Project

LIFE DINALP BEAR:

A PROJECT TO INCREASE TOLERANCE TOWARD BEARS THROUGH CONFLICT MITIGATION AND THE DEVELOPMENT OF A POPULATION MANAGEMENT APPROACH

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1. Introduction

The LIFE DINALP BEAR project started in 2014 and has a duration of 5 years. Nine partners from Slovenia, Croatia, Italy and Austria joined forces, successfully applied to European funding and started to work on the project, coordinated by the Slovenia Forest Service. The project focuses on the northern Dinaric and southeastern Alpine brown bear population (Fig. 1).

The LIFE DINALP BEAR project has three main goals:

i) Population-level monitoring, management and conservation of brown bears in northern Dinaric Mts. and south-eastern Alps

One of the main objectives is to overcome the current local-scale practices of brown bear management and pave the way for a transition to population-level conservation, management and monitoring. We will establish a tightly-knit transboundary network of professionals involved in these issues, optimize monitoring methods and their application, initiate and start long-term transboundary monitoring, and provide first baseline data at a large-scale, transboundary level. We will create communication and data exchange channels required for such high-level cooperation, and provide expert and legislative backing. This will be one of the first efforts in Europe to start a transboundary management of a large carnivore, an idea endorsed and promoted by the European Commission through its "Guidelines for Population Level Management Plans for Large Carnivores", but that has rarely been achieved in practice. This goal will be achieved through implementation of the guidelines into national strategic documents that are the baseline for bear management.

ii) Promotion of natural expansion of brown bears from the Dinaric Mts. into the Alps

While habitat modelling has shown that the Alps are capable of supporting a bear population and the small reintroduced population in Trentino is thriving, natural expansion is slow. We will use a multidisciplinary approach to look into this issue and try to understand the social and physical barriers to expansion, and the corridors that need to be protected. We will provide solutions to slow down further habitat fragmentation, increase acceptability of bears in the areas where they currently aren't permanently present, but where we expect the expansion to occur, and decrease traffic mortality, while helping to resolve human-bear conflicts, as well as addressing monitoring and management issues.

iii) Decrease of human-bear conflicts and promotion of coexistence

We will explore what drives conflict "hot-spots", and use non-lethal solutions to provide best practice examples. We will demonstrate solutions to prevent bears from consuming anthropogenic food, and explore carrion from road-killed game species as an alternative natural source of protein. We will promote bears as an eco-tourist attraction. We will assess public attitudes towards bears, and use this for targeted educational and promotional activities to enhance understanding of this species and promoting coexistence.

2. Conflict mitigation and protection of human property

Within this article, we are focusing just on the part of the LIFE DINALP BEAR project where we are addressing prevention damages and prevention of bear access to anthropogenic food sources. These attract bears, and often result in habituation of bears to human presence (Jerina et al., 2012). On the other hand, bears can cause significant damage on human property

Fig. 1. Intervention area of the LIFE DINALP BEAR project in the Alps and the Dinaric Mts.

Food remains in regular garbage bins are easily accessible to bears, so they can attract bears into the vicinity of human settlements. Photo: Andrej Sila.

in the project area (Jerina et al., 2015). In all these cases, our goal is to prevent bears from approaching any kind of anthropogenic food sources. Two actions of the LIFE DINALP BEAR project directly address this issue and will be described in detail.

2.1. Access of bears to anthropogenic food sources in or in the vicinity of human settlements.

When such food sources are repeatedly obtained in close proximity to human settlements, bears eventually lose their fear of people (habituation to human presence), and sometimes even start to relate human presence with food (food-conditioning). This leads into ever more severe conflicts, often ending with the shooting of the problematic bear. Bears approaching settlements and causing potential threat to human safety also represent the most commonly reported human-bear conflict type in the region (Jerina et al., 2015). Therefore, preventing the bears from using anthropogenic food sources in close proximity to human settlements is a crucial part of the conflict prevention campaign.

Due to the variety of anthropogenic food sources used by bears in the project area (Jerina et al., 2015; Groff et al., 2015), this goal is extensive and demanding. Demonstrations on how to effectively protect human property such as small livestock and beehives and how to prevent access to food sources around villages (especially garbage, slaughter remains and other organic waste, fruits and poorly protected small livestock) are therefore one of the central points of the LIFE DINALP BEAR project. Through installation of proper protection measures, we are planning to considerably reduce the frequency of human-bear conflicts in the pilot areas, improve tolerance among local inhabitants and consequently ensure long-term survival of the species. Activities are primarily designed to demonstrate through best practice examples that it is possible to coexist with bears. At the same time, we expect that these non-lethal mitigation measures will considerably reduce the number of conflicts in the project area, as we will focus on locations where conflicts are greatest and most frequent.

Proposed measures such as bear-proof garbage and compost bins are currently (except in the Trento region) not used by local people and wildlife managers, because of the lack of information and prejudices, lack of will and/or financial limitations (e.g. not many people are even aware of the existence of bear-proof garbage containers). Therefore the application of measures that prevent bears from accessing anthropogenic food around settlements is not only important because of

the direct reduction of conflicts, but even more as a demonstration of possible technical solutions and their effectiveness, which may later lead into region-wide changes in human behaviour and conflict prevention by local authorities. We expect that demonstrations of best practice examples will lead to considerable change in future conflict prevention management throughout the region, as local people will realize the real causes of their problems with bears and how they can effectively prevent them by behaving more responsibly.

The core area of the implementation of these mitigation measures is in Slovenia, where bear studies with the use of telemetry have shown that organic waste (e.g. slaughter remains, garbage, food left-overs, rotting fruits) is probably the most important attractant for bears in the vicinity of human settlements (Jerina et al., 2012).

Within the LIFE DINALP BEAR project we already made a detailed analysis of the conflicts (Jerina et al., 2015). Based on this analysis and the willingness for cooperation by the local authorities, we will choose 5 hot-spots with high conflict rate in local rural communities. We will make a list of all garbage containers that could be accessed by bears. We will upgrade or replace the most critical containers in the chosen hot-spots in order to make them bear-proof. Before setting them in the field, we will test the containers in the Ljubljana ZOO bears' enclosure (as part of the demonstration). In the field, we will replace or modify at least 100 garbage containers of different sizes at chosen conflict hot-spots.

In rural Slovenia almost every house has a garden and a compost bin. Organic waste is often discarded in these compost bins and consequently they can become very attractive for bears. We will construct bear-proof organic bins and distribute them among selected communities and households.

Besides garbage and compost bins, illegal rubbish dumps, especially in the vicinity of human settlements, are some of the most important attractants for bears. The problem is even greater because of the disposal of slaughter remains on such dumps, which have been shown to be especially attractive to bears. We will lo-

Bear-proof garbage bins prevent bears to access food remains on highways in Croatia. Photo: Matija Stergar.

People in Slovenia often dispose of organic waste in compost bins in their backyards. Bear-proof compost bins prevent bears to gain access to this easily accessible food source in the vicinity of human settlements. Photo: Rok Černe.

cate such sites during surveys with local inhabitants and during field-checking of GPS locations of collared bears near settlements. Within the LIFE DINALP BEAR project 22 bears will be collared. Locations of illegal rubbish dumps will be reported to the responsible inspection services and removed, with information given to the media to inform the general public.

Support and direct involvement of local authorities, opinion leaders and a broader local public will be crucial for the implementation of these measures. To ensure this, we will hold meetings with local authorities and workshops for local inhabitants. We will explain the importance of implementing these prevention measures for the safety of local inhabitants and the prevention of habituation of bears to human presence.

2.2. Proper protection measures to reduce damages on human property

The most commonly damaged property in the project area is livestock, beehives, orchards, fields, gardens and silage bales. Beside the loss or damage of property, these locations also act as additional attractant for bears to approach human settlements and can cause bear habituation to human presence and food-conditioning. We will use different protection techniques, with the main focus on electric fences. Livestock guarding dogs will be also promoted for the protection of small livestock. The project will place great emphasis on intensive work with the people that receive the protection measures.

2.2.1. Implementation of electric fences

Electric fences are one of the most important protection measures that are commonly used in the protection of livestock and other human property from damages caused by bears (Kavčič et al., 2013). Experience from Slovenia shows that simply distributing electric fences is not enough for preventing damage on livestock (Kavčič et al., 2013). We observed improper use of the donated electric fences in the LIFE SloWolf project and as consequence possible continuation of damage (Kavčič et al., 2013). Regular presence of electric pulses of at least 5 kV and proper maintenance

Beehives can be effectively protected by using electric nets or wired electric fences. It is crucial that pulses of strong electric current are present in the fence 24 hours a day all year long. Photos: Tomaž Berce, Matej Bartol.

of fences has been shown to be crucial for effective damage prevention. Regular work with farmers who receive donated protection devices and elimination of mistakes is crucial for preventing of damage occurrence. Without proper maintenance of the fences, damages can continue to occur (Kavčič et al., 2013). As a result the belief that electric fences are not an efficient protection measure and that nothing short of lethal control can be done for damage prevention could easily spread among farmers.

Therefore, in the LIFE DINALP BEAR project we will not just donate electric fences to the farmers who have damages. One of the crucial parts of our work will be to maintain regular contact and to work with selected livestock breeders. We will not only help and give advice to farmers and other affected property owners, but will also gather feedback from them with a view to improve our knowledge about their daily experience. Donations of the electric fences will be carried out in Slovenia and in the Italian Regione del Veneto.

2.2.2. Promotion of livestock guarding dogs

Livestock guarding dogs (LGDs) are a traditional and effective method for damage protection (Smith et al., 2000; Otsavel et al., 2009), that has been almost entirely abandoned in Slovenia and the SE Alps. Within the LIFE SloWolf project, we already donated guarding dogs to some interested sheep breeders in Slovenia and started to educate individual breeders on how to properly raise them. However, this action had a very limited scope and affected only selected breeders. In the LIFE DINALP BEAR project, we will build upon this foundation and establish breeding lines of working LGDs in Slovenia and in the Italian Provincia Autonoma di Trento. We will find and select at least ten motivated livestock breeders with interest and competences to develop such working lines of LGDs. Another requirement will be to bring up the LGDs among livestock and ensure the bonding with livestock since the pups are born. The breeders will also become future volunteer advisors in LGDs upbringing, and later follow up on the dogs placed with their new owners. Advisors will monitor the progress and report back to the LIFE DINAL BEAR project experts which will collect this information and provide additional advices if necessary.

After the selected livestock breeders receive pups and raise them successfully as guarding dogs, they will start breeding the animals in accordance with the legal demands (appropriate age – i.e. minimum 17 months), and develop an adequate breeding program following expert guidance from the DINALP BEAR project team and chosen dog breeding association. Experts will provide them with continuous support.

Proper training of LGDs has to be regularly checked and appropriate advices must be given to the users, to ensure an acceptable upbringing of the dogs. Guarding dog breeders have to be regularly visited by LGD experts and proper advices and suggestions have to be given directly in the field. We have to carry out regular contact out with the farmers. When a particular user reports a problem, immediate help and advice is provided. Without such guidance in problematic situations a belief that dogs are an inappropriate or even inefficient tool for protection of livestock can spread.

Sheep are approaching the high electric net (height 1.7 m) where they will spend the night. During the day, the sheep graze within the lower, 1 m high electric net. Photo: Rok Černe.

3. Conclusions

Until the beginning of the LIFE DINALP BEAR project the main focus in a large part of the project area was restricted to curative measures. Compensations for damages were and still are paid and effective intervention teams are established. Less attention has been given to preventive measures. For successful management of bears it is crucial to install proper prevention measures with which to prevent the emergence of conflicts.

When implementing and distributing prevention measures such as bear-proof garbage and compost bins, people living in the area must be made aware why these measures are implemented and how they work. Without local understanding of why bear-proof garbage or compost bins are set into the communities, the scope of the implemented preventive measures would probably be very limited.

Experiences from Slovenia, gathered during the SloWolf project within which fences and guarding dogs were distributed, also show that problems occur regularly (e.g. guarding dogs may kill sheep or fences may have lower voltages than required) (Kavčič et al., 2013). Such cases must be well assessed and explained; otherwise it may quickly be assumed that the implemented protection measures are not efficient. Therefore, one of the crucial aspects of the LIFE DINALP BEAR project and of similar conservation actions is to actively work with the farmers. In addition it is crucial to provide them with proper protection tools and to transmit proper knowledge for ensuring their efficient use and therefore propitiate the success of the project.

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