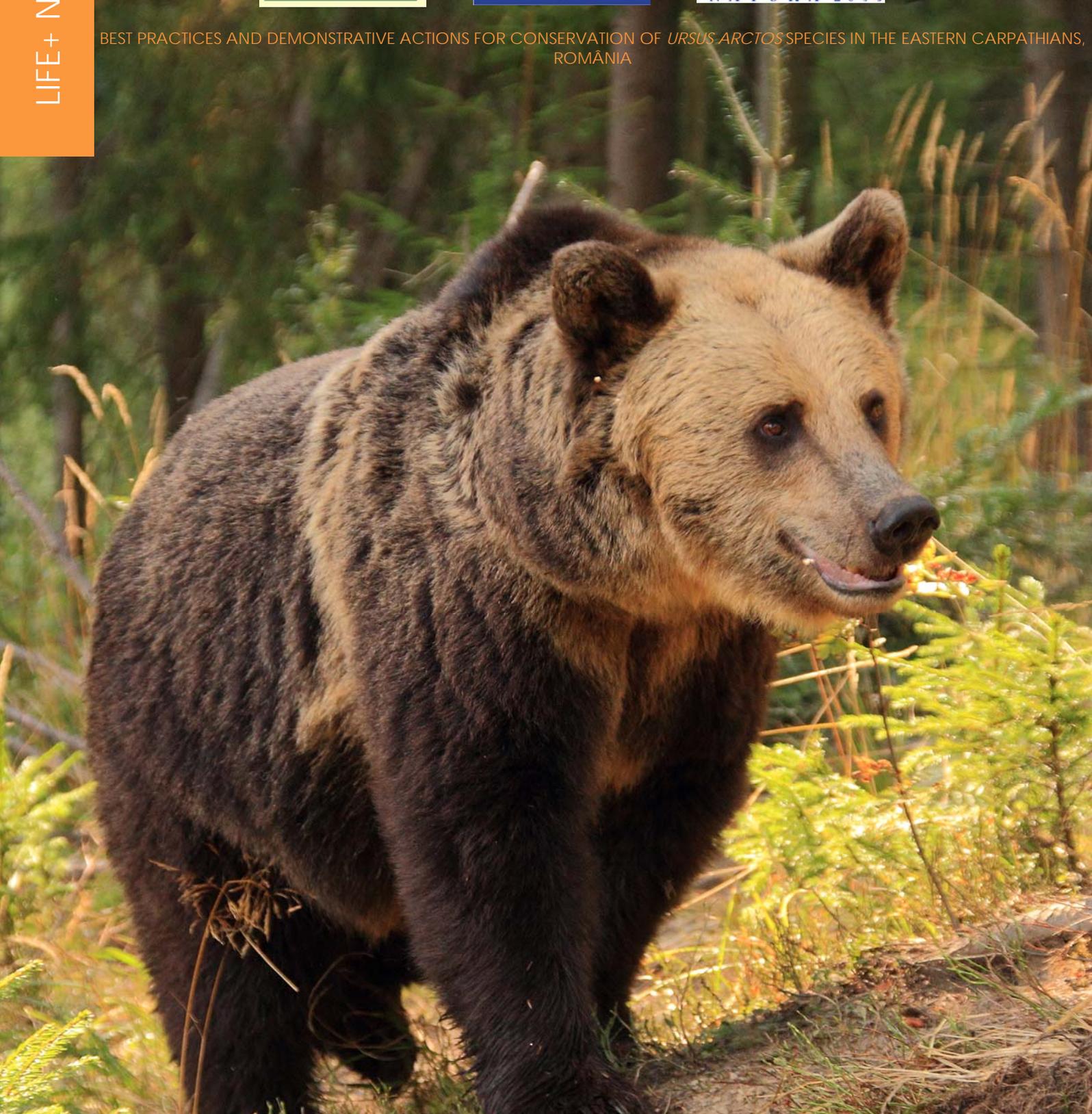




BEST PRACTICES AND DEMONSTRATIVE ACTIONS FOR CONSERVATION OF *URSUS ARCTOS* SPECIES IN THE EASTERN CARPATHIANS, ROMÂNIA



LIFEURSUS LAYMAN REPORT

LIFE08 NAT/RO/000500

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About LIFEURSUS project

LIFEURSUS project - LIFE08 NAT/RO/000500 "*Best practices and demonstrative actions for the conservation of Ursus arctos populations in central-eastern Carpathians*" was funded by the European Commission, Directorate-General for the Environment, through LIFE + program. Co-financing of the project was provided by the Ministry of Environment and Climate Change and partner associations.

Project area: Vrancea, Covasna, Harghita counties

Project duration: 15.01.2010 - 20.12.2013

Beneficiary: Environment Protection Agency Vrancea

Parteners:

Environment Protection Agency Covasna

Environment Protection Agency Harghita

Association for Biological Diversity Conservation – Vrancea

Association for Nature Values Conservation – Harghita

Total budget: 515 066 €

European Commission contribution: 386 300 € (75% of total budget)

Ministry of Environment contribution: 128 766 €

Webpage: www.carnivoremari.ro

Project's aim

Conservation of the most representative sample of *Ursus arctos* population in Romania, by implementing best practices and demonstrative actions in the central-eastern Carpathians

Project's objectives

- Maintaining the current conservation status of the Carpathian brown bear population by applying best practices and demonstrative actions in the project area and promoting the methods nationwide.
- Preventing brown bear population decline due to poaching, habituation and juvenile mortality.
- Preventing and reducing conflicts between bears and humans.
- Maintaining the current conservation status in 15 Natura 2000 sites, overlapping the project area.

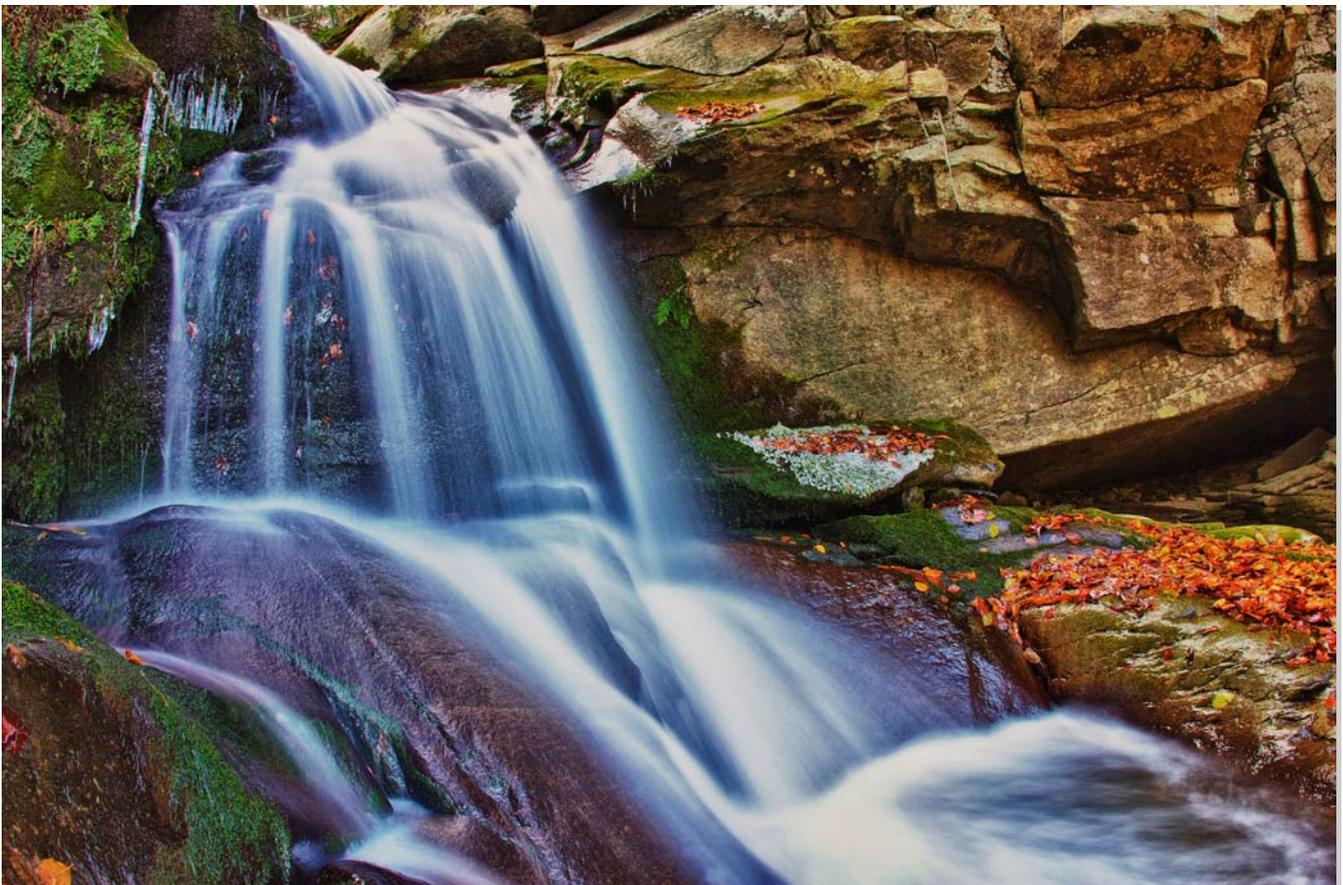
Introduction

Project implementation area overlaps the central and south-eastern Carpathians, remarkable by the presence of favorable habitats for large carnivores, and considered to be a core area, with a maximum concentration of brown bears in Romania. The region lies, generally, in a NW–SE alignment and administratively corresponds to the mountainous area of Vrancea, Covasna and Harghita counties.

The total area of the three districts overlapping the project area is 1,519,603 acres (15,196 km²). Within this area, approx. 550,000 acres (5,500 km²) are covered by forests, the main habitat of the brown bear (the project area overlaps the alpine, continental and steppe bioregions). Geographical position, general characteristics of the terrain and vegetation types creates an unitary region, defined as a vast space, favorable for large carnivores. Project implementation area follows the central

axis formed by Sites of Community Importance, with an outstanding presence of large carnivores.

The existence of this representative Carpathian brown bear population was a scientific argument that led to establishing, in the project area, of 15 Sites of Community Importance, part of the European ecological network Natura 2000. From northwest to southeast, the Natura 2000 sites are: Harghita Madaras, Varghis, Herculian, Tinovul Bog - Lake St. Ana, Ciomad - Balványos, Oituz – Ojdula connected in the south to the local network for the protection of large carnivores in Vrancea County, of which we mention Putna-Vrancea Natural Park, Lacul Negru, Padurea Verdele, Cascada Misina, Sindrilita, Poiana Muntioru and Muntioru - Ursoaia.



Activities

Estimate of brown bear population size

Methods for preventing habitat fragmentation and degradation

Effective protection systems against wild animals attacks

Analysis and Intervention Teams

Protection den sites

Awareness campaign

After LIFE

Conclusions



Estimates of brown bear population size

One of the important activities of the project was to identify a new method to estimate the bear population size inside the Forest Management Units or Protected Areas. Five methods for estimating the abundance of brown bears have been demonstratively implemented in pilot areas.

Data were collected in three seasons, during which presence signs and tracks were measured and recorded on transects that totaled more than 850 km, and more than 360 camera traps were set in the field, being active for a total of 1800 days.

Activities were completed through creating the "*Guidelines for estimating the brown bear population size*", and distributing it to all stakeholders. The guide was structured to inform wildlife managers on alternative methods for assessing large mammal populations, particularly non-invasive methods. Another topic included in the guide was linked to the minimum information, the basis for any manager, on the subject of biology, ecology and ethology of brown bears. Final methods presented in this Guide are monitoring of presence signs on road-transects, camera trapping and monitoring of

females with cubs. All methods have been adapted in order to facilitate the transition, as necessary, from the old monitoring method currently used, to new methods, tested in the project and described in the guide. Thus, the guide was used to propose the transition from an inventory of bears (technically unrealistic solution) to solutions regarding population abundance (realistic alternative).

The methodologies proposed in the guidelines were presented at the 22nd International Conference on Bear Research and Management organized by the International Bear Association in Utah (USA) and at the 87th Annual Conference of the German Society of Mammalogy, Prague (Czech Republic). The document was approved by the Ministry of Environment and Climate Change.

Methods for preventing habitat fragmentation and degradation

Analysis activity of the degree of brown bear's habitat degradation and fragmentation targeted key areas of the project area, where the main threats have been identified.

Mapping activity was performed using GIS tools, was continued with field data collection, and completed with the validation of spatial models. Initially, all raw data sets (land characteristics, topography, altitude, distance from towns, roads, railways, points of feeding, etc.) used in the analysis of brown bear's habitat degradation and fragmentation, were collected and digitally processed. These data were supplemented with GIS data on the conservation status of habitats, bear presence signs, road and railway accidents locations etc, collected during field activities. All data were centralized in a GIS database created in a different activity of the project.

The next step was defining core areas so that they include the Natura 2000 sites selected in the project, national parks and areas with highly favorable habitat conditions, that have a good chance to be long-term preserved. Between these areas were generated potential ecological corridors. These corridors were prioritized, linking all the priority corridors. The selected corridors were correlated with the road and railway network in order to highlight the potential hot-spots that may affect the connectivity of the Natura 2000 sites included in the project and other areas of high quality habitat. 11 such areas were identified, where action should be taken in future conservation or restoration of ecological connectivity. These hot spots were analyzed in detail by generating corridors based on high resolution maps and their SWOT analysis was performed.

Field activities allowed the collection of important data from these areas (direct observations, bear tracks and presence signs, road and railway accidents, damages), which served to increase the credibility level for the mathematical model. All identified barriers that could prevent or hinder the movement of animals through the critical areas were used to generate complex map representing the cumulative effect of ecological barriers.

As a result of habitat fragmentation analysis based on mathematical studies, by using GIS methods, a significant increase in the degree of fragmentation was observed.

The gathered information was made available to authorities in order to optimize the process of approval, authorization or implementation of various activities and projects. As a final result, was developed and approved by a central authority the "*Practical guide for preventing brown bear's habitat degradation and fragmentation and ensuring the connectivity of Natura 2000 sites in Romania*", which was distributed to those institutions that by their activity can ensure the maintenance or improvement of brown bear's habitat quality.



Effective protection system against wild animals attacks

It can be seen that the protection system of a sheepfold, crops, beehives or orchards, even if can not replace a proper management of habitats and species, is part of the complex measures needed to be implemented in order to ensure long term brown bear conservation. From this perspective, encouraging the implementation of effective practices for protection against predation was considered a conservation action applied in order to maintain bear acceptance by locals, at a level where social pressure will not be a hindrance. The demonstrative application of effective protection methods, had the role to promote a range of modern systems for the protection of farms, crops and households. Also, the activity aimed to reduce the level of damage in the project area. Thus, a total of 124 protection systems were installed throughout the project area. As the main objective of this activity was promoting the protection systems, in situations where the beneficiary proved to be a good promoter and a reliable person, benefited repeatedly of the fence installation services. As a general principle, the fences were installed in locations where in the early "livestock damages season" (May-June) damage occurred or there were attempts. Part of the equipment was installed in autumn, for demonstrative purposes, to crops and orchards. In 2010-2013, most protection systems were installed in sheepfolds and cattle farms. In some cases, the protected farms had more than one characteristic activity (e.g. farms with sheep, goats and beehives). Since the project aims to promote several types of damage prevention methods was preferred, based on the objective's characteristics, the implementation of mixed systems consisting of electric fence, as base system, and audio, visual or olfactory methods. Each system has been monitored, being checked for new damages and the conditions under which the damage occurred, in order to improve the protection of farms and households.

The real value of the installed systems is the demonstrative character and the fact that the beneficiaries were a model for other farmers in the area. Also, the project's team involvement in reducing the damage had a social impact, the team being constantly informed on the issues that appeared.

Based on the damage analysis and previous experience was created the "*Methodology for the implementation of crops, livestock and apiaries protection systems in order to reduce damages produced by bears*". The methodology was designed to inform farmers on ways in which damage can be reduced.



Analysis and Intervention Teams

RAT

On the entire project area, bear habitats overlap with human settlements and areas used for crops and livestock. This situation, together with habitat degradation, trophic resources loss and the lack of reaction from Hunting Funds managers, led to major conflicts. The level of bear damage, to the entire area of the project, was considered the highest in Romania, due to the existence of the largest concentration of bears in the Carpathians. In general, most affected by damages were orchards, crops, livestock farmers and beekeepers located in the close proximity of bear habitat. Thus, to ensure bear-human coexistence, in the project was created a "team for the analysis of risks raised by the presence of bears in inhabited areas" (Risk Assessment Team - RAT). The team's main role was to support authorities and organizations responsible for bear management, to take correct decisions in conflict situations arising in the vicinity or within communities.

During project implementation the team participated in 52 cases (14 in Vrancea County, 15 in Covasna County, and 23 in Harghita County) in which it was necessary to conduct a contextual assessment, due to damage caused by bears.

Based on the experience gained in these 52 cases was created the "*Methodology for the assessment of risks raised by the presence of bears in inhabited areas*", with recommendations on working procedure and criteria by which risk assessment can be made.

ARMU

Without the ability to capture, tranquilize and relocate problematic bears, they are most commonly killed, thus affecting the population structure.

Expansion of range and specifics of the Animal Rescue Mobile Unit (ARMU) assumes the possibility to provide specialized interventions in the entire project area, based on the requests of Forest Management Units and Protected areas managers, or local authorities regarding problematic or habituated bears. Thus ARMU, originally created and developed in the previous project LIFE05/NAT/RO/000170, within EPA Vrancea, has expanded its activity in Covasna and Harghita counties, participating in bear's captures (in situations where relocation has been considered as a solution), releasing them from snares, or taking other species of wild animals kept in captivity and releasing them after a period of rehabilitation. From 2010 to 2013 ARMU team intervened in 17 cases of bears captured in illegally placed snares.

At the request of the RAT team, ARMU team participated in six relocating actions of 9 bears. During the same period ARMU team and the Association for Nature Values Conservation, from Balan locality, contributed to the rehabilitation of 37 orphaned or abandoned bear cubs that have been or are in the process of being released into their natural habitat.



Protecting den sites

During implementation of conservation actions, one of the activities aimed to locate bear den sites, in order to analyze the behavior of bears during winter sleep and to establish protection measures for dens and cub rearing periods. The purpose of this activity was to ensure the fulfillment of Habitats Directive's objectives. As a result of this work, den distribution maps were created and authorization procedures for activities developed in dens areas will target also to include specific measures for their protection.

Taking into account that the database has a dynamic character, and that locating wintering areas and den sites is a continu-

ous process, the information regarding these aspects was updated throughout the entire period of project implementation. The continuity of this activity is ensured also by the requirements of other monitoring methods that assume field work (for example: camera trapping, transects).

Assessment of dens and den sites led to mapping and recording in the database a total of 76 dens and 64 den areas. All data categories concerning wintering areas and bear dens were structured in a GIS database, assuring any type of correlation with other GIS datasets. The dynamic character of the data determined the continuous reconfiguration and update of the bear den layers,

on the entire area of project implementation and neighboring areas.

All data collected in this action was correlated with other sets of information, as well as those provided by the GPS GSM collars fitted to monitor bears. After processing the data a series of annual reports on brown bear winter sleep were filled out.

All information related to spatial data obtained during the LIFEURSUS project were registered into a GIS database that was developed with a component of public access, for those interested in brown bear conservation. The portal designed for the general public can be accessed at: <http://www.lifeursus.carnivoremari.ro/baza-de-lata-gis.php>. The available maps show the distribution of damages, accidents, areas with dens, areas where bears were the ARMU team managed to save bears caught in a snare.

Guidelines and methodologies created can be found on the project's website in the section *Reports and products* (<http://www.lifeursus.carnivoremari.ro/rapoarte-si-produse.php>) or on the website of the Ministry of Environment and Climate Change.



Awareness campaign

Promoting the objectives and outcomes of the project was an essential condition for the success of the project, numerous meetings with various institutions interested in the project being organized in Vrancea, Covasna and Harghita. Following these events, a series of articles were published in the local and national media, and interviews were broadcasted on TV and radio stations. Several promotional and educational materials were designed and distributed to target groups.

Team members, from EPA Vrancea, created the project's webpage www.carnivoremari.ro/lifeursus entitled "Best practices and demonstrative actions for the conservation of *Ursus arctos* species in the Eastern Carpathians". The page can be accessed from www.carnivoremari.ro which contains information on previously implemented LIFE projects: LIFE 8576 and LIFE 000170. Information regarding all three large carnivores' species from Romania (bear, wolf, lynx) is also available on this webpage, and on the Romanian version of the website can be found: a GIS geoportal, articles from National Geographic magazine, a portal dedicated to volunteering, and a blog.

While promoting brown bear conservation actions and methods to reduce conflict, target groups (locals, tourists, students and the media) in the three counties received information about all the activities, and banners were installed in 50 locations in protected areas. The project team held meetings with local authorities and stakeholders, and produced the toolkit for species conservation (brochures, handouts, DVDs). The activities to promote best practices and actions to protect wintering and den areas, and to reduce causes of bear cub abandonment consisted in increasing the awareness of the target groups on the importance of maintaining a low degree of disturbance during winter sleep and cubs rearing.

This was achieved by designing 3 different brochures, with precise messages, for each target group.

Explaining the concept of Natura 2000 has proven to be an important element for the implementation of the European network of protected areas. Managing an educational campaign on the theme Natura 2000 sites was an important step to get people's support when it comes to the European network of protected areas, providing, at the same time, new insights into the problems of large carnivores: large carnivores-human coexistence in a protection system already tested. An ample educational campaign to promote Natura 2000 sites was implemented in the counties of Vrancea, Covasna and Harghita.

As for the promotion of local traditional products, this was achieved by using standard "bear friendly" labels specially designed for the project, as a statement from local producers regarding their peaceful coexistence with bears. The main goal of this activity was to increase the interest of both buyers and those who have mini markets to buy the "bear friendly" products.

In this manner local producers are determined to change their hostile attitude towards the species which indirectly helps them to value their products. Likewise, products originating in all 15 Natura 2000 sites of the project area, will be valued. Certifying that these products come from a Natura 2000 site (with the help of "made in a Natura 2000 site" label), where the manufacturer uses only the techniques of production and manufacturing friendly towards the species and natural habitats, will increase direct interest of buyers, while improving the image of protected areas among the locals.



After LIFE

Project actions were mainly related to field activities for species monitoring by different techniques, aiming to provide a better cost/efficiency ratio compared to other nationally applied methods, and to activities related to poached bears rescue or habituated bears relocation, by using nationally and internationally recognized methods. The results can be used in other situations, similar to the project.

Applying, on a sample of Forest Management Units, the best methods to assess bear population size, were purely demonstrative and experience and results will be extrapolated to national level. The guidelines developed in the project and approved by the Ministry of Environment and Climate Change will be used at a large scale.

Reducing conflicts between brown bear and locals through the use of electrical systems and repellent techniques for crop protection, orchards, livestock and beekeeping farms, on the entire project area, is considered to have a long term impact, the farmers being able to test methods that allow coexistence with the brown bear. Replication of these techniques to more than 120 project areas had a significant impact in terms of bear-local communities coexistence by ensuring to people the availability of effective methods to

prevent and reduce future damage caused by wild animals.

Effective protection of dens during farrowing and rearing has also an impact at the end of the project, the methods applied to a small scale (in the three counties) being imposed nationwide.

Development of the Center for Orphan Bear Rehabilitation, to adequate scientific levels, gave the possibility to create a highly effective way of rehabilitation and "rewilding" orphan bears. The techniques developed can be implemented in all countries with populations of brown bear, especially in countries where relocation and release of individuals is recommended to maintain a viable population. The character of this action is innovative both for Romania and for Europe.

Activities implemented under this project required reduced financial means, so their reliability in other species management units could be performed with minimal funds.



Conclusions

By implementing this European project, under the LIFE logo, a set of best practices and demonstrative actions was applied; part of the methods used in this process were previously applied in LIFE Nature projects implemented in Vrancea or in other national and international regions. Thus, concrete conservation actions, such as: poached bears rescue, relocation of habituated bears, rehabilitation of orphan bear cubs (with the help of ARMU team interventions), effective protection of dens and bear cubs rearing sites or reducing the culling quotas, as a result of Risk Assessment Team (RAT) activities - were followed by a slowdown in the numeric regression of brown bear and an expansion of brown bear habitat in Romania. The attention paid by the rescue team members to animals in distress and relocating the problematic bears was a way to demonstrate to the locals that there is a real interest in species conservation and that there are alternative methods to solve human-bear conflicts, besides killing the problematic animals. Activities implemented by the RAT team contributed both demonstratively and practically to highlight the negative aspect regarding the current interest of Forest Management Units managers to increase the number of damages, in order to receive a higher culling quota.

Implementing awareness campaigns using educational materials and communication techniques previously checked, proved to be a good practice, their impact being analyzed by applying questionnaires at the beginning and end of the project. The success of the awareness campaign – which targeted actions to promote project activities and outcomes, the importance of wintering areas and bear cubs growth for decreasing of cubs abandonment, the benefits of Natura 2000 sites for the local population and those located in the vicinity of these sites – resulted in an improvement of local people's opinion regarding the presence of brown bears and the existence of Natura 2000 sites, and a better understanding of basic concepts of the European Ecological Network and the need for conservation of the bear population by different means. Stakeholder's participation in the meetings organized in the three counties have shown their interest for Natura 2000 sites and brown bear species and on how to solve problems arising from the overlap or proximity of bear's habitat to areas inhabited or used by humans. Using and promoting the concept of "bear friendly" products or those originating in Natura 2000 sites has improved the image of the species and protected areas among local communities.

Implementing the project activities in the core area of brown bear population in Romania provided a significant decrease or neutralization of the threats identified in this area, certainly helping to ensure the species conservation status at national level.



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