



LIFE14NAT/NL/987

Final Report

Covering the project activities from 01.01.2016 to 30.09.2021

Reporting Date

31.12.2021

LIFE RE-Bison

**Urgent actions for the recovery of European Bison in
Romania**

Data Project

Project location:	Romania, Tarcu and Poiana Rusca Mountains
Project start date:	01/01/2016
Project end date:	31/03/2021
Total budget:	€ 1,816,991
EU contribution:	€ 1,362,735
(%) of eligible costs:	75%

Data Beneficiary

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2. List of key-words and abbreviations

AMZA – Asociația Măgura Zimbrilor Armeniș
DBU – Deutsche Bundesstiftung Umwelt
EAZA – European Association of Zoos and Aquaria
EBCC – European Bison Conservation Center
EBPB – European Bison Pedigree Book
EPA – Environmental Protection Agency
HD Zoo – Hunedoara Zoo
FFI – Fauna & Flora International
NANPA – National Agency for Natural Protected Areas
MoE – Ministry of Environment, Forest and Water
MTR – Mid-Term Report
OUG – Emergency Ordinance issued by the Government
PR1 – First Progress Report
PR2 – Second Progress Report
ROS – Romanian Academy of Science
SWG – Stakeholders Working Group

3. Executive Summary

The E. Bison has been making a remarkable comeback to Europe's landscapes. Their return, even if only to a minor part of their former European range, can be seen as a milestone in conservation. As a result of long-term conservation management, collaboration with local communities and international support, the E. Bison is no longer classified as 'vulnerable' according to the IUCN Red List Assessment, and it has recently moved up to the conservation status of 'near threatened' (Plumb et al. 2020). The LIFE RE-Bison project, which overall aim was to enable the successful recovery of the European Bison in the Tarcu and Poiana Rusca Mountains in southwest Romania, has significantly contributed to this striking achievement. Although the population numbers at European level have been strongly increased from around 4472 free-living animals distributed in 41 isolated populations (status at the beginning of the project - 2016) to 6819 bison grouped in 45 free-roaming herds in the whole current bison distribution range (E. bison pedigree book, 2020), due to low genetic diversity in some of these populations, the species is still considered "vulnerable". From the entire present population just 2868 individuals grouped in 28 free-roaming herds belongs to Lowland-Caucasian genetic line, reintroduced in the southwest Carpathians. Further reintroduction efforts should continue in order to create large, viable populations in Europe.

The specific objectives of the project are:

- To establish one free living, genetically and demographically viable sub-population of the European Bison with around 185 animals in the Tarcu and Poiana Rusca Mountains, Romania.
- To create new economic activities in the area using the bison as the main target.
- To reduce conflicts between free living bison and rural economic activities.
- To stimulate a positive attitude among the local stakeholders in favour of the European bison.
- To increase the interest amongst the public for the conservation of the European bison.

The main outputs of the project are:

- 91 bison in a total of 14 transports were successfully transported during the project time.
- The free-roaming population is counting more than 100 individuals, with 42 calves born in the wild (2017-2021).
- A network of 32 partner reservations has been established to select bison for translocation.
- The economic activity in Armenis (Tarcu Mountains) started to be developed in 2016 and small business are running already.
- Over 350 tourists visited the Bison Hillock rewilding site between 2016 and 2021.
- 270 000+ euros were generated from bison-related tourism experiences.
- All identified conflicts between free living bison and rural economic activities were successfully solved.
- Around 150 meetings with local administrations and communities, and regional / national authorities took place in order to create a positive attitude, to prevent conflicts and to set up the mitigation and management measure. Local attitude of the general public has increased in a positive way.

Key deliverables:

- Documents and agreements with landowners
- Feasibility study
- 2 Reports of Human Dimensions study

- GIS database outlines
- Release sites constructed
- Transport documents and permits for all translocated bison
- Minutes of the participatory workshops
- Monitoring report of the free-rooming E. bison
- Stills and video and short films
- Reports on the media outreach, list of the press release issued, the media archive activated
- Copy of booklet for school children
- Photos from the expo and expo events
- First training course delivered and first watching hide/wilderness cabin
- Report on monitoring the economic impact of the project and nature-based enterprises
- Minutes of steering group meetings
- Layman's report
- Best Rewilding Practice Guidelines - The Reintroduction of European Bison (*Bison bonasus*) into the South-Western Carpathians (Tarcu Mountains)

The project has started timely on almost all the foreseen activities. After setting the administrative basis of the project (A1) and making the kick-off meeting (A2) the other preparatory actions have started. Permits for the Armenis area have been received and an agreement with the Hunedoara Municipality to establish a Bison breeding Centre (A3) has been signed. As described in the next chapter, problems have appeared in obtaining the permits for constructing the release site in the Poieni area, with a consequent delay of 21 months (See Action A3). This obstacle has been overcome and the first Bison was transferred to the Poieni release site in Spring 2018. However, the Poieni reintroduction site had to be closed before the project end due to inadequate infrastructure (especially difficult access to the enclosure), unclear legislation for species reintroduction and its management, and uncontrolled supplementary game feeding by the local hunting association that led inevitably to human-bison-conflicts and insolvable disputes between stakeholders in this area. The feasibility study for the second release site (A4) and the ex-ante stakeholder assessment (A5) have been made and the set-up of the GIS database (A6) has been completed successfully. In the framework of Action A7 an assessment identifying existing and potential bison related tourism opportunities in the Southern Carpathians has been completed, together with a process assessing which local stakeholders these enterprises will impact, both directly and indirectly.

Since 2016 until now, 91 bison were successfully selected and transported to Armenis and Poieni reintroduction sites and Hunedoara breeding center (C2, C3). In the framework of Action C4, 1.500 meters of electric fences had already been installed in 2016 in order to prevent human – bison conflicts in 2 areas in Armenis. In total more than 9 km electric fences have been used for conflict prevention. In addition, the potential conflict situations are constantly monitored and mapped. In order to prevent conflicts and to gain the support of the local communities more than 150 meetings with local administrations and communities, national and regional authorities have already been made (C5), and the National Working Group for the Conservation of European bison in Romania has been re-established.

The released bison were constantly monitored (D1) on the basis of monitoring protocols that have been developed and permanently updated, to gather data from the field about the impact of the bison on the habitat (use), ethology, health, movement and biometric patterns and genetic of the species.

These activities have been constantly accompanied by an intensive information and awareness campaign, including media activities, production of information materials, public presentations, web activities as well as by a coordinated effort to develop, in a holistic manner, the ecotourism

infrastructure and services related to the presence of the bison and other wildlife that are part of the local ecosystem. The team was also actively and is still constantly engaged in consolidating and creating new partnerships with various organizations and independent experts in Romania and abroad from the field of conservation, community development, architecture and design, new technologies, in order to build innovation and the best knowledge into solutions to meet conservation and social challenges that arise from the action of reintroducing a lost species in its former territory.

Due to problems with the local stakeholders in the Poieni area the project started with a delay in that area and suffered further delays in achieving permits for the release of Bison. After the first bison have been translocated and released into the wilderness further issues arose especially due to unclear legislation for species reintroduction and its management, and uncontrolled supplementary game feeding by the local hunting association. Due to these problems a project amendment was requested and approved, which implied to abandon the Poieni project area and to concentrate all the reintroduction efforts on the Armenis area. Also, the project duration was extended with 6 months in order to allow an additional release season and therefore recover the delays. For further details, please refer to Paragraph 6.2.

4. Introduction

The E. Bison has been making a remarkable comeback to Europe's landscapes. Their return, even if only to a minor part of their former European range, can be seen as a milestone in conservation. As a result of long-term conservation management, collaboration with local communities and international support, the E. Bison is no longer classified as 'vulnerable' according to the IUCN Red List Assessment, and it has recently moved up to the conservation status of 'near threatened' (Plumb et al. 2020). The LIFE RE-Bison project, which overall aim was to enable the successful recovery of the European Bison in the Tarcu and Poiana Rusca Mountains in southwest Romania, has been majorly contributed to this striking achievement. Although the population numbers have been strongly increasing from around 4472 free-living animals distributed in 41 isolated population, (status at the beginning of the project - 2016) to 6819 bison grouped in 45 free-roaming herds in 10 countries (E. bison pedigree book 2020), due to low genetic diversity in some of these populations, the species is still considered "vulnerable". Further reintroduction efforts should be made to create large, self-sustaining populations in Europe.

The specific objectives of the project are therefore:

- To establish one free living, genetically and demographically viable sub-population of the European Bison with around 185 animals in the Tarcu and Poiana Rusca Mountains, Romania
- To create new economic activities in the area using the bison as the main target
- To reduce conflicts between free living bison and rural economic activities
- To stimulate a generally positive attitude amongst the local stakeholders in favour of the European bison
- To increase the interest amongst the general public for the conservation of the European Bison

The project takes place in two SCIs (ROSCI0126 Muntii Tarcu and ROSCI0292 Coridorul Rusca Montana – Tarcu - Retezat) in the Tarcu and Poiana Rusca Mountains in the Southern

Carpathians in Western Romania, on an area of round 83.000 hectares.

For the reintroduction two release sites have been selected: one in the commune of Armenis, the other one in an area further to the North, in the commune of Densus (Poieni).

In Romania the European Bison are officially extinct. The last individuals were killed in 1762 in Moldova region and 1790 in Eastern Transylvania. According to Romanian Law No. 407/2006, regarding hunting and game species protection, the European bison appears as a game species, but for which the hunting is prohibited. For this reason, once they are released into the wild, the managers of the hunting grounds should assure the management where the free E. bison are reported.

In 2008, a working group for the conservation of E. bison species in Romania was formed. In the same year, the Strategy for the conservation of European bison in Romania (Cataniou & Deju, 2008) was developed and approved through a Ministerial Order (MO No. 974/21.08.2008). According to the strategy, one of the long-term goals for Romania is to “develop new E. bison reintroduction programs, especially in places where the bison could be found under semi-freedom” (Cataniou & Deju, 2008).

The total actual bison population in and ex-situ in Romania is of 260 individuals (E. bison pedigree book 2020; data communicated by coordinators of the reintroduction E. bison programs in Romania), of which around 179 bison are roaming free (50 in Vanatori Neamt Nature Park, 27 in Fagaras Mountains and around 103 in Armenis, of which 70 were released and about 32 born in the wild). Other 43 bison are living in semi-freedom in Vanatori Neamt Nature Park and Neagra Bucsani Reserve. Other 37 European bison are living in captivity in different Reserves and Zoos from Romania (10 in Vama Buzaului Reserve, 9 in Hateg Slivut Reserve, 7 in Vanatori Neamt Nature Park, 2 in Targu Mures Zoo, 4 in Resita Zoo, 1 in Targoviste Zoo, 2 in Hunedoara Zoo and 2 in Barlad Zoo) (E. bison pedigree book 2020).

Since 2014 a Stakeholders Working Group was created in Armenis (first reintroduction site in Southern Carpathians) by WWF Romania. Local authorities, various local experts (e.g., foresters, veterinarian practitioners) and local people were/are involved. A series of meetings were held before the LIFE Re-Bison project in order to prepare the ground for the reintroduction of the bison in Tarcu Mountains. Based on these meetings a local Association in Armenis – AMZA was created in the framework of the bison return into the area. The aim of the Association is to promote and develop ecotourism and small enterprises related to bison reintroduction into the wild.

The expected results of the project, as foreseen in the grant agreement, were:

- Through the release of a minimum of 100 animals, the population has increased from around 30 at the end of 2015 to 185 bison in Romania.
- The population is demographically and genetically viable and can survive without further structured reintroduction in the two areas.
- The genetic composition meets set targets to ensure a genetically viable population.
- Through adequate management procedures, such as elimination of supplementary winter feeding, the animals are not exposed to serious threats from disease transfer and parasites.
- Negative local opinion is not threatening the well-being and expansion of the two bison populations.
- New economic incentives are in place locally supporting the positive attitude towards the bison, such as a good system for conflict management and local businesses using the bison as the main target for attracting visitors and other income-generating activities.

- The local knowledge base for how to live with and manage the bison has increased.

The project has experienced an initial delay, due to problems in achieving permits for the construction of the release site in one of the two reintroduction areas, Poieni. Therefore, in this area the Bison releases have been delayed with two years.

Due to this and to other technical reasons, which are explained in Action C3 and paragraph 6.2, in the first semester of 2018 it became evident that it would not be possible to release the entire number of 100 Bison, as initially planned. Finally, totally 91 animals in 16 transports have been translocated to both reintroduction sites and Hunedoara Breeding centre: 74 bison to Armenis, 14 bison to Poieni and 3 to Hunedoara Breeding centre. This number matches the estimate of 85-90 animals that have been considered to be released since the mid-term report.

At the time of the mid-term report (September 2018) the population of wild Bison in the project areas has been estimated to be around 120 individuals at the end of the project. Moreover, it was predicted that at the end of the After-LIFE period the number would reach around 200 individuals, certainly depending very much on the rate of mortality and reproduction. We registered a total of 29 known cases of death among the translocated bison during the project period (see D1 action; all mortality events considered after the release date of 30.07.2016). Thus, we can report that with 88 bison released and 42 calves born in the wild, the population of free-living bison has exceeded the number of 100 animals. Due to the closing of the Poieni site, the overall reintroduction number has been reduced. We cannot conclude with certainty that the population in Armenis is genetically viable at the moment since there are different opinions about the number of animals in a population that define genetic viability. According to the Red List Guidelines (2019) and the new assessment of the species by the IUCN (2020) a bison population is considered viable when it reaches to 150 mature individuals (MVP – minimum viable population) and indicating that natural selection dynamics are operating adequately (<https://www.iucnredlist.org/species/2814/45156279#assessment-information>). However, we can report that the genetic analysis through modern SNP genotyping performed in 2021 has shown that the Southern Romanian reintroduction consists of LC animals that carry most of the genetic diversity found in this lineage.

Further we can state that conflicts are mitigated by preventive and reactive measures and the incomes have been partially increased in the community.

5. Technical part

5.1 Technical progress, per Action

Action A.1. Preparation of the administrative basis of the project

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.12.2016	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

This action aimed at guaranteeing the positive development of the project.

Progress:

The following preparatory activities have been carried out:

- Hiring dedicated project staff for RE – Project Manager, Financial Manager
- Agreements have been signed with external consultants, suppliers and service providers
Development and signing of partnership agreements
- Establishment of the project team
- Development/collection and update of internal rules regarding the procurement and reporting of travel costs
- Production of VAT exempt status declarations from both beneficiaries
- Production of a “Financial Monitoring Tool”, which was used to monitor the status of expenses per action and the budget changes
- Production of an internal cash flow model

Action A.2. Kick-off meeting and training of regional project leaders in regard to the Common Provisions and project management

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	30.06.2016	Actual (or anticipated) end date:	28.02.2016

Objective of the action:

The action aimed at briefing the staff on the main project management and implementation rules and at planning in detail the activities of the first year. These objectives have been achieved as foreseen.

Progress:

The kick-off meeting was held on the 17-18th of February in Haskovo, Bulgaria. It was held partially together with the kick-off meeting of the LIFE RE-Vultures Project (LIFE14NAT/NL/901).

The entire technical and administrative staff of all beneficiaries was present.

All the actions were discussed in order to agree on detailed timing, to analyse potential problems or delay and come up with solutions, and to coordinate the activities among the different beneficiaries. On the basis of this a time plan for the first year was produced.

A briefing of the technical and administrative rules for LIFE Projects has been made.

Moreover, the tools for project management and monitoring have been presented (e.g. monthly reports, Financial Monitoring Tool etc.)

Action A.3. Secure all necessary permits from authorities and landowners

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

This action aimed to secure all necessary permits from authorities and landowners for both release sites for a successful reintroduction of the bison. Although there has been a delay the permits were finally obtained, and the objectives of the project were successfully implemented in the Armenis area.

Progress:

For the Tarcu Mountains – Armenis area agreements with the landowners have been signed before the beginning of the project. For the Poiana Rusca Mountains – Poieni area agreements with the landowners were signed at the beginning of 2016. Other documents for proper function of the enclosure in Armenis were obtained during the LIFE project implementation (2016 – 2021).

Also, the building permit for the soft-release enclosure in Armenis was obtained before the beginning of the project. For the Poieni the building permits was obtained at the beginning of 2018. The initial milestone for obtaining the permit to build the enclosure was set in April 2016, but it was obtained with a delay of 21 months due to necessary documents to be obtained before applying for the final permit and because of the complex partnerships/collaboration with local, regional and national stakeholders/authorities, that had to be laid down in an official form, as follows:

A. General agreements for the reintroduction of E. bison in Poieni area:

1. Agreements with private landowners
2. Agreement with the Municipality of Densus Municipality
3. Agreement with SC Zimbru Densus SRL, the owner of the bison during acclimatization period in the soft-release enclosure

B. Specific agreements/permits for the reintroduction of the E. bison in Poieni area:

1. Agreement with Veterinarian, for the management of the bison in the enclosure.
2. Agreement with National Museum of Natural History for the management of the death animals (bison).
3. Certification for the Research in Natural Science and Raising other animals by the SC Zimbru Densus SRL necessary for the management of the bison inside the enclosure.
4. Permit from the Sanitary Veterinarian and Food Safety Authority in Hunedoara County.
5. Urban planning certificate from the Hunedoara County Council.
6. Agreement with SC Topolycons SRL for the topographical measurements.
7. Agreement with Citytplan SRL for the certified architectural project.
8. Permit from the Cadastral Survey Office in Hunedoara to include the enclosures in the cadastral survey of the county.
9. Permit from the Culture and Heritage Office in Hunedoara County required for checking whether there are archaeological or paleontological sites in the area where the soft-release enclosures are planned to be built.
10. Approval from the National Forest Administration – Hunedoara Unit and Densus Municipality to use the access roads to the soft-release enclosures.
11. Notification from the National Agency for Natural Protected Areas (NANPA).

12. Approval from the Romanian Academy of Science.
13. Environmental permit to build the soft-release enclosure in Poieni from HD EPA – the main cause of the delay was the release of this permit (explained in the Chapter 1.2. *Deviations and problems*).
14. Agreements of the landowners from the neighbourhood.
15. Building Permit issued on 05th of February 2018.

Environmental permits for E. bison translocation, acclimatization and release were obtained for Armenis from Caras-Severin EPA (CS EPA) in May 2016 and for Poieni from Hunedoara EPA on 13th of June 2018. Both permits have been initially issued for a term of validity of 5 years. In November 2019 the legislation has been changed and the term of validity for Environmental Authorisation was extended for an unlimited period, conditioned by an annual visa. These Environmental permits were renewed each year with the data and numbers of the new translocated bison and any other substantial changes. For the release of the Environmental Permits a series of other documents need to be prepared and obtained as follows:

- ✓ List of the bison which is proposed for translocation.
- ✓ Identification documents for each individual of European bison.
- ✓ Certificate of origin and genetic provenience for each individual of European bison released by the EBCC in Romania.
- ✓ Point of view from the National Working Group for the Conservation of European bison in Romania (NWG).
- ✓ Natura 2000 notification from National Agency for Natura Protected Areas (NANPA).
- ✓ Notification from the Romanian Academy of Science (RAS).
- ✓ Annual Monitoring Report

These documents need to be renewed for each new group of the European bison.

Other approval/agreement obtained:

- Agreement with the Hunedoara Municipality to establish a bison breeding center at the Hunedoara Zoo. The Hunedoara Municipality has translocated first 2 bison to this breeding centre in 2016.

The SDF of the Tarcu Mountains has been updated to include Bison.

Action A4. Preparation of a feasibility study

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.12.2016	Actual (or anticipated) end date:	31.08.2016

Objective of the action:

The objective to prepare a feasibility study in the second bison release site in the Poieni – Poiana Rusca Mountains range has been met.

Progress:

The feasibility study for a potential second release site was completed in March 2016, several months ahead of schedule.

The study contains the following information: area description, availability of suitable habitats & areas, habitat suitability (including expansion & ecological corridors), recommendations on bison source herds (genetic & health aspects), population development prospects, socio-economic aspects, interaction between game populations & livestock, risk management, guidelines for the reintroduction itself, monitoring and dissemination of results.

Action A5. Human dimension study on attitudes and impact

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.06.2017	Actual (or anticipated) end date:	31.06.2017

Objective of the action:

The action foresaw the preparation of a human dimension study in order to identify the main occupations and income sources of the population, environmental values, attitudes towards nature and wildlife, attitude towards the bison reintroduction project, key-stakeholders, the main issues and conflicts that could appear during the project implementation and on which groups to focus the attention of the project. This objective has been achieved.

Progress:

The human dimension study has been completed in March 2016. Quantitative and qualitative survey methods: 131 questionnaires and 30 semi structured interviews were conducted. Application method: face-to-face in 2 field sites (66 questionnaires in Armeniş, 65 questionnaires in Densuş) aimed at including locals from all the villages in the commune, focused on the ones closest to the release sites.

The finding of the study demonstrate that the bison rewilding project incontestably enjoys a high degree of support among the population from both areas of the project - 75,6%. There is nevertheless a significant difference between the two localities: in Armeniş 84,9% of the population support the project and in Densuş only 66,1%. The score in Densuş is however surprisingly high, as there had been no public meetings or public information at the time of survey.

The collected information has a number of valuable uses:

- *Better management decision:* better understanding of the communities' attitudes toward to bison and the project, which can lead to better decisions regarding communication and management.
- *Improved ability to predict local communities' responses to bison issues.*
- *Improved public trust in the project:* being able to demonstrate that the project team is interested in the local opinion, listens to and understands local opinions, attitudes, fear, needs, etc. can lead to increased positive perceptions of the project.
- *Conflict mitigation tool:* when sound scientific public data is shared with the public it often tends to moderate the conflict and the groups tend to become more willing to accept compromise solutions.
- *Evaluation of the project:* human dimension information is valuable in evaluating the project effectiveness and impact

Action A6. Development of GIS database for the area

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	30.09.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

The action foresaw the gathering of detailed information about the distribution of the specific intervention areas. This action was necessary for the monitoring of the effectiveness of the project actions in the future and for the monitoring and potential follow-up activities of the project.

Progress:

The GIS database started to be developed in May 2016. A list of monitoring fields to be introduced in the database was developed and based on this outline a platform (<http://zenithmaps.ro/wild.php>) have been developed where data was uploaded, and maps could instantly be developed.

<https://earthranger.com>/<https://earthranger.com>/<https://earthranger.com>/Starting with October 2020 the data collection and storage were transferred to a new platform – EarthRanger, an easy-to-use online solution developed by Allen Institute for AI. EarthRanger is not just a database (as it was previous database), it is an efficient management tool, with better integration possibilities such as animal and personal tracker devices (e.g., collars and GPS devices) and backward and forward linking of external data sources and GIS layers. It helps the entire team to stay informed in real time and the management team to make operational decisions for wildlife conservation and sustainable coexistence. Moreover, the new platform made it possible to create a direct link with ArcGIS Online and Tableau Software for better mapping, analyses, dashboard creation and sharing. For field data collection EarthRanger developed a project which is connected to the mobile applications *CyberTracker* which can be also used offline. It synchronises data to the online platform EarthRangers once connected to the internet. The ranger's activity can be followed through *ER Track* mobile application. The *CyberTracker* app can be also used by volunteers and key stakeholder from the project area.

<https://earthranger.com>/The data model and field forms were created based on the monitoring and management needs of the species since the beginning of the project. These were updated during the implementation of the project based on the gathered experience and lessons learned. Totally 20 report types (field forms) were setup of which 8 specifically directed to store data on bison observation (direct and indirect observations reports) and management (patrol activities, health, death, sampling, intervention and tranquilization reports). In total, 1825 data points (records) were collected from the field. These records were summarized in categorized data layers and an interactive dashboard in ArcGIS Online.

Besides these field data records, telemetry data from a total of 29 collared bison was collected and stored in the same platform EarthRanger. From this data, several products were created and shared to the ArcGIS Online portal.

Where relevant, the developed databases comply with the Commission's Regulation (EU) No 1253/2013 of 21 October 2013 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC establishing an Infrastructure for Spatial Information in the European Union (INSPIRE).

Action A7. Business opportunity identification and planning

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.12.2016	Actual (or anticipated) end date:	31.12.2016

Objective of the action:

This action aimed at identifying the enterprise opportunities in the area, especially the ones that will be implemented within the framework of action E12. The action has been developed as planned.

Progress:

The identification of all relevant and credible existing and potential bison-related tourism opportunities in the Southern Carpathians has been completed, as well as the assessment of the local entrepreneurs who were foreseen to be impacted both directly and indirectly by the development of these activities.

In September 2016 a meeting was held to review the core components of the proposed businesses and to determine their suitability for the project and local contexts (natural, social and economic).

Following developments from this meeting has been possible to address issues relating to conservation linkages and business planning. This included associated components such as human resourcing, financing, requisite authorisations and licenses, financing, land tenure considerations, target markets, capacity building and governance structure.

Action C1. Construction of temporary in-situ release facilities

Foreseen start date:	01.01.2016	Actual start date:	01.06.2016
Foreseen end date:	31.12.2016	Actual (or anticipated) end date:	30.06.2018

Objective of the action: The activity foresaw the construction of specific release infrastructures. Despite the delay in this Action, Bison were released in 2018 in this enclosure.

Progress:

Due to the delay in receiving the environmental permits necessary to obtain the building permits for the construction of the in-situ enclosure in Poieni, we were forced to postpone this until the end of January 2018.

After obtaining the building permit in February 2018, the facilities of soft-release enclosure were built during March – May 2018 period, as follows:

- For the construction of the acclimatization and quarantine zone a contract was signed with a local company. Until the first herd of the bison was translocated (2th of May 2018) the acclimatization zone was ready.
- The rewilding zone was constructed by the project rangers and volunteers and was ready and functional at the end of May 2018.
- The handling zone for veterinary check and tranquilization wasn't constructed at all (see down).

The legal reception of the construction, according to Romanian legislation was done in June 2018.

After the collaborations with local authorities and stakeholders ended and the Poieni reintroduction site was closed, the fence of the enclosure has been taken off. This was in the interest of the project area in order not to leave unused infrastructures in the field.

Problems/changes/delays:

The handling zone for veterinary check and tranquilization wasn't constructed because of the changes in the management of the species based on the experience gathered from the first reintroduction site in Armenis. The approach in the management of the European bison was to switch from an intensive management to a less intrusive one, in order for the animals not to get used with human constructions and presence. For treatment and tranquilization, if necessary, the acclimatisation zone can be used or a temporary (few days) handling zone can be set up with pylons and electric fence in an area where animals are already accommodated, in order not to increase their level of stress.

The wood which has left from the acclimatization zone was used to build a small wildlife hide (additional) near to the acclimatization zone for direct observation on the bison by rangers, photographs and scientist (behavioural observation) and maybe tourist.

Action C2. Selection and purchase of Bison from source populations

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

Select 100 bison to be transported to the reintroduction and breeding sites in Armenis, Poieni and Hunedoara Zoo. In total 91 European bison (Lowland Caucasian genetic line) have been selected from different breeding centers and zoos and translocated to project area. 88 have been released in the wild.

Progress:

Since the beginning of the project 91 genetically suitable European bison have been selected and translocated in the frame of the LIFE report in Romania as follow: 74 bison selected and translocated in Armenis site, 14 in Poieni and 3 animals at Hunedoara Breeding Centre.

The translocated European bison were selected from 32 different zoos, breeding centres and wildlife parks across Europe. With all these breeders or zoos Project Agreements for donation or purchased of E. bison were signed.

When the project bison started the selection was done mainly based on three factors (criteria):

- available animals of Lowland-Caucasian genetic line
- pedigree data. The animals were chosen based on the data from European Bison Pedigree¹ Book. For each selected individual a ***certificate of origin and genetic provenience*** was provided initially (2016 – 2018) by the IUCN Bison Specialist Group, Regional Office, Romania, then (2019 – 2021) by the European Bison Conservation Center² (EBCC), IUCN Bison Specialist Group, European Office and Warsaw University of Life Science, Poland. The Warsaw University keeps officially the E. bison genetic database. Also, an official letter from breeders concerning the Lowland-Caucasian origin of the animals was provided to support reintroduction program to get all national necessary permits (as described under A.3 action).
- health condition of the animals

Starting with 2019, three additional criteria were identified in the process of the animal selections:

- sex-ratio of reintroduced groups
- age structure of reintroduced groups
- habituation to humans

¹ EBPB- https://bpn.com.pl/index.php?option=com_content&task=view&id=1133&Itemid=213

² The EBCC is the International Network gathering European bison breeders from Poland, Germany, Russia, Sweden, Spain, Romania, Belgium, Czech Republic and Belarus. The EBCC is the long-term project of EBFS (European Bison Friend Society). The main goal of EBCC is to coordinate the flow and exchange of information between bison breeders from different European countries. Secondly, the function of EBCC is to create a platform of communication between European bison breeders, decision makers, conservationists and other interested parties to develop a common policy for bison conservation in Europe, despite the existence of differences in the rules of E. bison conservation in the various European countries.

Off course, the selection criteria cannot be all the time fulfilled, especially those related to age of the animals and habitation to humans. The final decision in this matter was taken based on the needs, such as animals with rare genes or underrepresented genetic line in the existing population etc.

For more details about selection criteria see Best Practice Manual, available on the project website

Before and during the initiative bison have been translocated in two different ways:

- acquired separately and then placed together in the acclimatization zone in the rewilding site (2014, 2015, 2016, 2018)
- in pre-formed social herds before transportation, accompanied by an adult female to provide social stability (2017, 2019, 2020 and 2021). Three different bison enclosures (Donaumoos, Springe and Avesta) kept several times bison for 4 to 8 months before transportation to the Armeniş rewilding site ensuring ***social herd formation*** between the selected individuals. In case of herds formed in Donaumoos and Springe bison were selected from different zoos/wild parks from across Europe. These groups were in minimum contact with humans, just caretakers and with no tourist contact. Keeping the animals several months together before transport in some situations has required extra financial support (care taking, food, possible medical treatment, etc.) which has not been considered in the initial project budget.

Habituation to humans. During project implementation we have observed that almost all bison-human conflicts were provoked by animals originating from small enclosures/zoos, where these are in permanent contact with humans/tourists. Starting with 2019 we have decided not to take anymore animals from small enclosure and to reintroduce them directly in the rewilding area, except if this are young, of around 1 – 1,5-year-old and are put together with the rest of the group prepared for reintroduction with at least 6 months before translocation, preferably more.

In 2021, for the first time in a bison reintroduction program was translocated a bachelor group (males between 2 and 4 years). The decision was taken based on the need to reintroduce animals (males) of specific genetic line such as 100 or 45 and to test if translocating males in a pre-formed bachelor group will lead to minimum bison-human conflicts in the area, as the males are more prone to produce conflicts in general.

New breeding center – An agreement with the Hunedoara Municipality to establish a bison breeding center at the Hunedoara Zoo was signed before the beginning of project (2015). First 2 bison (from Han-sur-Lesse (Belgium) and Bielefeld (Germany) were translocated to this breeding center in 2016. The first female calf has been born in the Hunedoara Breeding Center in 2017 and was released in Armenis site in 2019. Another calf has been born in 2019, but after one month died due unknown cause. An adult female (from Karlsruhe, Germany) has been included in the reintroduction program of the Hunedoara Zoo on the 18.09.2019.

During the implementation of the project the selection procedure was mainly an externalized service.

Problems/changes/delays:

1. The DNA analysis to determine the genetic suitability before translocation of the animals into the rewilding area wasn't undertaken during project implementation. This decision was

taken since the traditional molecular toolsets, such as microsatellites, fail to provide sufficient resolution for basic individual discrimination and consequently, hamper accurate analysis of kinship or genetic diversity due to the low allelic diversity of the species. In this respect, applying genetic information to support *ex situ*-breeding management or non-invasive population monitoring was not feasible. The confirmation of the origin's animals in this situation was done through *Certificates of origin and genetic provenience* as explained above.

However, since the beginning of the LIFE project we have collected and preserved blood samples from all translocated animals waiting for the scientists to improve/ to develop a more accurate method for molecular analysis of E. bison. During 2019, a new DNA method for genetic assessment named **SNPs** (Single Nucleotide Polymorphisms Chip) was developed by Senckenberg Center for Wildlife Genetics, Germany. So, in 2021, in total 60 biological samples collected from translocated animals in the rewilding area have been genetically analysed. Additionally, 67 samples were collected from the field, to assess the reproductive success of the existing individuals. ***The results shown that the reintroduced E. bison population in Armenis site consists of LC animals that carry most of the genetic diversity found in this lineage.***

Action C3. Transport and release of 100 Bison

Foreseen start date: 01.01.2016 Actual start date: 01.01.2016
Foreseen end date: 31.12.2020 Actual (or anticipated) end date: 30.09.2021

Objective of the action:

This was the core action of the project, aiming at the establishment of a new, viable population of European bison in the Romanian Southern Carpathian Mountains. A total of 91 European bison have been translocated and 88 released into the wild, which is only slightly below the foreseen threshold.

Progress

Totally 91 European bison were successfully translocated and 88 released into the wild of the project areas (Armeniş and Poieni). In total 16 bison transports (including 2 transports to Hunedoara Zoo) were organised as follows:

Table 1. Details of transports of E. bison during the LIFE Re-BISON project

No.	Date of transport	Location/s of loading	No. of bison /transports	Location of reintroduction	Transport company
1	25.05.2016	Han-sur-Lesse, BE Bielefeld, DE	2 bison	HD Zoo	Transport arranged by Flaxfield Nature Consultancy (Netherlands)
2	11.06.2016	Bellewaerde, BE Han-sur-Lesse, BE Springe, DE	10 bison	Armenis	V.O.F. International Transport Gerb Strijk (Netherlands)
3	10.05.2017	Avesta Visentpark, SE	9 bison	Armenis	“Snavelhof” company (Netherlands).
4	02.05.2018	Vama Buzaului Bison Reserve, RO	2 bison	Poieni	LIFE team
5	04.05.2018	Vama Buzaului Bison Reserve, RO	2 bison	Armenis	LIFE team
6	10.05.2018	Springe, DE Bad Berleburg, DE Donaumoos, DE	12 bison	Poieni	Hunland Trans Kft. via Intradco Cargo Services Ltd

7	16.05.2018	Parco Natura Viva, Bussolengo, Italy	2 bison	Armenis	Transport organized by the owner of the animals
8	16.05.2018	Damerower Werder Berlin TP	5 bison	Armenis	Transport organized Berlin TP, Germany
9	16.06.2019	Hunedoara Zoo Breeding Center, RO	1 bison	Armenis	LIFE team
10	20.06.2019	Springe, DE	7 bison	Armenis	Hunland Trans Kft.
11	20.06.2019	Karlsruhe Zoo	1 bison	HD Zoo	Hunland Trans Kft. and LIFE team (from Armenis to HD Zoo)
12	18.09.2019	Donaumoos, DE	4 bison	Armenis	Hunland Trans Kft.
13	22.07.2020	Springe, DE	8 bison	Armenis	Hunland Trans Kft.
14	13.05.2021	Springe, DE Donaumoos, DE	13 bison	Armenis	Hunland Trans Kft.
15	23.05.2021	Avesta Visentpark, SE	6 bison	Armenis	Hunland Trans Kft.
16	20.06.2021	Donaumoos, DE	7 bison	Armenis	Hunland Trans Kft.

In 2017, 2019, 2020 and 2021 all animals (except one – the female from HD Zoo) were translocated and transported in pre-formed social groups which were kept them for several months together to ensure a strong social bond between animals before translocation to Romania.

The transport companies were selected based on the best value for price and quality of the services. Due to the remote nature of the unloading point at the rewilding sites, and the difficult nature of the approach roads, the transport company had to meet certain technical obligations – a short truck with trailer to enable manoeuvring in limited space, and a high vehicle ground clearance to enable passage on forestry roads. A good collaboration with the Hungarian transport company Hunland was achieved that has successfully translocated 8 times bison herds between 2018-2021. Both parts, the transport team and the rewilding team, have gained solid expertise in loading, transport, and unloading of the species *E. bison*.

Prior to transports the following actions were necessary:

- to make all arrangements for the following and assume the cost thereof: transport documentations, blood tests and health certificates for each individual, specialized transport assistance, specialized veterinary assistance.
- the maintenance/repairation of the electric fence from the acclimatization zones (Armenis and Poieni): clearance of the vegetation around the fence.
- to repair the access roads (forestry) to soft-release facilities in both reintroduction sites. On yearly basis, heavy rains damaged the road significantly and additional damage was caused by heavy-duty forest vehicles. In such a state the road was inaccessible for trucks transporting the European bison. Therefore, road repairs needed to be made shortly before the transport event. Although the road maintenance was responsibility of the forestry management units/or municipality, the project needed to generate funds for annual road repairs in order not to jeopardize the transports and put the animals of risk to injury. During project implementation around €13.700 were spent for the purchase of the repair materials and road repairs tools. It was decided to limit the contracting to local suppliers and companies in order to assure that the project would contribute to local economies and enhance acceptance of the bison by the local communities. At the same time, we assured that the costs did not differ from the current market condition.
- to obtain the Environmental Permits for the bison acclimatization process and release into the wild prior to transports, as described in Action A.3.

These actions have been conducted for every transport until the end of the project.

After the translocation, the animals were initially (during 2016 – 2018) released based on the ‘soft-release’ method, which imply the gradual enlargement of the bison habitat over a longer period, helping the animals to slowly familiarize themselves to the novel habitat condition in a controlled way. Therefore, the animals were kept at least 21 days (legally quarantine period) up to one month in the acclimatization zone and another 4 to 8 weeks in the rewilding zone. Starting with 2019 the ‘soft-release’ method was adapted, by eliminating keeping the animals in the rewilding zone (for more explanation see *problems/changes/delays*). After the period of acclimatization/rewilding, the animals were released into the wild and monitor according to description under Action D.1. The animals were fed for about 4 to 10 weeks and after that the feeding was stopped. The methodology of the acclimatization and rewilding process is described in **Chapter 6.3**.

Problems/changes/delays:

(1) In the first years of the project, we have encountered high rate of mortality amongst newly translocated animals and high numbers of human-bison conflicts. Looking for solutions we have linked these two aspects with animal’s **high level of stress** and with **the level of habituation to humans**.

Translocating and preparing animals to be reintroduced in a new area site is putting a lot of stress on the animals, such as:

- stress of getting accounted with an unknown new habitat
- physiological stress due to new type of food and load of new parasites,
- social stress, from being taking out of their ‘safe’ social structure and interacting with new animals (bison) in a new unknown environment,
- interaction with other species, especially with predators such as wolves and bears,
- climatic stress, as the climate may be quite different from their original location
- immobilisation, and transportation procedures.

All these is putting a lot of pressure on the animals, and they can fast drop weight and become immunosuppressed which in final can lead to death.

Bison is a social animal which lives in herds, except some of the mature males which prefer solitude. ***Forming social herds before transportation and reducing the social stress of the animals it may be the key to reduce the rate of mortality and human-bison conflicts resulting in a successful reintroduction program.***

Until 2019, almost all translocated bison were separately acquired and put together in the acclimatization zone, an unknown area, except in 2017, when first group of 9 bison were translocated from Avesta Visentpark, Sweden. The Avesta animals were kept together in a separate enclosure around 1 year before translocation into the rewilding area, which allow them to build a strong social structure. Also, a minimum human contact with animals was maintained during all this period (just by caretaker and veterinarian; no contact with tourists), which may have contributed for the animals to become “wilder”. Up to 2019, this group presented the lowest rate of mortality and no conflicts in the area were registered. The rest of the animals translocated in 2016 and 2018 (and before the LIFE program in 2014 and 2015) presented a high rate of mortality and produced several conflicts. The reason could be that the animals were not bonding properly because of other related stress factors mentioned above.

Starting with 2019, all animals were translocated in pre-formed social herds. All of them presented the lowest rate of mortality and up to now no conflicts were provoked by the new arrivals.

This method alongside selection criteria proved to be very effective in preventing mortality and human-bison-conflicts which in turn are the two most essential aspects for bison survival and sustainable coexistence, and thus for a successful population recovery.

(2) The “soft-release” method was adapted/changed, based on a lesson learned by accident. The main trigger to adapt the release methodology was a “*natural release*” situation. In the fourth year of the project (2019) two of the translocated groups of European bison (pre-formed social groups) were ‘naturally released’ from the enclosure by a free 6-year-old bull, who broke the fence of the acclimatization zone. The most probable cause was the interest of the bull towards females. These groups stayed with the bull for a few days and after that joined the free-living herds, which happened to be near to the acclimatization zone. These groups adapted well to the novel habitat, as they had guidance from free-living herds. Since the incident in the following years of the project, we have released the new bison groups right after the acclimatization period (without putting them through rewilding period). The release of the bison from the acclimatization zone was coordinated with the movement of the free-living herds which were close to the pre-release infrastructure. The bonding, behaviour and good health condition were nevertheless taken into consideration. All groups had adapted perfectly to the new environment conditions with no casualties so far. Also, a fast integration of the newly released groups within the free-ranging ones may decrease conflicts with people. Calves born into the wild are not used to human contact or artificial feeding, so the natural behaviour is to avoid human presence and this behaviour is embraced by the whole herd for the protection of offspring.

(3) Unclear legislation regarding release of the bison in the wilderness.

All natural habitats in protected and unprotected areas in Romania are part of hunting grounds, thus all species, game and protected one are managed by the hunting units. Where a hunting unit is overlapping with a protected area, this area is managed also by the National Authority of Natural Protected Areas (NANPA), except natural and national park were hunting grounds are administered by the park’s administrations.

In this situation the Romanian legislation concerning species reintroduction (release into the wild and management) is not clear about each authority’s responsibility.

The Ministry of Environment has included the E. bison as a priority species in the Natura 2000 site SDF at the beginning of 2021, which means that the officially the species should be managed by NANPA. But the NANPA (regional office) do not have the adequate capacity to manage the species.

The legislation regarding species reintroduction is vague with regards to the legal requirements of the hunting associations. As part of permitting procedure, hunting associations were informed about the release of bison in Armenis starting with 2016, and every year since that and in Poieni in 2018. However, a clear procedure of release and including of the bison in the management plans of hunting units is not legislated and until this day officially none of the existing bison population across Romanian are included into the management of the local hunting units. This is one of the issues which lead to the opposition of the hunting unit from Poieni site against reintroduction of the bison and thus closing of the area as explained in Paragraph 6.2.

Action C4. Prevention of conflicts between the bison populations and local communities

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.09.2020	Actual (or anticipated) end date:	31.09.2021

Objective of the action:

The action aimed to reduce conflicts with local landowners and land users and to introduce a set of prevention measures to reduce/eliminate damages on crops, fences, farms or domestic animals.

Progress:

Since the beginning of the project a total of 12 cases of bison-human conflicts occurred at both reintroduction sites and was managed as described in the below table.

Table 2. Bison-human conflict in Armenis reintroduction site

RE area	No.	Year	No of animals	Location	Damages/ Threat	Action taken / preventing measures
ARMENIS	1	2016 (winter)	1 female	Fenes	Haystacks	Repelling with human dominance
	2	2017 (winter)	1 male	Fenes	Orchards	Repelling with human dominance Installing electric fence
	3	2017 (winter)	1 male	Fenes	Posing threat to humans in the village	Repelling with human dominance Immobilisation and relocation in remote area
	4	2019 (winter)	1 female, 1 male	Sat Batran	Orchids Haystacks Posing threat to humans in the village	Repelling with human dominance Olfactory and sound repellents EM-non-lethal ammunition
	5	2019 (winter)	1 male	Submargine	No specific damages	Repelling with human dominance
	6	2019 (winter)	1 animal	Plopu	Haystack	Buying the rest of the haystack from the owner and let the bison to eat it
	7	2019 (winter)	A small herd of bison	Plopu	Haystacks	Buying the rest of the haystack from the owner and let the bison to eat it
	8	2019	1 Calf	Rusca	Poaching (was caught in an illegal snare intended for wild boar) _	Intervention with a veterinarian, police, and environmental guard. Immobilization, treatment, and release.
	9	2021 (spring)	3 males	Fenes	Agricultural land	Repelling with human dominance Installing electric fence Immobilisation and collaring one male.
POIENI	10	2018/2019	1 male	Pestenita	Orchards, agricultural land, haystacks, cemetery, threat to humans	Repelling with human dominance Olfactory and sound repellents EM-non-lethal ammunition Chasing with the drone Protecting haystacks with wire mesh Installing electric fence Immobilisation and relocation in remote area
	11	2019	3 females	Steii	Private gardens	Repelling with human dominance Installing electric fence
	12	2019	1 male	Poieni	No specific damages	Repelling with human dominance

The measure taken to prevent conflicts were:

- ▶
- ▶
- Constant monitoring of the bison to keep track of their location (particularly those without any GPS collars) to prevent conflict.
- Using GPS collars, as many as possible, to monitor bison movement and to alert the team when the animals wandered too close to sensitive areas such as hamlets, villages, orchards, haystacks etc.
- From 2019 onwards all GPS collars were fitted with virtual fence functionality – such fences were established around all villages in the initiative area.
- Potential conflict zones around Armenis have been identified, mapped and included in the GIS database.
- In total more than 9 km electric fence were installed around 18 private properties to protect them from possible damage. Most of the electric fence was installed around properties which are in the area where bison are roaming during the wintertime.
- During harsh winters food for bison (hay) was placed in several locations in remote areas typically frequented by the animals at that time of year.
- Progressive awareness among locals to implement preventive measures to protect their good (removing haystacks, surrounding their properties with fences etc.).
- Communication at local level to improve perception of locals towards wildlife, leading to higher tolerance towards bison.
- Testing mechanical feeders for game species in order to avoid conflict between hunters and bison.
- Involving local stakeholders in conflict management, such as hunters

Response to ongoing bison-human conflicts:

- A conflict prevention protocol was developed and is implemented each time when a conflict is ongoing.
- One local intervention team was established in 2019 at the Armenis site, consisting of the project rangers and three local hunters and the wildlife veterinary of the project, to help with monitoring and to handle adequately human-bison conflicts.
- EarthRanger platform has an alert system which has been used in the last year of the project to inform the team about an ongoing conflict in real time. This system will be available for the key stakeholders in the future, so that conflicts can be managed more efficiently.
- Applying deterrent measures: use of drone, sound with firecrackers, olfactive deterrents, human-dominance, EM non-lethal wildlife deterrent ammunition etc. to remove bison from conflict areas.
- Immobilisation and relocation to a remote area/back in the enclosure of the problematic animals. This was done 3 times during project implementation
- Fitting problematic animals with GPS collars (1 time).
- In addition, the project team directly supported the submission of 2 claims to the competent authorities for legal compensation of the damages caused by the European bison.
- A “Crisis management protocol” was developed in 2018. This is an internal document for the team members to give guidance how to communicate in a conflict situation at local, regional and national level, if it is necessary.

Problems/changes/delays:

1. **Human-bison conflict**, especially in the Poieni site was difficult to manage due to unclear legislation concerning the management of a reintroduced species by the hunting unit (as

mentioned at C3 action and Paragraph 5.2.). The challenges were originated from the following situations:

- *Intensive artificial feeding of the hunting areas.* Supplementary feeding is a common management practice of the game species. In Armenis site, bison are rooming on two hunting grounds. On both site the feeding management is not too intensive and during the project implementation there was no major conflict with game species or hunters. In Poieni site there are 28 artificial feeding stations across 11.000 ha. Of these 28 stations, 9 were close to the bison pre-release infrastructure, while other were close to human settlements. Also, the amount of food placed for game species was enormous – around 12 tons during a six-month period. In this context the food was easily accessible for bison, which led to bison coming in proximity with people/villages resulting several conflicts with locals and hunter association, in detriment of the project.
- *Poieni pre-release infrastructure installed too close to settlements.* Due to the limited road access to this remote area, the options of where to build a pre-release site were limited from the start and therefore, a non-ideal location had to be selected. This together with feeding management of the hunting unit resulted in the animals being drawn to settlement areas. The efforts to lead the animals away from settlements, were not entirely successful. While the animals' natural behaviour in new areas was expected and planned for, the habitat suitability of the Poieni reintroduction site was overestimated, whereas the influence of certain hunting management practices was underestimated.
- *Long time for getting Special Permit for immobilisation.* To immobilize a protected species in Romania a Special Permit needs to be released by the Ministry of Environment. If the targeted species do not pose threat to humans (as bears) the procedure to release this Special Permit is quite long. In 2019, we have requested (3 times) a Special Permit to tranquilize a bison which did a lot of damages in the Poieni site. It took for the Ministry of Environment to release the permit around 6 months, even we had put a lot of efforts in convincing the Ministry that there is no other solution for this specific individual. In all this time bison stayed in the village and this resulted in a lot of complains from locals and authorities.
- *Lack of support from hunting units to manage the conflicts.* Due to the unclear legal framework the collaboration with local hunting units in both sites was difficult. The hunting unit from Poieni (Valea Fierului) do not support the bison reintroduction and as a result we had difficulties in managing the bison-human conflicts and lost support of local authority (which strongly supported the hunting unit). The Armenis rewilding site is overlapping with two hunting units, Armenis which officially did not support us, but unofficially we did work together and Higege hunting unit (southern to Armenis) which has strongly supported the reintroduction project, being involved in monitoring and conflict management.

Action C.5 Consultation activities to involve crucial stakeholders to gain their support for the project implementation

Foreseen start date:	01.01.2017	Actual start date:	01.01.2016
Foreseen end date:	31.09.2020	Actual (or anticipated) end date:	31.09.2021

Objective of the action:

The action aimed at direct involvement of stakeholders in management decisions and implementation through the development of an ongoing stakeholder consultation process.

Progress:

Since the beginning of the project around 150 meetings have taken place with local, regional national and European stakeholders. The scope of the meetings was for consultation, involvement of different stakeholders in the implementation of the project, establishment of partnerships, for obtaining required permits, for informing communities and affected stakeholders. Participants lists, for almost all of them and photos, but also minutes from the most important ones are available.

The project team has also participated in several important official meetings at the Environmental Protection Agencies in Caras-Severin and Hunedoara counties (related to permits), Forest Guard – Resita office (related to conflict management), at the Ministry of Environment (at least 20 times concerning legal framework for bison reintroduction) and at the National Agency for Protected Areas – 1 time. Most of these meetings are attested through official invitations, correspondence, minutes, e-mails.

Moreover, on a weekly basis we are having informal meetings with many stakeholders in the local communities, but also authorities and local partners in the project area e.g., schools, local suppliers, hunting associations etc.

A Stakeholders Working Group (SWG) was created and since the beginning of the project several meetings occurred. The aim of a the SWG is to create a proper frame for the reintroduction of the European bison in the Southern Carpathians and to build up conservation enterprises around the bison reintroduction like wildlife watching, photography, ecotourism, local products, souvenirs etc. However, it has proven that due to strong different opinions of the SWG members concerning bison reintroduction in the area, the group wasn't efficient and did not result in concrete actions. So, we have decided to approach the stakeholders separately or in small groups, depending on the topic, which resulted in more efficient collaboration and partnerships (e.g., partnership with Higege hunting unit, collaboration with Armenis hunting unit – Local Intervention Team, partnerships with local school and municipality etc.). Starting with March 2020, it was difficult to organize face-to face meetings with stakeholders due to the Covid-19 restrictions.

A very important accomplishment has been the re-establishment of the National Working Group for the Conservation of European bison in Romania, which plays an active role in developing policies and strategies for the conservation of bison at a national level. This Group is involved in setting up a wider framework for the reintroduction projects in other areas of interest and changing the legislation regarding bison reintroduction and management.

Results achieved through the consultation meetings are represented in the below table:

Table 3. Summary of stakeholder meetings made

Key stakeholders	Level	Role / Activity where the key stakeholder / partners were involved
Ministry of Environment	national	<ul style="list-style-type: none">• Working on the legal framework• Support the management decision• Support for the conflict management (derogation)• Include the species in SDF of Natura 2000 site (if this is the case)
National Agency for Protected Areas	national	Release of the Agreement for each reintroduced group/or animal in the wilderness
Environmental Protection Agency (Caras-Severin and Hunedoara	regional	Release of the Environmental Permit

Sanitary Veterinary and Food Safety Authority	regional	<ul style="list-style-type: none"> ▪ Release of the Veterinarian Authorization for the acclimatization facilities ▪ Necessary veterinarians analyse for TRACES ▪ Approve TRACES ▪ Intervene in case of diseases outbreak ▪ Necropsy in case of death animal and setting up the cause of death
Environmental Guard	regional	<ul style="list-style-type: none"> ▪ Regular monitoring of the project implementation according to Environmental Permit conditions
Forest Guard	regional	<ul style="list-style-type: none"> ▪ Hunting management decision ▪ Establishment of damages due to bison – human conflicts ▪ Poaching
Hunting units Armenis 19 (Armenis) and Higege (Teregova) and Valea Fierului 45 (Poieni)	Local	<ul style="list-style-type: none"> ▪ Involvement in bison monitoring, especially interactions between game species and bison ▪ Involvement in management of bison-human conflicts (e.g, local hunting unit)
National Forest Administration ROMSILVA/Resita Forest Unit	Local	<ul style="list-style-type: none"> ▪ Managers of the forest/support the team with information about forest structure ▪ Managers of the hunting areas and game species management ▪ Support with access to acclimatization /rewilding facilities during bison transport ▪ Involvement on bison monitoring
Shepherds (Armenis and Poieni)	Local	<ul style="list-style-type: none"> ▪ Involvement on monitoring the interaction between bison and livestock
Local Municipality (Armenis and Poieni)	Local	<ul style="list-style-type: none"> ▪ Support in communication with locals ▪ Support to identify likely proprieties/orchards to damages ▪ Support management of bison-human conflicts ▪ Motivate locals to develop nature-based enterprises ▪ Support to implement educational program
Landowners (Armenis, Poieni)	Local	<ul style="list-style-type: none"> ▪ To help to identify likely proprieties/orchards to damages ▪ To support management of bison-human conflicts ▪ To be involved in nature-based enterprises
Local farmers (Armenis)	local	<ul style="list-style-type: none"> ▪ Central role at community level ▪ Maintaining good agricultural practices ▪ Providers of local goods and service related to hospitality
Breeding centres /zoos /wildlife parks	European	<ul style="list-style-type: none"> ▪ to provide proper animals for reintroduction based on selection criteria ▪ to provide support to form non-habituated social groups prior to translocation in the reintroduction site ▪ to make sure that all veterinarian requirements are fulfilled ▪ to collaborate with the team to improving tranquilization and loading processes
EBCC (European Bison Conservation Center)	European	<ul style="list-style-type: none"> ▪ to provide information about bison genetic (Origin certificate)
EBPB (European Bison Pedigree Book)	European	<ul style="list-style-type: none"> ▪ to provide information about bison genetic (Origin certificate) ▪ to keep up the evidence of the free-living new bison population
Universities (Warshaw University of Life Science, Veterinarian University of Cluj-Napoca, Senckenberg Institute etc)	International	<ul style="list-style-type: none"> ▪ to study, monitor and support scientific publication regarding: population dynamics, habitat use, home range progress, parasitological and DNA monitoring, spatial behaviour etc.
IUCN, BSG (Bison Specialist Group)	International	<ul style="list-style-type: none"> ▪ sharing knowledge about lessons learn in bison reintroduction project across the world
International and national tour operators	National and international	<ul style="list-style-type: none"> ▪ raising awareness among public ▪ involved in a well-coordinated ecotourism programme

Local business and entrepreneurs	local	▪ support bison conservation by developing nature friendly businesses, support human-bison conflict management
Schools	local	▪ education of the younger generation about the environment and nature-based enterprises

Problems/changes/delays:

The Poieni release site had to be closed due to inadequate infrastructure, unclear legislation for species reintroduction and its management, and uncontrolled supplementary game feeding by the local hunting association that led inevitably to human-bison-conflicts and insolvable disputes between stakeholders in this area. Nevertheless, the communication with some key stakeholders (municipality, landowners) has continued until end of the project.

The communication with the Ministry of Environment, Forest and Water in some situation it was difficult because of a lot of changes in its structure and political context. At the beginning of project there were two different Ministries with whom we have collaborated, up to 2019 – the Ministry of Environment and Ministry of Water and Forest (where the hunting department was included). In 2019 these two ministries have merged in one - Ministry of Environment, Water and Forest (MoE). Also, in the past 6 years there has been 4 times changes in the internal organization of the MoE and in some cases we have lost our main contacts, being forced to start all over again.

Action D1. Monitoring of released animals

Foreseen start date:	01.01.2016	Actual start date:	04.01.2016
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

The action aimed to out monitoring actions to get a better understanding of the habitat use, plan potential ecological corridors in areas with barriers, prevent poaching, offer commercial wildlife watching opportunities and, finally, mitigate human – bison conflicts.

Progress:

The monitoring frame used to monitor the European bison reintroduction effort in the Southern Carpathians is describe in Table 3. The monitoring was done in Armenis reintroduction site since May 2016. Similar monitoring activities started in Poieni in May 2018, when first bison were translocated here but were reorganized after stopping reintroduction of bison in the Poieni rewilding site, at the beginning of 2020 (according to amendments of the project). In the Armenis are the monitoring will continue in the After LIFE period.

Table 4. Monitoring framework of the European bison population in Tarcu Mountains

Monitoring target	Monitoring aspect	Monitoring method
Animal/Population Fitness	Health surveillance: 1. Medical condition 2. Physiological fitness 3. Behaviour	Direct and indirect observation, blood testing, GPS tracking (mortality sensor), post-mortem examination (necropsy) Body Condition Score Scheme (BSC)
	Parasitological infestation/load	Faeces sampling, laboratory analysis, DNA extraction
	Genetic attributes Demographic & genetic status	DNA extraction from scat, saliva and blood samples, laboratory analysis
Animal Behaviour & Ecology	Bison behaviour (patterns): 1) Daily activity behaviour 2) Behavioural movement patterns 3) Inter-and-intraspecific interaction	Direct and indirect observation, camera trapping, GPS tracking

	Bison ecology 1) Habitat use 2) Home range 3) Habitat suitability	Direct and indirect observation, camera trapping, GPS tracking
	Bison – Human Conflict behaviour	Direct and indirect observation, camera trapping, GPS tracking (Virtual fence mode)
Population Dynamics	Population Structure	Direct and indirect observation, camera trapping
	Mortality/Survival	Direct and indirect observation, statistical analysis

Monitoring activities involved the following:

- **using GPS collars:** since the beginning of the project 28 times GPS collars have been fitted on the bison for monitoring purpose, 10 collars are still active and in use at the moment (Table 4). Based on GPS movement data of 14 collars, home range calculations and a habitat suitability analysis (including connectivity with other areas) were performed in 2021 (details of the survey can be found in the monitoring report)

Table 5. GPS collars fitted on the bison during the project implementation

No.	Name of the animal	Translocation in the rewilding area	Deployment/ release date in the wild	Last data received
1	Romanita IV	17.05.2014	31.07.2016	02.06.2017
2	AvBilbo	23.04.2017	31.07.2017	24.07.2017
3	AvGunni	23.04.2017	30.08.2017	26.03.2019
4	Tirunesh	16.05.2018	30.08.2018	11.06.2019
5	Rogu	16.05.2018	30.08.2018	27.02.2019
6	Sporty	16.05.2018	30.08.2018	23.06.2018
7	Quax	16.05.2018	30.08.2018	19.06.2018
8	Romicu	16.05.2018	30.08.2018	18.07.2019
9	Spresa	20.06.2019	06.08.2019	22.01.2021
10	Curt II	20.06.2019	06.08.2019	18.08.2020
11	Hogir	20.06.2019	06.08.2019	10.05.2020
12	Donia	18.09.2019	03.10.2019	10.10.2020
13	Romarta	18.09.2019	03.10.2019	Transmitting data
14	Eggehexe	23.07.2020	07.09.2020	Transmitting data
15	Spendera	23.07.2020	07.09.2020	Transmitting data
16	Abnesa	23.07.2020	07.09.2020	02.05.2021
17	Donut	23.07.2020	07.09.2020	04.04.2021
18	Donthor	23.07.2020	07.09.2020	Transmitting data
19	Daminga	13.05.2021		18.05.2021 Collar stuck on horn, removed before release
20	Ki-Wanda	13.05.2021	15.06.2021	Transmitting data
21	Donnerlittchen	13.05.2021	15.06.2021	15.07.2021
22	Leif	23.05.2021	15.06.2021	14.12.2021
23	Rut	23.05.2021	15.06.2021	Transmitting data
24	Doncarlos	30.06.2021		27.06.2021
25	Donaukurier	30.06.2021	20.08.2021	Transmitting data

26	Donky	30.06.2021	20.08.2021	Transmitting data
27	Doncarlos	30.06.2021	20.08.2021	Transmitting data
28	Bilbo (collared second time in wild)		14.04.2021	Transmitting data

- **20 camera traps** were installed and used to monitor the behaviour of the bison inside and outside the soft-release enclosure and the presence of the bison and other wildlife in the wild. Video footage collected between January 2016 and September 2019 was organized and edited on the Agouti platform (www.agouti.eu) and resulted in over 200 hours of camera trap footage were captured. Photo material was stored on www.camelotproject.org. The rest of the video footage photo material collected during September 2019 – September 2021 was stored on external driver and it is to be analysed.
- **field work (monitoring methods)** were carried out by the rangers and the project officer (e.g., verifying the position of the GPS collared animals with VHF receiver, following tracks, evaluate health of the animals, monitoring the behaviour and whereabouts of the bison in order to prevent human-bison conflicts).
- **Health assessments** of the bison both in the wild and during the acclimatization and rewilding phases were carried out by the rangers, under a veterinarian supervision. (detailed description in the monitoring report).
- **Sample collection was done for parasitological and genetic monitoring.** Details can be found in the monitoring report. The genetic results shown that the reintroduced E. bison population in Armenis site consists of LC animals that carry most of the genetic diversity found in this lineage.
- **Monitoring sheets** have been developed according to the requirements of field monitoring/interventions and were integrated into the EarthRanger platform, in which data from the field is directly uploaded in the respective thematic field forms via CyberTracker mobile app. A total of such 20 report types were setup of which 8 specifically directed to store data on bison observation (direct and indirect observations reports) and management (patrol activities, health, death, sampling, intervention and tranquilization reports).
- Periodically direct and indirect observations of bison were carried out in the field by the **young practitioners** as part of WWF's Bison Hillock field research programme. The program was carried out during 2016 – 2018 with the financial support of the Swiss-Romanian Cooperation Programme and WWF International (outside LIFE). Monitoring protocols on habitat use, diet, behaviour and human-bison conflicts were applied by the practitioners.

Action D.2. Monitoring of the social impact of the project

Foreseen start date: 01.07.2019 Actual start date: 01.07.2019
Foreseen end date: 31.12.2020 Actual (or anticipated) end date: 30.09.2021

Objective of the action:

The aim of the action was to understand if and how the perceptions of stakeholders towards the project have changed as well as to measure how the activities, especially action C5 “Consultation activities to involve crucial stakeholders to gain support for the project implementation” have generated a positive shift in the stakeholders’ initial interest. Monitoring the attitudes, interest and impact of stakeholders was intended to be an indication of the success of the project.

Progress:

The study was carried out during 03/2020 – 03/2021 by Exclusive Minds with a small delay due to Covid-19 restrictions. The study was based on quantitative survey methodology, coupled with qualitative elements. The primary method of investigation of communities' attitude and perceptions toward the European bison reintroduction was **questionnaire survey**.

The survey itself was applied during August – November 2020 in both locations Armenis and Poieni and comprised a number of 156 filled questionnaires, of which 44 (28%) from Densus/Poieni area and 112 (72%) from Armenis area. In addition to the survey, several short informative open-ended questions were addressed. Some of the questionnaires targeting authorities were administered online, via email and online survey software. The rate of replies to the online survey request was initially very low. However, several authorities responded upon repeated requests, enforced also via telephone requests.

The survey contained 31 topics of investigation, some of which were detailed in up to 12 different questions/itmes, as per-coded queries.

The targeted categories of stakhodlers in both rewilding locations were:

- local population, such as farmers, retired persons, waged-labroures, local entrepreneurs in the field of frestry, tourism, agriculture and farmers.
- Authorities, such as public autoritie, forestry authorities and hunting associations.

Also, the results of the study were compared with the previous results from 2016.

The findings show that the local community of Armenis holds the project in high positive regards on most dimensions investigated and that the project was a success and appreciate the professional attitude of the project team, while, while in Densus-Poieni area the overall tone of local community is negative, as expected, the attitude of locals being critical, while the authorities express a balanced attitude. 89% of the people of the Armeniş and Densus communities consider the bison beautiful and key species for the environment. Only 57% of the population of Densus-Poieni still agreed with the project, while in Armeniş the percentage of support rose to 90%.

The results of the survey were presented and discussed with the local community on 1st of July 2021 and with the regional and national stakeholders on 23th of September 2021 during closing event.

Action D.3. Monitoring of the economic impact of the project

Foreseen start date:	01.01.2017	Actual start date:	01.01.2017
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

The action aimed to understand if and how the project activities, and especially action E12, have generated economic benefits for the relevant stakeholders.

Progress:

In order to create a monitoring system that follows the economic impact the bison project has at local level we focused our attention on the basics needed to develop nature conservation enterprises. We mapped the local resources and opportunities as well as the challenges in turning those in viable economic products and as a result we developed an indicator system relevant to the capacity building needs identified.

In the Armenis area, which people started calling the “Bison Hillock” 4 main HR challenges were identified in setting up sustainable businesses as a result of the bison.

1. Lack of confidence to start something new
2. Lack of infrastructure for commercialising local food products
3. Lack of knowledge, capacity and skills to run a business as well as lack of skills to maintain a good standard of hospitality essential for the sustainability of ecotourism experiences
4. Lack of dedicated capacity on the local level to support improvement on all of the above
5. Wrong aspirations
6. Lack of the interest of the younger generation
7. Lack of accommodation infrastructure

Working alongside the local communities to build confidence and trust in their skills and dreams becomes obvious. As a result, our approach to community development was that of creating moments for direct interactions and demand for local produce and services, between guests to our area and its local gatekeepers in order to motivate locals to gain knowledge, skills and to increase the value of their aspirations. Also, when the LIFE activities required services/or resources the main target was local community. Over 20+ families were involved consistently throughout the year, providing traditional food, accommodation.

So, it becomes evident that this facilitation, efforts and information transfer cannot be delivered by the present project team to the level that's needed, due to the scarce time and budget allocations. Therefore, we have linked this activity with other complementary projects in the area which could allocate more time and resource to focused on in implementing activities which will address the identified challenges and create premises for a nature-based economy in the area. The LIFE team was involved in the process in order to link the activities with the reintroduction of the bison in the area. Examples of activities to increase capacity as well as the poll of interested individuals included workshops (architecture, tracking) as well as facilitating our ongoing field research/internship programme by locals.

Business plans were developed under Action A7 and these were presented to the local community. Facing the challenges explained above some of these business plans fail to be implemented or to be accepted as feasible by the local communities. However, 2 of them took shape in a slightly different format than planned. These were started by the Local Association AMZA, in partnership with European Safari Company, Rewilding Europe and WWF Romania. Starting with 2019 a stronger and more sustainable nature-based rural economy started to take shape, by bringing together people with diverse capabilities and background, by creating new communities within the already existing ones, by enhancing creative experiences in the midst of nature, by enjoying local food, by educating the young as to respect and understand nature and its multiple roles, while feeling proud they live in the rural area and a wild landscape. This initiative is called – **We Wilder** and was financed through different funds (<https://www.wewilder.com/>).

The internal system to monitor the progress uses a combination of tools Google Sets (excel) shared among the team, feedback from local entrepreneurs and visitors to assess attitude changes. The following indicators were set up to assess the impact of the activities in a coherent and homogeneous manner:

- 1) Economic monitoring – linked to bison tourism:
 - Income generated to the area
 - Businesses development
 - Local employment or involvement

- People trained/skills development
 - Visitors for overnight & tourism experience
- 2) Complete progress indicators
- 2.1. Global indicators:
- Number of enterprises in the region
 - Progress towards revenue targets
 - Progress towards profitability targets
 - Number of employees and specific roles within the business
 - No. of awards/recognition in published articles
 - Quantum fees generated for bison conservation
 - Number of visitors and source markets
- 2.2. Specific progress indicators
- Number of local people involved in hospitality and ecotourism
 - Number of locals with entrepreneurship potential
 - Infrastructure developments mapped & in development or completed to support enterprise developments

Since 2016, the area saw over 30+ households get involved, received 340+ tourists, and a generated income for the locals over 270 000 euros. This result shows the effort behind an inclusive way of developing eco-tourism where the community was consulted and guided to take the lead in creating a better socio-economic scenario for the present and the future. During 2020 – 2021 the tourism services were at minimum due to the Covid-19 pandemic situation.

Action E.1. Create a high-quality audio-visual archive, using the imagery in it for all project communication efforts and developing a strong visual identity for the project, applying this to all materials

Foreseen start date:	01.04.2016	Actual start date:	01.04.2016
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

With professional quality audio-visual the action aimed to increase the quality and quantity of the communications activities to communicate the key project message.

Progress:

In the first year of the project, the communications team developed in-house a logo that would provide a distinctive visual identity to the project materials. This logo has been used since then online, on the project webpage and social media channels, as well as on printed materials. As it was an in-house creation, it didn't come with an extra budget burden.

In terms of the project photography collection, a creative concept was developed by the communications team to ensure a diversified visual documentation of all the main streams of action. Based on this, two professional photographers from Romania were contracted and assigned the specific subjects. The main subjects that were captured were: the two bison reintroduction sites (landscapes, wildlife, snippets of rural life), the bison transports (international and domestic), the education programme (highlights), the research and monitoring work, the work of rangers in the two reintroduction sites. The contracts and photo missions successfully ended in summer 2019 with over 400 edited and 800 RAW photos.

Throughout the project other nationally and internationally acclaimed photographers visited the area and documented the bison transports, ranger activities and rewilding area, and the

photographs have been used in communication such as press releases, articles, or posts on social channels.

Regarding the two HQ bison short films, it was decided to merge the two 5-minute films into one single maximum 10-minute documentary. The documentary focused on understanding the impact of the species on the local communities. The production company was selected, a creative concept for the films was commonly developed (including the main idea, the conservation and socio-economic context, main project actions, list of characters) and a shooting schedule was set in place. The filming occurred in the summer of 2019 and the film was launched in October the same year. Projections happened at regional events such as Gastronomical Festival LaPas Timișoara, exhibition of travelling gallery in Cluj Napoca (E6), Alpin Film Festival in Brașov, local community event in Armeniș and Wildlife Film Festival Rotterdam - WFFR. The documentary was selected at 10 international film festivals in Italy, Croatia, Hungary, Netherlands, Germany, Serbia, and Romania and awarded at the WildScreen Film Festival. It was also projected during the two closing events: one organized for the local community of Armeniș and one for national and regional stakeholders. The documentary was also shown during online events during the pandemic, such as: local school club online sessions, international webinars as well as on national TV on TVR 3 and local TV TVR Timisoara. The documentary is available for view on multiple online platforms including: Youtube, Facebook and Instagram (<https://www.youtube.com/watch?v=qBO9kniDYro>).

Images from wildlife cameras placed in the field provided the communications team with a constant stream of real-life content that is being curated and edited into short videos published on the Youtube channel and, from there, on the project webpage and social media channels used (Facebook, Twitter). The team decided not to acquire and set up a live “eyes in the wild” camera, as on the one hand it would not have been functional in such remote, wild places (lack of reception) and on the other hand the communications team wanted to sift through the massive visual content generated from the field to select and publish only the most interesting and relevant images and place them under certain contexts (create stories).

Action E.2. Production of information materials to promote bison conservation among the target audiences and the general public

Foreseen start date:	01.05.2016	Actual start date:	01.05.2016
Foreseen end date:	30.09.2017	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

The dissemination of the promotional and visibility materials has been a constant project activity aiming to raise the outreach of the communication activities.

Progress:

The following materials have been produced:

- A bilingual project leaflet, containing a general presentation of the project. It was distributed during relevant project activities – 300 copies in the first year of the project (2016), then 500 copies in 2017, and an undated version of 800 copies was made in 2019. All bilingual. More were not needed, as live communication and events was reduced in 2020-2021 due to Covid-19.
- 3 additional leaflets and one poster were also produced, regarding the following topics: 1. an info leaflet to reduce conflicts to be distributed in Armeniș and Teregova; 2. an info leaflet to

reduce conflicts to be distributed in Armenis and Poieni; 3. a leaflet with instructions about how to request damage compensation; 4. an information poster in English.

- Three project roll-ups (1 in the first year of the project and displayed in the Natural History Museum of Bucharest with the occasion of the launch event, and another two (a banner and a standard roll-up) in 2018 on the occasion of the bison transports. The existing materials were sufficient to promote the project and a fourth roll-up was not produced.

- A sticker installation (set of 3 stickers) that described the change of bison status (from extinct to existing) and its place and impact in the food chain that was on display in the Natural History Museum for one month starting the launch event in 2016, on the museum window that features a bison.

- Project T-shirts and shirts for bison rangers: a set of branded T-shirt and shirt for the 4 bison rangers, 100 branded T-shirts for volunteers and collaborators involved in various project actions or invited to the project areas, and 20 branded T-shirts for the project team to wear in fieldwork, tourism activities and on media visits. 55 more t-shirts were produced for partners and volunteers and 10 for the project team (2019) and two branded shirts for the ranger coordinator for field activities, press interactions, international conferences.

- Equipment labels (30) and car stickers (6)

- A 2.08-minute video about Bison and how to avoid conflicts was produced in English and Romanian - https://www.youtube.com/watch?v=E5rnP0e3Qa4&feature=emb_imp_woyt

- 11 newsletters have been produced and circulated among the public and the WWF subscribers. All material is with reference to LIFE and Natura 2000 and features the LIFE-Bison project logo.

A digital newsletter about project progress is regularly sent out through WWF and RE communications channels reaching 50.000+ people. It is a WWF newsletter, and this option/channel was chosen in order to be able to send it to the entire existing database of WWF and in order to ensure a diverse content, so we can keep up the attention of people and not lose contacts by putting out content about a single project. Please note that the reference to the project/EU is present in the pictures used in the newsletter and in the text accompanying the picture, and also the link in the text always redirects the reader to the press release/project website where the full disclaimer about the EU is featured.

Action E.3. Local, regional and national media activities

Foreseen start date: 01.04.2016 Actual start date: 01.04.2016

Foreseen end date: 31.12.2020 Actual (or anticipated) end date: 30.09.2021

Objective of the action:

Local, regional and national media activities, through use of their communication channels, aimed to publicly promote all project activities to various national and international target audiences.

Progress:

At the project launch press event organised on the 28th of October 2016, at the Natural History Museum in Bucharest, national press was present alongside present and potential partners. About 12 journalists from national media outlets, amongst which 2 high-profile TV stations (PRO TV and Antena TV) communicated about the project. Following the bison transports and the October launch event, an article was published in the Romanian magazine “Casa de vacanta”.

A first press trip was organised in the first year of the project, namely on the 13th-14th August 2016, for the launch of the refurbished Visitor centre in Armenis and the Research station in Feneş (part of the Bison Hillock Innovation Lab project, as described under action E10 – networking with other relevant projects) and to present the status (at the time) of the bison reintroduction programme under the project.

The team has also facilitated and participated in frequent media visits to the bison reintroduction site in Armeniş (Țarcu Mountains) and the following are examples of the most important:

- July 2016 - a TV news broadcast (CNN) “Great Big Story - Planet Earth” visited the Armeniş reintroduction site on the occasion of the transport and then aired the bison release reportage, which was also promoted in partners media channels (<https://www.youtube.com/watch?v=eZCIYmoq-wE>).
- January 2017 – a filming crew from Deutsche Welle (DW) visited the Bison Hillock and documented how the bison were doing in winter conditions, the tourism related work around the Armenis visiting centre, interviewing project team members and villagers.
- The team also facilitated a visit to the Hunedoara bison breeding centre the project is working with. Deutsche Welle reportage aired in February 2017, however the Life logo and name of the project were not included in the edited reportage, due to the media outlet’s internal policy. The team at Wild Romania (professional nature photographer and videographer) also joined the filming trip with Deutsche Welle, and took photos of the bison in winter conditions, to be used in media-related materials/actions.
- September 2017 – Digi24 from the city of Timisoara visited the Bison Hillock in order to feature the finished wildlife and landscape observatory (the watching hide).
- May 2018 - 3 documentation trips for international TVs (TVES, Arte and National Geographic) were organised, with a full project, landscape and community development approach during a full 3 x 3 day experiences. The team put a strong emphasis on promoting local products and services and ecotourism assets according to the goals of E7 and E12.
- June 2018 – a crew from a national animal documentary station (Digi Animal World) visited the Bison Hillock and documented the project work, including the work done by the bison rangers.

During project implementation 40 press releases have been issued at national and regional level by WWF, WWF CEE in coordination with Rewilding Europe, which promoted important milestones, such as the bison transports and the hard infrastructure. The resulting media coverage was saved on an ongoing basis in an Excel database.

Two extensive reactions to biased press articles in local Romanian media were also prepared and published in Romanian on WWF channels.

Additionally, the team has also constantly provided interviews and content for national and local media outlets – print, TVs and radio stations. Some examples are: PRO TV, Digi24, Antena 1/Antena 3, TVR1/TVR3 (national TV stations), TVR Timisoara, Radio Reșița (regional TV and radio stations), Radio România Cultural, Radio România Internațional, RFI, Antena Satelor (national radio stations), Blue Air Magazine (airline magazine in 2017), “Dilema veche” national paper (reference material and information provided for two part episode press reportage about bison and the Southern Carpathians in 22-28 June 2017 issue and in 29 June – 5 July issue), National Geographic Magazine Romania (2020 & 2021 issues). All the news releases are registered in a comprehensive media archive.

Overall approximate viewership according to national and international media monitoring: 16,756,714 (over sixteen million)

Selected Channels	Items of news	Aprox. Viewership / media source
National TV	36	284.662
National Radio	11	11.926
National Print	8	31.463
International TV	5	1.647.500
International News Print & Online	14	6.020.400

Action E.4. Develop a children and youth awareness programme of extra-curricular activities connected to bison conservation

Foreseen start date: 01.04.2016 Actual start date: 01.07.2016
Foreseen end date: 31.12.2020 Actual (or anticipated) end date: 30.09.2021

Objective of the action:

To educate young people and develop positive attitude towards bison, wildlife and conservation ideas.

Progress:

The education programme started with a delay to the initial project calendar, because time was needed to prospect the project sites for schools to get in touch with, to establish contacts and explore their interest in participating, develop and present the education programme, and then produce the materials to be used in the programme. So, although the actual education programme kicked off in November 2017, a lot of preparation work had been done by then.

At the end of 2016, local planning work was conducted with teachers and headmasters from 3 schools in the area (Teregova, Armenis and Sat Batran). Few of the teachers were also invited to take part in a short training for teachers in nearby Baile Herculane organised through a complementary WWF project in the area (Active for Wilderness, as described under action E10) (outside-LIFE activity), focused on non-formal education for wilderness and the “school club” format. Teachers were introduced to a non-formal education curriculum planning guide with activities focused on exploring and understanding wild nature, which acted as the baseline for a personalised such curricula in the project area, as a backbone for the clubs’ activities.

Following the training, one of the schools organised an event for the pupils, to explore their interest too in participating in such a programme. The local team gave a presentation about the project to 30+ children.

In May 2017, a field trip to document the contents of the kids’ booklet (comic book “Dincolo de Orizont”), together with the drawing artist and script writer, was organised and the comic book was finalised in the beginning of 2018. The book was launched at an important book fair in Bucharest (Bookfest) on 1st of June 2018, International Children’s Day, through a live drawing demonstration in VR done by the comic book artist. The book was distributed in the local communities, including the bison school clubs starting autumn 2018.

Following on after the above-mentioned initial actions to explore interest and the local educational context, a full education programme was developed and ready in May 2018 (as seen in the “Bison Education Programme/Bison Ranger Club” project deliverable from June 2017) and administrative changes had to be done (in terms of budget and team) in order to be able to set it in motion starting autumn 2017 and sustain it for two years. The kick-off event was a one-day extensive train-of-trainers event for teachers in the 5 selected schools from both

bison reintroduction sites. Teams of 2-4 people (1-2 teachers accompanied by 1-2 pupils) from each school participated in the training as coordinators of the new bison and wilderness school clubs and they were offered a coordinators' kit comprised of various materials needed in the programme. The most important item of this kit was the education guide "Explorers of wilderness in Romania's Southwestern Carpathians" which contains the personalised curricula with 17 interactive lessons building knowledge about wilderness, wildlife and protected areas (with a special focus on the protected areas in Southwestern part of Romania, including the bison reintroduction Natura 2000 sites), and skills related to active citizenship for nature protection and community mobilization .

The education programme in a few key numbers:

- 1 ToT (train-of-trainers) event
- 16 practical/interactive lessons as detailed in the education guide
- 1 bison and wilderness youth club in 5 schools from both project areas with 15-20 members in each club
- 1 photography workshop for all schools/clubs involved in the programme, with external assistance from a professional photographer
- 1 ornithology workshop with SOR biologists to develop bird-watching skills and better understand their role in the ecosystem
- 1 kids' booklet for school children (comic book "Dincolo de Orizont")– itinerary in south-western Romania, with a focus on bison

Students and teachers still responded positively to the project team invitation to continue collaborating even after the two-year programme ended as following:

- Actively participating in nature conservation-linked activities such as Earth Hour
- Creating a spot for nature study and relaxation in the school yard of Armeniș primary school (8 paintings made by local artist Terschak Eduard with landscapes inspired by life in the Bison Hillock, 4 stunning photos of bison and landscapes by professional nature photographer Daniel Mîrlea, 5 educational panels about local animals such as the bison, wolf, wild boar with the help of ARKNatuurontwikkeling, 1 panel about sustainable living, insect hotel building instructions, and a flyer on bird feeding.
- Online sessions took place with Teregova secondary school children focusing on protected areas, citizenship and nature photography. 20 children participated.

Action E.5. Website, Facebook, Twitter feed and blogs

Foreseen start date:	01.01.2016	Actual start date:	01.01.2016
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

Using website, blog and social media channels the action aimed to communicate the project activities to a wide range of international and national public.

Progress:

The LIFE RE-Bison project web page was launched in August 2016 and is available in English and Romanian at www.life-bison.com and <https://www.rewildingeurope.com/life-bison/> and since 2019 on <https://wwf.ro/ce-facem/specii/zimbrul/proiectul-life-bison/>

It has several useful sections: Background, Area, Vision, Objectives, Activities, Bison, Publications, Partners, Contact and a Photo gallery featuring photos resulting from the contracted photo missions under action E1.

It has been regularly updated with news items and articles on the bison transports, bison offspring, ecotourism and the work of the bison rangers.

By the end of the project the website had been accessed 55,120 times and has 50,149 unique page views.

The communication channels including social media have worked well with a steady increase of audience and regular followers of the project progress. Facebook is the main source and driver of readership, confirming the general pattern in social media communications. So far it has 2622 followers, all from organic marketing campaigns, relevant and maintained content creation.

A YouTube channel was fed with edited clips from trap cameras, fieldwork, coexistence animation, short documentary, news items collected from the press etc. It has been embedded on the project webpage in order to both increase visibility of the clips and instil a bit more dynamic and a heightened sense of “newness” into the webpage. By the end of the project it had 70 followers, and the videos have 84,962 views.

Additionally, the Twitter account, not a very popular channel in Romania, with 283 followers. It is linked to the other social media channels in order to ensure project news reach the Twitter audience as well and to ensure a general consistency in project communications across all channels used.

All of the above are bearing the project logo and reference to the European Union support. Apart from the project dedicated webpage and social media channels, WWF-Romania and Rewilding Europe also used own established communications channels – own websites and social media in order to reach a wider audience and try to increase “followership” on project channels.

In terms of online articles, the communications team has written and published 46 articles on the project webpage and WWF-Romania’s website, which include the press releases discussed under action E3 which are also uploaded on these websites.

Action E.6. Local indoor exhibitions touring in and around the whole C-action area, about the project subjects and the areas where the C-actions take place

Foreseen start date:	01.04.2016	Actual start date:	01.04.2016
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

This exhibition was designed as a tool to try to foster pride, attention, joy and awareness of the uniqueness and the natural value of the Southern Carpathians area.

Progress:

The first exhibit was produced and opened during the project launch event at the Natural History Museum in Bucharest on 26 October 2016. It was installed for one month and reached round 20.000+ visitors, especially families with children, schools and high schools – one of the most important target groups in the project.

A second exhibition was organized on 1-3 September 2017 at a music and culture festival in Transylvania (Awake Festival in Gornesti, Romania), with an estimated exposure of 1.200 people. Then, in October 2017, the exhibition was shown at a Bucharest event organised by WWF to promote the new bison and landscape observatory in Armenis designed and built during the Camposaz architecture camp in August 2017.

In 2018, the exhibition was shown in March at a Bucharest event marking Earth Hour, the biggest community movement led globally by WWF and dedicated to the environment and to the fight against climate change. In December of the same year the exhibition was part of a local community development event in Armeniş where special guests from fields such as: marketing, ecotourism, architecture, photography, gastronomy, music were invited to hold workshops for the locals.

In 2019 the exhibition was reproduced to show both areas of reintroduction and use new photography. A new digital version was updated on the project website.

From May until July the exhibition was admired by the locals of the second rewilding area in the Densus Tourist Information Centre Garden. Also, hundreds of tourists saw the exhibition when they visited this beautiful commune filled with history about the Dacians and Romans and also biodiversity. From July until November the panels were placed in the garden of the Dinosaur Geoparc Museum in Hațeg where locals from Hunedoara region but also many families with children discover the past and present of the area. New images were printed to fill in ampler spaces of exhibition and portray the complexity and beauty of the project.

The exhibition travelled north and remained for viewing at the Babeş-Bolyai University Zoological Museum in Cluj-Napoca until February 2020. The opening was marked by a presentation on the European bison held by Cristian Remus Papp, Landscapes and Species Coordinator of WWF Romania and the projection of the Zimbrul documentary to press and visitors.

The Alpin Film Festival in Braşov was the host of the exhibition in February 2020 with over 2000 people enjoying the photography and story at the Reduta Cultural Centre.

The exhibition was also displayed at the closing event in Armeniş on the 23rd and 24th of September 2021 with around 100 new people seeing the panels and the new prints.

The exhibition is also available in a PDF version on the project website, used to warm up audiences before future showings of the exhibition and/or to prolong and boost the promotion of the exhibition after it closes in each of the locations.

Exhibits:

1. Natural History Museum Bucharest, October 2016: 20.000 people
2. Awake Festival in Gornesti, September 2017: 1.200 people
3. Earth Hour event Bucharest, March 2018 – 500 people
4. Armenis Cultural Centre, December 2018 – 200 people
5. Densus Tourist Information Centre 2019 – 200 people
6. Geopark Museum Hateg 2019 – 200 people
7. Natural History Museum in Cluj-Napoca 2019 – 200 people
8. Alpin Film Festival Brasov 2020 – 1000 people
9. Closing Event, Armeniş 2021 – 100 people

Due to the SARS-CoV-2 (COVID-19) restrictions live events could not occur frequently between 2020 and 2021 and a virtual exhibition was created and shared online on social media (<https://www.artsteps.com/profile/5fbd1f583232282a825fd539>). The exhibition displays in a dynamic way professional photographs taken throughout the project, in the various photo

missions and with the help of volunteers, and also the short documentary Zimbrul, as well as the animation on coexistence.

24000 people viewed the exhibition on and offline.

Action E.7. Promote local products and nature tourism services and products that stimulate bison conservation here

Foreseen start date: 01.04.2016 Actual start date: 01.04.2016

Foreseen end date: 31.12.2020 Actual (or anticipated) end date: 30.09.2021

Objective of the action:

This Action was supported also by Action E3 (Local, regional and national media activities) and imagery from Action E1, raising attention to the fact that the bison can be a very valuable nature tourism attraction.

Progress:

The “bison-friendly” product label was designed and produced in summer 2016 to fit with the public opening of the Visitors centre in Armenis (August). 1.550 labels were printed placed on a range of local products made in the Armenis community and launched for sale in the Visitor centre. An additional 300 bison labels were printed in 2017 to brand one of the local products in the collection that was offered by Rewilding Europe in the annual “Wild Days” event attended by 120 people from across Europe.

Throughout the project we have used locally sourced produce and services for the bison transport meals and gifts to stakeholders and guests.

The main activities to promote local products and nature tourism services in the project area were:

- October 2016 - an informational leaflet/poster for the bison tours in Armenis was produced and distributed at European nature parks information centres (Hungary, Austria and Switzerland) through another wilderness focused project.
- 2017 - a tracking tour with Another Escape magazine from the UK was organized. The material about the bison reintroduction area in Armenis and LIFE-Bison project, was published in the beginning of 2018. Also, two magazine representatives shared moments from their experience in the area on the Instagram, as travel bloggers.
- January 2017 - a field trip with Wild Romania/România Sălbatică team (Romanian professional nature photographer and videographer) was organised to capture winter sights with free bison and other wildlife for their upcoming documentary (<https://romaniasalbatica.ro/>).
- May 2017 - a “Welcome pack” (outline of visiting schedule and useful information such as needed equipment, weather forecast, code of conduct) for tourists was produced. This is being updated regularly and sent out as a standard procedure to visitors from the media sector and regular tourists with a booked tour to the area.
- August 2017 - tourism services and local products were promoted over the Camposaz architecture camp which was organised to build the wildlife observatory in Armenis. Over 30 volunteer participants from Romania, Italy and The Netherlands.
- July 2017 – materials of the project and bison tours was distributed during the World Ranger Day public event organised by the Romanian Rangers Association in Hunedoara.
- July 2018 - the rewilding area and the bison tours was also present at a stand at the Tourism Days in Arad organised by the County council of Arad.

- December 2018 the European Safari Company launched the destination website promoting the Armenis rewilding area (bison tracking experience).
- November 2018 - a presentation on the ecotourism offer of the rewilding area was held at the annual meeting of the Romanian Ecotourism Association (tour-operators, tourism agencies, organizations and other economic operators).
- January 2019 - we met with Hațeg local tourist associations (UNESCO Dinosaur Geopark & Asociația de Turism Retezat) to develop a communications strategy for the entire region and align tone of voice, design and branding, and the new reintroduction area was featured on their destination website.
- February 2019 - the Romanian National Railway company promoted the ecotourism opportunities in the Bison Hillock by printing and distributing a brochure that reaches 140.000 readers.
- June 2019 - bloggers of Romania Travel Guide and our partners Parco Natura Viva (Italy) started promotion of the Armeniș area on their website, newsletter and Facebook posts.
- August-September 2019 - the magazines 4X4 Wheels / Eco Wheels have visited the Bison Hillock to promote off-road adventures. At the same time the National TV Station DIGI24 filmed in the Bison Glade, Hațeg area for a tourism TV programme.
- October 2019 - the National Geographic Romania featured the bison tracking experience in their article on Hațeg Country
- October 2019 - the rewilding team participated alongside locals from Armeniș in La Pas - Gastronomic and Travel Festival in Timisoara.
- December 2019 – February 2020 - local products branded with the label developed in the project were savoured at the exhibition hosted by the Zoological Museum in Cluj-Napoca.
- February 2020 - Bucharest Romanian-English print and online magazine OZB released a full article on ecotourism opportunities in the Bison Hillock.
- February 2020 - the Alpin Film Festival started with local drink tasting and promotion of the hiking and biking trails in Armeniș

During Covid-19 pandemic period (2020 – 2021) due to limitations in traveling we focused on promoting eco-tourism in safe conditions and inviting people to buy and travel locally. The main activities were limited to:

- Tens of posts on social media, promoting ecotourism opportunities in the Armeniș area powered by WWF-Romania and the local community such as a campus where tourists can come and stay in modular homes while learning crafts and culinary arts from locals and the creation of a local kitchen to produce and sell naturally sourced produce such as nuts, fruit etc (WeWilder - <https://www.wewilder.com/>).
- Dutch influencers visited the area and will feature it in a new travel book.
- Lonely Planet will feature the MuMA hut experience from the Bison Hillock in an upcoming new travel book on Europe's best camping outdoors destinations <https://www.wewilder.com/wilders/mumahut>.
- An influencer family of travel and lifestyle bloggers have visited the area in July 2021 and promoted it on social media, a blog article and two videos. They focused on a family experience in rural where natural values are so rich and deserve to be explored. Their posts reached 99,000+ people and the videos had over 8900 views.

Also, various websites host and promote the living and guiding experiences from the Bison Hillock, such as: AirBnB, Localm, WildVentures, Trip Advisor, magura-zimbrilor.ro

In the frame of the LIFE Re-Bison project, but also possible development directions and collaboration ideas for a future local product range and sell nature experiences was discussed with the Tymes Tour agency (from Timisoara), a marketing incubator from Bucharest (ACU), a local action group (Tara Gugulanilor) and a product distribution network from Timisoara (ASAT).

Action E.8. Launch events and closing events

Foreseen start date:	01.04.2016	Actual start date:	01.05.2016
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Objective of the action:

This action was a very good way to start up and finish the activities within this project by involving the main stakeholders and national media.

Progress:

The launch event was postponed and took place on 28 October 2016 in the Natural History Museum in Bucharest. It was designed as a series of interconnected moments under the title “The largest land mammal in Europe returns to the Southern Carpathian wilderness”. It included a presentation of the project and a Q&A section with team members and representatives from project partners. To increase impact, the opening of the bison exhibition followed the presentation and uncovering of the redesigned the museum’s bison display window (from extinct species to present species). The event had a large and wide attendance (45-50 participants), with about 12 journalists from national media outlets, amongst which 2 high-profile TV stations (PRO TV and Antena TV).

The closing event was done in three stages, due to the pandemic restrictions on number of participants. Thus, we had:

1. Closing event for the local community in Armeniș in June 2021 where over 40 people participated. It was held in the Armeniș School Yard and included a presentation of the results of the project, conclusion of the second sociological study, the Zimbrul documentary and coexistence animation projections, the presentation of the corner for nature in the school yard (E4). Information materials were distributed and various food delights from the area prepared by locals were enjoyed.
2. Closing event for local, regional and national stakeholders took place in the Armeniș Cultural and Events Center between the 23rd and 24th of September 2021. Over 50 people attended including representatives of the Ministry of Environment, the National Forestry Agency – Romsilva, the National Agency for Protected Natural Areas – Caral-Severin Territorial Service, the Caraș-Severin County Forest Guard, the Sanitary Veterinary and Food Safety Directorate of Reșița, the Teregova Forestry School, and the Municipality of Armeniș, the Vânători Neamț Nature Park, the Porțile de Fier Nature Park, the National Parks: Domogled – Valea Cernei, Semenic, Cheile Nerei – Beusnița, Conservation Carpathia Foundation, USAMV Cluj-Napoca, schools of Armeniș and Teregova.

From the press we had 6 media outlets: Agence France Press (national), Radio Reșița (regional), Antena 3 (national), TVR Timișoara (regional + national coverage on the state national TV channel TVR 1), Banat Media (regional) and BlogMediaCid (regional).

3. Closing event for international stakeholders hosted a two-hour online conference on Zoom on the 29th of September. There were 63 attendees (out of 95 who registered for

the online event and later on received the recording and useful materials such as Layman's Report and Good Practice Guide), from 14 countries.

Action E.9. Mount info panels in the project sites

Foreseen start date: 01.07.2016 Actual start date: 01.07.2016

Foreseen end date: 30.09.2020 Actual (or anticipated) end date: 30.09.2020

Objective of the action:

The signboards were intended to communicate basic information and key messages about the project to the thousands of residents and visitors who already regularly visit the project sites every year.

Progress:

The panels for Armenis were installed in spring 2018, along with the panels from the second reintroduction site in Poieni. The panels for Armenis were in a small format, signalling the European support for the reintroduction of bison under the current project, and were attached to two existing information boards mounted with the first bison transports in 2014 at the Armenis Visitor centre and at the entrance to the acclimatisation enclosure. Once all permits were granted for the second reintroduction area, information panels were mounted in this area too, in the spring 2018, next to the information centre in Densus and at the entrance to the acclimatisation enclosures. The design template is the same used for the Armenis big information boards, in order to maintain visual consistency.

Action E.10. Networking with other LIFE and non-LIFE Projects, participating in workshops and seminars with connection to the project, to communicate project findings, achievements and results

Foreseen start date: 01.01.2016 Actual start date: 01.01.2016

Foreseen end date: 31.12.2020 Actual (or anticipated) end date: 30.09.2021

Objective of the action:

This networking action has been created in order for the Project staff to be able to share Project results with others and to discuss questions and experiences arising from the C-actions in this area. The action has proceeded as foreseen, no problems or delays appeared.

Progress:

From its inception and during the implementation of the LIFE-Bison project, the team has striven to create and build on synergies with other projects/initiatives implemented by Rewilding Europe, by WWF and other conservation organisations. Below a selection of the main such projects and actions:

- 1) A presentation about the LIFE Re-Bison project and the role of the European bison in nature was held in October 2017 at the Platform Meeting "Reintroduction of species: a tool for the ecological restoration of habitats" in Brussels, organized by the European Commission and EASME.
- 2) In May 2018 a presentation about LIFE Re-Bison project and especially about the challenges in the selection of the European bison and the required in-situ and ex-situ management of the animals was sustained at the EAZA Conservation Forum in Tallinn,

- Estonia in order to gain support of the zoos and breeders for the project (e.g., bison/collar donation, changing the management of the European bison in the zoos).
- 3) During 2016 – 2018 (march) synergies were created between the LIFE Re-Bison project and “Bison Hillock, wilderness innovation lab” project, co-financed the Swiss Contribution to the enlarged EU (implemented by WWF-Romania with other partners). The activities on tourism and research in the Armenis area in order to lay the ground for new technological systems that would improve the monitoring of wildlife and the prevention and mitigation of human-wildlife conflicts. The work was continued through the project WildAI [eye] until beginning of 2019.
 - 4) "Getting active for wilderness in the Southern Carpathians", financed by DBU and implemented by WWF-Romania and other partners: the communication between the two projects focused on education for the youth in the region of south-west Romania, i.e., using and building on non-formal education tools, that had proved successful, in the bison education programme. Moments when the two project teams came together were networking and training for teachers' event in Baile Herculane in autumn 2016, train of trainers' event in Armenis in November 2017.
 - 5) “Carpathian wilderness, people's wealth”, co-financed by the Swiss Contribution to the enlarged EU, and implemented by WWF-Romania with other partners (project ended in 2016): the communication between the two projects resided in sharing assets such as data on biodiversity in the region and contributing to the development of bison rangers. The latter consisted, for example, in inviting the rangers to a study trip to European nature parks at the end of 2016.
 - 6) “Connect Carpathians” LIFE project implemented by FFI in the west of Romania: information panels developed through this project have been mounted in the LIFE-Bison project area too, as they contain relevant insights about large carnivores and the ecological connectivity of the protected areas in the west and south-west of Romania.
 - 7) Since 2018, the team members participated at the Annual Conference organized by EBFS (European Bison Friend Society) in Poland. Each year we have shared our experience and lessons learned, and discussed future approaches in the bison conservation with the European bison community.
 - 8) Starting with 2019, members of the team become part of the IUCN Bison Specialist Group (BSG), being in this way able to share the experience and to ask for consultancy when was needed. Some of the lessons learned from the LIFE Re-Bison project was included in the New European Action Plan for European Bison Conservation developed by the BSG. The AP will be published in 2022.
 - 9) In 2019 a strong collaboration started with the Conservation Carpathia Foundation, once with the implementation of the LIFE project LIFE18 NAT/RO/001082 aiming to reintroduce 90 bison in the Fagaras Mountains.
 - 10) The administrative staff has also exchanged information with the LIFE RE-Vultures project implemented by Rewilding Europe with other partners (LIFE14NAT/NL/901), and with Natuurmonumenten, which has developed several LIFE projects (LIFE13 NAT/NL/167, LIFE12 NAT/NL/372, LIFE11 NAT/NL/770), and with LIFE “One deer two islands” (LIFE11 NAT/IT/00210), in order to gain expertise on best practices about project management and administration.

Working and sharing experience with other projects/ key stakeholders at national and European level brought an added value to the positive outcomes of the bison project, which are complex by nature, requires long-term efforts and some of the cases had unique approaches.

Action E.11. Produce a Layman's report

Foreseen start date:	01.07.2020	Actual start date:	01.07.2020
Foreseen end date:	31.12.2020	Actual (or anticipated) end date:	30.09.2021

Progress:

A Layman's report has been produced in Romanian and English. It was printed in total 600 copies, in Romanian and English. Also, an online version is available for the public - <https://www.rewildingeurope.com/wp-content/uploads/publications/life-bison-laymans-report/index.html>.

It was circulated during the project closing event on 23-24th of September being distributed to the around 50 participants. Other 60 copies were sent/given to the key stakeholders from the regional level, which didn't attend the event on 23-24th of September. The online copy was distributed to the participants (63) at the online closing event. Other 80 copies were sent to breeding centers (the main partners such as Springe Wisentgehege, Donaumoos Wisentgehege etc.) for distribution to the interest public/donors.

Action E.12. Creation of Bison Business Infrastructure and engaging locally interested persons

Foreseen start date:	01/01/2017	Actual start date:	01/01/2017
Foreseen end date:	31/12/2020	Actual (or anticipated) end date:	31/12/2020

Objective of the action:

The action aimed to create business opportunities of the local communities by supporting the development of at least one wilderness cabin and two wildlife watching hides. Moreover, it foresaw the development of training courses for locals in the development of tourist opportunities.

Progress:

In the frame of the LIFE Re-Bison project a total of 10 persons have been trained on tourism actors. The following courses have been made:

1. 19/09/2016 - 26/09/2016 - a local tracking guide, attended international training in Spain to acquire tracking and guiding skills for use in the Carpathian's. On his return to Armenis, he trained four people on tracking and guiding techniques for bison related tourism activities.
2. 26/09/2016 - 29/09/2016 – The RE enterprise expert travelled to SC (Armenis) to have direct guide training and development workshop with the two bison rangers, and members of the local community. A total of 6 people participated.
3. 10/07/2017 - 13/07/2017 - The RE enterprise expert travelled to SC (Armenis) for a three-day tourism & hospitality workshop with 5 participants - main focus on bison related activities as well as hosting and service for the tented camp & wilderness cabin operations.
4. May 2019 – a social entrepreneurship professors and students met with the community representatives AMZA. The ideas they brainstormed were used to develop local nature-based business and reinforce the connection between people and reintroduced bison.
5. During 2020 – 2021 several trainings and workshops concerning tourist guiding and nature-based business development were held on in the frame of WeWilder, Romania's first rural hub (not financed by the LIFE Re-Bison project). WeWilder is a WWF Panda Labs prototype, that evolved from the pioneering wilderness

experiences developed by WWF Romania with local Bison Hillock Association (AMZA), in cooperation with Rewilding Europe and the European Safari Company. We Wilder is operating as a social enterprise partnership between WWF Romania and local community members.

Out of the planned 2 wildlife hides and 1 wilderness cabin the following has been implemented:

Wildlife hide in Armenis. The landscape and wildlife observatory (wildlife hide was successfully constructed between 17-28 August 2017 through an international design & build workshop which was organized in partnership with the Italian architectural practice, Camposaz. The workshop was attended by 30 architects and designers from Romania, Italy and The Netherlands, as well as some of the project team members. The team also engaged several members of the local community for supply and cooking of meals, and transportation of attendees and needed materials from the village to the location of the workshop/observatory. The observatory provides the ideal space for hosting conversations and outdoor workshops with groups of tourists and youngsters from the local communities, and it offers a semi-sheltered place from which to observe the bison and the spectacular wild nature of the Tarcu Mountains. A photographic journal of the workshop was kept on the project and WWF Facebook pages during the event, and the resulting structure was promoted through a press release issued in Romania and published on all online channels – project channels, as well as Rewilding Europe and WWF own channels. The observatory was featured in top European architecture and design media, such as: Romanian magazine Zeppelin, Archdaily, Designboom and Archaic.

<https://e-zeppelin.ro/camposaz-in-the-wild-observatorul-din-magura-zimbrilor-muntii-tarcu/>,

<https://www.archdaily.com/888578/tara-camposaz>,

<https://www.designboom.com/architecture/camposaz-observatory-southern-carpathians-wildlife-01-12-2018/>

<https://www.archaic-mag.com/magazine/2017/11/5/international-wood-workshop->

One of the workshop/camp participants, a Romanian architect and architecture photographer, also enlisted the observatory to the annual design festival Romanian Design Week, held every year and featuring the best architecture and design projects of the respective year. The project was selected and featured in the main exhibition of the festival organised in an architectural landmark of Bucharest (The Telephone Palace) and attended by a record number of 30.000 visitors, including foreign tourists:

<http://www.institute.ro/rdw-portfolios/architecture/camposaz-wwf-romania-3011.html>.

Wilderness cabin. The planning to create a special place in the middle of nature for tourists coming to experience wilderness started in April 2017. In the same year a traditional mountain hut was identified to be refurbish for this purpose, but the owner had reconsidered his position at the end of 2018. As a result, we had to retake the process to identify a traditional house for refurbishment. During 2019, with the help of local municipality a new mountain house in the Plopu area (part of the Armenis commune) was identified and an agreement for 10 years was signed with the owner. By the end of 2019 all measurement and evaluation were done by an architect and the plans for refurbishment were ready by end of January 2020. During April – June 2020 the mountain house was restored partially. The house has two buildings. The main building and one room from the second building was restored in accordance with available funds through the LIFE Re-Bison project. At this moment the house can be used for ecotourism purposes. Unfortunately, due Covid-19 pandemic situation the wilderness cabin was promoted and used very little up to now.

As a general note regarding this action and other actions linked to social and economic aspects of the local community (e.g., E7), our approach to community development is that of creating moments for direct interactions and demand for local produce and services, between various types of guests to our area and its local gatekeepers. At this moment over 10 families are involved consistently in providing traditional food, local accommodation, local guidance; thus the large part of the budgets spent through the project and by individual visitors to the area has gone to locals, in order to create and sustain this micro-economy related to the bison reintroduction programme and to boost the pride of the local community in their culture and natural setting. This is the reason why the preferred approach for the construction of the project infrastructures is that of expert on-location workshops attended by groups of people on a voluntary basis, and why in media/public events and visitors' trips we have always made efforts to source the necessary products and services from the locals.

5.2 Evaluation of Project Implementation

In this paragraph we review and evaluate the methodologies applied/used under actions A.5, C.2, C.3 and D.1.

1. Methodology applied under action A.5 - Human dimension study and D.2 – Monitoring of the social impact of the project

For the development of the human dimension studies (in 2016 and 2020) quantitative and qualitative survey methods were applied. In the first study (2016) 131 questionnaires and 30 semi structured interviews were conducted. Application method: face-to-face in 2 field sites (66 questionnaires (50,38%) in Armeniş, 65 questionnaires (49,61%) in Densuş) aimed at including locals from all the villages in the commune, focused on the ones closest to the release sites. The 2020 survey comprised a total of 156 completed questionnaires, of which 44 (28%) from the Densuş area and 112 (72%) from the Armeniş area.

The questionnaire survey and interviews provided an overview on the general local opinions and assesses attitudes at a wider local scale. The most part of the questionnaire contained standard questions for both field sites. One part included specific issues for each field site. Thus, a rigorous comparison between the two rewilding areas was made possible.

In **2016** the surveyed population was very responsive and welcoming the researchers. **In Armeniş, 84.9% support the project and in Densuş only 66.1%.** The score in Densuş was however surprisingly high, as the commune officials have been mostly against the project and there has been no public meeting or public information at the time of the survey. Based on the applied methodology a stakeholder analysis was done and recommendation of actions, including the urgent one to be applied (e.g., to organize an information campaign with the primary content targets, to monitor closely the category of hunters, show consideration of their opinions, inform constantly the farms about the bison behaviour). In Armeniş 59% were optimistic that one of the benefits of the project will be more income and employment in the area, while in Densuş only a little less, 50%.

In **2020** the data shows **89% of the people of the Armeniş and Densuş communities consider the bison beautiful and important animals for the environment.** In Armeniş, much more than in Densuş-Poieni, people express an understanding of the non-intervention policy. **Only 57% of the population of Densuş-Poieni still agreed with the project, while in Armeniş the percentage of support rose to 90%.**

The study shows that both communities support and appreciate conservation initiatives and understand the plight of endangered species.

2. Methodology applied under action C.2 - Selection of the European bison proposed for the translocation

The selection of the European bison translocated in the project areas is done based on the following criteria:

(1) The degree of inbreeding and genetic diversity. One of the main criteria taken into consideration in the selection process of individual bison for reintroduction, is the genetic diversity and degree of inbreeding in each individual.

Genetic diversity within and among European bison lines is considerably low, due to a historical population bottleneck. The founders of the current population were represented through 12 genotypes. Eleven of the 12 founder animals belonged to *B. b. bonasus* subspecies and one bull to *B. b. caucasicus*. So, the actual bison population is divided into two genetic lines: Lowland

(LB), and Lowland-Caucasian (LC). Starting in 1947 captive living bison have been registered continuously in the European Bison Pedigree Book (EBPB). The pedigree data enables the procurement of parameters (e.g., inbreeding coefficient), which explain the genetic structure of populations. **All translocated bison in the project area were selected based on the data from EBPB.**

(2) Availability of the Lowland Caucasian genetic line in the zoos and breeding centers (affiliated to EBCC). The recommendation of the European Bison Specialist Group (IUCN SSC) is to use the Lowland Caucasian (LC) genetic line for the reintroduction of European bison in mountain areas. However, this put significant constraints on reintroduction efforts in mountain habitats because LC animals constitute less than 50% of the world's E. bison population and of those, less than 25% are located within the EU countries.

During the LIFE Re-Bison project, we have been in contact with many breeding centres or zoos, but only around 35 % were considered suitable sources of animals due to adequate healthcare standards and very clear evidence of the pedigree.

(3) Sex-ratio of the reintroduced groups. The male to female sex ratio of the founder group depends mostly on the availability of animals, but it shouldn't exceed 50% in favour of males. A ratio in favour of more females is preferred as it results in a greater rate of population increase (Vlasakker, J. van de, 2014). Once first group of bison was released in 2016, the gender ration of each new group translocated in the next year was decided based on:

- Gender ratio of previously released groups
- Mortality of the females and males in the previously released groups, and:
- If possible, gender of born bison into the wild in order to keep a balanced ratio of the entire population.

The gender ration of the groups translocated during the project (2016-2021) ranged between 1:1,6 to 1:3,5.

(4) Age structure of reintroduced groups. The age of the bison reintroduced into the wild might strongly influence their ability to adapt to the new circumstances. In the case of the LIFE Re-Bison project, while factors such as sex ratio and social structure of reintroduced groups certainly affected the survival rate, bison mortality was also strongly connected to their age.

During the LIFE Re-Bison programme, animals between 1 to 8 years old were translocated.

We have observed a strong correlation between the rate of mortality and the age of the animals as well as the way in which they are translocated in the reintroduction area: individuals separately acquired and put together in the acclimatization zone or in pre-formed social groups before transportation.

In the case of separately acquired individuals (2016, 2018 and before the project), we have observed that the highest rate of mortality was amongst the males, regardless of age. Amongst males, the lowest rate of mortality was of individuals over 4 years and the highest of those between 1 to 2 years. However, amongst the females, the rate of mortality was not related to a specific age category.

In the case of translocation of pre-formed social groups (2017, 2019, 2020 and 2021), the age of the selected bison was between 2 and 4 years and so far, no casualties were registered amongst the released groups into the wild.

Of course, further data on optimal age structure of selected animals needs to be gathered and research should be done to correlate the rate of mortality with the age, gender, and translocation mode.

(5) Health condition. The health condition and the phenotype features of the selected individuals are of utmost importance for the success of a reintroduction effort. The selected

individuals should be able to cope with the stress of the handling procedure (i.e., immobilisation), the translocation journey and their release into a new environment. Following the release, they should also be able to withstand the stress of exploring the new environment, integrating in the existing free-living herds, and interacting with other wild species, including predators and domestic ones as livestock.

(6) Habituation to humans. During the LIFE Re-Bison project, we asserted a direct relationship between the level of habituation of the bison to people and occurrence of conflicts. The level of habituation is directly dependent on the place of origin. In the case of captive animals, their habituation happens prior to translocation, because the animals are in constant contact with caretakers and visitors. Animals coming from zoological gardens are more habituated than animals coming from large breeding centres or wild parks, especially if these have a mixed feeding management (natural and artificial food). Habituated individuals once reintroduced into the wild are more prone to create conflicts, than individuals which had limited contact with human beings prior to release.

In the first 3 years of the LIFE Re-Bison project, almost all translocated animals originated from breeding centres or zoological gardens where the animals had been in close contact with people, including visitors. As a result, there were several conflicts. From 2019 onwards, we had mainly reintroduced pre-formed social groups which were kept away from human contact (except caretakers) as much as possible, for several months, before the translocation. This pre-translocation protocol significantly contributed towards the decrease of the conflicts after release into the wild.

3. Methodology applied under Action D.1. - Monitoring methodologies of the European bison in the project area

The monitoring of the European bison translocated in the project areas can be divided in two categories:

- (1) Monitoring of the E. bison inside the releasing facilities
- (2) Monitoring of the free-rooming E. bison

(1) Monitoring inside the releasing facilities

The main aspects monitored in the releasing facilities were related to health condition, behaviour of the group, mortalities, load of parasites. Monitoring targets inside acclimatization/rewilding areas were *related to the fitness and behaviour of the new bison groups*. The monitoring methods used to follow the targets were:

- *Direct observations.* During the acclimatization and rewilding phase the groups of the E. bison were closely observed by the rangers, project officer and veterinarian. The following parameters are followed:
 - Social structure of the group
 - Physical fitness (body condition) according to the Body Condition Score Scheme (BSC)
 - Medical (health) condition to discover in time any signs of disease. This aspect was monitoring under a veterinarian supervision.

All the results were included initially in the weekly reports and since 2021 in the reports on the EarthRanger platform.

- *Biological sample collection.* Information about health status is also given by the results of the parasitological analysis, based on the collected faeces samples.

- *Camera traps.* During the acclimatization and rewilding process a series of camera traps were installed inside the release facilities to gather information on the bison behaviour and health condition.

(2) Monitoring of the free-roaming European bison

The main monitoring priorities of free-roaming E. bison were to understand the animals' adaptation to new habitat conditions (i.e., fitness, behaviour), its expansion in the rewilding area and its reproduction success.

Monitoring targets were:

- (1) *Monitoring related to the fitness of bison population*
- (2) *Monitoring related to bison ethology and ecology*
- (3) *Monitoring related to bison population dynamics*

The following framework was used to monitor the European bison reintroduction effort in the Southern Carpathians:

Monitoring target	Monitoring aspect	Monitoring method
Animal/Population Fitness	Health surveillance: 1. Medical condition 2. Physiological fitness 3. Behaviour	Direct and indirect observation, blood testing, GPS tracking (mortality sensor), post-mortem examination (necropsy) Body Condition Score Scheme (BSC)
	Parasitological infestation/load	Faeces sampling, laboratory analysis, DNA extraction
	Genetic attributes Demographic & genetic status	DNA extraction from scat, saliva and blood samples, laboratory analysis
Animal Behaviour & Ecology	Bison behaviour (patterns): 1) Daily activity behaviour 2) Behavioural movement patterns 3) Inter-and-intraspecific interaction	Direct and indirect observation, camera trapping, GPS tracking
	Bison ecology 1) Habitat use 2) Home range 3) Habitat suitability	Direct and indirect observation, camera trapping, GPS tracking
	Bison – Human Conflict behaviour	Direct and indirect observation, camera trapping, GPS tracking (Virtual fence mode)
Population Dynamics	Population Structure	Direct and indirect observation, camera trapping
	Mortality/Survival	Direct and indirect observation, statistical analysis

Additionally, the following aspects were monitored occasionally during internship programs occurred in the frame of other project, complementary with the LIFE project:

- *Monitoring and evaluation of decortications produced by the bison to the wood forest species.* The protocol aims to identify, evaluate and monitor decortication caused by bison to the wood forest species and the level of damage to the forest habitats. Detailed description of the methodology.
- *Diet of European bison.* Aim is to find out the composition of dung which could determine diet patterns once they are correlated with other data available e.g., location,

type of vegetation in the location, temperature and season. Detailed description of the methodology

These two aspects didn't were constantly monitored by the project team during the project time mainly because of the limited capacity and budget designed for monitoring. These two aspects require a lot of effort and external specialist involvement.

4. Methodology applied under action C.3. - Acclimatization and rewilding methodology

The "soft-release" methodology of the European bison reintroduction was adapted since the beginning of project 2 times:

(1) A "combination between the soft-release method and hard-release method". The hard release method is when the animals are released directly into the wild. The soft-release method is when animals are kept for a longer period (usually 1 year) in a large acclimatization area where the animals are fed supplementary in accordance with their needs. During first 3 years of the project the acclimatization and rewilding processes was as follow:

1. bison were kept 4 to 6 weeks under official supervision according to Romanian legislation in the acclimatization zone.
2. in the rewilding zone bison were kept between 4 to 8 weeks depending on their health status and behaviour.
3. release of the bison into the wild and monitored according to the description provided in Action D.1.

Usually, the bison were released into the wild at the end of summer or beginning of autumn, in such way the animals had enough time to learn the habitat and find the most suitable places for resting and feeding until the winter.

During acclimatization and rewilding period animals were fed 3 times/week at the begging and then gradually reduced to 2 – 1 time/week until the feeding stopped.

(2) A "more hard-release method". Starting with 2019 the "soft-release" method was adapted/changed, based on a lesson learned. The main trigger to adapt the release methodology was a "natural release" situation. In the fourth year of the project (2019) two of the translocated groups of new animals (pre-formed social groups) were 'naturally released' from the enclosure by a free 6-year-old bull, who broke the fence of the acclimatization zone. The most probable cause was the interest of the bull towards females. These groups stayed with the bull for a few days and after that joined the free-living herds, which happened to be near to the acclimatization zone. These groups adapted well to the novel habitat, as they had guidance from free-living herds.

Since this incident in the following years of the project, we have released the new bison groups right after the acclimatization period (without putting them through rewilding period).

The release of the bison from the acclimatization zone was coordinated with the movement of the free-living herds which were close to the pre-release infrastructure. The bonding (pre-formed social groups), behaviour and good health conditions were nevertheless taken into consideration. All groups had adapted perfectly to the new environment conditions with no casualties so far.

A fast integration of the newly released groups within the free-ranging ones may decrease conflicts with people. Calves born into the wild are not used to human contact or artificial feeding, so the natural behaviour is to avoid human presence and this behaviour is embraced by the whole herd, including the new animals, for protection of offspring.

Table 6. Results achieved against the objectives and expected results foreseen in the proposal

Action	Foreseen in the revised proposal	Achieved	Evaluation
A1. Preparation of administrative basis	<p><i>Objectives:</i> To guarantee the positive development of the project.</p> <p><i>Expected results:</i> An adequate administrative and legal basis is available to guarantee a timely and efficient start-up of the project</p>	<p>Hiring dedicated project staff: Development and signature of partnership agreements Development of project team Development/collection of internal rules about procurement and reporting of travel costs Production of VAT exempt status declarations from all partners Production of a “Financial Monitoring Tool” Production of an internal cash flow model and of a file for the monitoring of budget shifts.</p>	Action developed as foreseen, set an important basis for the adequate administrative management.
A2. Kick-off meeting	<p><i>Objectives:</i> To brief the staff on the main project management and implementation rules and at planning the first year of activities in detail.</p> <p><i>Expected results:</i> All the project participants have clear knowledge of how to proceed in order to achieve the project objectives.</p>	Kick-off meeting made in February 2016	Achieved as foreseen. The team has met, responsibilities were assigned, technical details were discussed.
A3. Secure necessary permits	<p><i>Objectives:</i> To secure necessary permits from authorities and landowners for both release site</p> <p><i>Expected results:</i></p>	All permits obtained.	<p>After an initial delay regarding the Poieni release area, all the permits have been obtained.</p> <p>At the beginning of 2020 the Poieni release site was closed due to the issues arose from the gaps of the legal framework concerning</p>

	<ul style="list-style-type: none"> - Permit from Hunedoara EPA to build soft-release infrastructure in Poieni - Permits from Hunedoara in Caras Severin EPAs for the acclimatization and release of the bison - Agreement with Romanian Academy for bison reintroduction in Poieni - Permits from Sanitary Veterinarian and Food Safety Authority in Hunedoara County - Traceability documents (each year) - 5-year agreement with private landowners from Demsus Associations - 5-year agreement with Romsilva - Agreement with Ministry of Environment to update the Standard data Forms of Natura 2000 sites 		species reintroduction and their management after the release.
A4. Feasibility study	<p><i>Objectives:</i> To prepare a human dimension study in the project area in order to understand what the most important stakeholder groups are and which are the main needs, attitude to wildlife and concerns,</p> <p><i>Expected results:</i> One feasibility study to assess the ecological suitability of the habitats for the bison reintroduction in Poieni</p>	Feasibility study for the second release site was done and is available.	Action developed as foreseen, set an important basis for the selection of bison, guideline for the reintroduction itself, monitoring and dissemination of results.

	area and the connectivity with potential other ecological suitable habitats.		
A5. Human dimensions study	<p><i>Objectives:</i> To prepare a feasibility study in the second bison release site in Poieni</p> <p><i>Expected results:</i> One survey carried out. One conclusion report about the outcome of the survey. One human dimension study Follow up/meeting to stakeholders sharing results</p>	The subcontractor did the survey as requested. A Report of Human Dimension study is available in English.	The action was carried out successfully. Available data were used to implement action C.5.
A6. GIS database	<p><i>Objectives:</i> To gather detailed information about distribution of the interventions' areas</p> <p><i>Expected results:</i> One centralized GIS database</p>	GIS database developed and functional by a subcontractor.	<p>The action was carried out successfully. The database is used constantly since June 2016.</p> <p>In 2020 the data collection and storage were transferred to a new platform – EarthRanger (https://earthranger.com), an easy-to-use online solution developed by Vulcan Inc. EarthRanger is not just a database (as it was previous database), but an efficient management tool.</p>
A7. Business opportunity identification	<p><i>Objectives:</i> To identify the enterprise opportunities in the area.</p> <p><i>Expected results:</i> One overview of business opportunities and six business plans</p>	The assessment of the business opportunities has been done and the six business plans have been produced.	The action has been completed as foreseen, the assessment and plans were a starting basis for the implementation of the enterprise development activities.
C1. Construction of release facilities	<p><i>Objectives:</i> Construction of the specific release infrastructure in Poieni.</p>	Soft-release enclosure build and functional since May 2018	After overcoming the initial delays in the frame of Action A3, the release sites have been constructed as foreseen.

	<p><i>Expected results:</i> One in-situ soft-release complex build in Poieni area that comprises the following zones: handling zone, acclimatization zone and rewilding zone</p>		
C2. Selection and purchase of Bison	<p><i>Objectives:</i> To select 100 bison to be transported to the reintroduction and breeding sites in Armenis, Poieni and Hunedoara Zoo.</p> <p><i>Expected results:</i> 100 genetic suitable individual bison selected to be transported in the release sites</p>	Over 133 bison have been initially selected, but just 91 considered most suitable for reintroduction.	After overcoming several challenges concerning selection process, the action was achieved as foreseen and agreed with the commission in the amendments of the projects.
C3. Transport and release of 100 Bison	<p><i>Objectives:</i> Release of 100 Bison</p> <p><i>Expected results:</i> Transport and release of at least 20 Bison per year, 10 per site. Keeping the animals 1 month in acclimatization area and 3 months in rewilding area.</p>	<p>During the project implementation in total 91 Bison have been transported and 88 animals released in the wild: 14 to Poieni, 74 to Armenis and 3 to Hunedoara Zoo.</p> <p>Around 42 calves were born in the wild and around 32 survived up to now</p> <p>The release method was adapted to the lessons learned as described in Paragraph 5.3.</p>	<p>After overcoming challenges in the selection process and learning how to improve the transportation process and management of the bison before and after the transportation a total of 88 animals were released, so that we almost reached the LIFE indicator of releasing 100 animals. With a mortality of 18 animals amongst the translocated in the frame of the project, and about 32 newborns in the wild, the population in Armenis is exceeding 100 free-roaming bison.</p> <p>More important than to reach the pre-defined number is the aspect of genetic diversity among the animals, which were reported to carry most of the genetic</p>

			diversity found in this lineage in the Armenis bison population.
C4. Prevention of conflicts	<p><i>Objectives:</i> To reduce conflicts with local landowners and land users</p> <p><i>Expected results:</i> 10 km of 3-wired electric fence purchased Effective prevention of conflicts between bison and local human activities achieved.</p>	<p>A total of around 9 km electric fence were purchased and installed to protect property.</p> <p>Several effective preventive and reactive measures were taken, involving innovative technology and strong local partnerships.</p>	<p>After facing several challenges, especially due to unclear legislation concerning management of the bison on a hunting ground and then taking several actions to improve the management of the conflict through the project team and not on the basis of the existing legislation, the action was successfully implemented.</p> <p>More than that the attitude of the locals and stakeholders changed, and they become more supportive towards bison reintroduction.</p>
C5. Consultation activities	<p><i>Objectives:</i> To involve stakeholders in management decisions and implementation.</p> <p><i>Expected results:</i> Meetings with Stakeholder Working Group (SWG) in each pilot site. One e-mail group to send newsletters to SWG. Meetings with local communities and local associations representatives in each pilot site</p>	<p>Since 2016 up to 2019 meeting with Stakeholder Working Group took place. Then several face-to face meeting with small groups of key stakeholders were held.</p> <p>Around 150 meetings have taken place with local, regional and national authorities (Environmental Protection Agency, Local Forestry Management Unit, shepherds, majors, local peoples, hunters, veterinarian).</p>	<p>The Poieni site had to be closed partially due to insolvable disputes between stakeholders in this area, despite all efforts to find a solution to these conflicts.</p> <p>In Armenis, no major problems appeared in this context.</p>
D1. Monitoring of the released animals	<p><i>Objectives:</i> Carry out monitoring action to get better understanding of the habitat use, plan potential ecological corridors in areas with barriers,</p>	<p>The monitoring actions targeted <i>fitness of bison population</i> (health, parasitological load and genetic), <i>bison ethology and ecology</i> (behaviour, inter- and intraspecific interaction, movement patterns and habitat use, home range,</p>	<p>The action started as foreseen in the project and was successful implemented.</p> <p>In the Poeni site that action started in 2018 but stopped once with the relocation of the last animals from Poieni site due to closing. The remaining 4 animals have been</p>

	<p>prevent poaching, mitigate human-bison conflict.</p> <p><i>Expected results:</i></p> <p>Data about survival, movement and health checks of released animals reported</p>	<p>habitat suitability) and <i>bison population dynamics</i> (population structure and mortality/survival)</p> <p>All gathered data are uploaded on the EarthRanger platform via the CybertTracker mobile app.</p> <p>The results have been included in the Monitoring Report.</p>	<p>transported to the Fagaras Mountain bison reintroduction site in Romania.</p>
D2. Monitoring of the social impact	<p><i>Objectives:</i></p> <p>To understand if and how the perceptions of stakeholders towards the project have changed as well as to measure how activities, especially action C5 have generated a positive shift in the stakeholders' initial interest.</p> <p><i>Expected results:</i></p> <p>One (1) survey carried out during the project life – at least 50 people involved;</p> <ul style="list-style-type: none"> • One (1) conclusion report at the end of the project life; • One (1) meeting with at least 20 key stakeholders to share results of the monitoring. 	<p>The subcontractor did the survey as requested. A second Report of Human Dimension study is available in English.</p> <p>The results were shared in 2 different meetings aiming local, regional and national key stakeholders.</p>	<p>The action was carried out successfully. Available data will be used to implement After LIFE plan.</p>
D3. Monitoring of the economic impact	<p><i>Objectives:</i></p> <p>To understand if and how the project activities, and especially action E12, have generated economic benefits for the relevant stakeholders.</p>	<p>Direct monitoring of the economic impact was carried out by the project team.</p>	<p>This action was carried out successfully and set an important basis for the actual and future enterprise development in the Armenis area.</p>

	<p><i>Expected results:</i> One monitoring system developed and a detailed technical monitoring report.</p>		
E1. Create a visual identity for the project	<p><i>Objectives:</i> Produce photo and video material to be used for communication and awareness raising.</p> <p><i>Expected results:</i> - 300 calibrated high quality tiff photos, plus 600 RAW files - Five hours of RAW video footage - Two edited 5-minute bison film documentaries about the bison, the project and the area - 1000 trap camera images from the area - One live web cam imagery - 50 already existing high quality calibrated tiff images with usage rights</p>	<ul style="list-style-type: none"> - The contracts and photo missions successfully ended in summer 2019 with over 400 edited and 800 RAW photos. - The short documentary was filmed and launched in 2019. Projections happened at local, regional, national and European events and on televisions (E6). The documentary was selected at 10 international film festivals and awarded at the WildScreen Film Festival. It was also projected during the two project closing events. The documentary is available for view on multiple online platforms including: You Tube, Facebook and Instagram. - Over 200 hours of camera trap (video) images sourced and edited from camera traps used in the monitoring of bison and other wildlife. 	<p>Action ran smoothly, but with some minor changes regarding the expected results:</p> <ul style="list-style-type: none"> - there is only be a single, 9-minute documentary - the acquisition of the live webcam was cancelled and imagery from the field is being sourced from the standard camera traps - the camera trap images are videos, not static imagery
E2. Production of information materials	<p><i>Objectives:</i> Provide important tools to be used for awareness raising</p> <p><i>Expected results:</i> - 2000 project description leaflets - 4 rollups - 500 posters</p>	<ul style="list-style-type: none"> - A bilingual project leaflet – 1600 copies - Three project roll-ups/banners - A sticker installation (set of 3 stickers) for the Natural History Museum - Project T-shirts and shirts for bison rangers 	<p>Activity has run smoothly. The only changes from the initial planning of results are:</p> <ul style="list-style-type: none"> - we chose to print the “bison-friendly” product label developed under E.7 from the budget for the 500 posters under this activity; the reason for this is that there wasn’t a proper budget for the production of

	<ul style="list-style-type: none"> - 1000 copies of the Best practice brochure - 200 T-shirts, caps and notebooks - A digital newsletter published twice a year x 5 years= 10 newsletters 	<ul style="list-style-type: none"> - Equipment labels (30) and car stickers (6) - Newsletters: 11 sent out to breeders, partners and other stakeholders 	<p>the “bison-friendly” product label at E7 that would include both design and print.</p> <ul style="list-style-type: none"> - Although 2000 flyers were envisioned, we printed only 1600, as live events were reduced in 2020-2021 due to Covid-19. - Costs of good clothing (eco-cotton and resilient) meant less t-shirts were created, instead we also made branded shirts for rangers to better represent the project when media visits in the field took place. - The coexistence booklet was adapted into an animation format in order to reach a wider audience (locals, children, tourists). It was created in January 2020 in English and Romanian and was replicated by other reintroduction programs.
E3. Media programmes	<p><i>Objectives:</i> Carry out media activities to improve awareness about the project and its objectives</p> <p><i>Expected results:</i></p> <ul style="list-style-type: none"> - At least 5 television news or documentary reportages 5 radio broadcasts and 10 national or local news or features articles. - Media archive - At least 15 national media releases - At least one national and 2 regional broadcasts of the short Project documentary 	<p>18 press releases at national level and over 40 at national and regional level by WWF, WWF CEE in coordination with Rewilding Europe, which promoted important milestones, such as the bison transports and the hard infrastructure.</p> <p>Overall approximate viewership according to national and international media monitoring is of 16,756,714 (all indicators are met)</p> <p>Media Archive is complete.</p> <p>The documentary was broadcasted on national and regional TV stations and at 10 film festivals in 7 countries.</p>	<p>The project was very successful, it has been fundamental for the large-scale dissemination of the project.</p>

E4. Children and youth awareness programme	<p><i>Objectives:</i> Raise awareness of school children</p> <p><i>Expected results:</i></p> <ul style="list-style-type: none"> - A Youth Bison Education Program is established - A Junior Bison Ranger club is established also in Romania; at least 5 schools in the greater area sign up for the program - A booklet about bison is produced for children and youth in the area and distributed and used in the above program - A Wildlife photography workshop is arranged for teenagers and the Junior Bison Ranger Club in Romania. 	<p>The bison education programme ran until June 2021 with 5 school clubs in the two project areas involved, amounting to approx. 120 pupils, plus teachers and headmasters.</p> <p>A booklet was produced in the form of a comic book, part of a WWF series called “Beyond the horizon”.</p> <ul style="list-style-type: none"> - 1 ToT (train-of-trainers) event - 16 practical/interactive lessons as detailed in the education guide - 1 photography workshop for all schools/clubs involved in the programme, with external assistance from a professional photographer - 1 ornithology workshop with SOR biologists to develop bird-watching skills and better understand their role in the ecosystem 	<p>Activity has performed well, after an initial delay due to longer preparation work, including prospecting for contacts and exploring interest in the local communities. Some budgetary adjustment also had to be undertaken in order to be able to implement the education programme.</p> <p>Due to Covid19 instead of a bison camp we focused on online activities (Facebook group, virtual sessions and competitions).</p>
E5. Website, Facebook, Twitter	<p><i>Objective:</i> Large-scale information and dissemination on the project</p> <p><i>Expected results:</i></p> <ul style="list-style-type: none"> - One (1) bilingual website section launched in Romanian and English as a minimum and quarter with new content; - A Facebook profile - A YouTube profile will be established in Romania, updated at 	<ul style="list-style-type: none"> - The LIFE RE-Bison project web page was launched in August 2016 and is available in English and Romanian at www.life-bison.com and https://www.rewildingeurope.com/life-bison/ and since 2019 on https://wwf.ro/ce-facem/specii/zimbrul/proiectul-life-bison/ <p>It is being regularly updated with news items and articles on the project activities.</p>	<p>Activity has run smoothly throughout the project. The only change was that the blog part hosted initially on Tumblr was moved to the main publications page of the website to bring more views on our owned media channels.</p>

	<p>least quarterly with new video content;</p> <ul style="list-style-type: none"> - A Twitter account - A minimum of two conservation/nature blogs published 	<p>Until October 2021 the website has been accessed 55,120 times and has 50,149 unique page views.</p> <ul style="list-style-type: none"> - The Facebook page has 4622 followers - Youtube channel has over 40 videos, 270 followers and the videos have 84,962 views. - Twitter account, not a very popular channel in Romania, has 283 followers. 	
E6. Local indoor exhibitions	<p><i>Objectives:</i> To raise awareness at local level with the use of high-quality visual material</p> <p><i>Expected results:</i></p> <ul style="list-style-type: none"> - One locally touring indoor exhibition shown at least 2 times per year. Bilingual and downloadable and viewable on the Internet. - Launch events connected to when each exhibition opens - Media coverage in at least 3 important local and regional media in connection with each exhibition launch event. 	<p>The first exhibition was produced and displayed in 2016, then in 2019 the exhibition was reproduced to show both areas of reintroduction and use new photography created under the E1 action.</p> <p>The two exhibitions containing 6 panels each have travelled through Romania every year. The exhibition also has a digital version uploaded on the project website, in a bilingual format.</p> <p>A virtual exhibition was created and promoted during the pandemic.</p>	<p>The initial number of 20 events was overly ambitious considering the time and transport budget allowed for the exhibition to travel.</p> <p>Also, due to the SARS-CoV-2 (COVID-19) restrictions live events could not occur frequently between 2020 and 2021 and a virtual exhibition was created and shared online on social media.</p> <p>Even so, more than 24.000 persons have seen the exhibition online and offline.</p>
E7. Promote local products and nature tourism	<p><i>Objectives:</i> Improve local incomes and socio-economic conditions thanks to the presence of the Bison populations</p> <p><i>Expected results:</i></p>	<p>The “bison-friendly” label for products has been produced and placed on local products (1850 labels printed).</p> <p>A media visit was organized under action E7 and E3, on the launch of the Visitor Centre in Armenis. Visits with travel agencies carried out in the Bison Hillock. Three articles were published in</p>	<p>Activity was focused on the first rewilding area due to challenges in the second area.</p> <p>More journalists and bloggers than anticipated were welcomed and guided in the area which meant allocation of funds from label printing to offering experiences to these influencers.</p>

	<ul style="list-style-type: none"> - A local “Bison friendly” label, printing 5000 stickers, to put on the products. - Two 3-day media visits for a group of up to 5 invited journalists - Organizing at least one online marketing campaign - A minimum of 3 blogs published by 2 leading travel bloggers in major international travel media/blogs from the area. - Info leaflets about the bison watching providers and their tourist offer - A group of 10 people from local, regional and national tourism agency staff, have been taken for a 1-day visit to the bison watching areas 	<p>renowned ecotourism magazines (Another Escape, The Guardian, The Economist). The Romanian National Railway company promoted the ecotourism to 140.000 readers.</p> <p>A bison tracking with bloggers of Romania Travel Guide. Promotion of the Armeniș area by our partners Parco Natura Viva, on their website, newsletter and Facebook posts.</p> <p>The magazines 4X4 Wheels / Eco Wheels have visited the Bison Hillock to promote off-road adventures in their August-September 2019 issue. At the same time the National TV Station DIGI24 filmed in the Bison Glade, Hateg area for a tourism TV programme. Promotion of the hiking and biking trails in Armeniș area by the production of destination business cards and other leaflets.</p> <p>A travel blogger visited the area in 2021 and the posts reached 99,000+ people and the videos had over 8900 views.</p> <p>Various websites host and promote the living and guiding experiences from the Bison Hillock, such as: AirBnB, Local, WildVentures, Trip Advisor, magura-zimbrilor.ro</p> <p>Marketing campaigns on social media promoted the European Safari Company</p>	
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		and WeWilder bison tracking experiences.	
E8. Launch and closing event	<p><i>Objectives:</i> To make the project known by the local communities</p> <p><i>Expected results:</i> - One launch event and workshop at a national level in each, when the project starts - One workshop at a national level, to present and discuss the final results from the project.</p>	<p>- Launch event 28 October 2016 in the Natural History Museum in Bucharest, with 50 attendees - Closing event for local, regional and national stakeholders took place in the Armeniş Cultural and Events Center between the 23rd and 24th of September 2021, with 50 attendees. - Closing event for international stakeholders hosted a two-hour online conference on Zoom on the 29th of September. There were 63 attendees</p>	No problems encountered, the launch and closing events have been a good opportunity to inform the local communities, national and international stakeholders about the project, the results and the continuation of the conservation initiative.
E9. Info panels	<p><i>Objectives:</i> To publicize the LIFE contribution to conservation</p> <p><i>Expected results:</i> - Five weather proof and durable information signboards will be installed</p>	Information panels have been mounted in two locations/project area, at the visitor centres in Armenis and Densus and at the entrance to the bison enclosures. The panels are made of quality materials for guaranteed outdoor resistance and they are bilingual.	This action had to be postponed until permits for the second project area were obtained. The change from the initial planning is that for Armenis we produced smaller panels acknowledging the EU support and the project, which we attached to big existing panels. The savings have been used/ further earmarked for the production of small info branded panels for the infrastructures built under E12.
E10. Networking	<p><i>Objectives:</i> To exchange experiences and know-how with similar initiatives, also to disseminate the project experiences to other conservationists.</p> <p><i>Expected results:</i></p>	The project has been networking with at least 12 other projects and project teams. The team has been represented at a major Rewilding Europe event in 2017 and has participated to 5 scientific conferences. Starting with 2019 team members become members of the European Bison	Action was carried out successful. Several networking and experience exchange activities at national and international level helped the team to improve management of the project.

	<ul style="list-style-type: none"> - Staff participation at two international scientific bison conferences, - Taking part in a central Rewilding conference at the end of the project. 	<p>Friend Society (Poland) and IUCN Bison Specialist group</p> <p>The lessons learned in the frame of the project were included in the New European Action Plan for European Bison Conservation developed by the BSG. The AP will be published in 2022.</p>	
E11. Produce a Layman's report	<p><i>Objectives and expected results:</i></p> <p>Produce a report to inform the general public about the project outcomes.</p>	<p>Layman's report produced in Romanian and English in 600 copies and disseminated to 110 persons</p> <p>Also, an online version is available for the public and was disseminated to at least 63 persons.</p>	The project was useful to inform the general public and local communities in the project areas on what has happened in the project.
E12. Creation of Bison Business Infrastructures	<p><i>Objectives:</i></p> <p>To create business opportunities of the local communities.</p> <p><i>Expected results:</i></p> <p>Development of at least one wilderness cabin and two wildlife watching hides.</p>	<p>Three training sessions have been provided for tourism actors by the project team.</p> <p>Other several training sessions have been provided by the complementary projects developed in the area as part of nature-friendly economic development.</p> <p>One wildlife watching hide (observatory) constructed in Armenis area</p> <p>One traditional mountain house refurbished in the Armenis area to be used as accommodation by bison tourist.</p>	Action was carried out successful in the Armenis area. In the Poieni area no business infrastructure was created due to the closing of the reintroduction site.

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

The following project results were immediately visible:

- Selection, translocation and release of the bison in the wild (C2, C3).
- Educational program development and implementation (E4).
- One wildlife watching hide constructed and used by the tourist.
- Wildlife cabin constructed
- The spot for nature study and relaxation in the school yard of Armeniş
- The activities carried out in the frame of the Action of C5, which increased level of support of the project, especially by the local people and authorities.
- Communication activities increased level of awareness of the local and general public.
- One intervention unit created

The following project results have become visible after a certain time period:

- Increase of the E. bison population in Southern Carpathians (one free-rooming subpopulation with 32 new-borns in the wild).
- Genetic diversity has increased due to an adequate selection process
- Survival of bison has increased due to changes in pre-release management
- Increased individual home range sizes and their expansion,
- Small local business started in relation to the project (e.g., tented camp, new guest houses, local product promotion, We Wilder campus).
- Data collected from the field (D1) and impact of the European bison on the habitats.
- Results of the management in the acclimatization and rewilding phase.
- Management measure related to free-rooming bison.
- Support of the project by the key stakeholders i.e., hunters.

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.

As mentioned further up because of the delay in obtaining the environmental permit to build the soft-release enclosure in Poieni and then issues arose from the unclear legal framework concerning management of the free-roaming bison on a Natura 2000 site overlapping with a hunting ground which led to the closing of the second reintroduction site, and additionally because of the challenges in selection of the suitable bison it was unlikely that the LIFE indicator of 100 bison selected and released in the project area to be fulfilled.

This estimate resulted from our conviction that:

- (1) after working with the central and regional authorities for more than one year to clarify and change the legal framework without any result it was clear that this will be a very long procedure and the impact on the project activities will be negative.
- (2) it is more important to select only the best suitable individuals for reintroduction, in order to have higher chances of creating a free living, healthy and ultimately viable subpopulation rather than simply reaching a predefined quota that is not in accordance with the survival chances of the reintroduced population.

Considering the possibility of not succeeding in translocating in total 100 individuals during the project time and not fulfilling the LIFE project indicator, as mentioned further up we have taken measures (by extending the project with 6 months) in order to reach/approach this number

as much as possible in the rewilding area of Armenis, in order to set a bases for a genetic viable bison population in the future. Furthermore, in the after-LIFE period are planned/foreseen activities to reinforce genetic fitness of the current bison population by bringing new individuals (based on DNA analyses) and by expanding the number of populations present in the Tarcu Mountains by establishing another reintroduction area/areas.

Without amending the project, the number of selected and released bison would have been around 72 and genetic diversity of the current population with be much lower, as in 2021 we have focused mainly on selecting animals as much as possible unrelated to the existing individual released in the wild already and on underrepresented genetic line (45 and 100).

Describe the results of the replication efforts – not applicable

Changing the pre-release management of the bison, which meant keeping the animals for several months in an enclosure together to allow for social bonding and transporting these pre-formed social groups to the rewilding site has proved to be very effective in preventing mortality and human-bison-conflicts which in turn are the two most essential aspects for bison survival and thus for a successful population recovery.

First pre-formed social group was translocated from Avesta Visentpark, SE in 2017. This group had the lowest rate of mortality, and no conflicts were registered after release. Based on these results we have replicated the situation in 2019 and 2020 through the help of Springe Wisentgehege (GE) and the same results were the same. In 2021 the preparation of the bison group activity was replicated also at Donaumoos Wisentgehege (GE).

Starting with the groups translocated in 2019 there was no death case or conflicts registered amongst the newly translocated animals.

Indicate the effectiveness of the dissemination activities and comment on any major drawbacks

Public awareness and dissemination actions have been fulfilled completely. Deliverables, in terms of physical promotional material such as posters, leaflets, stickers, T-shirts were designed with project logos, produced and distributed during external public events, fairs, presentations, photo exhibitions, round tables and meetings. At events, we used stand-up banners, materials for children, comic books produced by the project and local produce with the bison-friendly labels. Information boards (notice boards), which bear the Life logo and project name, have been placed at the sites. The bilingual website (www.life-bison.com) has been continuously updated with information about the project, press releases, photos, blog articles and news about the activities led by the project team reaching over 52000 views since its launch. Other two sites were launched on project beneficiaries websites (<https://www.rewildingeurope.com/life-bison/> and since 2019 on <https://wwf.ro/ce-facem/specii/zimbrul/proiectul-life-bison/>). Nine photo exhibitions have taken place in several locations in Romania, the digital gallery being accessible also during Covid-19 on the website and a special platform helping us reach more than 24000 people. Creating and maintaining media strategy and relations rose the awareness on local, national and international level. There were over 200 appearances in national and international online and printed press, TV and radio reaching over 16 million people worldwide. The constant flow of information on social media helped us reach 4622 followers on Facebook and 84 000 views on Youtube. Our focus on the local community perspective about the bison was captured in the documentary “Zimbrul” which was viewed 65 000 times on social media and was selected by 10 film festivals. The education programme reached 5 schools in both areas of the project, with over 120 young people participating in workshops with specialists, personalised lectures, lessons in class, outdoors and online during Covid19. In Armenis the

children are enjoying a corner for nature in their courtyard where they can learn about the rare species in that area. Virtual sharing of useful materials continues with the schools involved in the Youth Bison Education Program. The proof of the sustainability of the project sits also in the replication of the project results, for example the animation regarding coexistence was viewed over 50 000 times and also used by similar projects in other countries. Consultation activities to involve crucial stakeholders and their support for the project implementation were conducted regularly. This includes networking activities of all partners, maintaining regular contacts, news and updates with other LIFE projects, participating in workshops, seminars and international conferences to both exchange scientific views and inform others about the work of the project to ensure replication. The methodology for the implementation of the project has been chosen correctly. Therefore, objectives and targets foreseen were achieved.

Policy impact

Describe project achievements which supported legislation (regional, national, EU) – the process of reintroduction of the European bison in the Southern Carpathians is playing a huge role in recovering the population at national and European level. The European bison is listed as a priority species on the Annex II and IV of Habitat Directive and has disappeared from Romania about 200 year ago. As a result of long-term conservation management, collaboration with local communities and international support, the E. Bison is no longer classified as ‘vulnerable’ according to the IUCN Red List Assessment, and it has recently moved up to the conservation status of ‘near threatened’ (Plumb et al. 2020). Even though the European bison was declared in 2020 as a Near Threatened species by the IUCN, we consider that at the national level it is ‘critically endangered’, as the existing populations in Romania are below Minimum Viable Population³ (MVP) and highly fragmented with hindered possibility to connect in the near future. So, the LIFE RE-Bison project, which overall aim was to enable the successful recovery of the European Bison in the Tarcu and Poiana Rusca Mountains in southwest Romania, has been majorly contributed to this striking achievement. Moreover, the reintroduction of this species in Southern Carpathians will have a huge role on long term in the improving the conservation status of the habitats and other species inside and outside the Natura 2000 site, as it is considered an umbrella species. Protecting the European bison and large areas of habitat that it requires, many other plant and animal species will benefit.

The experience gathered during the implementation of the project related to selection of the animals, acclimatization and rewilding process and monitoring will provide valuable information for the development of the National Action Plan for the European Bison Conservation and for other reintroduction programs across Europe.

5.3 Analysis of benefits

1. Environmental benefits

a. Direct / quantitative environmental benefits:

The LIFE RE-Bison project has direct benefits on the environment by reintroducing into the wild a priority species from the Annex II and IV of Habitat Directive. As a result of the efforts made during the LIFE Re-Bison project and before that now in the Armenis rewilding area is roaming freely a bison population of around 100 animals.

³ According to IUCN, Red List (2021) the Minimum Viable Population (MVP) in a E. bison population is 150 mature individuals

From the reintroduction of the bison other species benefit, especially herbivores and predators, but this is not an effect which can be seen immediately after release of the animals.

Since the bison eats a wide variety of plants it is also an essential seed disperser that helps to propagate around 50% of the plant species it consumes (Jaroszewicz & Piroznikow 2008). Additionally, by producing up to 7 kg of faeces per day (2.555 kg/year), this megaherbivore is vital for local fertilization of the forest floor. The existing bison population is producing around 721 kg of faeces/day and around 263.165 kg per year which is distributed in its home range. Studies shows that around 596 other species of invertebrates and mammals can benefits from bison carcasses in Europe.

Bison is the biggest herbivore in Europe grazing huge quantities of plants, on average 40kg, which means that in one year a group of 100 bison can graze around 1.500.000 kg of vegetation, thus the direct impact on the vegetation will be obvious once the bison population will grow.

Also, as a large and charismatic mammal, bison started to become an iconic species in the Rewilding area both for nature conservation as well as for rural development.

b. Qualitative environmental benefits

Bison is a key stone species with a crucial role in maintaining the organization and diversity of their ecological communities. Large herbivores, as bison is widely recognised to strongly influence soil processes and the structure of plant communities. They can affect vegetation directly by grazing and indirectly by changing the turnover rates of nutrients. On death, a large herbivore also releases a local and highly concentrated pulse of nutrients into the soil. Thus, European bison is providing a significant source of nutrient enrichment, which influence the quality of the soil, and therefore the heterogeneity and diversity of plant communities.

Because bison tend to graze intensively they contribute to suppression of shrubs encroachment and the maintenance of a mosaic of grassland, shrub and woodland habitats. The variety they produce can increase the abundance and diversity of other species (e.g., birds, other herbivores and insects) thus increasing the health (quality) of the entire ecosystem.

The qualitative environmental benefits can be evaluated after a longer period, based on comparative studies.

2. Economic benefits

The main economic benefit can be registered at local level, starting with 2016 in Armenis. In the second rewilding site Poieni we have started planning of enterprises development, but this was stopped due to the closing of the activities in the area.

Over 30 families were involved consistently throughout the year, providing traditional food, accommodation, local guidance and about €270,000 were spent in the local community as a result of this strategy. Examples of activities to increase capacity as well as the pool of interested individuals include workshops (architecture, tracking) as well as facilitating our ongoing field research/internship programme by locals.

Around 5 local enterprises were started in the Armenis area and more the 340 visitors experienced bison tracking alongside our wilderness guide or project team. Of those over 120 individuals were paying customers purchasing the two days' bison tracking and tented camp package or the 4 days bison, bear & chamois package. These products were managed by a local start-up and the local bison association.

For ecotourism activities 2 tourist trails and 3 biking trails were developed and officially approved by the national and local authorities.

A social enterprise, called WeWilder (partnership between WWF Romania and local community members) started to operate since the end of 2019. We Wilder campus is focusing in offering based solutions for a better tomorrow for the local and urban communities, sustainably, to support biodiversity in one of Europe's largest wilderness areas. Unique experiences which includes bison tracking, traditional food and various accommodation options are available through WeWilder enterprise.

For implementation of several actions of the project (C1, C.3, E.4, E.10) it was decided to limit the contracting to local suppliers and companies in order to assure that the project will contribute to local economies and enhance acceptance of the bison by the local communities. Around €45.000 was spend for the infrastructure building, road reparation and labour work.

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

Broadly, local population in the project area values nature and their environment. They uniformly perceive the high esthetical value of nature, the majority considering that it is important for them to appreciate the beauty of the natural environment. Also, the vast majority values nature ecologically, as something to be protected for the benefit of humankind and economically, as a useful resource. The local communities have a fairly positive perception of the bison, as a beautiful, gentle, friendly animal, worthy to be cared for and protected. Based on this perception, the enterprise activity in the Armenis started small i.e., tracking/tented camp, 4 days' bison, bear & chamois tracking package, new accommodation places, providing traditional product/food.

States Forests and private landowners have provided their forest for the reintroduction and some of them are responsible for the refurbishment of the access road to the release sites. They are involved in the monitoring of the bison and the effect on both parts is creating a sense of pride and ownership for the bison herd.

Hunters and wildlife managers: Local hunting society in Armenis – Plopu and Teregoava is involved in monitoring of the bison, conflict management and wildlife watching operations and serve as wildlife guides. Since the general management of the bison (once released) is the responsibility of the local hunting associations hunters will develop a feeling of ownership and pride for being part of the initiative. In addition, two members of the Intervention Unit to solve human-bison-conflicts are local hunters.

4. Replicability, transferability, cooperation:

Cooperation is very tight especially with breeders and zoos across the Europe in the frame of the Action C2 (e.g., Springe (Germany, Donaumoos (Germany), Vama Buzaului (Romania), Tierpark (Berlin), Avesta (Sweden), Parco Natura Viva (Italy)) and has been significantly increased in the last three years of the project. Networking with breeders across Europe is essential for the implementation of the project.

Other important cooperation was developed with Veterinarian Universities of Timisoara and Cluj-Napoca for the monitoring of health of the European bison (parasitological analysis) and with the Genetic Wildlife Lab of the Senckenberg Institute (Germany) which has performed a genetic analysis in the frame of the action D.1

A Best Practice manual was published in September 2021 at the end of the project in order to share our experience and particularly lessons learned with other reintroduction initiatives of the European bison across the Europe.

5. Best Practice lessons:

The project implemented and demonstrated the following best practice techniques and methods:

- The selection method of the European bison for the reintroduction into the wild. The process of the selection is complex and the survival of the reintroduced animals into the wild is strongly depending on this aspect.
- The acclimatization and rewilding method of the translocated European bison was adapted to the lessons learned during the time of the project. These has contributed to a better adaptation of the animals to the natural habitats, frequency of the human-bison conflicts, alongside the selection process.
- From 2019 onwards, we had mainly reintroduced pre-formed social groups which were kept away from human contact (except caretakers) as much as possible, for several months, before the translocation. This pre-translocation protocol significantly contributed towards the decrease of the conflicts and rate of mortality after release into the wild.
- The LC animals from a few semi-free-living and free-living populations can be considered for reintroduction, but due to an unknown pedigree and risks of translocating highly inbred animals, it is not recommended unless DNA analysis is performed beforehand.
- Location of the pre-release infrastructure was installed too close to settlements in the Poieni reintroduction site. While the bison' natural behaviour in new areas was expected and planned for, the habitat suitability of the Poieni reintroduction site was overestimated, whereas the influence of certain hunting management practices was underestimated.
- The analysis of stakeholder perceptions suggests that the local communities should be informed frequently about the gradual hands-off model of rewilding by organizing more face-to-face information and consultation meetings where human-wildlife coexistence management, bison behaviour and community development are better explained. Moreover, involving the community in activities and consulting them often increases transparency, trust and the level of support for the return of bison to the landscape.
- Some of the key partnership needs to be agreed before starting the actual reintroduction of the bison.

6. Innovation and demonstration value:

Genetic monitoring was an effective way to evaluate the demographic and genetic status of the reintroduced population within a limited study area, to inform changes to the conservation strategy, and to generate a data set to address long-term research and recovery goals. The SNP marker panel used in this genetic analysis proofed to be capable of individual recapture of released animals and identification of progeny from the field, which allows for in depth future population monitoring, including the estimation of effective versus census population size, relative reproductive success and social herd structure within the reintroduced bison population(s).

The EM non-lethal wildlife ammunition produced by the engineering office EDM in Austria was used for the first time on bison in this project. Since this high-tech repellent was applied only on two cases in this project, more data will be needed to evaluate its efficiency in bison nuisance management.

Complementary activities

- The “Bison Hillock, wilderness innovation lab”, co-financed by a grant from the Swiss Contribution to the enlarged EU, and implemented by WWF-Romania with other partners: the aim of the project is to develop a new technological system that would improve the monitoring of wildlife and the prevention and mitigation of human-wildlife conflicts. This strand of work (i.e. tech tools for the wild) is now being developed further by WWF-Romania through a new project called WildAI

[eye] in which a taskforce of six young practitioners from across Europe is involved in gathering various field data (about bison and their habitat) that is used in both projects with the single aim of enhancing the quality of conservation interventions in the bison reintroduction sites and beyond.

7. Policy implications:

The reintroduction of the E. bison into the wild in the Tarcu Mountain Natura 2000 sites will have a positive impact on the habitats and wildlife in the future by increasing their conservation status and will contribute to the implementation of the Habitat Directive in Romania.

From the beginning of the project it wasn't clear to the regional and national authorities which is the process of obtaining Environmental permits for the soft-release enclosure and for the E. bison acclimatization and release. There is no clear specifications in the Romanian legislation for the reintroduction of wildlife species into the wild.

Moreover, it isn't evident in the Romanian legislation which authority should release the Certificate of origin for E. bison. On this purpose a Working Group for the conservation of the E. bison in Romania was established in 2016. The working group had established that the Certificate of origin should be release by the member of the EBCC, based on the European Bison Pedigree Book.

The fact that LIFE RE-Bison was a pilot initiative meant that unexpected situations arose over the course of its six years. An unresolvable situation resulted in the closure of the rewilding site in Poieni, which led to many consultations with the Romanian Ministry of Environment concerning legislation. This revealed significant legislative gaps regarding species reintroduction and post-release management in the wild.

Over the last three years we have focused mainly on clarifying responsibilities regarding biodiversity conservation and game/hunting management, as the bison falls under two different pieces of Romanian legislation: Hunting Law (Law No 407/2006), where the European bison is listed in Annex 2 as a protected species (i.e., off limits for hunting), and Natural Protected Areas Law (OUG no 57/2007), where the European bison is listed in Annex 3 and 4A. According to OUG no 57/2007, the European bison is a strictly protected species and its presence in an area leads to Natura 2000 site designation. These inconsistencies remain unresolved as of now.

For the reintroduction of bison in Armenis and Poieni sites an Environmental Permit/ Authorization was issued according to the Minister Order No 979/2009 which complies with the legislation transposing the Natura 2000 Directives. The permit does not include clear reference to the responsible institutions for managing the species after the release in the wilderness, assuming that they become part of the national natural capital.

For more details on legal framework and necessary amendments see Best Rewilding Practice Guidelines.

In 2016, a national working group for the conservation of European bison was established by representatives of the Ministry of Environment, WWF Romania and other experts involved in bison reintroduction initiatives. The working group had the mandate to develop the National Conservation Strategy for the European bison. In the end, the working group was not formalized by a Ministerial Order during project time and in the absence of a formal framework the few informal meetings did not bring more clarity or concrete solutions.