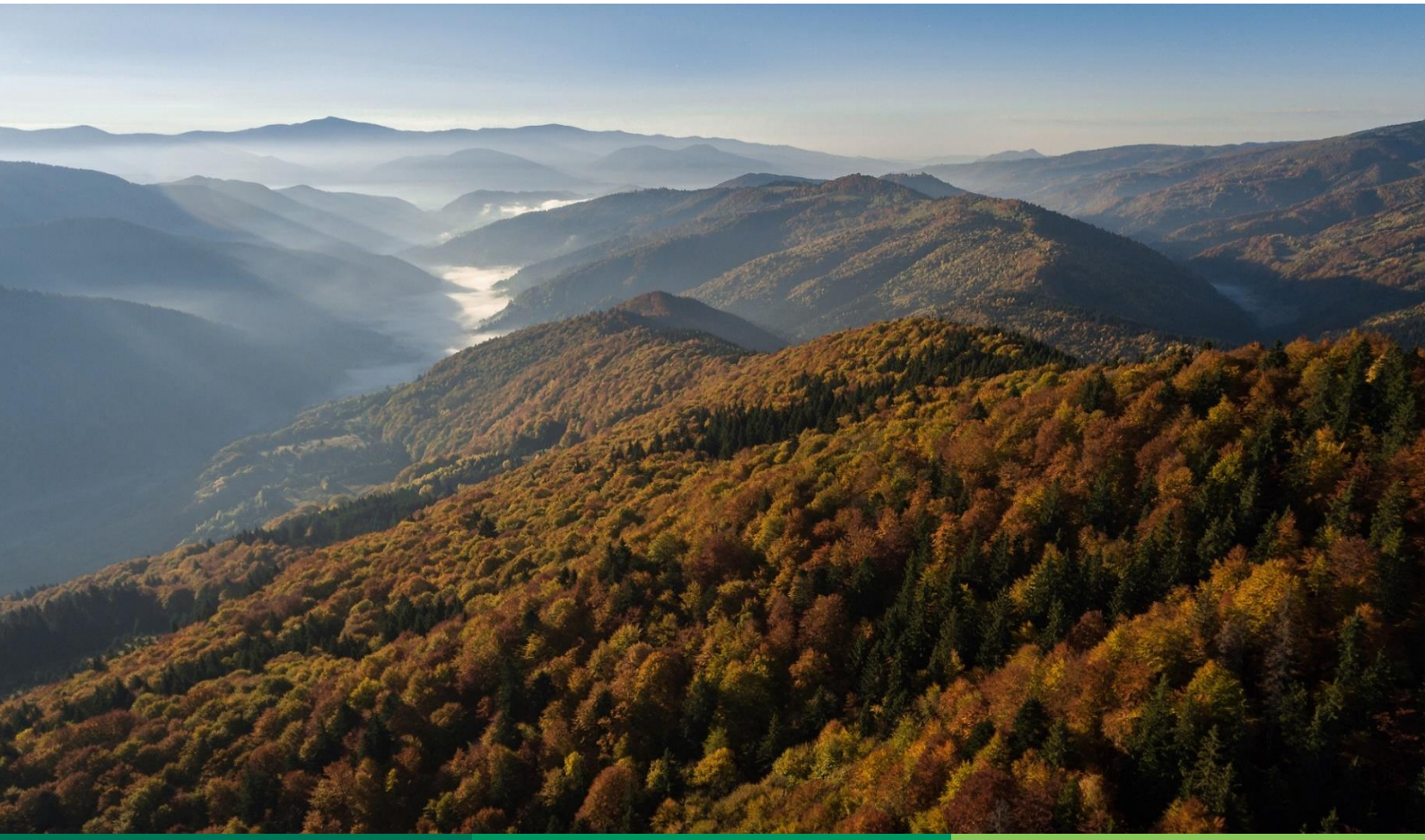
CARPATHIA®
European Wilderness Reserve



LIFE11/NAT/RO/823

After-LIFE Conservation Plan

ENGLISH VERSION

Brasov, November 2018

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1. Project overview and situation analysis

1.1. Background for the LIFE+ project

Until the beginning of the last century, much of the Southern Carpathians remained in its original state due to the lack of accessibility of the long valleys and the steep slopes. After this, forests were cut and spruce, as a light-dependent species, often took over and replaced the mixed mountain forests. After the nationalisation of all forests in the early 1950s, first forest management plans were elaborated, and the NFA continued to convert beech and mixed mountain forests into spruce plantations. With the forest restitution to private individuals starting from 2004, the situation changed dramatically. Most of the owners wanted to exploit the newly gained resources and more activities started to flourish, each contributing to the increase of negative impacts on forests. The land or standing timber was sold to logging companies, ski resorts were developed, and trophy hunting became big business, resulting in massive illegal clear-cuttings, deforestation, a large number of new sawmills and a significant decrease of wildlife, especially large carnivores. Over 2,500 ha of forest have been destroyed in the first years after the restitution began, and many more in the years that followed. Other conservation problems included the loss of the last virgin forests through uncontrolled exploitation and the interruption of the water course through dams and river training structures.

The Făgăraș Mountains are one of the most spectacular alpine landscapes in the Romanian Carpathians and hold at the same time some of Europe's ecologically most valuable, un-fragmented woodlands. The developments of the past decades, however, put the integrity of this unique ecosystem under severe threat, which is why Fundatia Conservation Carpathia (FCC) was created in 2007 to preserve these areas, focusing initially on the upper Dîmbovița Valley as part of the Natura 2000 site Făgăraș Mountains (ROSCI0122). The main purpose of the project is to create a world-class wilderness reserve in the Southern Romanian Carpathians large enough to support significant numbers of large carnivores and to allow evolutionary processes to happen. The expected long-term outcome of this initiative is the creation of a National Park in the Făgăraș Mountains on a total area of over 200,000 ha with the valleys around Iezer and Păpușa Mountains being one of the strictly protected core areas.

Since 2009, the rate of deforestation in the Dîmbovița area has slowed down significantly due to the fact that FCC and its partners have purchased most of those forests that came on the market and started to be present in the area with rangers that could intervene with illegal logging activities.

After focusing initially purely on forest acquisition to secure the land for conservation, FCC eventually prepared an application for a LIFE+ programme to implement the necessary restoration measures in the South-Eastern corner of the ROSCI0122 Făgăraș Mountains Natura 2000 site.

The LIFE+ project (LIFE11_NAT_RO_823) was granted by the EU Commission in autumn 2011 and was implemented in the period 2012 – 2018.

1.2. The LIFE+ project summary

The LIFE11_NAT_RO_823 project, also known as “Carpathia Restoration”, is part of the overall CARPATHIA initiative, which has the ultimate goal to create a National Park in the Southern Carpathians. The LIFE+ project was a first crucial step to protect and enhance the biodiversity of the ROSCI0122 Făgăraș Mountains Natura 2000 site.

In order to protect remaining wilderness and to return managed forests back into their natural state, the “Carpathia Restoration” project planned preparatory actions (assessments and inventories) and implemented a variety of activities with four major conservation objectives:

- Restoration of the original forest composition on clear-felled areas;
- Restoration of the forest floor on badly eroded skidding tracks;
- Rejuvenation of spruce monocultures with tree species, which restore the original forest composition;
- Restoration of alluvial forests

FCC aims to protect remaining wilderness and to return managed forests back into their natural state. The main objectives of this LIFE project are

- to save the remaining natural forests by purchasing them,
- to accelerate re-wilding processes on clear-felled areas and managed forests, if tree composition has been severely altered,
- to restore the riparian vegetation along the watercourses and to rehabilitate the aquatic eco-system of the Dîmbovița basin,
- to reduce the negative impact of man-induced erosion on clear-cuts, and
- to inform the general public about the Natura 2000 site and required conservation measures.

A series of actions were undertaken, as described in the table below, targeting the following habitats:

(9410) Acidophilous *Picea* forests of the montane to alpine level;

(4070*) *Pinus mugo – Rhododendron myrtifolium* associations in the sub-alpine and alpine areas;

(9110) *Luzulo - Fagetum* beech forests with *Abies alba* and/or *Picea abies*;

(91E0*) Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* all along the watercourses of the Dimbovita basin.

As this project was pioneering restoration on large-scale clear-cuts in Romania, there was no methodology, which we could simply use and apply. Technical experience from other parts of Europe in respect to necessary restoration measures existed, but nobody had implemented them under the specific Romanian legal, political, and socio-economic situation. For this reason, we had to overcome several unforeseen road-blocks, which usually caused delays and/or required a different approach as originally planned.

One of the most important activities of the project was the forest purchase (virgin forests, spruce-monocultures, and clear-cuts) designated purely for conservation. Forest purchase has been much more difficult than initially envisaged and, but eventually we managed to purchase a total of 1,643 ha. The majority of purchased virgin forests was *Acidophilous picea* forests (9410) of the montane to alpine level, and some Bushes with *Pinus mugo* and *Rhododendron myrtifolium* (4070*). All of the virgin forests have been categorised as such and included into the Management Plan of the Făgăraș Mountains Natura 2000 site, in addition, all purchased forests have the conservation status stipulated in the land registry and the majority are included as non-intervention areas in the Management Plan of the Natura 2000 site.

Many conservation activities required assessments or field studies to understand the quantitative and geographical aspects of the conservation problem. We developed a complex survey programme which comprised the survey of the aquatic system (A.6), various forest and clear-cut surveys (A.1, A.2, A.5) and the creation of tree nurseries (A.3). Very important was to identify virgin and quasi-virgin forests in the project area and to learn about their composition. Without a remote sensing methodology, we performed physical verification of all purchased areas that potentially contain virgin or quasi-virgin forests by collecting data on tree ages, signs of anthropic influence, occurrence of dead wood, diameters, height, structure and composition of forests, etc. and delimitating the virgin areas with the help of a performant GPS.

Evaluation was consequently followed up with detailed planning once the requested information existed. These plans were often of technical nature including plans of necessary equipment and manpower (e.g. A.4), or the geographical identification of the measures. Main activities were the restoration plans for the aquatic and forest habitats and the skidding tracks. Some of these actions turned into ongoing activities (e.g. the clear-cut replanting, the spruce forest conversion, or community outreach) and we envisage to continue them after the project end date as long as there is funding from other resources available.

Based on the technical plan for erosion control we started the restoration of the forest floor on eroded skidding tracks. Our teams of rangers with the help of seasonal employees cut parts of logs, which remained from the clear-cuts, and filled the gullies and ravines, which had been washed out of the tractor roads and a fair number of small trees, which grew in the vicinity of the skidding tracks were re-planted in the middle of the covered tracks. This approach was very successful and we gained valuable practical experience that we could already transfer to other areas.

A very challenging activity proved to be the creation of nurseries. Although the nurseries needed a lot of attention to cope with changing weather conditions, weeding, watering etc., they proved very successful and very efficient for the project. This activity had a very positive impact on the local community as well, showing an increasing demand to develop conservation entities (e.g. private nurseries that can deliver saplings to restoration projects), which will further increase employment rates and awareness for protected areas in the region.

We also implemented a complex monitoring scheme to demonstrate the long-term effects of the applied measures. The best example is the monitoring of planted saplings in respect to their survival, or the re-occurrence of erosion on restored tractor tracks (D.1, D.2). Monitoring started immediately after the implementation of an action in a specific area and will continue beyond the duration of this project since replanting, as one example, requires at least 5 years of monitoring until the regeneration can be considered secured.

Besides having a direct impact on the mentioned habitats, the conservation actions that were implemented throughout this project will have indirect effects on a variety of listed species such as the large carnivores (*Ursus arctos, Canis lupus, Lynx lynx*), the European otter (*Lutra lutra*), aquatic species such as *Barbus meridionalis* or *Cottus gobio*, and birds, such as *Picoides tridactylus*, *Dendrocopus leucotos*, *Ficedula parva*, and *Bonasa bonasia*, which are important indicator species.

Table 1. Details on project activities

Action	Description	Results achieved at the end of the project
A.1	Inventory of pristine forests	• obtained a detailed GIS based map of the spatial distribution of over 900 ha of virgin (608 ha) and semi-virgin (294 ha) forest patches in the project area; • a total of 294 ha of identified virgin and semi-virgin forests within 19 purchased forest lots;
A.2	Assessment of original tree composition and inventory of forest regeneration on clear-felled areas	• digital database and GIS map with original forest composition; • regeneration guidelines with details on inventory and analysis, and the description of the regeneration situation and the proposed regeneration scheme, including the calculated number of saplings for each unit of clear-cut;
A.3	Creation of a nursery	• creation of 3 nurseries; • production of 454,000 saplings out of which 43% beech, 32% spruce, 17 % fir and 8 % sycamore, ash and alder;
A.4	Inventory of areas affected by soil erosion	• digitized the clear-felled areas and all their logging and skidding tracks; • detailed survey of all these clear-cut areas; • identified 106 km of skidding roads, covering almost 1,200 ha of clear-felled areas;
A.5	Riparian habitat assessment and restoration planning with a special focus on alluvial forests (91E0*)	• digitized the alluvial forests; • inventory of the aquatic eco-system on 227,18 ha with clear restoration recommendations; • 5.5 % (12.4 ha) of the total habitats are in a favourable conservation state; only 1.8 ha can be considered natural and in very good conservation state; 24 % or 54.1 ha are occupied by the grey alder – *Alnus incana* and willows – *Salix capraea*, *Salix fragilis*; • 58 ha currently in the ownership of FCC and project partners, (total length of 21.7 km of watercourse);
A.6	Inventory of the status of the aquatic eco-system and preparation of a restoration action plan	• habitat assessment identified 12 aquatic habitats out of which 5 are of high conservation value; • water analysis revealed low turbidity and a slightly acid pH value due to natural and anthropogenic factors; • fish stocks are low, lack of adults, development impeded by fragmentation due to dams;
A7.	Expansion of assessments of virgin and alluvial forests from the upper Dâmbovița valley to the overall Natura 2000 site ROSCI0122 Făgăraș Mountains	• expansion of assessment to entire Făgăraș area was skipped due to a lack of methodology that could be used on a large scale; • FCC ensured that virgin forests identified by other initiatives were included into the Natura 2000 site management plan; • on FCCs request, a separate management measure was introduced to allow and enhance natural processes in forest habitats through the protection of areas under a pilot non-intervention regime;

B	Forest Purchase	• a total of 1,653 ha forests and clear-cut areas was purchased in the project area; • the land is designated purely for conservation and this status was stipulated in the land registry;
B.1	Purchase of natural forests	• acquired 294 ha of virgin and semi-virgin forests, of *Acidophilous picea forests* (9410), *Pinus mugo* and *Rhododendron myrtifolium* (4070*);
B.2	Purchase of clear-felled forests	• purchased 359 ha of clear-felled areas;
B.3	Purchase of managed forests	• a total of 990 ha of managed spruce forests was acquired;
C.1	Restoration of forest floor on eroded skidding tracks	• 16.88 km of skidding tracks fully restored, translating into 8.44 ha of forest habitat (less than 1 ha of 9410 *Acidophilous picea* forests, 1,000 sqm of 91E0* Alluvial Forests, rest 9110 *Luzulo-Fagetum* forests);
C.2	Plantation of original tree species on clear-cuts	• In total, we have planted 1,126,060 saplings and restored 404 ha of clear-cuts (342 ha of 9110 *Luzulo - Fagetum* forests and 62.5 ha of 9410 *Acidophilous picea* forests).
C.3	Rejuvenation of managed forests/ecosystem restoration	• process started on a total of 405 ha, all part of the 9110 *Luzulo - Fagetum* forests habitat type; • marking and cutting of over 35,367 spruce trees;
C.4	Restoration of riparian galleries	• the total river length restored accumulates to 23.14 km, and represents almost 46 ha of restored habitat;
C.5	Rehabilitation of tributary streams	• this action could not be implemented as planned in the frame of this LIFE+ project as building permit for the modifications of the dams could not be obtained; • alternative measures (national event on river connectivity) undertaken under action E.2;
D.1	Monitoring of forest floor on eroded skidding tracks	• vegetation is recovering in general on all restored areas, covering already 60-70% of the mobilised soils;
D.2	Monitoring of forest regeneration and rejuvenation	• all clear-cuts revisited in 2018 • success rate of at least 80% on 87% of the surface, losses of 5-20 % of saplings in some areas, mainly due to dryness, but this can be considered as normal; • on the monoculture conversion sites 5-29% losses; • supplementary planting in areas with more than 25% loss will be implemented in 2019;
D.3	Monitoring of forest habitat restoration efforts – indicator species	• expectedly low numbers of the three indicator species (*Dendrocopos leucotos*, *Picoides tridactylus*, *Ficedula parva*) in the degraded areas; • long-term monitoring required;
D.4	Monitoring of the aquatic system	• 2 to 3 individual otters and/or family groups present throughout the monitoring period; • hazel grouse presence very low; • permanent sample plots for vegetation monitoring established in the alder galleries; • fish monitoring delivered quite similar results for the three species throughout the past three years;

D.5	Assessment of the socio-economic impact	• income from forestry and hunting jobs, timber processing, livestock raising and harvesting of forest fruits has been compared to income from conservation related activities;
E.1	Production of wilderness guide with map	• 5,000 copies of a wilderness guide with map addressing adults have been distributed mainly to local guesthouses and tourists; • 2,500 copies of a children wilderness booklet have been distributed and were also incorporated in the mobile school programme “Wild Kingdom” for schools around the Făgăraș Mountains;
E.2	Workshops and guided visits	• several trips, workshops, and guided visits with representatives from other protected areas, local and national authorities, forest services, etc. • national event on river connectivity organised and summarised in clear guidelines;
E.3	Notice boards	• 2 large entrance boards, 5 permanent information boards and 9 thematic boards were mounted at the restoration sites
E.4	Website	• all LIFE+ activities and news are presented on www.carpathia.org
E.5	Layman's report	• a Layman's Report was produced and is being distributed nationwide
F.2	Networking with other projects	• exchange of experience with two Austrian National Parks, “NP Kalkalpen” and “NP Gesaeuse” • visit from Jämtland county administration that also run two LIFE projects • visit to the projects of the Tompkins Foundation in Chile and Argentina

With the results of the LIFE+ project, it is much easier now to convince journalists of the integrity and the reality of our activities. Three weeks after the end of the LIFE+ project, we organised a media trip for national and local TV stations, the national print media, and some of the most influential bloggers of Romania, who visited the Dîmbovița Valley and could directly experience the results of the LIFE+ project. Prominent and exclusively positive reports in all the major newspapers and the evening news of the all national TV stations were the results of the event, through which we reached over 2.3 million people online and almost 2 million people on TV.

2. Assessment at the end of the project

2.1 SWOT analysis

Strengths:

1. First and foremost, **the project team and its multidisciplinary nature** that made it possible to tackle the issues and problems at stake from various points of view and in an integrated manner. The teamwork was evident throughout the entire project and proved crucial when it became necessary to modify certain actions due to unforeseen constraints and implementation difficulties: Due to the various experiences of the different team members, we could usually identify equally effective alternative solutions. The expertise and the success of FCC in respect to fundraising also made it possible to allocate more funds for forest purchase, as land prices had gone up significantly during the course of the project period.

2. Another strength is that the LIFE+ project has important **policy related benefits**, both internally as it triggered additional funding for further forest purchase through FCC donors, and externally as it gives a best practice model on restoration efforts on clear-felled areas, which is a pioneering process in Romania and can be replicated now.

3. Tree **nurseries** have been developed into a great asset throughout the project period and we have now 8 nurseries operational and will provide the needed saplings for a few years onwards. Until the end of the project, Carpathia has increased its saplings production capacity to almost four times the surface planned for the initial LIFE+ project. This will enable us to restore additional clear-cuts over the next years.

4. For the first time in Romanian history, forest habitats, which have been altered throughout the last hundred years, were converted **back to their original state**. With this, we have not only created a blue-print for forest habitat restoration, but have also raised awareness that simply replanting spruce onto cut forests (which is the standard procedure in Romanian forestry) is not the best thing to do.

5. Throughout the project period, FCC became the first conservation NGO in Romania which promotes a new protected area in a public-private partnership, with donation of privately-owned forests and alpine grasslands into a National Park. As a consequence of pioneering activities such as leasing hunting areas for **wildlife protection** or **purchasing forests** for **conservation and restoration**, such activities are now being discussed by other conservation NGOs as well.

6. The project was very successful in developing measures for **restoration and erosion control**, and the experiences gained within this project have led to the successful financing and execution of an identic project by FCC on additional 100 ha of clear-cuts through the EEA Grants/NGO Funds. We have now successfully submitted new proposals for restoration of additional 600 ha to several private foundations.

7. An important strength **is the development of cooperation** with a number of national and international organisations that have the same goal to protect forests in Romania or other countries and to create new protected areas. Nationally, FCC has created a coalition of conservation NGOs which have formulated a protected area vision of 12% National Parks and 30% overall protected areas within Romania and internationally, we have managed to get the spotlights on the natural heritage of Romania.

Weaknesses:

1. Throughout the project period we have seen **an unstable political environment** with **regular changes** of politicians and technical staff at the Ministries, which made it extremely difficult to effectively work with government organisations. Throughout the life of our restoration project, we experienced a permanent up and down in respect to political support for our initiative, and for conservation in general.

2. The project faced continuous problems with **the subcontracted forest working companies** that have been the most difficult one to compensate and only with high effort from FCC staff the project progressed well and the objectives could be fulfilled within the project time. One of the reasons for this was that these companies in the local and regional context often accept one price but make more money by unofficially removing additional timber and thus create a higher profit. In our case, these companies couldn't do this as our work dealt with planting more than cutting, we have executed tight controls over their work, have incorrupt forest rangers, and left most of the timber which was cut during the spruce monoculture conversions anyway in the forests.

3. In general, **procedures to obtain permissions** are very bureaucratic, with many steps to follow and different levels of authority, putting tremendous efforts into chasing responses and finding solutions. Demolishing a dam eventually proved to be an impossible task, as the approval signed by the Ministry of Environment was amended by some conditions as “solving the legal issues about the demolition of the constructions”. Considering that the owner rights are split between private and state, that the National Forest Administration claims they cannot decide without the approval of the Ministry of Finance and the Ministry of Finance claims they cannot decide without the approval of the National Forest Administration, one can easily imagine the obstacles implied by executing this activity. This is especially the case if throughout the project period the legal framework changes and - as in this particular case - it became impossible for FCC to execute this activity which would have been perfectly legal during the time we planned and proposed it.

Opportunities:

1. All good results obtained with the restoration activities made it possible that the experiences of this LIFE+ project become **an example, which can be replicated elsewhere** in the region. Indeed, the effectiveness of the undertaken activities have been replicated on additional surfaces funded through the EEA Grants/NGO Funds and now with private funds from foundations.

2. The expected long-term effect of this project is the contribution to the **creation of a National Park on** a total of over 200,000 ha in the Făgăraș Mountains with the valleys around Iezer and Păpușa Mountains as one of the strictly protected core areas.

3. FCC has initiated a **discussion platform** between conservation NGOs and the timber industry with the goal to implement sustainable forest management standards and to get an agreement with the timber industry about a percentage of non-intervention surfaces all over the country in the form of National Parks.

4. Future work on restoration and/or improvements of the conservation status of habitat types can be funded through **EU funds**. The LIFE+ funding has added credibility to the project and allows the restoration of affected forest ecosystems, which creates trust amongst donors and triggers substantial amount of leverage funding for further forest purchase.

5. **Additional synergies** are being exploited for **communication actions**, such as an education programme about wilderness in the schools around the Făgăraș Mountains, outdoor tourism and for the development of a new, **non-extractive economy for local communities**, which will create lasting jobs and income opportunities for local communities and will create conservation fees for the administration of the park and further restoration measures on affected areas.

Threats:

1. In addition to potential generic threats caused by uncontrollable events such as theft or natural disasters, one of the threats concerns **the political instability** which might lead to changes in terms of laws and political indifference addressing nature protection and conservation.
2. In this context, the current government follows an agenda, which is not necessarily favourable for protected areas and planned legislative projects would even allow cutting of virgin forests or in strictly protected core areas of National Parks under certain conditions.

2.2. Project results as the base of further actions

FCC has so far purchased over 13,000 ha and manages a total of almost 22,000 ha for full protection. Management of purchased land is principally converted into a non-intervention regime, unless previous usage has led to serious damage of the ecosystem and active restoration work is required such as replanting on clear-cuts, erosion control on tractor tracks, or introduction of hardwood saplings into large-scale spruce monocultures. In the frame of the discussions about a future Făgăraș National Park, the properties purchased by FCC will have a crucial role in providing necessary core areas and will represent a source of species for kick-starting the rewilding process on many of the adjacent areas. FCC will extend its activities in the next phase of its development to a wider area of the Făgăraș Mountains and all experiences gained in this project will be beneficial to replicate them in the areas to the West of Dîmbovița Valley.

2.3. Remaining threats for target habitats and sites

Based on the analysis of threats and risks, main remaining threats for project target habitats are related to human activities (i.e. illegal logging, excessive tree cutting, forest fires etc.) and climate change (raising temperatures and changing precipitation patterns).

Although illegal logging has significantly decreased throughout the last 10 years and has pretty much been totally stopped in the FCC project area, there is still a fair amount of misuse of the existing regulations regarding timber extraction. With the current government's policy to weaken the control measures again, which have been successfully developed and introduced in the last years (e.g. the mobile App "Inspectorul Padurii" for wood tracking), the slow progress and poor results of the Catalogue of Pristine Forests, and the various legislative projects the government has submitted in relation to protected area management and HNV forest protection, we believe that destruction of listed habitats might soon be a serious threat again.

Climate change is already a fact and the focus of Romanian forestry on spruce might backfire very soon. Raising temperatures will allow bark beetle to multiply more often and droughts will additionally harm spruce as a shallow root tree. Bark beetle infestation is likely to become a serious problem and a forest cannot quickly adapt over just a few decades.

3. The After-LIFE Objectives and methodology

3.1. Future Conservation priorities

When we developed the plans for this LIFE+ project back in 2011, the CARPATHIA project was in its early phase and had not much activities other than forest purchase for protection. Throughout the six years of the project, we have developed restoration activities and had many good results with a positive impact on nature and biodiversity, which now can be replicated in a much larger area of the ROSCI0122 Muntii Făgăraș Natura 2000 site. At the same time, the project has developed plans and started activities in a variety of additional fields.

Priorities for future conservation actions will be in the fields of

1. **Forest protection:**
    - Continued purchase of forests for full protection in the current areas of Piatra Craiului National Park and the Dîmbovița and Lerești Valleys and extension into the rest of the Southern Făgăraș Mountains
2. **Restoration activities:**
    - Replanting of clear-cuts and erosion control work in a wider area of the Southern Făgăraș Mountains
    - Restoration of alluvial forests along the mountain streams
    - Restoration of degraded alpine grasslands
    - Removal of invasive species
3. **Wildlife:**
    - Extending the area of wildlife protection by leasing additional hunting concessions
    - Developing a functional wildlife management system which focus on conflict mitigation and avoidance
    - Developing a modern wildlife monitoring system
4. **Community Outreach:**
    - Involving local communities in the work FCC is doing and making them realise that a Făgăraș Mountains National Park is in their own advantage
    - Monitoring public attitudes and believes through ongoing human dimensions' research
5. **Communications:**
    - Communicating through regional, national and international media about the goal to develop a Făgăraș Mountains National Park
    - Developing and implementing a social media campaign
6. **Development of a Conservation Enterprise Programme:**
    - Develop a conservation enterprise trust fund
    - Assisting regional entrepreneurs to develop conservation friendly businesses

3.2. Future Monitoring priorities

In order to assess the project's long-term benefits to ROSCI0122 Făgăraș Mountains Natura 2000 site and the contribution to a wider National Park in the Făgăraș Mountains a post-LIFE monitoring plan has been developed.

To ensure the long-term sustainability of the outputs and results achieved and of the works implemented by "Carpathia Restoration", the project team will continue to carry out most of the project's management activities after the end of the project. In particular, FCC will continue to supervise ordinary practical activities, such as the **replanting and restoration of eroded soil** and will intervene directly should the situation require it. In the same time, it is important to **monitor the existing plantations** and for another few years check whether adjustments are needed, in case diebacks are significant.

Since the re-establishment of natural eco-systems is of course a long-term process, especially when talking about forests, we tried to identify indicators that are capable of tracking these changes over an extended period of time, beyond the time of direct actions, while at the same time they can detect responses of specific measures. Monitoring activities that have been started within this LIFE project and that have been integrated into FCCs general monitoring scheme, sometimes with minor adjustments, are listed below.

Abundance of specialist bird species

Area-sensitive bird species are linked to particular habitats and threatened through fragmentation of the meta-population. As a result, many of these are protected by the Birds Directive. Restoration of habitats should provide new patches and corridors, increasing connectivity and as a consequence lead to an increase of abundance and density through time. Following restoration, some species that characterise the degraded habitats at the initial survey are expected to disappear, while there will be new-comers and specialists which will occupy the new habitats.

The methodology used are counts of singing males or pairs of birds along line-transects in degraded habitats to be restored (forests and subalpine meadows-heaths habitats) and in unrestored reference areas. The abundance of specialists for every habitat, ratio of specialists to other species, and the densities of every species (per ha or 100 ha) will indicate benefits of habitat restoration.

The bird survey, which is a direct follow-up of the LIFE action D.2, will be undertaken by professional ornithologists. Funding is already secured for the next 5 years through a Grant from the Endangered Landscapes Programme (ELP). In addition, we will build the capacity within FCC to implement standardised bird surveys through our organisation and will link this to national initiatives (e.g. nation-wide bird censuses done by the Romania Ornithological Society).

Cover and species diversity of the characteristic understory vegetation

Understory vegetation responds most rapidly to different management actions (restoration, non-intervention, changes in ungulate densities, etc.) and determines future forest conditions, which makes it a perfect tool to continuously monitor the impact of our project. Restoration of degraded patches of forest habitats (as started already with the vegetation monitoring under action D.4) should lead to the reestablishment of the characteristic understory vegetation followed by a recovery of the associated fauna (invertebrates and vertebrates) and an increased connectivity of different forest types/habitats.

We will do this by measuring the understory vegetation cover and species diversity in permanent sample plots located along line-transects, in degraded forest habitats to be restored and in well-preserved forests. The ratio

of forest-type characteristic understory plant species to other species, will indicate benefits of habitat restoration, increased connectivity and the recovery of the basic ecological functions.

With all the necessary capacity available within FCC, it is a rather cost-effective indicator to measure. FCC's ecologist will be responsible for the long-term monitoring of this indicator, together with experienced FCC staff (forest technicians, rangers) and can be supported by University students and volunteers.

Fixed-point photography

We have started to use fixed-point-photography to visualise changes in the vegetation cover of the recovering skidding tracks (action D.1) and this has proven a very valuable and impressive tool that we will continue on a yearly basis on selected locations.

Abundance of European Otter

The European otter is not only a listed species under the EU Habitats Directive, it is also an indicator for the overall quality of the aquatic and riparian eco-system and therefore should be monitored in continuity. We will continue with yearly surveys based on tracks in late winter/early spring and will also make use of camera traps during the summer months to obtain more information on groups sizes and reproduction successes.

The necessary capacity for this exists within FCC and therefore the monitoring as initiated under action D.4 can be continued without special grants allocated to this activity. FCC has obtained a larger number of camera traps for monitoring Eurasian lynx during winter-time, which can be used for otter monitoring during summer without causing high additional costs.

Changes in local economy

We will continue the evaluation of the number of local people employed or self-employed in sustainable livelihood activities (eco-tourism, restoration work as their primary source of income,…) and the number of sustainable micro, small and medium enterprises (MSME) initiatives created or strengthened around the project area due to the interventions, as well as the evaluation of the number of households around the project area that improve their net income due to project activities.

FCC is directly involved in initiating a new economy based on conservation and sustainable use of the landscape which will lead to more people directly or indirectly benefitting from such developments. This will be reflected in access to well-paid jobs, new conservation enterprise skillsets, and stable revenues from conservation-based activities that counter-act a possible decrease of job opportunities or damaging activities (poaching, illegal encroachment) due to restrictions in the forestry sector.

The evaluation of the number of jobs in conservation-based enterprises will be done on a yearly basis, as well as household surveys and interviews with key people. The continuation of the socio-economic assessment as implemented in this LIFE project under action D.5 can be continued on a more professional level as funding is already secured for the next 5 years through the ELP grant.

In addition, since throughout the life of the "Carpathia Restoration" project we identified a negative perception of local communities towards protected areas in general as one of the major barriers to achieving National Park status for the Făgăraș Mountains, **monitoring the human dimension** of restoration efforts is extremely important. We therefore will engage throughout the next 5 years a lot more into learning more about community resident attitudes, beliefs and public acceptance and support for protected areas, wildlife acceptance levels, and visitor motivations and behaviour focused upon nature-based activities. These monitoring schemes are also already partially funded by the ELP grant and will be crucial to better focus and adapt our communication.

3.3. Capacity needs

The next phase of the project towards creating a Făgăraș Mountains National Park requires a lot of effort and needs a good, divers and sufficient team. We are creating departments with different responsibilities and have developed partnerships with outside organisations where we need particular expertise, which we don't want to build up internally.

Our future teams will encompass:

Team	Members	Responsibilities
Leading team	Executive directors with 2 assistants	Strategic development of the foundation, fundraising
Coordination team	Team leader with 2 assistants	Assure permanent information flow between the various departments, keep track of project activity schedules, reporting
Financial team	Financial director with 6 senior and junior accountants	Assure financial administration and forecasts
Legal team	Team leader with assistant, procurement officer and HR person	Assure legality of all activities and contracting
Technical team	Technical director, staff of forest service and hunting concession administration, rangers	Secure protection of forests and wildlife, restoration work
Wildlife team	Wildlife management biologist, wildlife researcher, assistant, wildlife monitoring teams, rapid intervention teams for wildlife-human conflicts, wildlife reintroduction teams	Operate rapid intervention teams in our various hunting areas, execute bird & wildlife monitoring, implement reintroduction programmes
Communications team	Communications director, event manager, media responsible, designer	Coordinate all of FCCs communication work in respect to media and social media, events, print material, coordinate cooperation with external PR agency

Further, we will work with the following external specialists and organisations:

Project Cluster	Organisation	Role
Legal department	Allen & Overy Bucharest	Pro bono legal adviser
Financial department	Ernst & Young Bucharest	Pro bono tax adviser
	Decreso Consult Ltd.	Auditor
Technical department	Various local forestry companies	Contractor for replanting and spruce monoculture conversion
Wildlife department	University of Ljubljana	DNA analysis of wildlife samples
	Vanatori Neamt Natural Park	Consultant bison reintroduction
	University of Prague	Consultant black grouse reintroduction

	Gerhard Schwab	Consultant beaver reintroduction
	Romanian Ornithological Society Milvus Group	Consultant and contractor for bird monitoring and conservation
Communications department	McCann PR	Pro bono consultant and contractor for media and social media, national events, print material
Community outreach programme	ProPark Foundation	Partner and contractor for community outreach programmes
Conservation enterprise programme	Conservation Capital	Partner and contractor for conservation enterprise development

3.4. Institutional issues/Political challenges

Throughout the life of the LIFE+ project, we experienced a permanent up and down in respect to political support for our initiative, and for conservation in general. One of the biggest challenges we encountered in this project was related to necessary approvals or legwork from authorities or administrations that were delayed or could not be obtained, but the generally unstable political situation with ever changing politicians and technical staff at the Ministries makes it extremely difficult to effectively work with the various government organisations. Unfortunately, this seems to be a very common problem, as we learned from most other larger projects in the country.

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4. Financial outlook

4.1. Relevant funding measures for future work

Although it remains important for FCC to continue securing forests for conservation, additionally and differently targeted funds are now crucial to get local communities well and truly on board and to achieve the highest conservation impact by ultimately turning these forests into a National Park backed by local communities.

For this reason, FCC has spent a significant amount of resources over the last year into fundraising for the next phase of the CARPATHIA project. This has led to a series of successes:

1. FCC receives smaller amounts in a range of 30-75,000 € p.a. of money from various foundations or corporate partners for restoration
2. FCC has been granted 2.75m € from the Oak Foundation for restoration, wildlife monitoring, and communication.
3. FCC has been granted 5m $US from the Endangered Landscapes Programme for restoration, wildlife conservation, community outreach, communication, and conservation enterprise development.
4. FCC has been promised from the Wyss Foundation sufficient funds to continue purchasing private forests in the southern Făgăraș Mountains
5. FCC has submitted a 1.45m € project for the development of conservation enterprises in the Carpathian arch together with partner organisations from several Carpathian countries
6. FCC has submitted a project concept for a second LIFE+ project with a total of 26.7m € and has been invited to submit a full proposal

FCC is also in discussions with a series of additional future donors, who would help with financing general operational costs, restoration costs, and additional land purchase.

In the medium and long term, the development of conservation enterprises should feed a trust fund through direct revenues and through conservation fees, through which the operational costs for a future Făgăraș Mountains National Park will be covered.

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