Small Grants – Final Completion and Impact Report

Instructions: CEPF requires that each grantee report on project results and impacts at the end of their grant. To monitor CEPF's global indicators, CEPF will aggregate the data that you submit with data from other grantees, to determine the overall impact of CEPF investment. The aggregated results of all grantees will be reported on in our annual impact report and other communications materials. Your Final Completion and Impact Report will be posted on the CEPF website.

Ensure that the information provided pertains to the entire project, from start date to project end date.

Please complete all fields and respond to all questions listed below.

Organization Legal Name: Program za životnu sredinu (Environment Programme) - EnvPro
Project Title: *Conservation of endemic, rare and threatened plant species on Mt. Orjen*
Grant Number: CEPF-109787
Date of Completion of this Report: 30th June 2022
CEPF Hotspot: Mediterranean Basin Biodiversity Hotspot
Strategic Direction: SD4 Conservation of Plants: Strengthen the engagement of civil society to support the conservation of plants that are critically endangered or have highly restricted ranges
Grant Amount: 40,000 (US$)
Actual Expenditure: 40,002.30
Project Dates: 15th February 2019 – 31th May 2022

PART I: Overview

1. Implementation Partners for this Project *(list each partner and explain how they were involved in the project)*

The project was realized in cooperation with the following partner organizations:

#	Name of partner	How they were involved in the project	Additional information
1.	University of Primorska, Faculty of Mathematics, Natural Sciences and Information Technologies - UP	International experts from UP FAMNIT, botanists Mr. Boštjan Surina and Mr. Peter Glasnović had been engaged to guide the project teams and develop the best scientific approach and knowledge transfer practices through	Later during the project Mr. Surina has been representing another partner organization Natural History Museum from Rijeka

	FAMNIT (Kopar, Slovenia)	the field research and capacity building activities.	
2.	Natural History Museum Rijeka (Croatia)	Senior international expert from Natural History Museum Rijeka is Mr. Boštjan Surina. He had been engaged to guide the project teams and develop the best scientific approach and knowledge transfer practices through the field research and capacity building activities.	The institution have a garden where plants from seeds and vegetative works have been raised.
3.	Agency for development and protection of Orjen (Herceg Novi, Montenegro)	Agency for Development and Protection of Orjen is management body of the project subject area and is capacitated to continue with the conservation practice after the project implementation and will be owner of all project results that are integrated into management plans, which will provide institutional support and sustainability of results.	Agency for development and protection of Orjen employees – rangers, participated in the construction of the botanical garden; they have knowledge of important plants species that grow in the garden and are able to recognize some, assess population progress in locations where they live in nature. They have the knowledge to take care of garden plants
4.	NGO Egroup (Zenica, Bosnia and Herzegovina)	Was a partner in the first part of the project 2019- 08.2020	Representative of the NGO, Ms. Emina Zečić had been further engaged as a young researcher, a member of the Orjen research team who gained a broad knowledge and built capacities in the field of endemi plants and conservation.

2. Summarize the overall results of your project

The Expected results of the project are:
1) Scientific assessment of status, threats and conservation methods for *Iris orjenii* and rapid assessment of at least 3 other rare and endemic plant species conducted
2) Scientific and management capacities and commitment for conservation of endangered plants at Mt. Orjen raised
3) Institutional development and general public's awareness for conservation of endangered plant species at Mt. Orjen enhanced

The project has managed to assess status of the *Iris orjenii* and additionally to contribute to the scientific knowledge of five more plant species. Species conservation action plan for *Iris ojenii* is made and soon to be published and distributed to institutions, vide SHs groups (CSOs, media, donors, researchers, etc.) together with the Study report developed presenting all the research and conservation work done with findings and recommendations. One scientific article was published. Several conservation activities are undertaken removal of vegetation in the location Vucji Zub, where the biggest population of *Iris orjenii* exist*,* reallocation of the mountain path that

was crossing over it, reintroduction of the iris in the location Sedlo, with high success of growing and flowering.
Five rangers of the Agency for development and protection of nature park Orjen have been involved in capacity building activities. Botanical garden with the endemic and rare plants is built next to their office to serve for further scientific knowledge raise, educational programs development, visitors and general public awareness raising, to be maintained by PA management staff and further supported by EnvPro. Two more botanical gardens in Montenegro were strengthened by iris species specimens. Two experts were involved in guiding and capacity building from University Primorska and Nature and History Museum Rijeka, two senior researchers from Montenegro raised capacities, and five young researcher received continuous in the field guidance and know how knowledge transfer. One of them was involved in the COST - European Cooperation in Science and Technology Network, and visited the University of Primorska (UP) in Slovenia on a one-month research exchange. The exchange was realized within the Action "Integrated approach to the preservation of endangered plants in the 21st century".

Botanical garden is built in Vrbanj where lots of visitors come, and where school educational programs will be established. Municipality Herceg Novi, Kotor and Niksic have received information on endemic, rare and endangered plants on their territory and some confirmed these are valuable information they had no info about before, and will use it for planning documents. Web site and dedicated page to plant species of Orjen is developed and published (https://orjen.envpro.me/).

3. Briefly describe actual progress towards each planned long-term and short-term impact (as stated in the approved proposal)
List each long-term impact from your proposal

a. Planned Long-term Impacts - 3+ years (as stated in the approved proposal)

Impact Description	Impact Summary
To build capacities of NGOs and key stakeholders to be able to work across institutional and sectorial boundaries toward achieving the shared conservation goals	Being first project of the EnvPro in a capacity of a lead, this project is a stepping stone for its development and growth. We have succeeded to implement a project raising capacity and credibility, testing our mission and approach. It is made clear that contemporary, participative and learning scientific research and conservation practices are ways to enables environment for long term partnerships, knowledge building and concrete showcases, for achieving positive change on many levels needed for long term successful conservation goals. Cooperation and capacity building and development is established between several different types of relevant stakeholders from the region (Montenegro, Bosnia and Herzegovina, Croatia and Slovenia) involving: two national NGOs, two PA management bodies, a University from Slovenia, a Museum from Croatia and from BiH, one local government body from Herceg Novi, Mt. club from BiH and individual experts (from Germany too), young researchers from the field of biodiversity protection and conservation, volunteers, local land owners, local inhabitants and rangers, etc. resulting in the concrete conservation, knowledge and awareness raising achievements. This has been the first of this type of cooperation established between these stakeholders and the first ever regional cooperation on this subject and it is maintained outside of project support.

	The project activities were conducted through modern approach in research, study of species biology and its conservation in addition to using local knowledge and skills.

b. Planned Short-term Impacts - 1 to 3 years (as stated in the approved proposal)

Impact Description	Impact Summary
1. To apply most contemporary scientific standards in research and conservation of endemic endangered plants in Orjen KBA.	**Indicator:** Status of at least 5 threatened plant species assessed and of at least one improved to significant level to halt its extinction **Achieved:** Status of 6 threatened plant species has been researched for, availability of data provided for 4 to be assessed and for 1 threatened plant species was in detailed analyses (confirmed to be critically endangered instead of being vulnerable as it had been assessed before) and several conservation actions implemented for its improvement, some of which are: 1. Mechanical removal of *Juniperus sabina juniper*, which should be a regular practice for managers of this area, regardless of whether the localities belong to the protected area or are outside its borders. 2. Displacement of the existing hiking trail in the vicinity of populations, in order to prevent scientists and naturalists to collect the species and thus threaten the survival population. 3. The seeds of Orjen iris were collected stored in the seed bank in Rijeka; laboratory work is underway to establish a germination protocol seeds. 4. In order to identify changes in the habitat, as well as impacts, permanent monitoring surfaces were installed, marked with metal profiles at the corners, in order to monitor changes and possibly prevent them unwanted situations, such as those that could be caused by humans. Baseline research was done in 2019 and revisited for appropriate and prescribed monitoring in 2022. 5. Translocation of 24 individuals of *Iris orjenii* made at the Orjensko sedlo site in 2021, with 23 species making successful reallocation monitored in 2022. 6.Botanical garden was built for maintaining *ex situ* conservation and research of targeted and other species from Mt. Orjen. 7.Species conservation /action plan for *Iris orjenii* developed with status data, recommendation for further conservation and monitoring activities.
2.To increase capacities of individuals and organizations to generate successful plants conservation initiatives in Orjen and wider	**Indicator:** Professionals and organizations involved in the project prepare at least 4 additional initiatives in plant conservation activities. **Achieved:** Reducing the pressure on the *I. orjenii* on Vučji zub we had done a mechanical removal of *Juniperus sabina*, which must be a regular practice for area managers. Together with mountaineering club from Trebinje (Bosnia and Herzegovina) Vucji zub, we had relocated of the hiking trail that passed by the population, in order to prevent collectors of endemic species, naturalists, visitors, etc. from collecting the species and thus endangering the survival of this population; With Agency for protection and development of PA Orjen and all organisations involved we successfully reintroduced *Iris orjenii* in Montenegro at location Orjensko sedlo and we had built a botanical garden in Vrbanj (also involved two more botanical gardens of Montenegro and planted iris specimens). Researchers from several organizations gathered to present the results of work in one scientific paper that was published and other results were presented at 3rd Mediterranean Plant Conservation Week, event held in September 2021. The research team participated in development of the Study report and species conservation plan.

	Research team was also already making a visit to the population of *Iris orjenii* at Vucji zub, outside of project life for its monitoring. Young researchers submitted application to Mohamed bin Zayed species conservation fund supported by expert researchers, and EnvPro for *Conservation biology of rare and endangered plant Gymnospermium scipetarum with action proposals for its long term survival.* However, it was not granted. Nevertheless, full research team is working on the activities in kind, and did the first research without project support in 2021, building scientific knowledge and raising further capacities. **Also see below as it overlaps and build one to another.*
3.To initiate cross-institutional and cross-sectorial cooperation	**Indicator:** Agency for environmental protection, Agency for protection and development of PA Orjen and EnvPro, municipalities, HN (Herzeg Novi), KO (Kotor), NK (Niksic), BiH institutions, organizations and individuals, CSOs, Mt clubs set first institutional preconditions for future cooperation and at least two actions outside of this project that showcase joint initiatives in plant conservation in Orjen. **Achieved:** All named institutions involved in the project with direct implementation, sharing of data, building ownership, etc. Apart from partnering organizations that kept intensive cooperation, Environmental Protection Agency of Montenegro and Republic Institute from Banja Luka, have been contacted on many instances to share project profile, update on the work, share findings. The Agency for Environmental Protection have regularly provided issuance of permits for research work, and will be the user of data on target plants during the process of drafting the Red List of vascular plants of Montenegro. All data are to be officially submitted to this institution as part of the research agreement. Republic Institute in Banja Luka has also issued permits for research work in Mt Orjen in BiH and collection of plants and seeds for botanical garden and will also receive Study report and conservation action plan. Both PA management bodies from Mne and BiH has been regularly contacted. The idea was also to replicate work on botanical garden in Vrbanj to the BiH side, what was discussed with the Mt. club Vucji zub and management of Nature Park Orjen in BiH. Draft Management plan of PA Orjen in Mne includes now work on endemic, endangered and threatened plant species and transboundary cooperation. Municipalities Herceg Novi, Kotor and Nikšić are aware of the presence of important plants in their territory that will be used in future local action plans for biodiversity. The team has been preparing the information on the research findings specifically for their municipal territories and sharing. One land owner was involved as responsible for implementation of activities in Orjen PA for there is an endemic and endanger plant species at his property and he gain knowledge and is committed to its conservation, and was providing support to the research team. All institutions, CSOs, individuals and donors' community will receive Study report, Action plan and link to the web page via direct email, and by all materials being published on web pages and social media. EnvPro and Agency for development and research of Orjen, together with all the research team and expert institutions and additionally municipality of Herceg Novi is applying for continuation of activities in Orjen to the Bulgarian Development fund, to be submitted July 2022. It is agreed that MoU between lead and project partners (EnvPro, Agency for Development and Protection of Orjen, and Nature Museum Rijeka), is to be signed for

	acknowledge of work and commitment to future support, already agreed, and specifying further cooperation goals and activities, to be formally realized/signed in September 2022. Cooperation of EnvPro, Agency for development and protection of Orjen, and Nature-History Museum from Rijeka is agreed for furthering work on botanical garden support and school educational activities development and transfer of know-how. **Also see above as it overlaps and build one to another.*

4. Were there any unexpected impacts (positive or negative)?

Botanical garden has been established on Mt. Orjen with the aim of promotion of flora richness of Orjen which for sure is positive impact of the project, created by the adjustment during the project implementation, in support of all involved for many in kind contribution, and support and understanding of CEPF- RIT project team. This activity has not been envisaged by the project proposal, but during the project was concluded providing for significant mechanism of plant promotion and conservation particularly having in mind that there is no similar sites of this kind in Mediterranean scope area in Montenegro and transboundary.

PART II: Project Products/Deliverables

5. List each product/deliverable as stated in your approved proposal and describe the results for each of them:

Deliverable /Output	Deliverable Update Description
1.1Scientific assessment of status, threats and conservation methods for *Iris orjenii* and rapid assessment of at least 3 other rare and endemic plant spices conducted	**Indicator:** Research, conservation activities and presentation of findings within study and other publications executed following most contemporary scientific methods and approaches **Achieved:** The methodology and detailed action plan for the assessment of status and threats of *Iris orjenii* were developed following the most contemporary scientific methods and approaches (ecological niche modelling, bank seed and optimization of germination protocols establishment for possible reintroduction (or reinforcement) – enabling ex situ conservation, determination against IUCN criteria for endangered species/ Red list species, etc.). This is integral part of the Study developed within the project as a final product of the work and findings with rapid assessment of five rare and endemic plant species (*Satureja horvatii* Šilić *Dianthus knappii* (Pant.) Ascherson et Kanitz ex Borbas *Edraianthus serpyllifolius* (Vis.) A. DC., *Salvia brachyodon* Vandas *Linum elegans* Spruner ex Boissier) and detailed one for the *Iris orjenii*. Species conservation plan is also made for the last. A scientific article is published based on the project research contribution: Phytosociology, ecology and conservation status of *Salvia brachyodon* (*Lamiaceae*), a narrow endemic of Eastern Adriatic, Hacquetia 20/1 – 2021). An abstract of the paper related to the implemented activities in the project with which EnvPro presented itself at the conference 3rd Mediterranean Plant

	Conservation Week (3MPCW), Crete, Greece, 27th September to 1th October 2021. (Snežana Dragićević, Mihailo Jovićević, Peter Glasnović, Emina Zečić, Jelena Popović, Dragana Saveljić, Nina Lončarević, Marija Popović & Boštjan Surina (2021): Conservation of endemic, rare and threatened plant species on Mt. Orjen (SE Dinaric Alps, Montenegro), In: Baccheta et al. (Eds.), Book of Abstracts, 3rd Mediterranean Plant Conservation Week, "Plant Conservation Strategies: from Science to Practice", Chania, Crete, Greece, 27th September to 1th October 2021, pp. 64.), available on a link below: http://confer.maich.gr/3mpcw/3MPCW_2021_abstracts_book.pdf. All will be shared and published directly via emails and web and social medias.
2.1Scientific and management capacities and commitment for conservation of endangered plants at Mt. Orjen raised	**Indicator:** At least one employee of protected area managers demonstrate improved skills and knowledge on plant conservation; six scientists capacitated for endangered plants conservation; at least 3 young professionals from EnvPro gain substantial experience in plant conservation and one young researcher from BiH; at least one young researcher from Orjen region capacities for endangered plants conservation, at least one institution from BiH recognise capacity building achievements and put them in service of Orjen transboundary conservation actions. **Achieved:** The manager of PP Orjen is readily included the results and long term objectives, embracing also transboundary cooperation of this project in the Management plan of the protected area for which new data on the presence of endemic and endangered plants were obtained, as well as through conservation activities in which they participated such as building a botanical garden in Vrbanj. Five rangers were part of the in the field activities and are with raised knowledge on the endemic plant species and their maintenance within botanical garden and reintroduced iris population, to be further supported by the EnvPro and partners team. Two experts lead the scientific and raising capacities activities. Two seniors and five young scientists (with also few more on ad hock basis) were continuously capacitated for endangered plants conservation. Among these are 3 professionals from EnvPro that gain substantial experience in plant conservation and one young researcher from BiH; In addition, Executive director of the EnvPro, members of Mr. club Vucji zub from BiH and Nature Museum from Trebinje were also part of the capacity building activities at few instances. There were no young researchers from Mt. Orjen encompassed with detailed capacity building activities, but biologist from Nature Museum from Trebinje. Also, PA Management body from BiH and Institute from Banja Luka has been involved in exchange of information. Also, based on the previously held and through work on Study and reports development young professionals built on the knowledge, attained in the project first phase Capacity Building Workshop for IUCN asssesment of conservation status, categorization, species conservation planning, niche Modelling and *ex situ* conservation, participated by 8 researchers and supporters of the project (Mihailo Jovicevic, Biodiversity specialist, EnvPro, biologist; Nina Loncarevic, young researcher

	and Project coordinator, EnvPro, MA Landscape ecology; Ana Katnic, Executive Director, EnvPro, MA Biodiversity management; Emina Zecic, young researcher from BiH, EGroup/Cener 21, MA Invasive species; Andrijana Micanovic, volunteer at Montenegrin Ecologic Society (MES), at MA studies for amphibians at University Montenegro; Jelena Popovic, volunteer at EnvPro, works at MES at MA studies for ecosystem services at University Montenegro; Dragana Saveljic, volunteer at EnvPro, at MA studies for plants at University Montenegro; Stefan Stanovcic, PhD student in Genetics, studying in Serbia but from Orjen) held by Prof.Dr Bostjan Surina and Assist.Prof. Peter Glasnovic. Based on this field research capacity building was also performed independently by researchers or guided by expert team. It is to be still confirmed that the capacity building and findings are integrated in policy document of national and local level and widely used and upgraded.
3.1Institutional development and general public's awareness for conservation of endangered plant species at Mt. Orjen enhanced	**Indicator:** Orjen protected area management plan that incorporated and adopted this action objectives, follows with yearly management plans and ownership on implementation of scientific based actions for plant conservation and monitoring as well as further advancement in research, capacity and awareness raising; at least one land owner involved as responsible for implementation of activities in Orjen PA; professional and general public familiar with the lessons learned embracing the values of the project outputs; at least two more organizations/Mt. clubs/associations and two municipalities joining forces to combat extinction of endemic plants at Orjen; transboundary protection of endemic plants is ensured trough cooperation and integration of findings in nature designation and management documents of two countries, ensuring synergy and joint actions. **Achieved:** As previously stated this indicator is achieved with Orjen protected area only draft Management plan that incorporated and adopted this action objectives, follows with yearly management/work plans and ownership on implementation of scientific based actions for plant conservation and monitoring as well as further advancement in research, capacity and awareness raising. However, plan is not officially adopted pending adoption of PA borders and zones, and public debate. Yearly working plans are nevertheless made and implemented. Sites where endemic, rare and endangered plants grow are not privately owned, so it was not necessary to train the owners of private plots on their importance, but the rangers of PP Orjen, who are also residents of the village in the area of Orjen are familiar with the project, important species and their significance. Only one land owner from BiH is assessed to be in ownership of a plot where a population of *Salvia brachyodon* is found, and he was visited several times by the expert team, and on the last occasion of research and event project activity on 29.06.2022 by all team members to confirm his willingness to maintain that plot as intact. Project activities, lessons learned, findings and information for general and scientific public are made available in the mentioned studies of the first result but also within: EnvPro web site https://envpro.me, Facebook page https://www.facebook.com/EnvironmentProgramme/ and CEPF Newsletter and

	lessens learn paper. Developed is a dedicated web page that presents Orjen mountain and most important plant species to general and scientific public, connected also with QR codes to the two info tables placed in Vrbanj info and offices of NP and reallocation of iris position, and small tables in the botanical garden and acces the page on the link https://orjen.envpro.me/. A botanical garden was built at Vrbanj, being additional contribution of the project, and will serve for PA management further capacity building in conservation area, but also in educational activities with schools that are aimed to be established. On an area of about 20 m^2 in the courtyard of the Agency for Development and Protection of Orjen the first species planted are Dinaric irises (*Iris orjenii* Bräuchler & Cikovac, *I. pallida* Lam., *I. pallida Lam. ssp. Illyrica* (Tomm. ex Vis.) K. Richt., *I. pseudopallida* Trinajstić, *I. adriatica* Trinajstić ex Mitić), then munica (*Pinus heldreichii* Christ), lamprey (*Viburnum maculatum* Pantocsek), yew (*Taxus baccata* L.). In the first period, the plan was to garden to be enriched with other species that grow on this area, such as: Horvat's heather (*Satureja horvatii*), elegant flax (*Linum elegans*), large pelim (*Salvia brachyodon*), Knapp's carnation (*Dianthus knappii*), creeping bluebell (*Edraianthus serpyllifolius*), but also numerous other species from southeastern Dinarides, and other areas. Activities continued during 2022 on the continuous garden plans enrichements, were conducted having planted folowing species: *Salvia brachyodon, Crepis pantocsekii, Linum elegans, Salvia officinalis, Edraianthus tenuifolius, Sesleria juncifolia, Carex kitaibeliana, Anthyllis aurea, Genista sericea, Scilla lakusicii*. Basic information about the Stone Garden are also provided on the information board that has been installed near it linked with the QR code that, when scanned, directly links to the EnvPro website/ page (https://orjen.envpro.me/) which is also designed with the aim of introducing in more detail plants that grow in it or will be added in the following period The garden will be visited by many tourists and locals, and it is assessed as a hug contribution to project visibility and raising knowledage and awarnes. Two additional gardens in Kolasin and Plav were also supported by the project. An event was organised at the end of the project to share the findings, and assess the work done.Last activity is conducted outside of the project life, and it is a visit to Vucji zub to the monitoring plots, realised on 25.06.2022. Its findings are presented in the final study report. The list to be used to distirbute the study report further and beyond named institutions that took part in the activities from Mne and BiH is prepared and will be used in July 2022, to ensure the integration of findings in policy documents of two countries, scientinfic work and IUCN status updates, and to promote and envisage support for continuation on the achived results. The Study, Species conservation/Action plan and link to the web page is also to be sent to EPA Montenegro, as this is our official obligation signed with the agreement for research. For the three municipalities where important plants grow on Orjen, we forwarded questionnaires on the knowledge of species, but also the results of work in terms of the presence of species and their importance specifically made for them in a form that is suitable for introduction in their planning documents, with the information that they will be sent a study with all the results.

6. Please describe and submit any tools, products, or methodologies that resulted from this project or contributed to the results.

A study report on all the work and findings and an action plan had been made for the stenoendem of Mt. Orjen, Orjen iris, *Iris orjenii*.

Scientific paper had been published - Phytosociology, ecology and conservation status of *Salvia brachyodon* (*Lamiaceae*), a narrow endemic of Eastern Adriatic, Hacquetia 20/1 – 2021) https://www.conserveplants.eu/en/resources/files/articles/10.2478hacq-2021-0002.pdf

A database of significant species was created (locations, coordinates, phytochenological images, literature, etc.) and sent to CEPF as internal document.

Two info tables are placed in Vrbanj, at Mt Orjen.

Developed a web page that presents Orjen mountain and most important plant species to general and scientific public: https://orjen.envpro.me/#

Methodology description

In the period of three years, from 2019 to 2022, field work was performed in the area of Orjen (Montenegro, Bosnia and Herzegovina H) in order to collect basic data on Orjen irises and other endemic plants. Methodological work in the field was based on geopositioning of sites where the target species (*Iris orjenii, Salvia brachyodon, Linum elegans, Satureja horvatii, Dianthus knappii, Scilla litardierei, Edrianthus serpyllifolius*) grows, on population assessment, making phytocenological images, identifying factors that threaten it and their deviation, and the like. The main focus was on Orjen iris grows in three localities: Vučji zub (BiH, about 50 meters from the border with Montenegro), Reovačke grede and Borovi do (Montenegro). The first significant data on *I. orjenii* were obtained from the locality Vučji zub where the assessment of the population was performed, phytocenological recordings were taken: counting individuals of *I. orjenii* on a given area marked with a 5m x 5m grid, number of flowering shoots, height of stem with flowers, number of sterile shoots and others (method of a quadrant or surface that is the size of which is fixed with the help of pegs and ropes). In addition to the central quadrant, data are filled in for an additional four marked with the letters NSWE, within which phytocenological recordings were made using the Domino's rocks. This means identifying other plant species on a given plot and estimating the number of their populations; collecting other important data such as the coordinates on which the surface is placed, the slope of the terrain, rock cover, shrubby vegetation, and the like, taking photos, etc. This was done at the start of the project in summer 2019 in a composition of expert team and young researchers from Mne and BiH, and again after three years in July 2022 by senior researchers from EnvPro from Montenegro.

After determining the endangered status, we applied modern methods in the conservation of endangered species, *in situ* and *ex situ* with concrete actions. Except hibridisation with other iris species from the same habitats for *Iris orjenii* the threat is the invasive spread of *Juniperus sabina*, which leads to the suppression of the iris, endangering the spread of the population, its growth and the like. Reducing the pressure on the *I. orjenii* on Vučji zub we have done a mechanical removal of *Juniperus sabina*, which must be a regular practice for area managers. Relocation of the hiking trail that passed by the population, in order to prevent collectors of endemic species, scientists and naturalists from collecting the species and thus endangering the survival of this

population. Also, we collected a seeds of endemic and other interesting plants to establish a germination protocols for possible reintroduction (or reinforcement) for enabling ex situ conservation. For *I. orjenii* we have the opinion that the success of reproduction with seeds is small, and the largest percentage is propagated vegetative. Clones obtained in the garden of the Natural History Museum in Rijeka and in private garden in Podgorica, during 2021 were translocated at 3 localities in the area of Orjensko sedlo, having 24 species with 23 successfully growing and some flowering in 2022.

In order to raise awareness and spread knowledge about the importance of endemic species, we had built a botanical garden in Vrbanj, which is the first object that promotes the importance of endangered plants in the central and southern part of Montenegro (in Montenegro there are two botanical gardens in the north: Kolašin and Plav). Through cooperation with this two botanical gardens, we spread information about the project and endemic, rare and endangered plants from the Mt. Orjen, since we donated to these gardens irises seedlings growing in Kvarner *(Iris pallida* subsp. *illyrica*), Pelješac (*Iris pseudopallida*), the hinterland of Šibenik (*Iris adriatica*), on Crvena stijena above Bilećko Lake and on Alipašini springs (*Iris pallida*), as well as *Iris orjenii*, from Vučji zuba on Orjen.

For the municipalities where important plants grow on Orjen, we forwarded questionnaires on the knowledge of species, but also the results of work in terms of the presence of species and their importance, with the fact that they will be sent a study with all the results.

PART III: Lessons, Sustainability, Safeguards and Financing

Lessons Learned

7. Describe any lessons learned during the design and implementation of the project, as well as any related to organizational development and capacity building.

"Lessons learned" are experiences you have gained that you think would be valuable successes worth replicating or practices that you would do differently if you had the chance. Consider lessons that would inform project design and implementation, and any other lessons relevant to the conservation community. CEPF Lessons Learned Guidelines are available here: https://www.cepf.net/sites/default/files/cepf-lessons-learned-guidelines-english.pdf.

There are several critically endangered plant taxa in our region that urgently need attention, and we are very glad to have realized opportunity to deal with some of them on the southeastern Dinaric Alps, within "Conservation of Endemic, Rare and Threatened Plant Species on Mt. Orjen, Montenegro", project. Second, we urgently need a good example of standardized conservation practices implemented in our area, a kind of cornerstone that would set the scene for future similar projects: the implementation of a simple but fundamentally sound and scientifically based approach to the application of conservation techniques that would provide positive and trackable long-term results through monitoring programs. And third, recruiting and training young and motivated naturalists in the search for theoretical and practical solutions for plant conservation was one of the most important goals of the project.

In the in situ and ex situ conservation efforts for our flagship, plant of the main focus, we encountered some problems that we did not expect. Only a few specimens of Orjen iris (*Iris orjenii,* Bräuchler and Cikovac) bore fruit, while the majority of seeds were aborted. Germination of the remaining seeds was also unsuccessful. Nevertheless, we managed to propagate the plant vegetatively and successfully conducted translocation of several specimens on suitable sites. "*The important take-home message is that each plant system is unique and the toolbox for conservation should be appropriately adapted."* **-** dr. sc. Boštjan Surina**.** *"The most important message from us would be: you should know the plant system you are dealing with inside out."* Regardless on how the ongoing activities evolve and sometimes the plants biology takes us by surprise, adapt to it and the conditions in the field while keeping the right objectives and team enthusiasm.

Lessons learn were also published at CEPF newsletter:
https://www.birdlife.org/news/2021/02/19/new-wave-plant-conservationists-balkans/#Lessons_Learned

Sustainability / Replication

8. **Summarize the success or challenges in ensuring the project will be sustained or replicated, including any unplanned activities that are likely to result in increased sustainability or replicability.**

The project has envisaged that new initiatives are enabled trough partnership and raised capacities and interest. The team has applied to several grants during the project: twice to Mohamed bin Zayed and once to CEPF with proposal to work on other Mediterranean mountains and central region ones for research and knowledge gain on endemic, rare and threatened species, but the funds were not awarded. Therefore, the project team with partners and young researches started the planed research without project and funding support in 2021.

During the work on botanical garden in Vrbanj, Orjen, the opportunity was used to replicate the action in two more gardens, in Kolasin and Plav and enrich their collection with iris specimens, ensuring higher outreach of the general population, students, and researches. The opportunity was explored for setting up botanical garden at Mt. club Vucji zub mountain hut premises, and at PA management in BiH premises. However, the work significantly exceeded small project budget, and were not realized. However, the idea on replication within future cooperation with SHs from BiH is agreed on and will be realized when opportunity arise. It is planed that EU IPA CBC BiH –Mne Programme is used for this.

As described above, the MoU with all partners involved is in preparation, and submission to the Bulgarian Aid Fund for continuation of successfully started cooperation and activities.

The EnvPro will dedicate further efforts in resource mobilization in order to achieve its mission, and ensure the sustainability of results. Within its 2022-2025 Strategic plan (attached, #10, internal document, not to be distributed further), important pillar of its work are endangered plant species research and conservation.

Safeguards

9. **If not listed as a separate Deliverable and described above, summarize the implementation of any required action related to social or environmental safeguards that your project may have triggered.**

N/A

Additional Funding

10. **Provide details of any additional funding that you have secured to support this project.**

    a. **Total additional funding (US$)**

    b. **Type of funding**

    Please provide a breakdown of additional funding (counterpart funding and in-kind) by source.

Donor	Type of Funding	Amount

There was no additional official funding provided. Nonetheless, project team has been working enthusiastically and beyond what project could financial support in order to achieve desired and raised opportunities and goals. The project team is committed to continue working in the area and to support the project results beyond project life with or without additional support. Senior team has already made a field visited to Vucju zub population in July 2022, without project resources.

Additional Comments/Recommendations

11. **Use this space to provide any further comments or recommendations in relation to your project or CEPF.**

The project has made a significant impact in the domain of scientific knowledge, conservation actions, raised capacities and awareness. It is now to ensure for further development of the partnership, replication and building on the achievements. Therefore, additional support of the CEPF for resource mobilizing would be of great importance and implication for the EnvPro and the overall team continuous and systematic action.

PART IV: Impact at Portfolio and Global Level

Contribution to Portfolio Indicators

12. In order to measure the results of CEPF investment strategy at the hotspot level, CEPF uses a set of Portfolio Indicators which are presented in the Ecosystem Profile of each hotspot. Please list these below and report on the project's contribution(s) to them.

Indicator	Actual Numeric Contribution	Actual Contribution Description
2.0 Number of hectares of KBAs under improved management (please indicate the KBA names in comments)	2	Development of management and conservation of action plans for NP Orjen, based on the data collected through project activities
4.3 Number of management plans of protected areas incorporating specific actions for plant conservation	1	Five-year Nature park Orjen Management plan (pending adoption), incorporated projects objectives and continuation of work in this area. It is expected that after project completion, other relevant plans incorporate project findings (e.g. Local and national biodiversity action plans and strategies)
4.4 Number of protected area managers demonstrating improved skills and knowledge on plant conservation	5	Five rangers who are also local landowners and inhabitants, undergo basic training and in the field experience with research, conservation actions, and botanical garden building and maintenance.
4.5 Number of locally endemic or highly threatened plant species for which improved knowledge is available	7	Research and Study report on the following plant species conducted: *Iris orjenii, Salvia brachyodon, Linum elegans, Satureja horvatii, Dianthus knappii, Scilla litardierei, Edrianthus serpyllifolius*
4.6 Number of KBAs for which information on plants is improved	1	MNE08 – Mt. Orjen Study report and conservation AP is containing detail description and IUCN assessment status of the following plant species: *Iris orjenii* Bräuchler & Cikovac *Satureja horvatii* Šilić *Dianthus knappii* (Pant.) Ascherson et Kanitz ex Borbas *Edraianthus serpyllifolius* (Vis.) A. DC. And for the *Salvia brachyodon* Vandas*) information is provided within above mentioned scientific article. *Linum elegans* was subject of another in detailed study conducted in parallel so the info was not provided within this project.
4.7 Number of young professionals with substantial experience in plant conservation gained	7	Two senior researchers (Snezana Dragicevic and Mihailo Jovicevic) and five young researchers (Emina Zecic, Jelena Popovic, Marija Popovic, Dragana Saveljic, Nina Loncarevic). At some occasion more young researchers and volunteers were involved.
5.3 Number of cross-border networking relationship	1	The project embedded cross-border approach, working in the transboundary Mt. Orjen area and developing cooperation with institutions, organizations and individuals from both BiH and Mne.

Contribution to Global Indicators

Please report on all Global Indicators that pertain to your project.

13. Benefits to Individuals

13a. Number of men and women receiving structured training.

Report on the number of men and women that have benefited from structured training due to your project, such as financial management, beekeeping, horticulture, farming, biological surveys, or how to conduct a patrol.

# of men receiving structured training *	# of women receiving structured training *	Topic(s) of Training
1 senior researcher	1 senior researcher 5 young researchers	Endemic plants research and conservation

**Please do not count the same person more than once. For example, if 5 men received structured training in beekeeping, and 3 of these also received structured training in project management, the total number of men who benefited from structured training should be 5.*

13b. Number of men and women receiving cash benefits.

Report on the number of men and women that had an increase in income or cash (monetary) benefits due to your project from activities such as tourism, handicraft production, increased farm output, increased fishery output, medicinal plant harvest, or payment for conducting patrols.

# of men receiving cash benefits*	# of women receiving cash benefits*	Description of Benefits
N/A	N/A	

**Please do not count the same person more than once. For example, if 5 men received cash benefits due to tourism, and 3 of these also received cash benefits from increased income due to handicrafts, the total number of men who received cash benefits should be 5.*

14. Protected Areas

Number of hectares of protected areas created and/or expanded

Report on the number of hectares of protected areas that have been created or expanded as a result of your project. Protected areas may include private or community reserves, municipal or provincial parks, or other designations where biodiversity conservation is an official management goal.

Name of PA*	Country(s)	Original # of Hectares**	# of Hectares Newly Protected	Year of Legal Declaration/ Expansion	Longitude***	Latitude***

Nature Park Orjen	*Montenegro*	8.797.20ha with possible extension of 742.81ha	8.797.20ha with possible extension of 742.81ha	Agreed: 24.04.2009 Gazetted: 30.05.2018	Longitude 18,54	Latitude 42,56 (42.5983° N, 18.5433° E)

** This is already protected area and extension is proposed within the process of border delineation by the Agency for development and protection of Orjen, not within the project here in subject.*

*** Enter the original total size, excluding the results of your project. If the protected area was not existing before your project, then enter zero.*

**** Indicate the latitude and longitude of the center of the site, to the extent possible, or send a map or shapefile to CEPF. Give geographic coordinates in decimal degrees; latitudes in the Southern Hemisphere and longitudes in the Western Hemisphere should be denoted with a minus sign (example: Latitude 38.123456 Longitude: -77.123456). To obtain the latitude and longitude of your protected area, use googlemap, right click on the center of your protected area, and select "What's here?", and copy the latitude and longitude appearing in the popup window.*

15. Key Biodiversity Area Management

Number of hectares of Key Biodiversity Areas (KBA) with improved management

Report on the number of hectares in KBAs with improved management, where tangible results have been achieved to support conservation, as a result of your project. Examples of improved management include, but are not restricted to: increased patrolling, reduced intensity of snaring, invasive species eradication, reduced incidence of fire, and introduction of sustainable agricultural/fisheries practices. Do not record the entire area covered by the project - only record the number of hectares that have improved management.

If you have recorded part or all of a KBA as newly protected for the indicator entitled "protected areas", and you have also improved its management, you should record the relevant number of hectares for both this indicator and the "protected areas" indicator.

Name of KBA	KBA Code from Ecosystem Profile	# of Hectares Improved *
Orjen	MNE08	2ha and 50m2 Improved areas in ha: Orjensko sedlo 1ha, Vucji zub 1ha, Botanical garden 50m2. So far conducted conservation actions: 2. Displacement of the existing hiking trail in the vicinity of populations, in order to prevent scientists and naturalists to collect the species and thus threaten the survival population. 4. In order to identify changes in the habitat, as well as impacts, permanent monitoring surfaces were installed, marked with metal profiles at the corners, in order to monitor changes and possibly prevent them unwanted situations, such as those that could be caused by humans. Baseline research was done in 2019 and revisited for appropriate and prescribed monitoring in 2022.

		5. Translocation of 24 individuals of *Iris orjenii* made at the Orjensko sedlo site in 2021, with 23 individuals making successful reallocation monitored in 2022. 6.Botanical garden was built for maintaining *ex situ* conservation and research of targeted and other species from Mt. Orjen. 7.Species conservation /action plan for *Iris orjenii* developed with status data, recommendation for further conservation and monitoring activities. We also still expect progress in the coming period. Namely, our research has resulted in precise data on several endemic and endangered species for which until now there was no precise data on. Some species grow outside the protected area of PP Orjen, but within KBA Orjen. However, there are no adopted Management plan for KBA Orjen, as for many other KBA areas in Montenegro, but there are for protected areas that are part of them. Therefore, we expect the managers of the Orjen protected area to expand the protection boundaries and include those parts of the KBA that they do not currently manage, and where we have recorded significant plant species. This is the beginning of the process in which our data will be key elements in expanding the area that will be included in the management plan of PP Orjen. Until now, the manager could not prescribe conservation and protection measures for plants and habitats because he did not have sufficiently accurate data on the presence and distribution of species, as well as the size of populations.

** Do not count the same hectares more than once. For example, if 500 hectares were improved due to implementation of a fire management regime in the first year, and 200 of these same 500 hectares were improved due to invasive species removal in the second year, the total number of hectares with improved management would be 500.*

16. Production landscapes

Number of hectares of production landscape with strengthened management of biodiversity

Please report on the number of hectares of production landscapes with strengthened management of biodiversity, as a result of your project. A production landscape is defined as a landscape where commercial agriculture, forestry or natural product exploitation occurs.

- For an area to be considered as having "strengthened management of biodiversity," it can benefit from a wide range of interventions such as best practices and guidelines implemented, incentive schemes introduced, sites/products certified, and sustainable harvesting regulations introduced.
- Areas that are protected are not included under this indicator, because their hectares are counted elsewhere.
- A Production Landscape can include part or all of an unprotected KBA.

Name of Production Landscape*	# of Hectares with Strengthened Management**	Latitude***	Longitude***	Description of Intervention

** If the production landscape does not have a name, provide a brief descriptive name for the landscape.*
***Do not count the same hectares more than once. For example, if 500 hectares were strengthened due to certification in the first year, and 200 of these same 500 hectares were strengthened due to new harvesting regulations in the second year, the total number of hectares strengthened to date would be 500.*
**** Indicate the latitude and longitude of the center of the site, to the extent possible, or send a map or shapefile to CEPF. Give geographic coordinates in decimal degrees; latitudes in the Southern Hemisphere and longitudes in the Western Hemisphere should be denoted with a minus sign (example: Latitude 38.123456 Longitude: -77.123456). To obtain the latitude and longitude of your production landscape, use googlemap, right click on the center of your production landscape, and select "What's here?", and copy the latitude and longitude appearing in the popup window.*

Based on our data, we made proposals within Conservation AP to expand the protected area of PP Orjen within the borders of KBA Orjen, to protect species *Iris orjenii, and many others*.

17. Benefits to Communities

CEPF wants to record the non-cash benefits received by communities, which can differ to those received by individuals because the benefits are available to a group. CEPF also wants to record, to the extent possible, the number of people within each community who are benefiting. Please report on the characteristics of the communities, the type of benefits that have been received during the project, and the number of men/boys and women/girls from these communities that have benefited, as a result of your project. If exact numbers are not known, please provide an estimate.

Please provide information for all communities that have benefited from project start to project completion.

Name of Community	Community Characteristics (mark with x)							Country of Community	Type of Benefit (mark with x)									# of Beneficiaries	
	Small landowners	Subsistence economy	Indigenous/ ethnic peoples	Pastoralists / nomadic peoples	Recent migrants	Urban communities	Other*		Increased access to clean water	Increased food security	Increased access to energy	Increased access to public services (e.g. health care, education)	Increased resilience to climate change	Improved land tenure	Improved recognition of traditional knowledge	Improved representation and decision-	Improved access to ecosystem services	# of men and boys benefitting	# of women and girls benefitting

*If you marked "Other" to describe the community characteristic, please explain:

18. Policies, Laws and Regulations

Report on policies, laws and regulations with conservation provisions that have been enacted or amended, as a result of your project. "Policies" pertain to statements of intent formally adopted or pursued by a government, including at sectoral or sub-national level. "Laws and regulations" pertain to official rules or orders, prescribed by authority. Any law, regulation, decree or order is eligible to be included.

18a. Name, scope and topic of the policy, law or regulation that has been amended or enacted as a result of your project

No.		Scope (mark with x)			Topic(s) addressed (mark with x)															
	Name of Law, Policy or Regulation	Local	National	International	Agriculture	Climate	Ecosystem Management	Education	Energy	Fisheries	Forestry	Mining and Quarrying	Planning/Zoning	Pollution	Protected Areas	Species Protection	Tourism	Transportation	Wildlife Trade	Other*
1																				
2																				
…																				

*** If you selected "other", please give a brief description of the main topics addressed by the policy, law or regulation.**

18b. For each law, policy or regulation listed above, please provide the requested information in accordance with its assigned number.

No.	Country(s)	Date enacted/ amended MM/DD/YYYY	Expected impact	Action that you performed to achieve this change
1				

2				
3				

19. Biodiversity-friendly Practices

Number of companies that adopt biodiversity-friendly practices

Please list any companies that have adopted biodiversity-friendly practices as a result of your project. While companies take various forms, for the purposes of CEPF, a company is defined as a for-profit business entity. A biodiversity-friendly practice is one that conserves or uses natural resources in a sustainable manner.

No.	Name of Company	Description of biodiversity-friendly practice adopted during the project	Country(s) where the practice has been adopted by the company
1			
2			
…			

20. Networks & Partnerships

Number of networks and/or partnerships created and/or strengthened

Report on any networks or partnerships between and among civil society groups and other sectors that you have created or strengthened as a result of your project. Networks/partnerships should have some lasting benefit beyond immediate project implementation. Informal networks/partnerships are acceptable. Examples of networks/partnerships include: an alliance of fisherfolk to promote sustainable fisheries practices, a network of environmental journalists, a partnership between one or more NGOs with one or more private sector partners to improve biodiversity management on private lands, or a working group focusing on reptile conservation.

Do not list the partnerships you formed with others to implement this project, unless these partnerships will continue after your project ends.

No.	Name of Network / Partnership	Year established	Did your project establish this Network/ Partnership? Y/N	Country(s) covered	Purpose
1	Partnership for endangered, rear threatened plant species of Orjen between Agency for Development	2022	Yes	Montenegro and BiH	Continuous work on the research, conservation and education for endemic, endangered, rare and other plant species in Mt. Orjen and beyond

	and Protection of Orjen, Nature Museum Rijeka and EnvPro				

21. Sustainable Financing Mechanism

List any functioning sustainable financing mechanisms created or supported by your project. Sustainable financing mechanisms generate funding for the long-term (generally five or more years). These include, but are not limited to, conservation trust funds, debt-for-nature swaps, payment for ecosystem service (PES) schemes, and other revenue, fee or tax schemes that generate long-term funding for conservation. To be included, a mechanism must be delivering funds for conservation.

21a. Details about the mechanism

No.	Name of Financing Mechanism	Purpose of the Mechanism*	Date of Establishment**	Description***	Countries
1					
2					
3					

**Please provide a succinct description of the mission of the mechanism.*

***Please indicate when the sustainable financing mechanism was officially created. If you do not know the exact date, provide a best estimate.*

****Description, such as trust fund, endowment, PES scheme, incentive scheme, etc.*

21b. Performance of the mechanism

For each Financing Mechanism listed previously, please provide the requested information in accordance with its assigned number.

NO.	Project intervention (mark with x)			Has the mechanism disbursed funds to conservation projects?
	Created a mechanism	Supported an existing mechanism	Created and supported a new mechanism	
1				
2				
3				

22. Red List Species

If the project included direct conservation interventions that benefited globally threatened species (CR, EN, VU), as per the IUCN Red List, add the species below.

Examples of interventions include: preparation or implementation of a conservation action plan, captive breeding programs, species habitat protection, species monitoring, patrolling to halt wildlife trafficking, and removal of invasive species.

Genus	Species	Common Name (Eng)	Status (VU, EN, CR or Extinct in the Wild)	Intervention	Population Trend at Site (increasing, decreasing, stable or unknown)
Iris Tourn. ex L.	*Iris orjenii*	-	VU	Preparation of a conservation action plan, captive breeding programs, species habitat protection, translocation - reintroduction, species monitoring.	Stable, towards gradual increase

∗ According Bräuchler & Cikovac (2007) and Lansdown (2017) *Iris orjenii* Bräuchler & Cikovac is classified as "Vulnerable (VU)" by criteria D1+2 (IUCN 2001) which were estimated based on population size. Through this project, we get a new data on distribution, population size and endangerment factors, and based on that we had gave an assessment of the species - EN B1B2ab(iii).

Part V. Information Sharing and CEPF Policy

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned, and results. Final completion and impact reports are made available on our Web site, www.cepf.net, and publicized in our e-newsletter and other communications.

Provide the contact details of your organization (organization name and generic email address) so that interested parties can request further information about your project.

Organization Name: Program za životnu sredinu, Environment Programme - EnvPro
Generic email address: office@envpro.me