possible transfer of results via COST action Conserve plants and plan international LIFE project dealing *Jurinea cyanoides* combining management interventions, ex-situ situ conservation (including Rescue planting) and reintroduction. We established the convention with the Bernartice quarry to apply our experience to create new serpentine habitats and introduce *M.smejkalii*. Similar approaches are discussed with owners of other suitable sites near Hadce u Hrnčíř SCI as well as managers of Borecká skalka NM (the third area of occurrence of *M.smejkalii* where the species extinct). One of indirect impact is that the species become a flagship species for the ex-situ conservation in Botanical gardens as well as model species for creation of jewellery.

Policy implications is connected with approval officinal methodologies produced by project. Management plan for Hadce u Hrnčíř has been already approved. Rest of documents (methodology of Rescue planting and Methodology of care) will be prepared in following months. The largest impact will have the Methodology of Rescue planting in private garden since it is new approach in the Czech nature conservation and their preparation needed discussion and specification of the interpretation of laws. Additionally, we were able to get the permission for forest pasture in the protected area of water reservoir. This could serve as a model situation for forest pasture in other areas. We thus included forest pasture to management plan for Hadce u Hrnčíř SCI.

Section 2 - Identified deviations, problems and corrective actions taken in the period (max 2 pages)

Identified problems

1) The permission for **forest pasture** was obtained in 5/2019 with strictly given conditions. Therefore, the first grazing could be implemented in summer 2019 and thus deliverable and milestone were delayed.

2) The major impact and delays in project actions was caused by COVID-19. COVID-19 affected negatively the project by lack of employees due to their care about children, lack of students solving their thesis as well as student helpers, closing of offices of state authorities and impossibility of meetings

Extent to which these problems will affect interdependent actions

The strongest impact has the COVID-19. Lack of working capacity lead to delay in evaluation of collected data from D actions. Since the situation will not change until September, we will not be able to analyse results according to working plan. We suppose that the data will be analysed until February 2021. Since these data are crucial for final methodologies as well as reports, it will cause the delay in appropriate deliverable and milestone. Closing of offices led to suspension of working group dealing with Rescue planting in private garden. Accordingly, the finalization of methodology, instruction leaflet and workshop *Working with the public in ex-situ plant conservation* will be prepared later than they were planned. Concerning Rescue planting in private garden, one of the first gardener was for a long time abroad and consequently in a quarantine. It was thus not possible to build the rock in his garden. The rock will be built and plant transplanted until the end of October 2020. Closing of offices let also to slow preparation of conventions with owners. While the convention with municipality Bernartice is already prepared for signing, the situation with the last owner – Forests of the Czech Republic is more complicated, because the responsible persons are now overloaded and it is still not possible to make a meeting with them. We suppose that the situation will be better from September.

The COVID-19 caused that it was not possible to organize the final conference, which was planned on May 2020. Since our project area is very small as well as the species occurrence is limited to the Czech Republic, it is not easy to attract people from foreign countries to project conference. We were thus very happy for the opportunity to connect our final conference with regular scientific conference of the GFÖ (Society for Ecology), which have usually attendance of at least 120 participants. GFÖ conference covers broad area of plant research, from basic science to practical application. Participants are excellent scientist from all parts of the world as well as students or young scientist presenting their own research. More than half of presentations is focusing on losses of biodiversity or on threats to species. Also theoretical studies have usually suggestion for practical application.

Main deliverables and milestones not completed as foreseen: Deliverables: C1 Photo documentation of forest grazing, E2 Attendance sheet - The rescue planting in local gardens workshop, C4 Final Methodology of planting in private gardens and Instructions leaflet, C1 Subscribed conventions with owners, D1 Final report about success of revitalisation of the population on both sites, D1 A set of suggested changes in management intervention based on prediction of climate change impact and on observed changes in populations, D3 Final report about success of establishment of ex-situ population and reintroduction, E2 Methodology of care about Minuartia smejkalii, E2 Book of abstract from final conference;

Milestone: D2 Data on fitness of in-situ individuals collected, E2 Methodology of planting in private gardens and Instructions leaflet distributed, C1 End of management implementation, D1 Prediction of changes in life cycle in context of global changes modelled, E2 Realized conference in Průhonice, E2 Management plan and Methodology of care for M. smejkalii approved.

Measures taken or foreseen to overcome or alleviate the problems:
Concerning COVID-19, our alternative actions were limited by hygienic regulations and state prohibition. Currently, we are not able to cover lack of employees by other people since other specialists or students are not available. Regarding Rescue planting in private gardens we discussed the possibility to make the meeting on-line, but finally we decided that the personal meeting will be more suitable for such type of discussion. Since from May the majority of WG members have field work, we will organize the meeting in autumn 2020. After that the final methodology will be prepared, discussed again with NCA and then officially send for approval. Concerning final conference, GFÖ suggested to postpone it on May 2021. The content of conference will be the same as was planned. Since we would like to ask for project prolongation, we would like to organize this conference in following year. Since the student dealing with genetic of Minuartia discontinued her studies, we are not able to fulfil the deliverable A4 – diploma thesis. The results were however published as a scientific paper. The rest of students is dealing with population dynamic of native plants, ex-situ cultivation or microclimate effects.

Project expected to be delayed:
COVID-19 had strong impact on project implication, which is not possible to catch until the end of 2020. The delay is mainly in monitoring D actions, which are necessary for realistic evaluation of project impact and thus for preparation of final project outputs (e.g., analysis of management impact and its application to methodology of care, modelling of species life-cycle, Final methodology of Rescue planting in private gardens, Laymans report, After Life). Therefore, after this summer we plan to ask officially for prolongation of project until 30/6/2021.

Anticipated significant deviations from the Key Project Indicators: We were not able to fulfil only one KPI – Jobs. We planned to have 7.7 FTE in total, but currently the value is only 5.27 because the planned values took into account public holydays and sick leave, while currently only working days are reported. Additionally, the total FTE for IBOT is lower than it was proposed because we are not able to find suitable employees or student helpers.